# AN EVALUATION OF FINANCIAL PERFORMANCE OF THE KENYAN BANKING SECTOR FOR THE PERIOD 1987 TO 1999

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# DECLARATION

**This Management Project is my original work and has not been presented for a degree in any other University**

**SIGNED:**----------**DATE**---14/03/2001---

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**This Management Project has been submitted for Examination with my Approval as University Supervisor**

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# DEDICATION

This study is dedicated to my Mother Rael N. Kathanje (Mrs) and Master Brian.

**May God bless them.**

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# ABSTRACT

This study set out to achieve the following three objectives:

- To evaluate financial performance of the Kenyan Banking Sector during the period 1987 to 1999 using financial ratio analysis,
- To determine whether the financial performance in the Pre Liberalisation period (1987- 1992) is significantly different from performance in the Post Liberalisation period (1993 - 1999),
- To formulate a Performance Predictive Model for the Banking Sector using the data for the period under consideration.

Secondary data obtained from financial statements and various publications was used in the study and data was analysed by use of Microsoft (Ms) Excel Statistical package.

On financial performance evaluation of the Banking Sector, the study observed an improved performance over the period with better performance in the sector noted in the Post Liberalisation period. The performance in the sector as measured by (Z) was low in the Pre liberalisation period but improved thereafter. The result of the study led to the conclusion that liberalisation in the Kenyan Banking Sector positively influenced performance and was better for the economy. A discriminant analysis revealed that three financial ratios; Liquidity, Gearing and Earnings have the greatest influence on the sector's financial performance.

Based on the ratios computed in this study, a performance predictive model for the Commercial Banks and Non- Bank Financial Institutions was formulated using regression analysis. The model helped to explain the effects of performance ratios (Gearing, Liquidity, Earnings and Asset Quality)

to Overall financial performance of each institution. This model can be used to signal performance trends in the sector paving way for a further detailed financial evaluation aimed at unearthing the financial problems in the respective institution.

The models developed for the peer groups revealed that no significant difference exists among institutions in different peer groups. An institution in one peer group is as prone to failure as any other in a different peer group.

The study is organised in five chapters as follows: Chapter one gives the introduction of the study by giving the structure of the Banking system, the background information, licensing procedures, powers of the Central Bank of Kenya, evolvement of the banking institutions in Kenya, statement of the problem, objectives of the study and significance of the study. Chapter two deals with the Literature Review by outlining the theoretical and structural frameworks. Research Design is outlined in chapter three dealing with the population and sample for this study, data collection techniques and data analysis. Chapter Four details the data analysis by discussing both trends and statistical analysis. Finally, conclusions, summary, limitations of the study and recommendations for further research are outlined in chapter five.

## 1.00 CHAPTER ONE: INTRODUCTION

## 1.01 DEFINITION OF TERMS

The following are the descriptions of some terms used in this study:

1. Banking Sector

For the purposes of the study this term refers to Commercial Banks and Non- Bank Financial Institutions (NBFIs) licensed to operate banking business in Kenya.

2. According to the Banking Act Chapter 488:

i. a "Bank" means;

"a Company which carries on, or proposes to carry on, banking business in Kenya and includes the Co-operative Bank of Kenya Limited but does not include the Central Bank."

ii. a "Financial Institution" or "Non-Bank Financial Institution" means;

"a Company, other than a bank, which carries on, or proposes to carry on, financial business and includes any other company which the Minister may by notice in the Gazette declare to be a financial institution for the purposes of this act."

iii. an "Institution" means;

"a Bank or financial institution or a Mortgage Finance Company."

iv. "Financial Business" means:

(a) "the accepting from members of the public of money on deposit repayable on demand or at the expiry of a fixed period or after notice; and

(b) the employing of money held on deposit or any part of the money, by lending,

investment or in any other manner for the account and at the risk of the person so employing the money."

3. Bank Failure and Bank Crisis

De Juan describes a failed bank as one which is insolvent, largely identified by Bank examiners or when their creditors take action against them while Tomas (1991) describes Financial crises as a situation in which a significant group of financial institutions have liabilities exceeding the market value of their assets leading to runs on the financial, portfolio shifts and collapse of some financial firms.

4. Performance

This is taken as the predictive value for a financial institution's performance. It is obtained by a factor of four ratios:

Z (%)=Gearing ratio (%)*Liquidity ratio (%)*Earnings ratio (%)*Asset Quality ratio (%)

Where,

Gearing ratio (%)=Capital/Total Deposits

Liquidity ratio (%)=Liquid Assets/Net Liabilities

Earnings ratio (%)=Earnings/Total Assets

Asset Quality (%)=Total loans/Total Assets

The formula was used to obtain composite annual financial ratios for each institution and gave an indication of the financial strength of the institutions.

5. Capital Adequacy

Capital adequacy indicates the extent to which an institution's capital base covers the risks inherent in its operations. The capital acts as a cushion against losses, which cannot be supported by current earnings. Further capital acts as evidence to the creditors of the willingness of the shareholders to commit their own funds on permanent bases to the institution. Capital therefore, is a source of public confidence in the institution. The Banking act specifies the minimum Gearing ratio (capital to deposits) of 7.5% that each Banking institution in Kenya must maintain. The act also specifies the minimum paid up capital base that a bank must have. Important capital adequacy ratios include:

- Shareholders' equity to total assets
- Shareholders' equity to total loans
- Shareholders' equity to total customer deposits (Gearing ratio)

6. Asset Quality

This performance indicator incorporates together all the risk aggregate ratios. In the Banking system, loans and advances form the greatest proportion of banking institution assets. The same present the greatest risk in terms of potential loss exposure. Important asset quality ratios include:

- Non-performing loans to total loans
- Total loans to total assets

7. Earnings

The earnings of an institution play a vital role in an institution namely absorbing loan losses arising from provisions for bad debts. This consequently protects the capital base from erosion in circumstances where profits are not adequate to cover the bad debts, financing the internal growth of equity, which subsequently determine the growth rate of assets. This helps to cushion the deterioration in the ratio of equity to assets; improves the investor rating of the institution who would consequently supply new capital base to the institution when need arises. The dividends are distributed to the shareholders from the earnings of the institution. In an institution, an excessively high return on assets can at times be an indicator of excessive risk taking behaviour which is potentially dangerous to the stability of an Institution while an extremely poor earning performance could be an indicator of a problem in the institution especially existence of non-performing loans. Important earnings ratios include:

- Total income to total assets
- Total income to paid up capital
- Net assets to total assets

8. Liquidity

This indicates the daily ability of an institution to access cash easily by accommodating maturing obligations and allowing for expansion in assets. The liquid assets are easily convertible to cash in a relatively short period such as 90 days. The Banking act in Kenya describes liquid assets as: notes and coins which are legal tender in Kenya, balances held at the Central Bank, balances at other banks in Kenya, after deducting there from balances owed to other banks, balances at banks abroad withdrawable on demand or short notice and money at call abroad after deducting there from balances owed to banks abroad, Kenya treasury bills and bonds of a maturity not

exceeding 91 days which are freely marketable and re-discountable at the Central Bank, other assets specified by the Central Bank of Kenya. The act stipulates the minimum ratio between deposit liabilities to liquid assets, so as to enable them meet their maturing obligations as they fall due. Important liquidity ratios include:

- Quick assets to total deposits
- Quick ratio

## 1.02 STRUCTURE OF THE FINANCIAL SYSTEM

Depository institutions in Kenya comprising Commercial Banks, Non-Bank Financial Institutions, Mortgage Finance Companies and Building Societies are registered under the Banking act except the Building Societies that are registered under the Building Societies act. By the end of December 1999 the Kenyan Banking system comprised 53 Commercial Banks of which 4 were under Central Bank of Kenya Statutory management while one was not operating, 11 NBFIs of which one was under Central Bank of Kenya Statutory management, 4 Building Societies, 2 Mortgage Finance Companies, and 48 Foreign Exchange Bureaus (Central Bank of Kenya Jan 2000 MER). The number of the institutions has grown significantly since independence. The growth both in size and structure is a reflection of the policies pursued by the Government through the Central Bank of Kenya. The legal framework in respect to commercial banks and NBFIs; basically the Banking act and the Central Bank act has been consistently reviewed and amended so as to create an environment conducive to operating banking business in Kenya. The changes have always been made to reflect the Government policies on the growth of the industry. These amendments have been driven by the need to have a free market economy after substantive policies geared towards a liberalized economy were adopted in the period 1992-1994.

Depository institutions in Kenya by their operational nature mobilise deposits from the public and use the deposits to advance loans to various economic entities. The Central Bank of Kenya on its part is legally charged with the responsibility of implementing the Monetary Policy (Central Bank of Kenya amendment act). According to (CBK 2000) the policy is better implemented through the banking system, where the institutions act as conduits of transmission The tools of Monetary Policy include use of cash ratio requirements, rediscount windows at the Central Bank, Open Market Operations, overnight lending to commercial banks and moral suasion to help influence the quantity, cost and availability of liquidity to the economy.

Gatonye (1989) identified the three crucial roles of banking industry in Kenya's economy as; financial intermediation between savers and borrowers that entails mobilisation of resources from entities with surplus funds and channelling them to the deficit areas, implementation of Government policies by way of money supply management using instruments of Monetary Policy namely cash ratio requirements, Open Market Operations and rediscount windows and facilitating the flow and interactions of various economic activities.

George (1997) identifies banks as institutions that have some key distinguishing characteristics particularly taking unsecured public deposits. The paper underscores the fact that banks solely depend upon public confidence and any suggestion that a bank may not meet its liabilities can very likely lead to panic deposit withdrawals. This would consequently lead to suspension of payments due to inability of the concerned institution to meet liquidity demands. This insolvency state of the bank can easily spill over to banks that transact business with the affected one leading to a contagion effect. The interbank payment system, which is the major trading mechanism, exposes banks to the contagion risk as a result of liquidity pressure vulnerability.

## 1.03 BACKGROUND INFORMATION

The Central Bank of Kenya assumes the role of the regulator for banking business in Kenya deriving the legality from both the Central Bank of Kenya act and the Banking act. These two legal documents give the Central bank of Kenya powers to oversee the conduct of banking business in Kenya. The 1996 Central Bank of Kenya Amendment act outlined clearly the broad objectives of Central Bank of Kenya as: "To formulate and implement Monetary Policy directed to achieving and maintaining stability in the general level of prices" and

"To foster the liquidity, solvency and proper functioning of a stable market-based financial system."

The second broad objective of Central Bank of Kenya in the amendment act relates to the financial structure, basically the commercial banks and NBFIs in the way they enter, conduct and exit banking business allowing for a smooth financial system which would enable the implementation of Monetary Policy.

## 1.04 LICENSING PROCEDURES

Banks in Kenya are established and regulated under the provisions of the Banking act Chapter 488 and the Central Bank of Kenya act Chapter 491 of the Laws of Kenya. The Banking act Part II details the comprehensive process of licensing banking institutions in Kenya, which is summarised here below:

- Section 4 outlines the process by which businesses intending to carry out banking business in Kenya have to go through in the application procedures, and the role of the Central Bank of Kenya in processing the application forms.

- Section 5 outlines the role of the Finance Minister who grants the licence subject to the Institution satisfying requirements of section 4 and upon payment of the appropriate licence fee and renewal of the granted licence at expiry.
- Section 6 outlines the powers of the Finance Minister in revoking the licence.
- Section 7 outlines the minimum capital requirements the institution intending to carry out banking business has to meet before a licence is issued. The Central Bank of Kenya reviews from time to time the minimum capital requirements through issue of prudential guidelines to the Banking sector.
- Section 8 outlines the location of the banking business or branches that ought to be within Kenya for any licence granted.

## 1.05 POWERS OF THE CENTRAL BANK OF KENYA

Part VII of the Banking act details the powers of Central Bank of Kenya in inspection and control of financial institutions and summarised here below:

- Section 32 outlines the inspection powers granted by the act to Central Bank of Kenya in carrying out inspection of the commercial banks books and accounts consequently making a report.
- Section 35 outlines the Central Bank of Kenya powers in advising and directing the commercial banks in the event that banking business is being carried in a manner contrary to the requirements of the Banking act.
- Section 34 outlines the powers given to the Central Bank of Kenya to intervene in management of commercial banks incase they are not meeting any financial obligations as they fall due. A manager is appointed to assume management, control and conduct of

the affairs of the business for a period not more than twelve months unless extended by the High Court.

- Section 35 outlines the liquidation of institutions when they become insolvent whereupon the Central Bank of Kenya appoints the Deposit Protection Fund Board to be the liquidator.

## 1.06 EVOLVEMENT OF THE BANKING INSTITUTIONS IN KENYA

CBK (2000) describes development of Commercial Banking in Kenya in two phases, Pre Independence Commercial Banking and Post Independence Commercial Banking.

### 1.06.1 PRE INDEPENDENCE COMMERCIAL BANKING

This started at the turn of the 20th century with the partitioning of Africa by European Imperial Powers. The first institution in the region was the National Bank of India which later became National and Grind lays part of which was bought by to Kenya Government to form the Kenya Commercial Bank.

The banks were attracted by good prospects of a developing economy. However, later commercial banks found the pioneer banks deeply rooted having penetrated the country with their entrenched branch networks leaving hardly any room for new entrants. Majority of the new banks therefore remained small and limited their operations in the major towns.

### 1.06.2 POST INDEPENDENCE COMMERCIAL BANKING IN KENYA

This era was largely influenced by the evolution of Monetary Policy in the 1970's through the 1980's. At independence, the Government felt that commercial banks and other financial institutions were not addressing the country's development needs. It was felt that the foreign owned commercial banks were biased against African farmers and businessmen. In addressing the situation, the Government set out to ensure that there were more banks under its direct control, influence and direction by establishing some commercial banks to serve the needs of the newly independent country. The Government therefore registered Co-operative Bank of Kenya in 1965, National Bank of Kenya in 1968 and in 1971 Kenya Commercial Bank by acquiring 40% shares of Grind lays Bank. The banks expanded their branch network to various parts of the country. By 1970's there were few Non-Bank Financial Institutions operating and consequently the regulatory framework favoured the establishment of NBFIs with lenient entry requirements. With these developments the number of both banks and NBFIS proliferated to over 80 in 1993 according to CBK (2000) but due to problems associated with instability of the system and encouragement of Universal banking and mergers by the Central Bank of Kenya, the number of commercial banks and NBFIS reduced to 58.

Nyamai (1989) traced the history and growth of the banking institutions in Kenya to the trade between East African region on one hand and India on the other towards the end of 19$^{th}$ Century. The study noted that the British presence in the region particularly in Kenya and Uganda led to the establishment of National Bank of India in 1896. Standard Bank of South Africa in 1910 and National Bank of South Africa in 1916. In 1926 National Bank of South Africa amalgamated with the Colonial Bank and Anglo-Egyptian Bank Ltd to form Barclays Bank (Dominion,

Colonial and Overseas). The origin of all these banks was London where their head offices were located in line with the country's development of international trade. National Bank of India, which became the National and Gridlays Bank, operated mainly in India. Standard Bank of South Africa later became Standard Bank with branch network in South Africa. Trade or business links between European, South African and Indian communities enhanced the establishment of banks with networks in the three regions.

## 1.20 STATEMENT OF THE PROBLEM

Meulendyke (1998) observed that depository institutions play a key role in the transmission of Monetary Policy to the financial markets, to borrowers and depositors and ultimately to the real economy. It is noted that the institutions hold a large share of the nation's money stock in the form of various types of deposits and provide for the transfer of those funds to effect the payments that keep the economy functioning. The institutions also lend these funds directly to consumers and businesses for a full range of purposes and lend indirectly by investing in securities. Further, the existence of broad based active financial markets in the United States is very important to Federal Reserve Policy implementation. The markets provide a place where the Federal Reserve can buy and sell Treasury debt instruments in carrying out Open Market operations. The Federal Reserve uses such transactions to make large-sized Reserve adjustments quickly. The book notes that if active markets in financial instruments did not exist, the Federal Reserve would not be able to make Open Market Operations its primary policy instruments and a very different less efficient set of Monetary Policy procedures would have developed. Moreover, without large-scale financial markets the economic conditions addressed by Federal Reserve Policy would barely resemble the complex system that has evolved in the United States since the variety and efficiency of means of borrowing and lending have affected the course of economic development.

Economic growth in any economy is influenced by the way both Monetary and Fiscal Policies are implemented. CBK (2000) notes that a country cannot perform to its full capacity if the appropriate Fiscal and Monetary Policies are not being pursued consistently. The Ministry of Finance in Kenya is in charge of the Fiscal Policy that deals with the management of Government revenues and expenditures as well as how the budget deficit is financed, while the

Central Bank of Kenya is in charge of the Monetary Policy that deals with the management of money supply in the economy. The financial sector forms the benchmark against which the Central Bank of Kenya in the management of money supply largely implements the Monetary Policy. Stability in the sector therefore becomes a very important attribute for promoting an efficient payment system. This stability can be greatly undermined by failures of financial institutions in the sector. The crucial link of the financial sector to the whole macroeconomic system implies that failure of any institution is bad news for the payment system as well as for the economy. The Kenyan economy underwent drastic economic policy changes in the period 1992-1994 geared towards a free economy under the banner of trade liberalisation. The period led to massive financial reforms (Appendix A1.04) impacting on performance and growth in number and structure of the financial system. The reforms led to licensing of more banking institutions while others converted from Non Bank Financial Institutions to fully fledged commercial banks in early 1993 enhancing competition as more market participants joined the banking business. In 1995, the Central Bank of Kenya adopted Universal Banking Policy that led to establishment of more Banking institutions as many NBFIs converted to commercial banks due to lenient conversion procedures (CBK 2000). This resulted in more competitive banking prompting diversification of services and new innovations in trading practices. In 1996, the Banking act was amended giving Central Bank of Kenya greater surveillance. The effects of these changes are expected to have significant effects on banking business the understanding of which would greatly aid future policy formulation and implementation as well as development of the sector. In the period after comprehensive financial liberalisation in Kenya, there were 34 financial failures 26 of which happened in 1993 (Appendix A1.07). Financial failure disturbs the financial link and depository institutions would not be able to adequately mobilise deposits due to loss of confidence of the Banking system by the public. In 1986, the Deposit Protection

Fund was established in Kenya as an effort to instil confidence in the Sector due to financial failures experienced in the early 80s. Experiences in other parts of the world indicate that financial failures take up a sizeable proportion of a country's resources. (Table 1)

**Table 1: FINANCIAL FAILURES IN SAMPLED COUNTRIES**

| | YEAR | COUNTRY | No. Collapsed | COST |
|---|---|---|---|---|
| 1 | 1930-1933 | United States | 9000 | N/A |
| | 1980-1994 | United States | 1000 | $ 132bn |
| 2 | 1980-1984 | Argentina | 71 | 10% of GDP |
| 3 | 1981-1983 | Chile | 16 | 19% of GDP |
| 4 | 1994-1997 | Brazil | 17 | 18% of GDP |
| 5 | 1997-1998 | Japan | 1 | $ 91bn |
| 6 | 1984-1997 | Kenya | 30 | 10% of GDP |
| 7 | 1987-1995 | Tanzania | 1 | 10% of GDP |

**Source: Murugu (1998) "Bank Failures and Supervisory Response".**

On the international scene, the recent financial crises of mid 1990's in the South East Asian economies led to the collapse of markets in the region with spill over effects to the rest of the world, Kenya included. Since then, bank failures have been prevalent the world over. This prompted many countries Kenya included to take corrective measures some of which have been to strengthen the supervisory roles of Central Banks through the implementation of the World Wide Basle core principles of Banking Supervision (Central Bank of Kenya, Bank Supervision 1998 Annual Report).

This study seeks to analyse financial performance of Kenyan commercial banks and NBFIs in Kenya for the period 1987 to 1999. The study is structured into both the Pre (1987-1992) and Post (1993-1999) Liberalisation periods and performs a comparative evaluation of financial performance in the two periods using ratios with the aim of developing a performance predictive model. This model would act as a guide in the industry on the possible trend of financial

performance. For the purposes of this study, the period between 1992 and 1994 is taken as the period when substantial economic policies geared towards trade liberalisation were implemented (Appendix A.104). Performance in the period before liberalisation was under a different policy regime from performance in the period after liberalisation due to the introduction of economic reforms. The impact of financial failures in the Kenyan economy is 10% of GDP (Table 1) thereby consuming a lot of the national resources. In the circumstances, predictive analysis would help to signal performance in the industry and therefore save the country from loosing the much-needed scarce resources.

## 1.30 OBJECTIVES OF THE STUDY

The study was conducted to achieve the following:

1. To evaluate financial performance of Kenyan Banking sector during the period 1987 to 1999 using financial ratio analysis.
2. To determine whether financial performance in the Pre-Liberalisation period (1987-1992) is significantly different from performance in the Post-Liberalisation period (1993-1999).
3. To formulate a performance predictive model for the Banking sector using the data for the period under consideration.

## 1.40 SIGNIFICANCE OF THE STUDY

The findings in this study will:

1. Provide a comprehensive background material on the performance of the Banking sector in Kenya and help to:
   - Form a basis for suggesting policy changes necessary for the Kenyan Banking sector,
   - Serve as vital source of information to the regulatory institutions,
   - Provide guideline information to the International and Development institutions such as International Monetary Fund, World Bank, learning institutions, academicians, researchers and the general public.
2. Provide a useful guide to existing and upcoming consultants in the analysis of the industry and its evaluation.
3. Provide knowledge to investors on how to analyse the performance of the industry when making investment decisions.
4. Guide the managers of the commercial banks on the analysis of performance of the industry.
5. Become a valuable addition to the existing body of knowledge in the Banking industry.

## 2.00 CHAPTER TWO: LITERATURE REVIEW

## 2.01 THEORETICAL AND STRUCTURAL BACKGROUND

## 2.02 RATIO ANALYSIS

Pandey (1997) describes ratio analysis as a very useful tool for use in raising relevant questions on a number of managerial issues. The ratios provide clues to investigate those issues in details. Ratios are calculated from accounting numbers and caution needs to be applied while interpreting them. This is because accounting numbers suffer from accounting policy changes, arbitrary allocation procedures and inflation. Financial ratios indicate relationships between two financial variables helping to ascertain the financial condition of a firm. This is accomplished either through a trend analysis of the of the firm's ratios over a period of time or through a comparison of the firm's ratios with its nearest competitors and with the industry averages.

In non-parametric analysis, Beaver (1966) in his study realised that financial ratios can predict the future of a firm. He compared 79 firms that subsequently failed with the ratios of 79 firms that remained solvent. The institutions that failed had more debt than the surviving firms and a lower return on sales and assets. The firms had less cash, lower current ratios and dramatically lower cash ratio contrary to the popular belief that the failed firms had less rather than more inventory.

### 2.021 CLASSIFICATION OF FINANCIAL RATIOS

The most widely used approach to classifying ratios has been on the basis of personal views of eminent Financial Analysts. It is also the most standard approach in most texts such as Brealey and Myers (1996). Pandey (1997) summarises the ratios into the following categories:

**LIQUIDITY RATIOS:** These ratios are used to measure the ability of the firm to meet its current obligations as they fall due. For analysis of liquidity; cash Budgets, cash and fund flow statements

need to be prepared, and establish a relationship between cash and other current assets to current obligations to providing a quick measure of liquidity. Examples include current ratio and Quick ratios.

**LEVERAGE RATIOS:** These ratios are used to measure the proportion of debt in total financing. That is the extent to which the firm has relied on debt in financing assets.

Examples of ratios in this category include: coverage ratios, debt equity ratios and total debt ratios.

**ACTIVITY RATIOS:** These ratios are also called efficiency ratios and measure efficiency with which the firm manages and utilises its assets. They indicate the speed with which assets are being used to generate sales. Examples of ratios in this category include: inventory turnover, debtors' turnover and assets turnover.

**PROFITABILITY RATIOS:** These ratios measure the overall performance of the firm by determining the effectiveness of the firm in generating profit. Examples of profitability ratios are: gross profit margin, net profit margin and return on shareholders equity.

## 2.022 TREND ANALYSIS

Pandey (1997) describes trend analysis as relating to financial ratios computed over a period of time. The analysis provides enough clues to the analyst for proper evaluation of the financial ratios. While interpreting the ratios for comparison purposes, the policies of the firm over a period of time must be considered. Further, averages of the ratios for several years are most applicable in such analysis.

## 2.023 ADVANTAGES OF RATIO ANALYSIS

The following advantages of ratio analysis are found in many Financial texts such as Brealy and Myers (1991) and Pandey (1997):

- Guides management in formulating future financial planning and policies,
- Throws light on the efficiency of the business organisation,

- Allows for inter firm comparison as well as inter-industry evaluation,
- The analysis allows data to be compared or measured against yardsticks of performance of sound financial condition,
- Ensures effective cost control,
- Provides clarity, perspective and meaning to the data bringing out information not otherwise apparent,
- Measures profitability and solvency of a concern, and
- Helps in investment decisions.

## 2.024 LIMITATIONS OF RATIO NALYSIS

Ratio analysis suffers from the following setbacks:

- Scientific analysis is not possible due to lack of standard values for the ratios,
- As there are no standards with which to compare, the analysis fails to throw light on the efficiency of any activity of the business,
- Provides only relationship between different variables with the actual magnitudes not known through ratios,
- Ratios are derived from the financial statements naturally reflecting their drawbacks,
- Ratios fail to indicate immediately where the mistake or error lies,
- It does not take into consideration the market and other changes e.g. seasonal changes,
- Sets of accounts relied upon for ratio analysis does not show a complete picture of a company's activities.
- Ratios vary enormously between different industries.

## 2.03 MULTIPLE DISCRIMINANT ANALYSIS

The Multiple discriminate analysis is used to classify companies, on the basis of their characteristics

as measured by financial ratios into two groups: those that are likely to fail and go bankrupt and those that are not likely to fail. The likelihood of bankruptcy is associated with financial ratios. Empirical studies by Beaver (1966) identify ratios, which have discriminating power. What is important is the understanding of seriousness posed by low performing ratios and the combined effect of favourable and unfavourable ratios.

Altman (1968) being the first person to apply discriminant analysis in finance to study bankruptcy, identified five ratios: net working capital/total assets (%), retained earning/total assets (%), EBIT/total assets (%), market value of total equity/book value of debt (%), and sales/total assets (times) that were efficient in predicting bankruptcy and developed a model from a sample of 66 firms half of which went bankrupt.

Research comparable to (Beaver 1966) has been carried out in this country by Keige (1991) who was able to develop a discriminant function that was able to predict failure with up to 90% accuracy up to two years before the event. The study identified three key categories of ratios that were crucial to bankruptcy prediction in the Kenyan context as liquidity, leverage, and activity ratios.

Waciira (1999) in his study establishes a linear model to explain the relationship between computed measures of liquidity and three macroeconomic indicators (inflation, NSE Index and interest rates) by use of ratios. He identified four major categories of sectors: agricultural, commercial, financial and industrial in the Nairobi Stock Exchange and found out that there exits moderate to strong relationships between liquidity and economic conditions and that substantial differences in the relationship described above exist as a result of the nature of operations undertaken by the firms which are reflected in their industry classification. The study further establishes that commercial,

industrial and agricultural sectors have responses similar to each other but the financial sector appears to differ significantly from the other sectors.

Financial performance ratios for the Banking sector for the period of 1987 to 1999 (Tables 2 and 10) were derived from financial figures of the commercial banks and classified under the four main independent ratios: Gearing; liquidity; earnings and assets quality. A factor of the four ratios gives the dependent performance ratio for each of the years. The trends in the ratios of the Banking institutions can be used authoritatively to predict the ratio-based performance of an institution. Dambolena and Khoury (1980) discusses the use of ratio variance to evaluate a firm whereby performance is evaluated against certain industrial benchmarks. The purpose of their study is to test for consistency of the firm's ratios overtime in relation to the industry. The study found out that liquidity risk of a variability test on ratios could be established. Greater variability in the ratio indicates that the firm will drop below the threshold of solvency.

Canova (1994) establishes a historical analysis of financial crisis in the US by reviewing various hypotheses that have been put forward to explain the chain of events that leads to a crisis in the financial sector. He observes that banking panics occurred almost simultaneously with financial crisis and Stock Market crashes and traces the roots of such panics to liquidity difficulties experienced by the Business sector. The study attempts to link financial distress to general economic conditions and states that such crises are more likely to occur in seasons when the money market is tight or at the peak of the business cycle when profits are declining. A model from the study on the basis of macroeconomic variables however, yields a poor predictive ability.

Frederikslust (1978) has developed a model for the prediction of corporate failure that attempts

to predict distress on the basis of both a variety of ratios and also industry and economic variables. He introduces import industry variable and the general economic variables on financial distress in the study. Winakor and Smith (1935) in their study on corporate failure concludes that the ratio of working capital to total assets was the most accurate and speedy indicator of failure with its decline beginning as early as ten years before the occurrence of financial difficult. This study however suffered the shortcoming of lack of a contrasting control group and as a result their results are generally not regarded as being conclusive. The earliest credible research however, was conducted by Menoin (1942 that concluded that three ratios were sensitive predictors of discontinuance with a predictive ability as many as five years before the occurrence of bankruptcy. These ratios were working capital to total assets, net worth to debt and the current ratio.

Campero and Leone (1991) notes that Uruguay experienced a severe crisis in 1982 that undermined the stability of the financial sector with far reaching implications for the Banking structure and the real economy in the subsequent five years. The country had implemented broader liberalisation reforms in the 1970s that included among others: removal of trade restrictions and exchange controls and deregulation of the financial markets. The financial markets had evolved under the environment of excessive regulations between 1960s and early 1970s. In 1965, there was a crisis in which the number of bank failures multiplied while in 1971 bank mergers and bankruptcies developed leading to a deterioration of bank assets as a result of high level of interest rates. The economic reforms implied a significant change in past policies and practices. The economic performance in Uruguay improved both in growth and efficiency but liberalisation of the financial markets was at a slower pace inducing capital inflows consequently leading to a build up on borrowing especially in foreign currency. The supervisory techniques and procedures on the other hand remained static in spite of these economic policy

reforms that intensified the crisis.

Bett (1992) establishes a multivariate analysis model for predicting financial failure in the Kenyan Banking system by discriminating against various financial performance ratios. He establishes that financial ratios are able to discriminate between failed and non-failed banks perfectly and so the Kenyan authorities can develop an early warning system to detect future problem banks. The study realizes that liquidity and profitability ratios are significant discriminants and can be used to predict Kenyan bank failures.

## 2.04 PRIOR STUDIES AND FINDINGS

Fischer (1997) discusses the issues of banking soundness as noted by the G-7 summit in Lyon (June 1996) through a communiqué: "The globalisation of the financial markets has contributed to the creation of a more complex financial environment. Better prudential regulation and supervision in the financial markets are essential elements in preserving the stability of the international Monetary and Financial System." He observes that the communiqué welcomes the progress on the strengthening of capital standards for Bank's exposure to market risk, improved disclosure and enhanced surveillance. Fischer further notes that the concern of the G-7 countries arose from the startling frequency, scale and consequences of the Banking crises in the prior ten years when well over half of International Monetary Fund's membership experienced significant banking problems. The spread of the crises was among the United States, Latin American countries, Africa, Asia and Europe. The Fiscal cost of resolving the direct Banking Sector crises amounts to over 10 per cent of GDP in some countries. The crisis forms a challenge to the Authorities that have to try and contain it before hand after realising that a sound Banking system is critical both for economic growth and for domestic and international economic stability.

Kenya has so far experienced three main financial crises (Appendix A1.07): 1989 when 5 institutions failed, 1993 when 14 institutions failed and 1998 when 5 institutions failed. Most institutions that failed in 1989 were restructured and formed the Consolidated Bank, 1993 institutions were all liquidated while in 1998, the three of the five institutions placed under statutory management were restructured while the rest were liquidated. The experience of the three crises led to tightening of the regulatory framework by introducing changes in the Banking act aimed at enhancing efficient operations of the industry and in conformity with the Principles of International Basle Committee on Banking Supervision (CBK Bank Supervision 1998 annual report).

Moon and Bates (1993) evaluates the performance of one of the largest world companies Maxwell Communications Corporation named after the founder Robert Maxwell. They note that the public used to view the financial statements of the company as unreliable, misleading, and fraudulent as they disguised the true financial situation. A trend analysis done found out that the company was profitable but was hampered by excessive debt. The liquidity position of the company had consequently deteriorated overtime leading to a worrying solvency trend as a result of a dramatic fall in interest cover. The survival of the company seemed remote given the recessionary climates in the economy.

Velasco (1991) observes that the process of financial reform in Chile included institutional, regulatory and international aspects. The institutional aspects involved liberalisation of the financial sector from the controls by the Government and leaving it with the private sector. Regulatory aspects dealt with the administration of the legal framework in an attempt to promote rapid growth and increase competition. Various controls on interest rates and credit were

abolished and the Central Bank started paying competitive interest on reserves held by Commercial banks so as to help reduce the cost of holding them especially under inflationary conditions. The financial system consequently moved towards multipurpose banking whereby distinction among commercial, investment, mortgage and development activities was abolished with foreign banks allowed to open branches in Chile and purchase Chilean banks. The process led to wide financial widening as new regulations increased the powers of the Bank supervisory agency. The international reforms dealt with capital flows after the capital account was liberalized allowing capital flows in and out of the country. The reform process in Chile led to tremendous expansion of financial intermediation as financial assets of the country rose consequently the domestic debt expanded especially the stock to the Non-Government sector, which grew from 5% to 61.7% of GDP after the reform process. The financial and the real sectors appeared to be making progress for several years before a major financial crisis developed. By late 1981, the financial system was submerged in major crises with the non-performing assets of banks reaching the level of 22% of capital and reserves. The ratio went up to 47% by end of 1982 and 113% in May 1983. The Government intervened both in November 1981 and January 1983 in an effort to rescue and liquidate the troubled intermediaries. By early 1983, 11 commercial banks including two of the nation's largest private banks and five financial companies were under government intervention or had been liquidated. The paper noted that the crises contributed to a substantial weakening of macroeconomics performance with major readjustments in policies. The Kenyan Banking sector underwent substantial financial reforms in the period between 1992 and 1994. This study tries to evaluate whether financial performance prior to liberalisation was significantly different from performance after liberalisation.

Crockett (1980) observes that the structure of a country's Banking system is frequently shaped by its financial history and the strength of the competing political pressures. He gives the example where the evolution of law and practice regarding banking activity in the United States has been guided by attempts to avoid crises that have arisen in the past and to reflect a codified federal structure embodied in their constitution. Kenyan Banking system has evolved significantly from the early formative stages when only a few banks existed (CBK 2000). By the year 1999, there were 53 Commercial Banks 5 of which were under statutory management and 11 NBFIs of which one was under statutory management. The growth in the institutions as noted by Nyamai (1989) reflects an expansion in the broader macro-economy. According to various CBK annual reports, the legislative framework basically the Banking act has evolved to reflect the growth in number and complexity in structure of the Banking industry.

Sundararajan and Tomas (1991) describe financial crisis as a situation in which a significant group of financial institutions have liabilities exceeding the market value of their assets, leading to runs on the financial institutions, portfolio shifts, and collapse of some financial firms. The paper notes that borrowers in Argentina became unwilling or unable to pay their loans and were willing to rollover these loans even at high real rates since they expect to be bailed out eventually. The demand for loans was rising in real terms because of the rising real cost of credit. The paper further describes the crises as a situation in which an increase in the share of non-performing loans, an increase in losses (because of foreign exchange exposure, interest rate mismatch, contingent liabilities etc.) and a decrease in the value of investments causes solvency problems in the financial system leading to liquidation, mergers or restructuring. Among the immediate economic effects of banking crises described in the paper are: Disturbance of the normal credit relationships and raising the cost of credit intermediation, inducing a flight to

quality by both banks and their creditors, weakening both the monetary and budgetary controls, and generating large and pervasive uncertainty, which lowers the perceived return on real assets leading to depressed real investment and growth.

Banking distress on the other hand results in runs on Banks that depend critically on the confidence of their creditors. The runs can destabilise the banking systems due to the interdependence among them as a result of the contagion effect, which makes banks unique institutions from other businesses. The Kenya Banking industry has experienced most of the economic effects outlined by Sundararajan and Tomas.

Johnston (1991) explores the financial system in Thailand where financial crisis was experienced in the first half of 1980s largely due to poor financial management practices, inadequate regulations and supervision. The crisis was aggravated by the slowdown in economic activity in the period. Thai authorities by 1993, had to intervene in 50 finance and security companies and 5 commercial banks that accounted for one fourth of total assets of Thailand's institutions where in the intervention process, 24 finance companies and security companies were closed, 9 merged into 2 new companies, while 13 finance companies and 5 commercial banks continued to receive subsidised support of soft loans. A continued management restructuring, the build up of capital and reserves and the strengthening of the powers to supervise and restructure financial institutions were part of the rescue framework in the midst of the crises. An analysis of the financial performance of Thai Banks indicated declines in net profits from 25% to 7% and capital to assets ratio from 6.4% to 5.7% in the period 1980 to 1986. The capital to assets ratio of most banks were relatively low by international standards of 8% .The return on equity in 1986 fell by between 3% and 5% to an average of 7%. The causes of weak financial performance were outlined as:

1. Institutional framework where banks operated as oligopolies allowing them to make profits for many years while ignoring efficiency and safety precautions. In the industry most managers were not professionals, credit and guarantees were extended to businesses in which Directors and Shareholders were heavily involved, lavish offices were constructed as headquarters and banks failed to diversify their share ownership. The lending was concentrated to a few large interrelated enterprises and industries and competition was not promoted in the industry.
2. Inadequate legislative framework for regulation, supervision and intervention.
3. Lack of regulatory standards and enforcement guidelines by the regulating authorities.
4. Economic conditions emanating from the downturn in economic activity during the first half of 1980s.

Tomas (1991) traces the financial crisis in Argentine from March 1980 when one of the largest private banks Banco de Intercambio Regional (BIR) failed. A series of bank failures happened during this period where 71 institutions were liquidated over the preceding two years. Tomas (1991) outlined the causes of the crisis to: inadequacies of free market economies, inappropriate Monetary Policy and inherent instability of the financial system. The route cause of the crisis was default on Bank loans by firms arising from enterprise failures. In a prior research, Drizzen (1984) found out that between 1977 and 1983 the financial structure of firms became increasingly fragile and had to endure strong destabilising shocks emanating from the financial market. These shocks were as a result of restrictive Monetary Policy, Bank failures and devaluations. Tomas (1991) further observed that Damill and Frenkel (1987) had suggested that the negative real rates of 1979 prompted firms to borrow more thereby increasing their fragility. The fragility arose from short maturities of loans that made firms vulnerable to "exogenous

shocks" such as higher interest rates induced by changes in exchange rate expectations. The study further notes that interest rates dramatically jumped after controls were lifted in 1977 where upon deposit and lending rates more than doubled. The liberalisation of the foreign sector had significant effects on the soundness of the financial system impacting on the capital flows as well as the value of foreign debt owed to the firms. On the measures to deal with failing and ailing institutions the paper notes that such measures should aim at arresting the propagation of the crisis, restoring depositors confidence and protecting the payments system so as to bring out an orderly restructured and recapitalisation of problem Banks. The measures suggested for dealing with banking crisis depend on a country's legislative framework, the structure of the Banking system, the presence or absence of a Deposit insurance agency and the magnitude of each Bank's losses. The measures are broadly categorised as both emergency and long term. The emergency measures includes lender of last resort, Central Bank intervention in the management of the ailing institutions, lending freely at a penalty by the Central Bank in times of illiquidity caused by sudden surge in demand for reserves and setting up of special credit facilities for access by the problem institutions. Long-term measures include liquidations, mergers, restructurings of bank activities and recapitalisation. Others include take-overs by Government owned Financial Institutions, by a Deposit insurance agency or temporary nationalisation of the institution together with its conglomerates.

An experience of financial liberalisation in Chile (Velasco 1991), Argentina (Sundararajan and Tomas 1991), Thailand (Johnson 1991), and Uruguay (Campero and Leone 1991) indicates that the economies experienced banking crisis as a result of liberalisation. This study analyses financial performance of Kenyan Banks and NBFIs to establish the possible effects of financial liberalisation on performance ratios.

# 3.00 CHAPTER THREE: RESEARCH DESIGN

## 3.01 POPULATION AND SAMPLE

The population of interest for this study comprised 98 institutions as follows:

(a) 53 commercial Banks and 11 NBFIs licensed to carry Banking business in Kenya under the Banking act Chapter 488 part II section (4) and (5) and listed in the Directory of Commercial Banks, Financial institutions, Building Societies and Foreign Exchange Bureaus (Appendices A1.05 and A1.06) and

(b) 34 financial institutions both Banks and NBFIs that collapsed within the period 1987 to 1999 to act as a control sample (Appendix A1.07).

A census of all Banking institutions comprising 53 commercial banks and 11 NBFIs are used in this study. 12 of the 34 (35%) failed institutions within the study period 1987 to 1999 are used as a test control sample.

## 3.02 DATA COLLECTION

This study made use of secondary data obtained from the following sources:

1) Commercial banks and NBFIs published financial statements, end period balances obtained from head offices of the institutions and newspapers,
2) Annual reports of the Central Bank of Kenya,
3) Bank Supervision annual reports as published by the Central Bank of Kenya,
4) Monthly Economic Reviews by the Central Bank of Kenya,
5) Annual reports of the Capital Market Authority,
6) Statistical Bulletins from the Central Bank of Kenya.

### 3.03 DATA ANALYSIS

For the Commercial banks and NBFIs in operation analysis concentrated on four ratio categories: Gearing, Liquidity, Earnings and Asset quality (Tables 2-6, 10-13). Analysis of performance of Banks is further done by peer groupings by Central Bank of Kenya. Peer groups are used to represent category regressions in this study (Tables 7-9). The commercial banks and NBFIs are categorised into peer groups using each Institution's asset portfolio as follows:

Peer group codes used are as follows:

| Peer group code | Description |
|---|---|
| 0 | Unrated |
| 1 | Assets over shs 10,000m |
| 2 | Assets shs 5000-9999.9m |
| 3 | Assets shs 3000-4999.9m |
| 4 | Assets shs 1000-2999.9m |
| 5 | Assets shs 0-999.9m |

Source: Directory of Commercial Banks, Financial institutions, Building Societies, Mortgage Finance Companies, and Foreign Exchange Bureaus.

This study made use of data for 12 of the 37 failed financial institutions to act as a control sample for the models developed. (Appendix A1.07).

Financial performance data for Kenyan Banks and NBFIs collected is analysed using ratios (Table 2-13). The ratios are grouped into four categories: Gearing, Earnings, Liquidity, and Asset Quality. The correlation and Z-test for two sample means are used to test the hypothesis on whether there are any significant differences in financial performance ratios: Gearing, Liquidity, Earnings, and Asset quality between the Pre and Post Liberalisation periods. The ratios for each category are used to develop a performance predictive multivariate analysis model.

## 3.04 ASSUMPTIONS MADE FOR THE MODELS

- It is assumed that the models developed in this study are applicable to financial institutions in the Banking sector in Kenya.
- The four financial performance ratios (Gearing, Earnings, liquidity, and Asset Quality) are assumed to be crucial in influencing performance.
- For the purposes of this study, it is assumed that performance is determined by the four financial performance ratios.

## 4.00 CHAPTER FOUR: DATA ANALYSIS

### 4.01 INTRODUCTION

This study relies on Microsoft (Ms) Excel statistical package for data analysis. The package is used for regression analysis between Performance (Z) as the dependent variable and Gearing ($X_1$), Earnings ($X_2$), Liquidity ($X_3$) and Asset Quality ($X_4$) as the independent variables (Tables 3, 7-9, 12). Correlation tests are carried out between the dependent variable (Z) and the independent variables ($X_1$, $X_2$, $X_3$, $X_4$)(Tables 4, 13). The analysis carries out Tests of significance on each of the ratios between two periods: Pre-Liberalisation (1987-1992) and Post Liberalisation (1993-1999)(Tables 5, 11). Charts 1-8 in the study are similarly done using Ms Excel Chart package.

Performance ratios and averages are computed for each year by institutions. The formula for arriving at performance in this study is:

Performance (%)=Gearing ratio (%)*Liquidity ratio (%)*Earnings ratio (%)*Asset Quality ratio (%)

**Table 2: Banks Annual Financial Performance Ratios (%)**

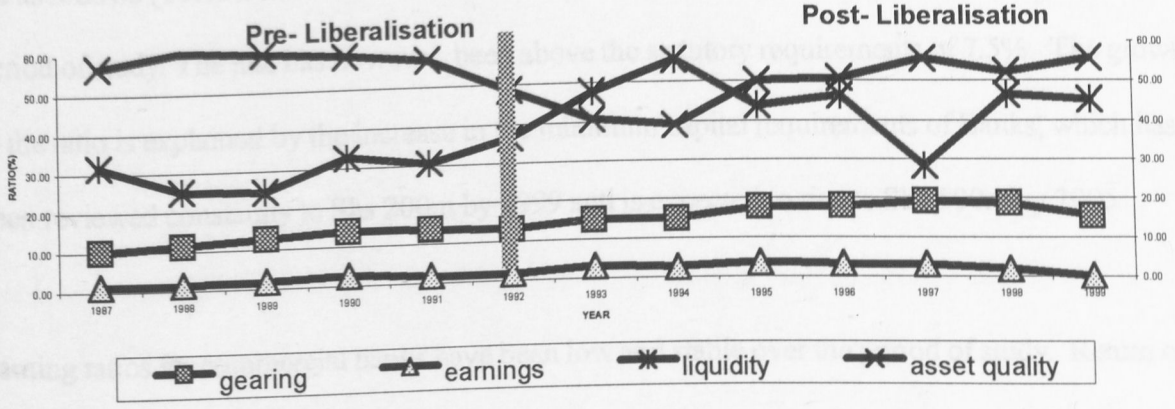
| | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|
| Gearing-$X_1$ | 10.010 | 11.312 | 12.594 | 13.804 | 13.598 | 13.027 |
| Earnings-$X_2$ | 1.241 | 1.38 | 1.871 | 2.570 | 1.820 | 1.696 |
| Liquidity-$X_3$ | 31.595 | 25.100 | 24.617 | 32.675 | 30.553 | 36.394 |
| Asset quality-$X_4$ | 53.038 | 55.644 | 54.419 | 52.959 | 51.746 | 44.617 |
| Performance | 0.0002082 | 0.000219 | 0.0003156 | 0.0006140 | 0.0003912 | 0.0003587 |

| | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|---|---|
| Gearing-$X_1$ | 14.881 | 14.944 | 17.728 | 17.894 | 19.106 | 18.550 | 15.426 |
| Earnings-$X_2$ | 3.049 | 2.597 | 3.607 | 3.142 | 3.009 | 1.886 | 0.078 |
| Liquidity-$X_3$ | 47.650 | 55.439 | 43.741 | 46.158 | 28.286 | 46.356 | 45.078 |
| Asset quality-$X_4$ | 37.066 | 35.575 | 44.648 | 45.053 | 48.919 | 46.516 | 50.533 |
| Performance | 0.0008013 | 0.0007656 | 0.0012488 | 0.0011691 | 0.0007955 | 0.0007544 | 0.0000275 |

**Source: Research Data**

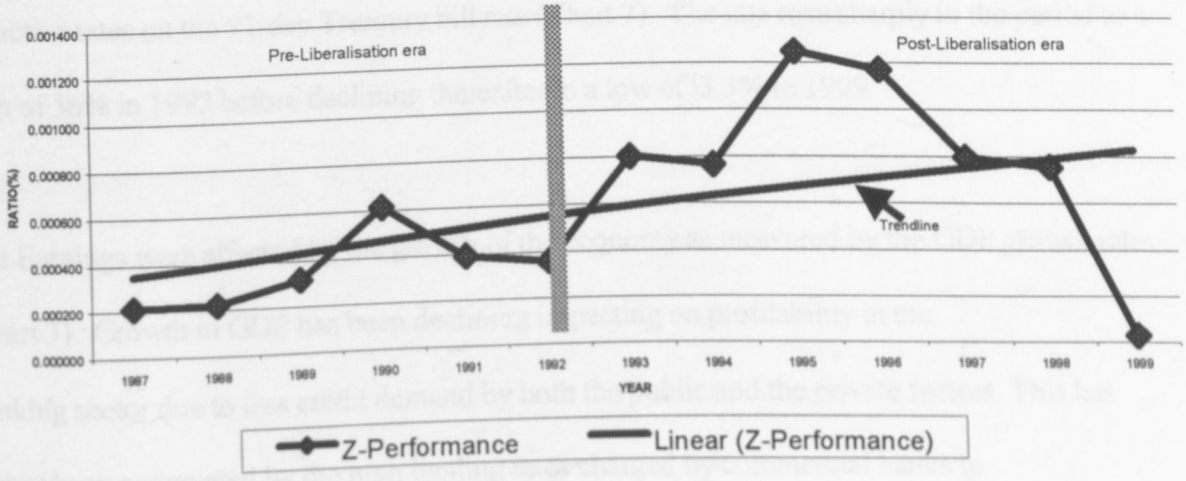
Table 2 above shows the annual financial performance ratios for the period 1987 to 1999. The four ratios identified in this study are: Gearing, Liquidity, Earnings and Asset Quality. A factor of the four ratios in percentage terms yields the annual performance ratios. Trends in these ratios (Charts 1 and 2 below) indicate: stable but growing gearing ratios way above the 7.5% statutory requirement; low but growing earnings ratios; high but fluctuating liquidity ratios way above the 20% statutory requirement and high but fluctuating asset quality ratios.

**Chart 1: Trends in Banks Annual Financial Performance Ratios**




**Source: Research Data**

**Chart 2: Trends in Banks Overall Financial Performance Ratios**




**Source: Research Data**

Chart 2 above shows growing trends in the overall financial performance ratios. Improved performance is evident in the Post Liberalisation period compared to the Pre Liberalisation period.

## 4.02 TRENDS IN PERFORMANCE RATIOS FOR BANKS

Trends in the financial performance ratios for commercial banks identified and used in this study are as follows (Table 2 and Charts 1 and 2): Gearing ratios have been stable but growing over the period of study. The rate has however, been above the statutory requirements of 7.5%. The growth in the ratio is explained by the increase in the minimum capital requirements of Banks, which has been reviewed constantly to Shs 200m by 1999 and is expected to rise to Shs 500m by 2005.

Earning ratios for commercial banks have been low and stable over the period of study. Return on assets has been low due to the level of non performing advances component in the loans and advances assets of commercial banks. By 1999, the total non performing advances stood at Shs. 103.5bn or (37% of gross loans) according to CBK Jan 2000 MER. This is in spite of the attractive rates on the 91-day Treasury bill rate (Chart 7). The rate rose sharply in the period to a high of 56% in 1993 before declining thereafter to a low of 13.3% in 1999.

The Earnings were affected by the growth of the economy as measured by the GDP growth rates (Chart 3). Growth in GDP has been declining impacting on profitability in the Banking sector due to less credit demand by both the public and the private sectors. This has further been aggravated by the high lending rates charged by commercial banks to Customers (CBK MER: Various) given that economic growth is influenced by the growth in

investments in productive activities and so in an economy that is not rapidly expanding, the investment portfolio shrinks due to high cost of credit as investors shy away from borrowing. Assets quality ratios have been high and stable over the period. This ratio measures the efficiency of earning assets mainly loans and advances to total assets. The asset portfolio has been shrinking as a result of the rising level of non-performing advances.

Liquidity ratios have been moderately erratic over the period under study. The rates rose gradually from 24.6% in 1989 to 55.4% in 1994 before declining and rising again in the latter period. The movements in the liquidity ratios are influenced by the portfolio holdings of Government securities by the Banking sector. The holdings rose sharply between 1992 and 1994 due to the improvement in the rate of return on the 91 days Treasury bill rate that rose from 17.30% in 1992 to 56% in 1993 and later fell to 25.7% in 1994. The fluctuations observed in the rate are traceable to liberalisation of the interest rates in 1991 (Kenya Gazette No.3348 of 1991). The market driven rates have from then been fluctuating up and down due to forces of demand and supply (Charts 4, 7). Liquidity ratios have however, been above the statutory requirement of 20%.

Overall financial performance ratios for the commercial banks as measured by a factor of the four ratios: (Gearing, Liquidity, Earnings and Assets quality) have been growing but fluctuating. The ratios measure the overall financial performance as influenced by the four ratios. Trends in the ratio appear to be inversely related to growth of GDP. (Chart 3) given that the ratios have been rising while the GDP growth rates have been declining.

## 4.03 TRENDS IN PERFORMANCE RATIOS FOR NBFIs

Trends in the overall financial performance ratios for NBFIS (Table 10 and Charts 6,7) have been as follows:

Overall financial performance ratios as measured by a factor of gearing, liquidity, earnings and asset quality ratios have been rising with sharp rises recorded in the period 1993 to 1999. The trends in the ratio are inversely related to GDP growth rate (Chart 3) as it rising when the GDP growth rate is declining.

The gearing ratios for NBFIS rose gradually from 8.6% in 1987 to 21.5% in 1999. The rate has been above the statutory requirements of 7.5%. The rate has been rising due to the increase in capital requirements by the Central Bank of Kenya that stood at shs 200m by 1999.

Assets quality ratios for NBFIs have been high and stable. The major earning assets of the sector has been loans and advances. Asset quality has on average been above 50% implying that most assets of the NBFIs are in loans and advances.

Liquidity ratios for NBFIs have been rising. The ratio rose from 9.6% in 1991 to 35.4% in 1995. This could be explained in two dimensions: First, the sector was required to observe 20% liquidity ratio by the Central Bank in 1994 and secondly the increased build up of stock of Government securities due to the attractive rate offered on the 91 day Treasury bill rate during the period (Charts 4 and 5).

Earnings ratios for the NBFIs have been low but stable. This ratio measuring return on assets has been low in spite of the expanded asset portfolio. This tallies with the declines observed in the GDP growth rates (Chart 3) given that as an economy contracts, the earnings decline.

## 4.04 REGRESSION AND CORRELATION RESULTS FOR BANKS

The financial ratios: Gearing ($X_1$), Liquidity ($X_2$), Earnings ($X_3$) and Assets Quality ($X_4$) for both Banks and NBFIs were regressed against (Performance-Z) using MS-Excel Statistical Package. Correlation and Hypothesis testing was similarly done using the MS Excel statistical package.

The results of the regression for Banks yielded the following outcome (Table 3, 4).

The coefficients for the model are: -2.29E-03 for intercept 2.28E-05 for Gearing, 3.48 E-04 for Earnings, 1.90E-05 for liquidity and 2.25E-05 for Assets quality. The t-statistics at 5% significance level are greater than two implying that the ratios are all significant in the model (Table 3).

Correlation tests for each of the ratios (Table 4) indicates that Gearing, Liquidity and Earnings are positively related to performance while assets quality is negatively related to performance. The strongest correlations are observed in the earnings, liquidity and gearing ratios implying that these ratios are very crucial in influencing performance. This tallies with the studies by Bett (1992) and Keige (1991) who identified; earnings and liquidity ratios as crucial predictors of banks financial performance in Kenya.

The ratios are used to establish a model:

$Z=-2.29E-03+2.28E-05X_1 +3.48E-04X_2 + 1.90E-05X_3 + 2.25E -05X_4$

Where:

Z=Overall financial performance ratio

$X_1$ = Gearing ratio $X_2$ - Earning Ratio

$X_3$ = Liquidity ratio $X_4$ - Assets Quality ratio

The Model had a good fit with multiple R=0.988 and R square= 0.9771.

For a value of Z=0.0059, a financial institution is found to be stable; For Z less than 0.0059, the financial institution is found unstable implying that further financial analysis is necessary while for Z value greater than 0.0059, the financial condition of Banks is found satisfactory.

## 4.05 TEST OF SIGNIFICANCE FOR BANKS

Hypotheses testing on whether financial performance in the Pre Liberalisation period (1987-1992) is significantly different from performance in the Post Liberalisation period (1993-1999) was done using MS Excel Z-test for two sample means with known variances for each category and yielded the following results (Table 5):

Overall, performance as measured by Z was different in the two periods. The Z computed fell outside the scope of Z critical two-tail test implying that overall financial performance was different in the two periods.

For Gearing, Liquidity, and Asset Quality ratios the above results were confirmed by Z computed since each of the ratios fell in the rejection area of the Z critical two-tail test. However, the earning ratio for Z computed fell in the acceptance region of the Z critical two-tail test.

The implication of the above results, going by the outcome of Z is that the Null hypothesis: Financial performance in the Pre and Post-Liberalisation periods was not significantly different is rejected thereby accepting the Alternative hypothesis: Financial performance in the Pre Liberalization period was significantly different from financial performance in the Post Liberalization period.

## 4.06 REGRESSION AND CORRELATION RESULTS FOR NBFIs

Regression results for NBFIs yielded the following results (Table 12 and 13). The intercept was -0.001447007, Gearing 6.4946E-06, Earnings 0.000253115, Asset quality 1.76068E-05 and Liquidity 1.28609E-05. Earnings, Assets quality and Liquidity yield t-statistics greater than 2 implying that the ratios significantly affected the performance. T statistic for Gearing ratio is however, less than 2.

The regression output has a multiple R= 0.982 and R square =0.96 indicating a good fit model.

A performance model for the NBFIs is thus established as:

$Z_n$= -0.001447007+6.4946E-06$X_{n1}$+ 0.000253115$X_{n2}$ +1.76068E-05$X_{n3}$ + 1.28609E-05$X_{n4}$

Where

$Z_n$ - Overall financial performance ratio

$X_{n1}$ - Gearing ratio

$X_{n2}$ - Earnings ratio

$X_{n3}$ - Assets quality ratio

$X_{n4}$ - Liquidity ratio

Correlation test (Table 13) for the ratios indicated that all the ratios (Gearing, Earnings, Asset quality and Liquidity) significantly affect performance ($Z_n$). Earnings ratios have the highest positive correlation to performance ($Z_n$). Earnings, Liquidity, and Gearing are thus important ratios in predicating performance for NBFIs similar to results by Bett (1992) and Keige (1991).

## 4.07 TESTS OF SIGNIFICANCE FOR NON BANK FINANCIAL INSTITUTIONS

Hypotheses testing on whether financial performance in the Pre Liberalization period (1987-1992) is significantly different from performance in the Post Liberalisation period (1993-1999) yielded the following results (Table 11):

Overall financial performance ratio ($Z_n$) realized a Z computed that fell outside the scope of Z critical two tail test implying that we reject the null hypothesis. The Gearing, Earnings and Liquidity ratios fell in the rejection areas confirming the above results. However, the asset quality Z computed fell within the acceptance region. Using the results of $Z_n$ implies the null hypothesis is rejected since overall financial performance ratios fell in the rejection area and the alternative hypothesis is accepted that performance in the Pre as well as in the Post Liberalisation period was significantly different.

## 4.08 REGRESSION MODELS FOR BANKS PEER GROUPS

Commercial banks under the peer group categories are used to develop performance predictive models (Table 7, 8, 9) and are outlined here below:

**PEER GROUP 1**

$Z_{p1}$= -0.002134357 + 6.95503E-05$X_1$+ 2.20752E - 05$X_2$ + 0.000156494$X_3$ + 1.18786E -05$X_4$

Multiple R= 0.966 and R square=0.933

**PEER GROUP 2**

$Z_{p2}$= -0.002940484 + 7.12E-05$X_1$ + 2.48907E-05$X_2$ + 0.000384743$X_3$+ 1.41855E - 05$X_4$

Multiple R=0.982 and R square= 0.963

**PEER GROUP 3**

$Z_{p3}$= -0.008312183 + 7.24013E-05$X_1$ + 4.7852E - 05$X_2$ + 0.000642566X3 + 7.62318E-05$X_4$

Multiple R=0.867 and R square= 0.752

**PEER GROUP 4**

$Z_{p4}$= -0.003206702 + 4.34732E-05$X_1$ + 2.62171E-05$X_2$+ 0.000345577$X_3$ + 2.51948E-05$X_4$

Multiple R=0.996 and R square= 0.992

**PEER GROUP 5**

$Z_{p5}$= -0.010163793 + 0.000136676$X_1$ + 3.87463E-05$X_2$ + 0.000755543$X_3$ + 8.50747E-05$X_4$

Multiple R=0.982 and R square= 0.964

Where:

$Z_{p1-p5}$ = Overall financial performance ratios for peer groups 1---5

$X_1$= Gearing ratio

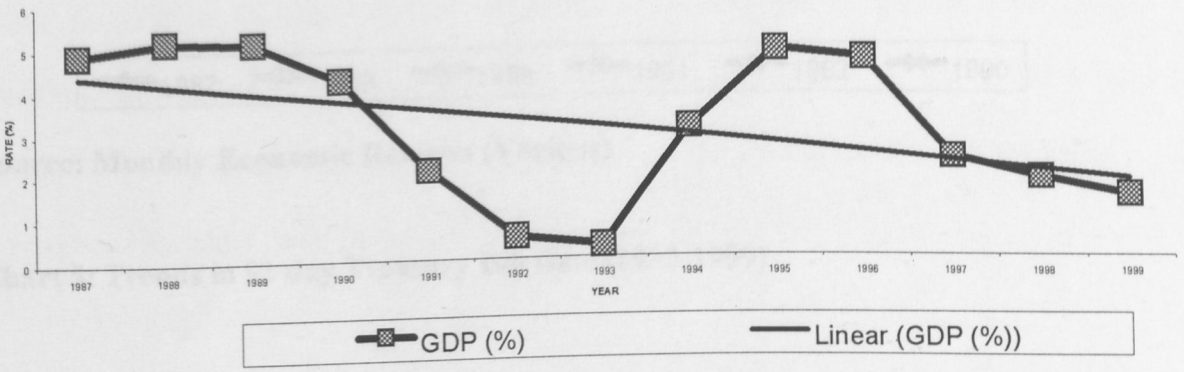
$X_2$= Liquidity ratio

$X_3$= Earnings ratio

$X_4$= Asset Quality ratio

All the models had good fit with the given multiple R and R squares above and indicates that performance was not significantly different for different peer groups.

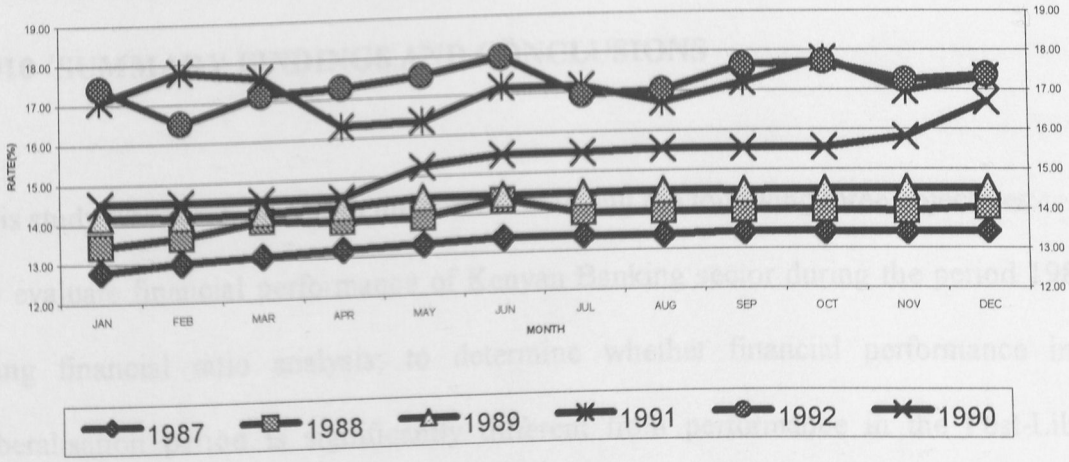
**Chart 3: Trends in GDP Growth Rates**




**Source: Monthly Economic Reviews (Various)**

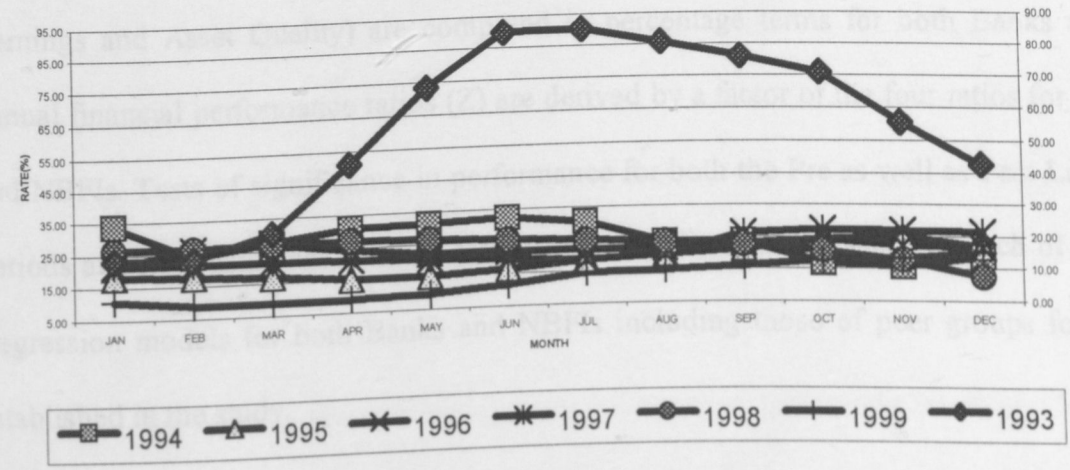
Chart 3 above shows declining trends in the GDP growth rates in both the Pre as well as Post liberalisation periods.

**Chart 4: Trends in 91-Day Treasury Bill Rate (1987-1992)**




**Source: Monthly Economic Reviews (Various)**

**Chart 5: Trends in 91 day Treasury Bill Rate (1993-1999)**




**Source: Monthly Economic Reviews (Various)**

Charts 4 and 5 above shows trends in the 91-day Treasury bill rate. The rate grew in the Pre Liberalisation Period before declining in the Post Liberalisation Period. The rate was stable in the Pre Liberalisation Period but fluctuated in the Post Liberalisation Period.

# 5.00 CHAPTER FIVE: SUMMARY FINDINGS, CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

## 5.010 SUMMARY FINDINGS AND CONCLUSIONS

This study was conducted with the aim of achieving the following three objectives:

To evaluate financial performance of Kenyan Banking sector during the period 1987 to 1999 using financial ratio analysis; to determine whether financial performance in the Pre-Liberalisation period is significantly different from performance in the Post-Liberalisation period, and to formulate a performance predictive model for the Banking sector using the data for the period under consideration.

To achieve the above objectives, four annual financial performance ratios (Gearing, Liquidity, Earnings and Asset Quality) are computed in percentage terms for both Banks and NBFIs. annual financial performance ratios (Z) are derived by a factor of the four ratios for both Banks and NBFIs. Tests of significance in performance for both the Pre as well as Post Liberalisation periods are done using Ms Excel Z-test statistic on two sample means for each of the periods. Regression models for both Banks and NBFIs including those of peer groups for Banks are established in the study.

The analysis in chapter four yields the following results for Banks, NBFIs and Banks peer groups:

## 5.011 COMMERCIAL BANKS

This study found out the following:

- Trends in overall financial performance (1987-1999) in this study were as follows:

- Overall performance in the Banking sector has been improving on average. The results of the performance ratios developed in this study indicated that performance improved before deteriorating in the Pre as well as the Post-liberalisation period. The performance for the Post-Liberalisation period was however better than in Pre-Liberalisation period. The overall trend is thus a boom followed by a burst in each period.
- Over the period, Gearing ratios have been above the statutory requirements of 7.5% as stipulated in the Banking act. The ratio has been continuously growing in both the Pre and Post liberalisation with the latter period experiencing a faster growth. The ratio has been on average between 10% and 16%.
- The Liquidity ratios have been on average above the statutory requirement of 20% as stipulated in the Banking act and growing. The trend in the Pre-Liberalisation era is stable as compared to the trend in the Post-Liberalisation period that has been fluctuating. High volatility is witnessed in the Post-Liberalisation period. The rates have been on average between 24% and 55%.
- Asset Quality ratios have on average been declining. Trends in the Pre-Liberalisation period are declining but rising in the Post-Liberalisation period. The rates have been on average between 37% and 56%.
- Trends in the average Earning ratios have been stable and low. Both Pre and Post-Liberalisation periods experienced near constant rates of between 0.07% and 4%.

- The test for significance on whether performance in the Pre-Liberalisation period was the same as performance in the Post-Liberalisation period done using a Z-test for two sample means gave the following findings:
- Overall performance of the Banks (Table 5) in Pre-Liberalisation period was different from the performance in the Post-Liberalisation period. This is found in the overall performance ratios where the Z computed value fell in the rejection area of the two-tail test. This finding confirmed to be true for the Gearing, Liquidity and Asset Quality ratios where the Z computed value fell in the rejection area of two tail test while the earnings ratios in the two periods were not significantly different as the Z computed value fell within the acceptance region of the two tailed test. This implies that the financial reforms affected performance in the Post Liberalisation Period. Trends in the overall performance (Z) ratio indicate a better performance. Given that interest rates in this period were market driven Banks were allowed to adjust their base lending rates making return on lending in this period better than in the Pre-Liberalisation period.

- The findings above are confirmed by the correlation test (Table 4) for the performance ratios to the overall performance ratios (Z).

  -Gearing ratios for the two periods were positively related to performance with the impact at 0.726. The degree of relationship in the two periods was 0.829 and 0.436 respectively. The degree of impact on performance was weaker in Post-Liberalisation period than in Pre-Liberalisation period.

  -Earnings ratios were highly and positively correlated to performance in the two periods. The degree of correlation was 0.968 and 0.933 in the two periods respectively with the overall degree of impact on performance being 0.919.

-Liquidity ratios were positively related to performance. The degree of relationship was 0.485. In the Pre-Liberalisation period, the relationship was not very strong and stood at 0.410 while in Post-Liberalisation the relationship was negatively related to performance and stood at –0.029.

-The Asset Quality ratios were negatively related to performance. The impact to performance was –0.573. The impact of the ratios to performance in the two periods was -0.183 and –0.313 respectively.

The implications of the correlation tests above are:

Gearing, liquidity and earnings ratios positively influence performance in this study. The findings further show that earning ratios have a high impact on performance 0.919, followed by gearing 0.726 and then liquidity 0.485. In the Post Liberalisation Period the liquidity impact on performance is negative 0.028. This implies that to perfectly predict performance of Banks in Kenya, three ratios are crucial: Liquidity, Gearing and Earnings. This conforms to studies carried earlier Bett (1992), Keige (1991), Altman (1968), and Beaver (1966) all of whom in their independent studies concluded that liquidity, leverage and activity ratios are important in the prediction of corporate bankruptcy.

- The ratios obtained for Banks in this study are regressed against each other and found to influence performance of the Banks. The ratios help to develop a predictive model:

$Z= -2.29E-03+2.28E-05X_1+3.48E-04X_2+1.90E-05X_3+2.25E-05X_4$ by use of ratios.

Where:

Z-Overall financial performance ratio,

$X_1$-Gearing ratio,

$X_3$-Liquidity ratio,

$X_2$-Earnings ratio, $X_4$-Asset Quality ratio.

The model perfectly predicts the financial performance of any commercial bank in Kenya. For Z=0.0059 a financial institution is stable; Z value less than 0.0059 indicates an institution whose financial performance is unstable and would require further financial analysis while a Z value greater than 0.0059 indicates an institution that is financially healthy.

The model has a good fit with the multiple R =0.988, R square= 0.9771. The t statistics at 5% significance level are all greater than 2 indicating that the ratios computed in the model significantly affect financial performance.

## 5.012 NON BANK FINANCIAL INSTITUTIONS (NBFIs)

Trends in the Gearing ratios have been rising and above the statutory 7.5% requirement. Liquidity ratio has been rising and above the 20% statutory requirement. Earnings and asset quality have been low and stable. Overall financial performance as measured by ($Z_n$) has been rising (Chart 7)

The overall performance as measured by $Z_n$ is significantly different in both the Pre as well as the Post Liberalisation periods. Gearing, Earnings and Liquidity ratios are consequently different in the two periods while Asset quality is not significantly different.

Correlation tests (Table 13) indicate that all the four ratios: Gearing, Earnings, Liquidity and Asset quality affect performance ($Z_n$). However three of the four ratios have strong impact on performance: Gearing (0.843), Earnings (0.925) and Liquidity (0.668). This finding tallies with the correlation tests for Banks above and the subsequent studies. Thus it can be concluded that the ratios can perfectly influence performance of NBFIs in Kenya.

## 5.013 PEER GROUPS FOR BANKS

The Banks are categorised into peer groups and category regressions are developed (Table 7-9). The models for all the peer groups have a good fit with both the multiple R and R Square closer to 1. The models developed for the peer groups revealed that no significant difference exists among institutions in different peer groups. An institution in one peer group is as prone to failure as any other in a different peer group.

## 5.014 91 DAY- TREASURY BILL RATE AND GDP GROWTH RATES

- Trends in the 91 day monthly average treasury bill rates for the period under study were as follows:
  - In the Pre-Liberalisation period, the rates were generally low but rising gradually. The rate in the years between 1987 to 1989 are stable at between 13% and 15% thereafter rising to 18% by 1992. However, the rates experienced fluctuations in the period between 1990 to 1992.
  - In the Post-Liberalisation period, the rates were generally high with wide fluctuations characterizing the period. The period experienced very high rates of interest in 1994 as well as very low rates below 10% in 1999. On average the rates declined from an average of 56% in 1994 to 13.3% in 1999. The fluctuations are as a result of demand and supply forces since liberalising the interest rates in Kenya when the rates were left to market forces.

- GDP Growth rates have been on a declining trend between 1987 and 1999. The Pre Liberalisation period experienced drastic declines in growth from a high of 5.15% in 1988 to a low of 0.48% in 1992 while the Post Liberalisation period experienced low but moderately stable growth rates with the rates remaining in the range bound of between 0.26% in 1993 and a high of 4.8% in 1995. Overall, the growth rates in the Post Liberalisation period were low compared to growths in the Pre Liberalisation period. Economic growth is influenced by both the Monetary and the Fiscal Policies pursued by the Government (CBK 2000). According to the Central Bank of Kenya Monthly Economic Reviews, growth has been affected by the following factors: Poor infrastructure, particularly roads, telecommunication services, port operations and water supply that limit production and marketing of products, reduced flow of productive resources into the more efficient private sector, high cost of funds in the domestic money market, general insecurity in major tourist areas, uncertainty and the loss of investor confidence due to poor delivery of public services and delays in implementing the required economic reforms. Declines observed in GDP growth rates consequently affect performance of the Banking industry and other sectors of the economy.

## 5.02 LIMITATIONS OF THE STUDY

This study was carried out using financial data derived from financial statements of both Banks and NBFIs and so one must be cautious of the limitations associated with such data. The data may be subject to manipulation by the management of the firm.

This study was broad and could not exhaustively address all the issues inherent in such studies.

As with any other research, this study was undertaken within a fixed duration and the researcher did not have adequate time to explore aspects like the effects of peer group regression models on performance of the industry.

## 5.03 RECOMMENDATIONS FOR FURTHER RESEARCH

The Kenyan Banking sector is an important engine to economic growth of the country. The sector both in size and structure covers 11% of the whole economy (CBK, MER: Various). Monetary Policy is largely implemented through the Banking sector and so its stability cannot be overemphasized. In trying to address stability, a few points come to the fore:

The licensing procedures and the rules of the Banking business are very important in improving and sustaining resilience in the sector. Towards this end superintendence of the industry ought to be strengthened. Currently, the Central Bank of Kenya is doing everything possible to address the issue with various amendments to the Banking act and building inspection capacity in the Bank Supervision Unit (CBK Annual Reports: Various). These efforts are laudable and the sustaining of the same is hereby recommended so as to forestall bank failures in the economy.

The quality of management in organisations affects performance. The shareholder –manager relationship out to be very clearly spelt out to avoid conflict of interest. This will ensure professional banking is enhanced with participants having no ulterior motives. Mis-management is one of the main causes of Bank failures in Kenya. It is thus important for the regulatory authorities to ensure that the people running financial institutions are of fit and unquestionable professional standards.

The current measures being undertaken by the Central Bank of Kenya (CBK Annual Reports: Various):

- Requiring the Banking sector to raise the minimum paid up capital to shs 500m by December 2005,
- Encouraging the establishment of Credit Reference Bureaus which would supply information to lenders on the credit worthiness of the borrowers will help reduce the level of non-performing loans,
- Promotion of micro financial institutions and bringing them under the umbrella of the Banking act will help to stem out "shy locking " business in the industry. It is therefore recommended that these efforts of financial deepening in the industry being undertaken be enhanced.
- The Banks and Non-Banking Financial Institution are required by law to enhance information disclosures. Information on non-performing advances and insider lending that were not available previously are currently published annually by each financial institution. The non-performing advances affect quality of assets and by extension the performance level of an institution. It is hereby recommended that further research be undertaken dealing with the impact of the two information variables on performance.

This study could not carry out that analysis because available information on the non-performing advances and insider lending are from 1998 when the Banks were required by the Central Bank of Kenya to disclose the same in their published financial statements.

A study to establish industry wide predictive regression model is hereby recommended. This study established regression models for Banks and NBFIs. An improvement in this area can be undertaken by establishing a single model applicable to both Banks and NBFIs.

An exploratory study can also be conducted to establish the institutional factors that could be responsible for financial failures in Kenya.

## A1.00 APPENDICES

## A1.01 REFERENCES


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**TABLE 3: Regression Output for the Banks Performance Ratios**

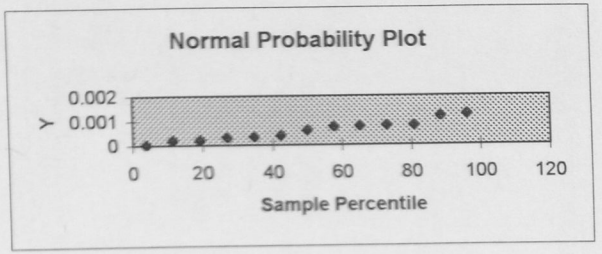
SUMMARY OUTPUT

| *Regression Statistics* | |
|---|---|
| Multiple R | 0.98846704 |
| R Square | 0.977067088 |
| Adjusted R Square | 0.965600632 |
| Standard Error | 6.94472E-05 |
| Observations | 13 |

ANOVA

| | *df* | *SS* | *MS* | *F* | *Significance F* |
|---|---|---|---|---|---|
| Regression | 4 | 1.64386E-06 | 4.10965E-07 | 85.2109 | 1.35758E-06 |
| Residual | 8 | 3.85834E-08 | 4.82292E-09 | | |
| Total | 12 | 1.68244E-06 | | | |

| | *Coefficients* | *Standard Error* | *t Stat* | *P-value* | *Lower 95%* | *Upper 95%* | *ower 95.0* | *Upper 95.0%* |
|---|---|---|---|---|---|---|---|---|
| Intercept | -2.29E-03 | 0.000532147 | -4.302406868 | 0.00261 | -0.003516645 | -0.001062 | -0.0035166 | -0.001062378 |
| Gearing | 2.28E-05 | 9.75947E-06 | 2.332440191 | 0.04798 | 2.57987E-07 | 4.527E-05 | 2.58E-07 | 4.52688E-05 |
| Earnings | 3.48E-04 | 3.18699E-05 | 10.92306203 | 4.4E-06 | 0.000274624 | 0.0004216 | 0.0002746 | 0.000421609 |
| Liquidity | 1.90E-05 | 4.71829E-06 | 4.018233733 | 0.00385 | 8.0788E-06 | 2.984E-05 | 8.079E-06 | 2.98396E-05 |
| Asset Quality | 2.25E-05 | 7.73996E-06 | 2.90395318 | 0.01977 | 4.62809E-06 | 4.032E-05 | 4.628E-06 | 4.03249E-05 |




RESIDUAL OUTPUT

| *Observation* | *Predicted Y* | *Residuals* | *Standard Residuals* |
|---|---|---|---|
| 1 | 0.000161481 | 4.66835E-05 | 0.823292892 |
| 2 | 0.000177971 | 4.14238E-05 | 0.730534222 |
| 3 | 0.000338246 | -2.26384E-05 | -0.39924218 |
| 4 | 0.000729334 | -0.000115337 | -2.034045019 |
| 5 | 0.00039587 | -4.64042E-06 | -0.081836589 |
| 6 | 0.000290191 | 6.85116E-05 | 1.208245003 |
| 7 | 0.000847044 | -4.5769E-05 | -0.807165371 |
| 8 | 0.00080557 | -4.00185E-05 | -0.705750291 |
| 9 | 0.001202473 | 4.62884E-05 | 0.816324594 |
| 10 | 0.001099272 | 6.98182E-05 | 1.231286282 |
| 11 | 0.000828703 | -3.32094E-05 | -0.585668119 |
| 12 | 0.000713712 | 4.07007E-05 | 0.717781986 |
| 13 | 7.93223E-05 | -5.18132E-05 | -0.913757412 |

PROBABILITY OUTPUT

| *Percentile* | *Y* |
|---|---|
| 3.846153846 | 2.751E-05 |
| 11.53846154 | 0.0002082 |
| 19.23076923 | 0.0002194 |
| 26.92307692 | 0.0003156 |
| 34.61538462 | 0.0003587 |
| 42.30769231 | 0.0003912 |
| 50 | 0.000614 |
| 57.69230769 | 0.0007544 |
| 65.38461538 | 0.0007656 |
| 73.07692308 | 0.0007955 |
| 80.76923077 | 0.0008013 |
| 88.46153846 | 0.0011691 |
| 96.15384615 | 0.0012488 |

**Source: Ms Excel Regressions**

**Table 3 above gives the regression results of Performance against Gearing, Liquidity ,Earnings and Asset Quality ratios. with Multiple R=0.988 and R Square= 0.977 for banks close to 1.**

Table 4: Correlation Matrix for the Banks Performance Ratios

| Period 1987-1992 | Z-Performance | Gearing-X1 | Earnings-X2 | Liquidity-X3 | Asset Quality-X4 |
|---|---|---|---|---|---|
| Z-Performance | 1 | | | | |
| Gearing-X1 | 0.829054092 | 1 | | | |
| Earnings-X2 | 0.968474664 | 0.831425216 | 1 | | |
| Liquidity-X3 | 0.409602983 | 0.267047167 | 0.205831505 | 1 | |
| Asset Quality-X4 | -0.183277996 | -0.335284518 | -0.043030803 | -0.836057857 | 1 |

| Period 1993-1999 | Z-Performance | Gearing-X1 | Earnings-X2 | Liquidity-X3 | Asset Quality-X4 |
|---|---|---|---|---|---|
| Z-Performance | 1 | | | | |
| Gearing-X1 | 0.436499722 | 1 | | | |
| Earnings-X2 | 0.933497592 | 0.308388402 | 1 | | |
| Liquidity-X3 | -0.028553286 | -0.686674739 | -0.133444161 | 1 | |
| Asset Quality-X4 | -0.313175535 | 0.611470771 | -0.447116813 | -0.66183037 | 1 |

| Period 1987-1999 | Z-Performance | Gearing-X1 | Earnings-X2 | Liquidity-X3 | Asset Quality-X4 |
|---|---|---|---|---|---|
| Z-Performance | 1 | | | | |
| Gearing-X1 | 0.726306811 | 1 | | | |
| Earnings-X2 | 0.919046614 | 0.525725851 | 1 | | |
| Liquidity-X3 | 0.484542088 | 0.477558654 | 0.243706039 | 1 | |
| Asset Quality-X4 | -0.573176181 | -0.418366331 | -0.507038734 | -0.84397218 | 1 |

Source: Ms Excel Regressions

Table 4 above shows the relationships the Independent variables(X1-X4) to the Dependent variable(Overall Performance-Z) for both the Pre Liberalisation period as well as the Post Liberalisation Period. Gearing, Earnings and Liquidity are crucial ratios in influencing Performance in this Study given their strong correlation to Performance: 0.726, 0.919, and 0.484 respectvely.

**Table 5: Hypothesis Testing for Banks Performance Ratios**

PERFORMANCE
z-Test: Two Sample for Means

| | *1987-1992* | *1992-1999* |
|---|---|---|
| Mean | 0.000351183 | 0.000794585 |
| Known Variance | 0.00000002 | 0.00000016 |
| Observations | 6 | 7 |
| Hypothesized Mean Differenc | 0 | |
| z | -2.739845428 | |
| P(Z<=z) one-tail | 0.003073458 | |
| z Critical one-tail | 1.644853 | |
| P(Z<=z) two-tail | 0.006146917 | |
| z Critical two-tail | 1.959961082 | |

LIQUIDITY
z-Test: Two Sample for Means

| | *1987-1992* | *1992-1999* |
|---|---|---|
| Mean | 30.15579981 | 44.6725789 |
| Known Variance | 20.74704626 | 66.5641810 |
| Observations | 6 | |
| Hypothesized Mean Difference | 0 | |
| z | -4.031348568 | |
| P(Z<=z) one-tail | 2.77424E-05 | |
| z Critical one-tail | 1.644853 | |
| P(Z<=z) two-tail | 5.54849E-05 | |
| z Critical two-tail | 1.959961082 | |

GEARING
z-Test: Two Sample for Means

| | *1987-1992* | *1992-1999* |
|---|---|---|
| Mean | 12.39069731 | 16.93246535 |
| Known Variance | 2.14673446 | 3.22123252 |
| Observations | 6 | 7 |
| Hypothesized Mean Differenc | 0 | |
| z | -5.02177846 | |
| P(Z<=z) one-tail | 2.5639E-07 | |
| z Critical one-tail | 1.644853 | |
| P(Z<=z) two-tail | 5.12779E-07 | |
| z Critical two-tail | 1.959961082 | |

ASSET QUALITY
z-Test: Two Sample for Means

| | *1987-1992* | *1992-1999* |
|---|---|---|
| Mean | 52.07064866 | 44.044127 |
| Known Variance | 15.13411643 | 32.297199 |
| Observations | 6 | |
| Hypothesized Mean Difference | 0 | |
| z | 3.004641743 | |
| P(Z<=z) one-tail | 0.001329538 | |
| z Critical one-tail | 1.644853 | |
| P(Z<=z) two-tail | 0.002659077 | |
| z Critical two-tail | 1.959961082 | |

EARNINGS
z-Test: Two Sample for Means

| | *1987-1992* | *1992-1999* |
|---|---|---|
| Mean | 1.764382999 | 2.481187849 |
| Known Variance | 0.21673961 | 1.40763645 |
| Observations | 6 | 7 |
| Hypothesized Mean Differenc | 0 | |
| z | -1.471738338 | |
| P(Z<=z) one-tail | 0.07054581 | |
| z Critical one-tail | 1.644853 | |
| P(Z<=z) two-tail | 0.141091621 | |
| z Critical two-tail | 1.959961082 | |

**Source:Ms Excel Regressions**

**Table 5 above gives Hypothesis testing for Banks performance in the two Periods under Study. Overall, Performance is significantly different in the two study periods.**

## Table 6: PERFORMANCE RATIOS FOR BANKS (1987-1999)

PEER GROUP 1

| | Gearing-X1 | Liquidity-X2 | Earnings-X3 | Asset Quality-X4 | Performance-Zp1 |
|---|---|---|---|---|---|
| 1987 | 10.56 | 38.50 | 1.32 | 56.29 | 0.00030139 |
| 1988 | 12.55 | 40.71 | 1.24 | 54.98 | 0.00034863 |
| 1989 | 12.43 | 26.52 | 1.69 | 63.69 | 0.00035534 |
| 1990 | 13.84 | 28.92 | 2.46 | 65.53 | 0.00064452 |
| 1991 | 13.69 | 34.31 | 1.77 | 60.43 | 0.00050365 |
| 1992 | 10.44 | 39.97 | 1.29 | 50.03 | 0.00026903 |
| 1993 | 13.36 | 51.01 | 3.06 | 41.39 | 0.00086303 |
| 1994 | 14.39 | 50.07 | 2.88 | 39.07 | 0.00081058 |
| 1995 | 17.43 | 42.34 | 3.89 | 49.63 | 0.00142421 |
| 1996 | 18.35 | 43.41 | 3.54 | 50.63 | 0.00142904 |
| 1997 | 17.52 | 20.95 | 2.86 | 54.77 | 0.00057504 |
| 1998 | 16.23 | 41.97 | 1.76 | 53.72 | 0.00064427 |
| 1999 | 7.78 | 34.91 | -2.04 | 55.68 | -0.00030772 |

PEER GROUP 2

| Gearing-X1 | Liquidity-X2 | Earnings-X3 | Asset Quality-X4 | Performance-Zp2 |
|---|---|---|---|---|
| 18.24 | 40.86 | 1.76 | 64.71 | 0.00084706 |
| 17.93 | 32.94 | 2.74 | 71.74 | 0.00116080 |
| 15.66 | 33.89 | 3.03 | 75.00 | 0.00120592 |
| 13.13 | 43.51 | 2.54 | 62.39 | 0.00090421 |
| 12.10 | 41.61 | 2.97 | 66.64 | 0.00099637 |
| 9.18 | 51.16 | 2.25 | 48.57 | 0.00051276 |
| 8.66 | 57.93 | 2.82 | 37.11 | 0.00052541 |
| 8.30 | 50.69 | 0.92 | 52.83 | 0.00020359 |
| 10.67 | 39.62 | 2.36 | 61.47 | 0.00061234 |
| 9.57 | 40.90 | 1.92 | 52.36 | 0.00039351 |
| 13.37 | 31.14 | 2.89 | 62.42 | 0.00075071 |
| 43.76 | 47.05 | 2.23 | 62.76 | 0.00287888 |
| 32.32 | 46.22 | 3.40 | 61.30 | 0.00310892 |

PEER GROUP 3

| Gearing-X1 | Liquidity-X2 | Earnings-X3 | Asset Quality-X4 | Performance-Zp3 |
|---|---|---|---|---|
| 18.24 | 54.19 | -2.14 | 53.32 | -0.00112629 |
| 17.93 | 58.09 | -1.24 | 50.40 | -0.00065167 |
| 15.66 | 44.93 | 0.25 | 67.06 | 0.00011936 |
| 13.13 | 63.20 | 1.15 | 47.43 | 0.00045287 |
| 12.10 | 63.76 | 1.52 | 45.45 | 0.00053125 |
| 9.18 | 102.01 | -0.56 | 19.90 | -0.00010501 |
| 8.66 | 95.81 | 5.02 | 17.84 | 0.00074372 |
| 8.30 | 100.41 | 4.34 | 28.47 | 0.00102879 |
| 10.67 | 79.51 | 3.31 | 36.06 | 0.00101301 |
| 9.57 | 59.61 | 2.32 | 52.19 | 0.00069122 |
| 13.37 | 43.34 | 3.64 | 58.84 | 0.00124101 |
| 43.76 | 63.20 | 3.61 | 66.14 | 0.00659470 |
| 32.32 | 61.20 | -2.53 | 57.15 | -0.00285855 |

PEER GROUP 4

| | Gearing-X1 | Liquidity-X2 | Earnings-X3 | Asset Quality-X4 | Performance-Zp4 |
|---|---|---|---|---|---|
| 1987 | 13.03 | 38.70 | 1.69 | 63.89 | 0.00054495 |
| 1988 | 13.39 | 33.66 | 1.99 | 63.09 | 0.00056566 |
| 1989 | 14.90 | 32.52 | 2.42 | 66.83 | 0.00078235 |
| 1990 | 13.69 | 31.30 | 3.42 | 64.89 | 0.00095254 |
| 1991 | 16.00 | 39.14 | 2.64 | 60.47 | 0.00100054 |
| 1992 | 15.27 | 54.89 | 2.84 | 51.15 | 0.00121705 |
| 1993 | 24.56 | 95.66 | 2.22 | 41.99 | 0.00218924 |
| 1994 | 18.89 | 66.79 | 2.59 | 40.61 | 0.00132696 |
| 1995 | 17.18 | 57.65 | 1.81 | 47.72 | 0.00085656 |
| 1996 | 16.38 | 56.05 | 2.00 | 52.18 | 0.00095987 |
| 1997 | 18.51 | 41.84 | 1.86 | 54.60 | 0.00078667 |
| 1998 | 21.58 | 64.67 | 1.68 | 35.60 | 0.00083456 |
| 1999 | 12.88 | 52.08 | -0.35 | 50.87 | -0.00012022 |

PEER GROUP 5

| Gearing-X1 | Liquidity-X2 | Earnings-X3 | Asset Quality-X4 | Performance-Zp5 |
|---|---|---|---|---|
| 21.08 | 64.49 | 3.52 | 59.56 | 0.00284993 |
| 22.28 | 60.31 | 3.67 | 60.52 | 0.00298743 |
| 19.25 | 52.92 | 2.31 | 65.21 | 0.00153193 |
| 28.89 | 55.19 | 5.82 | 58.36 | 0.00541514 |
| 38.75 | 62.35 | 5.34 | 58.09 | 0.00749901 |
| 28.48 | 55.39 | 6.27 | 42.28 | 0.00418099 |
| 21.39 | 55.16 | 5.61 | 37.86 | 0.00250522 |
| 36.94 | 66.20 | 0.56 | 39.24 | 0.00054140 |
| 24.93 | 62.68 | -3.97 | 46.76 | -0.00289945 |
| 20.70 | 61.97 | -1.71 | 50.29 | -0.00110443 |
| 25.95 | 72.56 | 1.46 | 55.30 | 0.00151759 |
| 27.15 | 59.74 | 1.47 | 53.62 | 0.00127935 |
| 29.98 | 51.85 | 0.70 | 55.42 | 0.00060119 |

Source: Research Data

Table 6 shows performance ratios as Per Peer gropus for Commercial Banks for the period 1987-1999

**Table 7: Summary Regression Output-PEER GROUPS 1 and 2**

**Regression Output for the Banks Performance Ratios-Peer group 1**
SUMMARY OUTPUT

| *Regression Statistics* | |
|---|---|
| Multiple R | 0.965892395 |
| R Square | 0.932948119 |
| Adjusted R Square | 0.899422178 |
| Standard Error | 0.000148736 |
| Observations | 13 |

ANOVA

| | *df* | *SS* | *MS* | *F* | *Significance F* |
|---|---|---|---|---|---|
| Regression | 4 | 2.46245E-06 | 6.15612E-07 | 27.82764938 | 9.56466E-05 |
| Residual | 8 | 1.76978E-07 | 2.21223E-08 | | |
| Total | 12 | 2.63943E-06 | | | |

| | *Coefficients* | *Standard Error* | *t Stat* | *P-value* | *Lower 95%* | *Upper 95%* | *Lower 95.0%* | *Upper 95.0%* |
|---|---|---|---|---|---|---|---|---|
| Intercept | -0.002134357 | 0.00089565 | -2.38302569 | 0.044335809 | -0.004199731 | -6.8983E-05 | -0.004199731 | -6.8983E-05 |
| Gearing-X1 | 6.95503E-05 | 2.67299E-05 | 2.601967109 | 0.031521302 | 7.91101E-06 | 0.00013119 | 7.91101E-06 | 0.00013119 |
| Liquidity-X2 | 2.20752E-05 | 8.48597E-06 | 2.601377209 | 0.031550212 | 2.50651E-06 | 4.16439E-05 | 2.50651E-06 | 4.16439E-05 |
| Earnings-X3 | 0.000156494 | 5.68592E-05 | 2.752311783 | 0.024969573 | 2.53766E-05 | 0.000287612 | 2.53766E-05 | 0.000287612 |
| Asset Quality-X4 | 1.18786E-05 | 9.75821E-06 | 1.217288334 | 0.25818095 | -1.06239E-05 | 3.4381E-05 | -1.06239E-05 | 3.4381E-05 |

**Source: Ms Excel Regressions**

**Regression Output for the Banks Performance Ratios- peer group 2**
SUMMARY OUTPUT

| *Regression Statistics* | |
|---|---|
| Multiple R | 0.981571229 |
| R Square | 0.963482077 |
| Adjusted R Square | 0.945223115 |
| Standard Error | 0.000210017 |
| Observations | 13 |

ANOVA

| | *df* | *SS* | *MS* | *F* | *Significance F* |
|---|---|---|---|---|---|
| Regression | 4 | 9.3097E-06 | 2.32742E-06 | 52.76762732 | 8.63212E-06 |
| Residual | 8 | 3.52856E-07 | 4.4107E-08 | | |
| Total | 12 | 9.66255E-06 | | | |

| | *Coefficients* | *Standard Error* | *t Stat* | *P-value* | *Lower 95%* | *Upper 95%* | *Lower 95.0%* | *Upper 95.0%* |
|---|---|---|---|---|---|---|---|---|
| Intercept | -0.002940484 | 0.001363671 | -2.156299584 | 0.063152454 | -0.006085117 | 0.00020415 | -0.006085117 | 0.00020415 |
| Gearing-X1 | 7.12E-05 | 7.25033E-06 | 9.820244744 | 9.71757E-06 | 5.44807E-05 | 8.79193E-05 | 5.44807E-05 | 8.79193E-05 |
| Liquidity-X2 | 2.48907E-05 | 1.5716E-05 | 1.583781115 | 0.151902274 | -1.13505E-05 | 6.11319E-05 | -1.13505E-05 | 6.11319E-05 |
| Earnings-X3 | 0.000384743 | 9.93678E-05 | 3.87190611 | 0.004728581 | 0.0001556 | 0.000613886 | 0.0001556 | 0.000613886 |
| Asset Quality-X4 | 1.41855E-05 | 1.27032E-05 | 1.116692246 | 0.296539631 | -1.51081E-05 | 4.34791E-05 | -1.51081E-05 | 4.34791E-05 |

**Source: Ms Excel Regressions**

**Table 7 shows regression output for peer groups 1 and 2 Banks performance ratios with Multiple R and R Square close to 1**

**Table 8: Summary Regression Output-PEER GROUPS 3 and 4**

**Regression Output for the Banks Performance Ratios-peer group 3**

SUMMARY OUTPUT

| *Regression Statistics* | |
|---|---|
| Multiple R | 0.867489276 |
| R Square | 0.752537645 |
| Adjusted R Square | 0.628806467 |
| Standard Error | 0.001292336 |
| Observations | 13 |

ANOVA

| | *df* | *SS* | *MS* | *F* | *Significance F* |
|---|---|---|---|---|---|
| Regression | 4 | 4.06312E-05 | 1.02E-05 | 6.082037 | 0.015038248 |
| Residual | 8 | 1.33611E-05 | 1.67E-06 | | |
| Total | 12 | 5.39923E-05 | | | |

| | *Coefficients* | *Standard Error* | *t Stat* | *P-value* | *Lower 95%* | *Upper 95%* | *Lower 95.0%* | *Upper 95.0%* |
|---|---|---|---|---|---|---|---|---|
| Intercept | -0.008312183 | 0.008242139 | -1.0085 | 0.342741 | -0.027318602 | 0.010694236 | -0.027318602 | 0.010694236 |
| Gearing-X1 | 7.24013E-05 | 6.47766E-05 | 1.117708 | 0.29613 | -7.69738E-05 | 0.000221776 | -7.69738E-05 | 0.000221776 |
| Liquidity-X2 | 4.7852E-05 | 6.82458E-05 | 0.701171 | 0.503078 | -0.000109523 | 0.000205227 | -0.000109523 | 0.000205227 |
| Earnings-X3 | 0.000642566 | 0.000162691 | 3.949612 | 0.004238 | 0.0002674 | 0.001017732 | 0.0002674 | 0.001017732 |
| Asset Quality-X4 | 7.62318E-05 | 9.78099E-05 | 0.779387 | 0.458186 | -0.000149319 | 0.000301782 | -0.000149319 | 0.000301782 |

**Source: Ms Excel Regressions**

**Regression Output for the Banks Performance Ratios-peer group 4**

SUMMARY OUTPUT

| *Regression Statistics* | |
|---|---|
| Multiple R | 0.995983387 |
| R Square | 0.991982906 |
| Adjusted R Square | 0.987974359 |
| Standard Error | 5.72449E-05 |
| Observations | 13 |

ANOVA

| | *df* | *SS* | *MS* | *F* | *Significance F* |
|---|---|---|---|---|---|
| Regression | 4 | 3.24377E-06 | 8.11E-07 | 247.467 | 2.05231E-08 |
| Residual | 8 | 2.62158E-08 | 3.28E-09 | | |
| Total | 12 | 3.26999E-06 | | | |

| | *Coefficients* | *Standard Error* | *t Stat* | *P-value* | *Lower 95%* | *Upper 95%* | *Lower 95.0%* | *Upper 95.0%* |
|---|---|---|---|---|---|---|---|---|
| Intercept | -0.003206702 | 0.000290291 | -11.0465 | 4.02E-06 | -0.003876114 | -0.002537289 | -0.003876114 | -0.002537289 |
| Gearing-X1 | 4.34732E-05 | 9.7644E-06 | 4.452217 | 0.002133 | 2.09565E-05 | 6.599E-05 | 2.09565E-05 | 6.599E-05 |
| Liquidity-X2 | 2.62171E-05 | 2.09873E-06 | 12.49188 | 1.58E-06 | 2.13774E-05 | 3.10568E-05 | 2.13774E-05 | 3.10568E-05 |
| Earnings-X3 | 0.000345577 | 2.18812E-05 | 15.79338 | 2.58E-07 | 0.000295119 | 0.000396035 | 0.000295119 | 0.000396035 |
| Asset Quality-X4 | 2.51948E-05 | 3.43896E-06 | 7.326278 | 8.18E-05 | 1.72645E-05 | 3.3125E-05 | 1.72645E-05 | 3.3125E-05 |

**Source: Ms Excel Regressions**

**Table 8 shows regression output for peer groups 3 and 4 on Banks performance with Multiple R and R Square close to 1**

**Table 9: SUMMARY REGRESSION OUTPUT-PEER GROUP 5**

SUMMARY OUTPUT

| *Regression Statistics* | |
|---|---|
| Multiple R | 0.982079488 |
| R Square | 0.96448012 |
| Adjusted R Square | 0.94672018 |
| Standard Error | 0.000622392 |
| Observations | 13 |

ANOVA

| | *df* | *SS* | *MS* | *F* | *Significance F* |
|---|---|---|---|---|---|
| Regression | 4 | 8.41471E-05 | 2.1E-05 | 54.3065 | 7.73279E-06 |
| Residual | 8 | 3.09897E-06 | 3.87E-07 | | |
| Total | 12 | 8.72461E-05 | | | |

| | *Coefficients* | *Standard Error* | *t Stat* | *P-value* | *Lower 95%* | *pper 95%* | *Lower 95.0%* | *Upper 95.0%* |
|---|---|---|---|---|---|---|---|---|
| Intercept | -0.010163793 | 0.002395158 | -4.243474 | 0.002824 | -0.015687041 | -0.004641 | -0.01568704 | -0.00464054 |
| Gearing-X1 | 0.000136676 | 3.15434E-05 | 4.332944 | 0.002502 | 6.39366E-05 | 0.000209 | 6.3937E-05 | 0.000209415 |
| Liquidity-X2 | 3.87463E-05 | 3.31149E-05 | 1.170056 | 0.275653 | -3.76169E-05 | 0.000115 | -3.7617E-05 | 0.000115109 |
| Earnings-X3 | 0.000755543 | 6.36325E-05 | 11.87354 | 2.32E-06 | 0.000608806 | 0.000902 | 0.00060881 | 0.00090228 |
| Asset Quality-X4 | 8.50747E-05 | 2.15081E-05 | 3.955472 | 0.004204 | 3.54769E-05 | 0.000135 | 3.5477E-05 | 0.000134672 |

**Source: Ms Excel Regressions**

**Table 9 shows regression output for peer group 5 Banks performance ratios with both the Multiple R and R square close to 1.**

**Table 10: FINANCIAL PERFORMANCE RATIOs-NBFIs**

| Year | Performance | Gearing | Earnings | Liquidity | Asset Quality |
|---|---|---|---|---|---|
| 1987 | 0.00009677 | 8.63 | 0.99 | 18.31 | 62.17 |
| 1988 | 0.00007776 | 9.57 | 1.00 | 13.19 | 61.50 |
| 1989 | 0.00006830 | 9.05 | 0.93 | 13.47 | 60.10 |
| 1990 | 0.00004054 | 9.02 | 0.77 | 9.60 | 61.11 |
| 1991 | 0.00002919 | 9.23 | 0.42 | 12.57 | 59.77 |
| 1992 | 0.00004594 | 9.98 | 0.44 | 18.31 | 57.31 |
| 1993 | 0.00044215 | 13.55 | 1.64 | 40.06 | 49.58 |
| 1994 | 0.00029139 | 13.14 | 1.07 | 41.49 | 50.15 |
| 1995 | 0.00070968 | 15.47 | 2.11 | 35.41 | 61.50 |
| 1996 | 0.00096161 | 16.77 | 3.17 | 28.38 | 63.83 |
| 1997 | 0.00096445 | 20.06 | 1.94 | 35.25 | 70.14 |
| 1998 | 0.00026224 | 18.31 | 1.05 | 19.98 | 68.04 |
| 1999 | 0.00072081 | 21.49 | 2.01 | 24.79 | 67.42 |
| Variance | 0.000000128737 | 21.1857 | 0.6143 | 123.9137 | 37.3666 |
| 1987-1992 | 0.000000000652 | 0.2227 | 0.0714 | 11.8341 | 2.9681 |
| 1993-1999 | 0.000000086855 | 10.0662 | 0.5204 | 64.4303 | 71.4897 |

**Table 10 shows improving financial performance ratios for NBFIs and the period variances for the ratios.**

Table 11: HYPOTHESIS TESTING FOR NBFIs RATIOS

Z-TESTS-NBFIs

performance

z-Test: Two Sample for Means

| | *1987-1992* | *1993-1999* |
|---|---|---|
| Mean | 5.97513E-05 | 0.000621761 |
| Known Variance | 6.52E-10 | 8.6855E-08 |
| Observations | 6 | 7 |
| Hypothesized Mean Difference | 0 | |
| z | -5.023448049 | |
| P(Z<=z) one-tail | 2.5417E-07 | |
| z Critical one-tail | 1.644853 | |
| P(Z<=z) two-tail | 5.08341E-07 | |
| z Critical two-tail | 1.959961082 | |

liquidity

z-Test: Two Sample for Means

| | *1987-1992* | *1993-1999* |
|---|---|---|
| Mean | 14.242346 | 32.1945043 |
| Known Variance | 11.8341 | 64.4303 |
| Observations | 6 | 7 |
| Hypothesized Mean Difference | 0 | |
| z | -5.369827 | |
| P(Z<=z) one-tail | 3.949E-08 | |
| z Critical one-tail | 1.644853 | |
| P(Z<=z) two-tail | 7.899E-08 | |
| z Critical two-tail | 1.9599611 | |

gearing

z-Test: Two Sample for Means

| | *1987-1992* | *1993-1999* |
|---|---|---|
| Mean | 9.245919469 | 16.96929484 |
| Known Variance | 0.2227 | 10.0662 |
| Observations | 6 | 7 |
| Hypothesized Mean Difference | 0 | |
| z | -6.359013577 | |
| P(Z<=z) one-tail | 1.01986E-10 | |
| z Critical one-tail | 1.644853 | |
| P(Z<=z) two-tail | 2.03972E-10 | |
| z Critical two-tail | 1.959961082 | |

asset quality

z-Test: Two Sample for Means

| | *1987-1992* | *1993-1999* |
|---|---|---|
| Mean | 60.326201 | 61.522198 |
| Known Variance | 2.9681 | 71.4897 |
| Observations | 6 | 7 |
| Hypothesized Mean Difference | 0 | |
| z | -0.365499 | |
| P(Z<=z) one-tail | 0.3573695 | |
| z Critical one-tail | 1.644853 | |
| P(Z<=z) two-tail | 0.714739 | |
| z Critical two-tail | 1.9599611 | |

earnings

z-Test: Two Sample for Means

| | *1987-1992* | *1993-1999* |
|---|---|---|
| Mean | 0.757513814 | 1.855146251 |
| Known Variance | 0.0714 | 0.5204 |
| Observations | 6 | 7 |
| Hypothesized Mean Difference | 0 | |
| z | -3.737621892 | |
| P(Z<=z) one-tail | 9.29126E-05 | |
| z Critical one-tail | 1.644853 | |
| P(Z<=z) two-tail | 0.000185825 | |
| z Critical two-tail | 1.959961082 | |

Table 11 shows Hypothesis testing for financial performance ratios for the Pre as well as the Post Liberalisation periods For NBFIs

**Table 12: REGRESSION RESULTS FOR NBFIs**

SUMMARY OUTPUT

| *Regression Statistics* | |
|---|---|
| Multiple R | 0.981997525 |
| R Square | 0.964319138 |
| Adjusted R Square | 0.946478708 |
| Standard Error | 8.30072E-05 |
| Observations | 13 |

ANOVA

| | *df* | *SS* | *MS* | *F* | *Significance F* |
|---|---|---|---|---|---|
| Regression | 4 | 1.48973E-06 | 3.72432E-07 | 54.05245804 | 7.87289E-06 |
| Residual | 8 | 5.51215E-08 | 6.89019E-09 | | |
| Total | 12 | 1.54485E-06 | | | |

| | *Coefficients* | *Standard Error* | *t Stat* | *P-value* | *Lower 95%* | *Upper 95%* | *Lower 95.0%* | *Upper 95.0%* |
|---|---|---|---|---|---|---|---|---|
| Intercept | -0.001447007 | 0.000461724 | -3.133925178 | 0.013932437 | -0.002511745 | -0.000382 | -0.00251174 | -0.00038227 |
| Gearing | 6.4946E-06 | 1.22114E-05 | 0.53184657 | 0.609279826 | -2.1665E-05 | 3.465E-05 | -2.1665E-05 | 3.46542E-05 |
| Earnings | 0.000253115 | 4.62596E-05 | 5.471625259 | 0.000593306 | 0.00014644 | 0.0003598 | 0.00014644 | 0.00035979 |
| Asset quality | 1.76068E-05 | 8.26244E-06 | 2.130948989 | 0.065695827 | -1.4464E-06 | 3.666E-05 | -1.4464E-06 | 3.66601E-05 |
| Liquidity | 1.28609E-05 | 4.89534E-06 | 2.627179877 | 0.030310614 | 1.57226E-06 | 2.415E-05 | 1.57226E-06 | 2.41496E-05 |

RESIDUAL OUTPUT

| *Observation* | *Predicted Y* | *Residuals* | *Standard Residuals* |
|---|---|---|---|
| 1 | 0.000188595 | -9.18211E-05 | -1.354791601 |
| 2 | 0.000121041 | -4.32827E-05 | -0.638622179 |
| 3 | 7.91123E-05 | -1.08123E-05 | -0.15953227 |
| 4 | 4.93579E-06 | 3.56072E-05 | 0.525373775 |
| 5 | -6.65089E-05 | 9.57029E-05 | 1.412066791 |
| 6 | -2.65544E-05 | 7.24932E-05 | 1.069614743 |
| 7 | 0.00044491 | -2.75848E-06 | -0.040700479 |
| 8 | 0.000324654 | -3.32663E-05 | -0.490834572 |
| 9 | 0.000724877 | -1.51933E-05 | -0.224172225 |
| 10 | 0.000952018 | 9.59328E-06 | 0.141545902 |
| 11 | 0.000863742 | 0.000100703 | 1.485845404 |
| 12 | 0.000393522 | -0.000131281 | -1.937011076 |
| 13 | 0.000706492 | 1.43153E-05 | 0.211217786 |

PROBABILITY OUTPUT

| *Percentile* | *Y* |
|---|---|
| 3.846153846 | 2.919E-05 |
| 11.53846154 | 4.054E-05 |
| 19.23076923 | 4.594E-05 |
| 26.92307692 | 6.83E-05 |
| 34.61538462 | 7.776E-05 |
| 42.30769231 | 9.677E-05 |
| 50 | 0.0002622 |
| 57.69230769 | 0.0002914 |
| 65.38461538 | 0.0004422 |
| 73.07692308 | 0.0007097 |
| 80.76923077 | 0.0007208 |
| 88.46153846 | 0.0009616 |
| 96.15384615 | 0.0009644 |

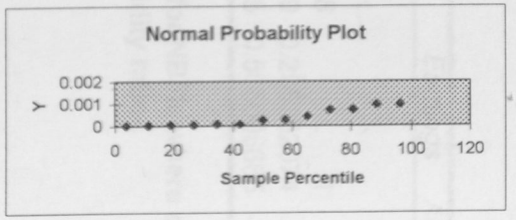



**Table 12 above shows regression output for NBFIs with Multiple R and R Square close to 1.**

**Table 13: CORRELATION TESTS-NBFIs**

| | *Performance* | *Gearing* | *Earnings* | *Asset quality* | *Liquidity* |
|---|---|---|---|---|---|
| Performance | 1 | | | | |
| Gearing | 0.842992439 | 1 | | | |
| Earnings | 0.925107159 | 0.694485128 | 1 | | |
| Asset quality | 0.386928337 | 0.511587049 | 0.296352074 | 1 | |
| Liquidity | 0.667957321 | 0.556962155 | 0.565005665 | -0.2995335 | 1 |

**Table 13 above shows correlation tests for NBFIs where strong correlations to performance are noted in gearing, Earnings and Liquidity ratios**

## CHART 6: TRENDS IN FINANCIAL PERFORMANCE RATIOS -NBFIs

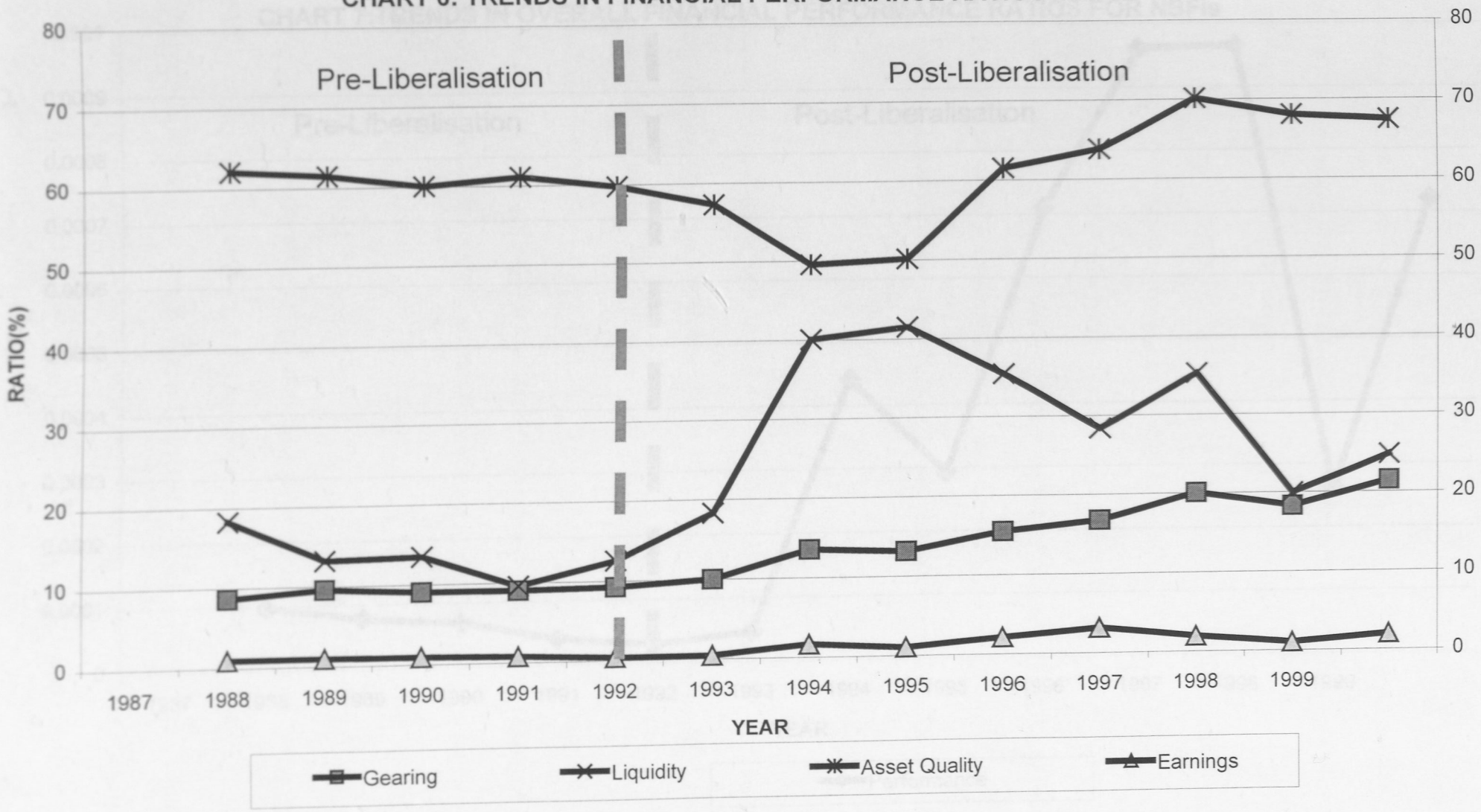
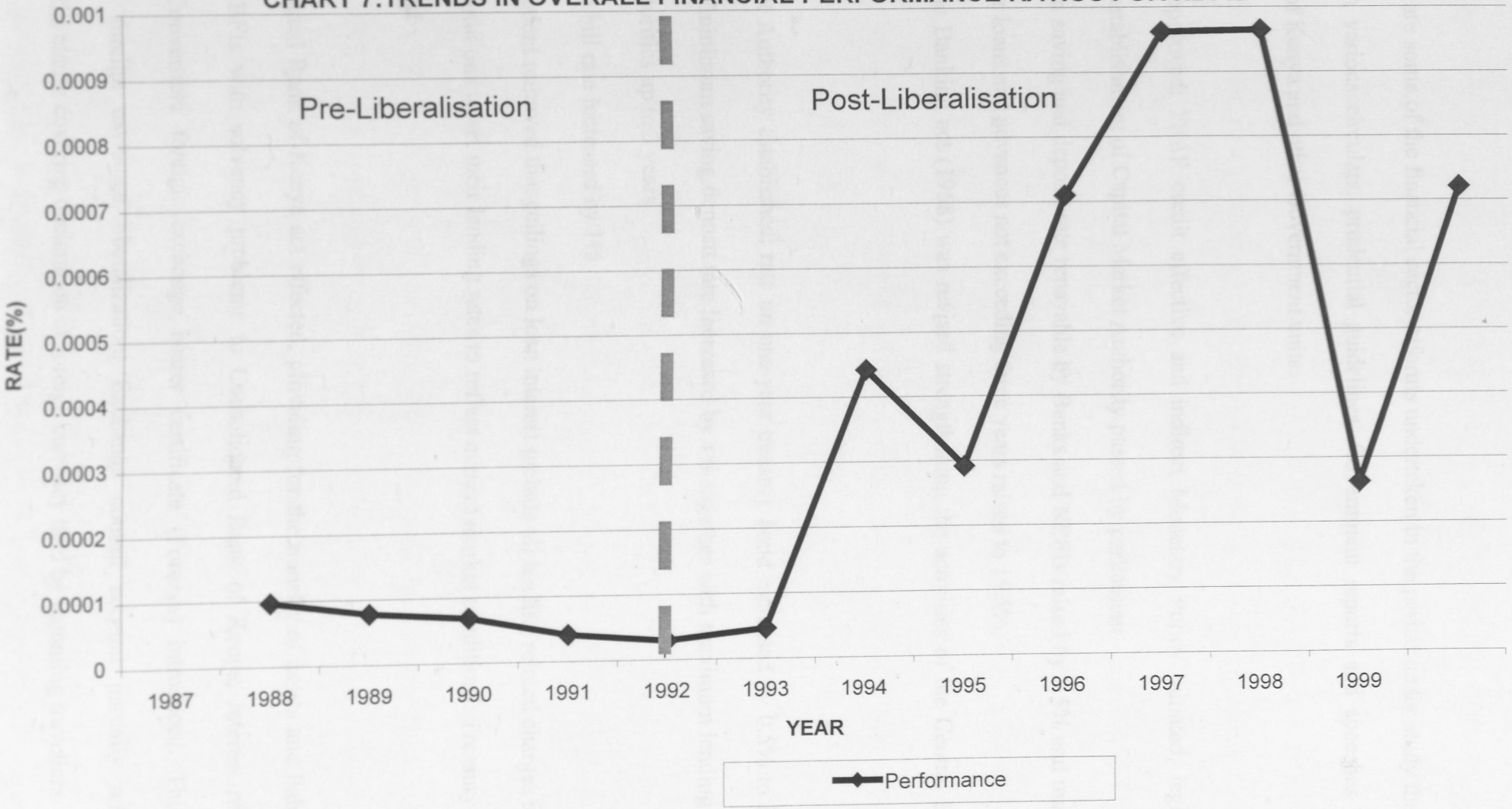


CHART 7:TRENDS IN OVERALL FINANCIAL PERFORMANCE RATIOS FOR NBFIs



## A1.04 FINANCIAL SECTOR REFORMS IN KENYA (1989-1996)

The following are some of the financial sector reforms undertaken in the period under study that were issued through various circulars, prudential guidelines, Government reports and speeches by the Central Bank of Kenya and other Government units:

- **1989**

FSAP credit approved; FSAP credit effective and indirect Monetary Policy initiated; legislation providing for establishment of Capital Market Authority passed by parliament

-Maximum saving and deposit rate repayable by Banks and NBFIs raised by 0.5% and maximum lending rate for loans and advances not exceeding three years raised to 15.5%.

In the year, the Banking act (1968) was revised strengthening the activities of the Central Bank of Kenya

- **1990**

Capital Market Authority established; rate on one-year treasury bond increased by 0.5% to increase attractiveness; minimum saving deposit rate increased by 1% together with maximum lending rate for loans with maturities up to 3 years.

-Treasury bill rate increased by 1%

-Requirement removed that ceilings on loan interest include all lending related charges and fees, permitting institutions to set their lending rates to reflect current market conditions: Treasury bill rate fully liberalized

- **1991**

June-Consolidated Bank of Kenya act effected, providing for the transfer of assets and liabilities of banks and NBFIs with solvency problems to Consolidated Bank of Kenya; interest rates fully liberalized; Convertible foreign exchange bearer certificate (Forexcs) introduced. This was a milestone in foreign exchange liberalization; Exchange control account partially relaxed by withdrawing the clause covering declaration of foreign currency held by incoming travellers.

- **1992**

Minimum capital/assets ratio raised to 7.5% from 5.5%. prudential guidelines for self regulation, including code of conduct of Directors, Chief Executives and other employees, duties and responsibilities of external auditors and provision for bad and doubtful advances and loans; CBK acquired Shs 500m in treasury bills to replenish its stock of trading portfolio; Secondary market for forexc's established; marginal cost raised by 1% for additional shs 50m in advances and rediscount of treasury bills and other Government securities to ensure that commercial banks with overdrafts at Central Bank exceeding shs 50m are appropriately sanctioned; retention scheme introduced allowing 100% retention of foreign exchange earnings from non-traditional exports; commercial banks allowed to borrow foreign exchange currency to finance tea and coffee purchases in auctions; Banks allowed to send dollars accounts for coffee and tea buyers and sellers; new penalties announced for commercial banks failing to observe the cash ratios and liquidity ratios; retention scheme extended to cover traditional exports of goods at 50%

- **1993**

Retention scheme extended to service sector at 50% while the foreign exchange allocation by Central Bank of Kenya abolished; foreign certificate made redeemable at market exchange rate; official shilling exchange rate devalued by 25%; retention account suspended; margin on Central Bank advances and discounts to banks increased; cash ratio increased to 8% from 6%; Ksh devalued by 33%; maturity life for securities to be eligible for rediscounting reduced to 45 days or less; new penalty for banks failing to observe the mandatory cash ratio announced; re-introduction of retention scheme-50% of all foreign exchange; commercial banks allowed to effect foreign payments for their private clients without referring to CBK; import licensing system prohibited and restricted imports; revolution of restriction on importation of assembled commercial vehicles; maximum import tariff reduced from 60% to 50% and tariff rate bands from 9 to 7; introduction of one-way foreign exchange auction system; cash ratio raised to 10% from 8%; Paper eligible for rediscounting restricted by lowering maturities Treasury bills(half way), Treasury bonds(45 days or less);securities accepted as eligible as collateral for overnight loans; a two tier foreign auction system introduced; Nairobi clearing house new arrangements effected to eliminate

automatic provision of Central Bank credit to banks; registration of forex certificate holders with banks in order to buy them back at negotiated or market price; registration of foreign exchange certificate by banks with Central Bank; shilling exchange rate allowed to float freely; cash ratio raised from 10% to 12% with balance above the minimum requirement to earn interest at 35% p.a.; Central Bank started daily foreign exchange transactions with commercial banks; commercial banks allowed to continue purchasing foreign exchange for oil and petroleum products from the market and Central Bank; Central Bank continued entering into forward contracts for purchase of oil and related products at market rates; credit guidelines abolished; cash ratio raised from 12% to 14% with excess balances paid 35% interest p.a.; restriction on remittance of profits, dividends and expansion earnings; residents allowed to borrow abroad up to US$ 1 million

- **1994**

Cash ratio increased from 14% to 16% with interest paid on bank balances with bank in excess of 10% reduced to 20% from 25%; foreign exchange retention raised to 100%; residents were allowed to open foreign currency accounts with banks in Kenya; restriction on local borrowing by foreign controlled companies removed; foreigners allowed to pay hotel bills and air tickets in either foreign or Kenya currency; liquidity ratio for commercial banks and NBFIs be maintained at 5% and 10% respectively; cash ratio raised from 16% to 20% and interest payment on commercial banks deposits at the bank withdrawn; Open Market Operations sale of treasury bills to be at least 0.5% below the weekly average tender rate; commercial banks to borrow from Central Bank for a maximum of 4 consecutive days and no more than 10 days in any one month; Kenya accepted obligations of Articles of Agreement if the International Monetary Fund; Foreign currency account holders encouraged to retain some of their deposits overseas under the care of commercial banks; commercial banks required to back the funds retained overseas 100 % foreign assets; restated determination of the exchange rate by market forces; cash ratio lowered from 20% to 18%; announced requirement for NBFIs to open accounts with the Central Bank for purposes of maintaining cash ratio.

- **1995**

Authorisation and licensing of foreign exchange Bureaus announced; foreign investors allowed to participate in stock exchange under guided policy on ownership; reaffirmation that the regulatory body of the stock exchange would be Capital Market Authority; commercial banks required to observe foreign exchange exposure limit of 20% of the paid up capital plus unimpaired reserves; newly converted NBFIs to observe half the mandatory 18% of the cash ratio later required to observe 18% by

December 1995; tightened conditions for overnight loans and rediscounting at the Central Bank; treasury bills held at 50% of life to maturity for overnight loans or 75% for rediscount were eligible; Bills to hold for two clear working days to maturity while banks lending in the inter-bank market not allowed to borrow overnight from the Central Bank; commercial banks required to submit weekly foreign currency returns every Monday, off balance sheet items excluded from computation of foreign currency exposure aiming to minimize foreign currency exposure risk and enhance the stability of the financial system; investment compensation fund established to protect investors against losses arising from equity trading; foreign capital regulations revised to enable foreigners to own up to 40% of local company listed in NSE and equity participation by a single investor increased from 2.5% to 5%; liquidity ratio fixed at 25% for both banks and NBFIs and 20% for Mortgages finance companies; minimum investment in treasury bills under OMO lowered to shs 100,000 from shs 1,000,000; procedure for renewal of licences by Banks and NBFIs modified; licenses for branches to be computed on a pro-rated basis thereafter full year license fees to be paid for the Head office and all branches simultaneously; Commercial banks allowed to exclude deposits of financial institutions from cash ratio base; commercial banks to submit monthly breakdown of Government parastatal deposits in addition to monthly statistic returns; The Central Bank launched a redesigned treasury bill that conforms with the magnetic ink character recognition cheque clearing system, Banking act amended raising the minimum capital paid up; Central Bank started paying 5% interest on all cash balances held by commercial banks and NBFIs at the Central Bank to facilitate a reduction in banking lending rates; NBFIs required to invest in treasury bills a minimum of 50% of their total assets withdrawn; repeal of Exchange Control act; cash ratio raised to 18%.

- **1996**

Central Bank to display OMO rates on the Reuter screen to encourage independent decision on quotation for purchase of the Treasury Bills; measures taken to improve effectiveness of secondary trading in financial instruments; replaced treasury bills for 30,90 and 180 days with 28, 91 and 182 days while discontinuing the 60 and 270 days bills; cash ratio requirement relaxed to allow

fluctuations up to minimum but an average of 18% for 14 days; 5% interest that commercial banks received on the cash balances with Central Bank discontinued.

**Source: Ngugi and Kabubo (1998); Others: Circulars to Commercial Banks and Bank Supervision Annual Reports (Various)**

## A1.05 COMMERCIAL BANKS IN KENYA

| INSTITUTION | YEAR LICENSED | PEER GROUP |
|---|---|---|
| 1. ABN- AMRO Bank N. V. | 1951 | 2 |
| 2. African Banking Corporation Ltd | 1984 | 3 |
| 3. Akiba Bank Ltd | 1974 | 4 |
| 4. Bank Of Baroda (K) Ltd | 1953 | 4 |
| 5. Bank Of India | 1953 | 4 |
| 6. Barclays Bank Of Kenya Ltd | 1926 | 1 |
| 7. Biashara Bank Of Kenya Ltd | 1984 | 4 |
| 8. Bullion Bank Ltd (Under Statutory Management) | 1991 | 4 |
| 9. CFC Bank Ltd | 1955 | 2 |
| 10. Chase Bank (K) Ltd | 1991 | 5 |
| 11. Charter House Bank Ltd | 1982 | 5 |
| 12. Citibank N.A. | 1974 | 1 |
| 13. City Finance Bank Ltd (Under Statutory Management) | 1985 | 3 |
| 14. Commerce Bank Ltd | 1986 | 4 |
| 15. Commercial Bank Of Africa Ltd | 1967 | 2 |
| 16. Consolidated Bank Of Kenya Ltd | 1989 | 3 |
| 17. Co-Operative Bank Of Kenya Ltd | 1968 | 1 |
| 18. Co-Operative Merchant Bank | 1992 | 4 |
| 19. Credit Agricole Indosuez | 1980 | 2 |
| 20. Credit Bank Ltd | 1986 | 4 |
| 21. Daima Bank Ltd | 1992 | 4 |
| 22. Development Bank Of Kenya Ltd | 1996 | 3 |
| 23. Diamond Trust Bank (K) Ltd | 1965 | 2 |
| 24. Equatorial Bank Ltd | 1984 | 4 |
| 25. Euro Bank Ltd | 1992 | 5 |
| 26. Fidelity Commercial Bank Ltd | 1992 | 5 |
| 27. Fina Bank Ltd | 1986 | 3 |
| 28. First National Finance Bank Ltd | 1992 | 4 |
| 29. First American Bank Of (K) Ltd | 1974 | 2 |
| 30. Guardian Bank Ltd | 1992 | 4 |
| 31. Giro Bank Ltd | 1992 | 4 |
| 32. Guilders International Bank Ltd | 1992 | 4 |
| 33. Habib African Bank Ltd | 1980 | 5 |
| 34. Habib A.G. Zurich | 1978 | 4 |
| 35. Habib Bank Ltd | 1956 | 4 |
| 36. Imperial Bank Ltd | 1992 | 4 |
| 37. Industrial Development Bank Ltd | 1981 | 3 |
| 38. Investments & Mortgages Bank Ltd | 1980 | 2 |
| 39. Kenya Commercial Bank Ltd | 1970 | 1 |
| 40. Mashreq Bank P. S. C. | 1981 | 5 |

| | | |
|---|---|---|
| 41. Middle East Bank (K) Ltd | 1980 | 3 |
| 42. National Bank Of Kenya Ltd | 1968 | 1 |
| 43. National Industrial Credit Bank Ltd | 1959 | 2 |
| 44. Paramount Bank Ltd | 1992 | 5 |
| 45. Prime Bank Ltd | 1992 | 4 |
| 46. Prudential Bank Ltd (Under Statutory Management) | 1986 | 4 |
| 47. Reliance Bank Ltd (Under Statutory Management) | 1988 | 4 |
| 48. Southern Credit Banking Corporation | 1980 | 4 |
| 49. Stanbic Bank (K) Ltd | 1970 | 2 |
| 50. Standard Chartered Bank (K) Ltd | 1910 | 1 |
| 51. The Delphis Bank Ltd | 1991 | 2 |
| 52. Trans-National Bank Ltd | 1985 | 4 |
| 53. Trust Bank Ltd (Under Statutory Management) | 1988 | 1 |
| 54. Universal Bank Ltd | 1992 | 4 |
| 55. Victoria Commercial Bank | 1987 | 3 |

**Source: Directory of Commercial Banks, Financial Institutions, Building Societies, Mortgage Finance Companies and Foreign Exchange Bureaus**

## A1.06 FINANCIAL INSTITUTIONS (NBFIs) IN KENYA

| | Year | Peer Group |
|---|---|---|
| 1. Bank Of India Finance Ltd | 1985 | 5 |
| 2. Barclays Merchant Finance Ltd | 1989 | 4 |
| 3. Cititrust (K) Ltd | 1987 | 5 |
| 4. Consolidated Bank Finance | 1989 | 5 |
| 5. Consolidated Bank Mortgage | 1989 | 5 |
| 6. Devna Finance Ltd | 1986 | 5 |
| 7. Fortune Finance Ltd | 1987 | 4 |
| 8. Glad- AK Finance | 1991 | 5 |
| 9. Kenya Commercial Finance Co. Ltd | 1971 | 2 |
| 10. Kenya National Capital Corporation | 1975 | 4 |
| 11. Prime Capital & Credit Ltd | 1987 | 4 |
| 12. Premier Savings And Finance Ltd | 1940 | 5 |
| 13. Standard Chartered Financial Services | 1968 | 5 |

**Source: Directory of Commercial Banks, Financial Institutions, Building Societies, Mortgage Finance Companies and Foreign Exchange Bureaus**

## A1.07 FAILED FINANCIAL INSTITUTIONS IN KENYA

| DATE CLOSED/STRUCTURED | NAME OF INSTITUTION |
|---|---|
| 1. Dec. 1984 | Rural Urban Credit & Finance Ltd |
| 2. Aug. 1986 | Continental Bank Of Kenya Ltd |
| 3. Aug. 1986 | Continental Credit & Finance Ltd. |
| 4. Jan. 1987 | Capital Finance Ltd |
| 5. Dec. 1989 | Business Finance Co. Ltd |
| 6. Dec. 1989 | Estate Finance Co. Of K Ltd |
| 7. Dec. 1989 | Home Savings And Mortgage Co. Ltd |

| | |
|---|---|
| 8. Dec. 1989 | Nation Wide Finance Co. Ltd |
| 9. Dec. 1989 | Union Bank Of Kenya Ltd |
| 10. Dec. 1989 | Jimba Credit Corporation Ltd |
| 11. Dec. 1989 | Kenya Savings & Mortgage Ltd |
| 12. April 1993 | Nairobi Finance Corporation Ltd |
| 13. April 1993 | International Finance Co. Ltd |
| 14. April 1993 | Exchange Bank Ltd |
| 15. May 1993 | Post Bank Credit Ltd |
| 16. June 1993 | Inter Africa Credit Finance Ltd |
| 17. Aug 1993 | Central Finance (K) Ltd |
| 18. Aug. 1993 | Middle Africa Finance Corporation Ltd |
| 19. Aug. 1993 | Trade Bank Ltd |
| 20. Aug. 1993 | Trade Finance Co. Ltd |
| 21. Aug. 1993 | Diners Finance Ltd |
| 22. Aug 1993 | Allied Credit Ltd |
| 23. Aug. 1993 | United Trustee Finance Ltd |
| 24. Oct. 1993 | Pan Africa Credit & Finance Ltd |
| 25. Oct. 1993 | Pan Africa Bank Ltd |
| 26. Aug. 1994 | United Bank |
| 27. Dec. 1994 | Thabiti Finance Co. Ltd |
| 28. April 1996 | Meridien Biao (K) Ltd |
| 29. Sept. 1996 | Heritage Bank Ltd |
| 30. Jul. 1996 | Kenya Finance Bank Ltd |
| 31. Dec. 1997 | Ari Banking Corporation Ltd |
| 32. Sept. 1998 | Reliance Bank Ltd |
| 33. Sept. 1998 | Bullion Bank Ltd |
| 34. Sept. 1998 | Trust Bank Ltd |
| 35. Nov. 1998 | Prudential Bank Ltd |
| 36. Nov. 1998 | Prudential Building Society Ltd |
| 37. Nov. 1998 | City Finance Bank Ltd |

**Source: Banking Survey 2000, Market Intelligence: The Business and Finance Journal : Others: Various Bank Supervision Annual Reports.**