

DETERMINANTS OF COMMERCIAL BANKS  
PROFITABILITY IN KENYA: THE CASE OF  
KENYAN QUOTED BANKS //

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*A MANAGEMENT RESEARCH PROJECT SUBMITTED IN PARTIAL  
FULFILMENT FOR THE DEGREE OF MASTER OF BUSINESS  
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# DECLARATION

This research project is my original work and has not been submitted for a degree in any other university.

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This management research project has been submitted for examination with my approval as a university supervisor

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# DEDICATION

TO:

My wife, Mercy Wanjiru and My parents, Moses Ndungu and Irene  
Wangechi

## ACKNOWLEDGEMENT

My sincere thanks go to all those people who in their own way contributed to the successful completion of this project.

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## ABBREVIATIONS

NCD	National Currency Deposits
REPO	Repurchase Agreements
GDP	Gross Domestic Product
ROA	Return on Assets
ROE	Return on Equity
N/A	Not Applicable
NSE	Nairobi Stock Exchange

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## ABSTRACT

This research is an attempt to identify determinants of profitability of commercial banks as a step towards providing practical guide towards improved profitability. A study in Malaysia by Guru, (1999), raised questions, which are relevant to this study:

- Why are some commercial banks more successful than others?
- To what extent, are the performance disparities due to variations in management controllable internal factors and to what extent; do environment related external factors influence the performance of these institutions?

This study was based on a sample of seven local Kenyan commercial banks quoted on the Nairobi Stock Exchange (NSE). The period of study spans over ten years from 1993 to 2002. The profitability determinants were basically divided into two main categories, namely the internal determinants and the external determinants. The internal determinants included management controllable factors such as liquidity, capital adequacy, asset and liability portfolio management and expenses management. On the other hand, the external determinants included those factors, which are beyond the control of the management of these institutions such as ownership, firm size and external economic conditions such as inflation rates, market interest rate, regulatory conditions and market growth. Regression analysis was applied to a linear model to analyze the profitability determinants of the Kenyan commercial banks. The research methodology was adopted from a study conducted in Malaysia by Guru (1999).

The findings of this study revealed that sound asset and liability management was found to have a significant influence on profitability. Among the external factors, high market interest rate was found to have an adverse effect on commercial bank profitability in Kenya. On the other hand, market share was found to have a positive impact on profitability.

The above findings provide an insight into the characteristics and practices of the successful commercial banks in terms of profitability. In view of these findings, conclusions can be made which may be useful to bank management policy makers and shareholders. Since there is no consensus on the financial factors that contribute to the bank profitability, it can be concluded that individual bank managers use different strategies to achieve their profitability objectives. Commercial banks should be prudent in providing credit for the financing of investments in highly volatile sectors such as the stock market and the property market. In this context, lending to the productive sectors with proper monitoring systems and sound credit management is recommended. In the case of investments in subsidiaries, the commercial banks must ensure that they have the knowledge and management expertise to properly supervise and manage the acquired businesses so that they do not affect the profitability of the acquiring bank.

## **CHAPTER ONE**

### **1.0 INTRODUCTION**

#### **1.1 Background**

In a market-oriented economy, the ultimate standard of performance is the income that remains to the owners of the company. Commercial bank profitability is important to the shareholders of the bank, the debt holders, banks customers (those who maintain deposit account and those who have borrowed money from the bank), the management and the government of the day. For management, earning the required return on shareholders funds and ensuring safety of the customers' deposits is a must. Managers will look at earnings before and after tax earnings as an indicator of financial success or failure of their banks. Depositors in search of good returns and safety of their savings will prefer profitable banks to less profitable ones. In any case managers who fail to earn adequate return for their bank risk losing their jobs through a sack or through bank failure.

Banks and financial institutions play a critical role in the mobilization of domestic savings through the intermediation process. The existence of a properly functioning banking system constitutes one of the most important vehicles in the process of economic development, Afolabi and Ademola (1976). Oscar (1978) observes that the provision of adequate credit facilities and mobilization of the savings of the masses remains a problem and goal in developing countries.

Recent changes in financial deregulation, technological and financial innovation and globalization are certainly posing new challenges for market participants in the Kenyan financial sector. The advances in computer technology and telecommunications are expanding the frontiers of electronic banking and Internet based financial services. These developments are certainly reshaping the structure of the financial institutions. These and other factors are forcing banks to reengineer their internal operations, how they interact with customers, and

inter-institutional relationships. In addition, there has been a breed of new financial services and overlapping of markets between bank and non-bank financial intermediaries. All these developments would certainly have implications on the costs and revenues and hence on the performance of commercial banks in Kenya.

There is no doubt that a fundamental shift is taking place in the Kenyan banking industry. One only needs to walk into banking hall to see the change. The way banking business is being done is changing significantly. These changes are cosmetic unless they impact significantly and positively on the profitability of a commercial bank. The change, which basically is about search in profits is being driven by, changes in both supply and demand. Supply side changes are influenced by radical deregulation, internationalization of local banks and increasing legitimacy of capital markets. On the other hand, rapid economic growth, expanding middle-class society and the rise of consumerism influence the demand side changes. The suppliers have responded by expanding new products whereas the consumers have responded by reducing their savings rate, disintermediating and shifting from low to high yielding deposits. As a result, commercial bank profits may be under pressure from lower loan yields and higher cost of funds, Foyston and Almeida, (1992).

A great deal of earlier research on bank profitability had focused on the impact of market structure, for example, Smirlock, (1985), Short, (1979), in particular had focused on impact of market concentration on bank profitability. This preoccupation was derived from the importance accorded to the Structure-Conduct-Performance (SCP) hypothesis, which asserts that banks in highly concentrated markets have a tendency to collude and as a result earn monopoly or above normal profit, Guru (1999). Subsequent studies, for example, Burke (1995), Williams (1994), had focused on the testing of the validity of alternative market structure hypotheses such as the efficient-structure hypothesis and the risk-aversion hypothesis.

One would expect managers who are conversant with their firm's profitability drivers to outperform other less informed managers. The old saying that “if you are aware you can manage it” comes in handy. It is therefore not unexpected that managers spend their time understanding the factors that they must manage to enhance their profitability.

In their study on Malaysian banks, Guru, (1999), divided the profitability determinants into two main categories, namely the internal determinants and the external determinants. The internal determinants included management controllable factors such as liquidity, capital adequacy, asset and liability portfolio management and expenses management. On the other hand, the external determinants included those factors, which are beyond the control of the management of these institutions such as ownership, firm size and external economic conditions such as inflation rates, market interest rate, regulatory conditions and market growth. This study relies on methodology as adopted by Guru (1999).

## **1.2 Definition of Terms**

In this study the following variables are used within the following context and meanings.

- 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 (Banking Act, 2001).
- b) Bank capital is the sum of equity plus debt subordinated to deposits. Capital provides a cushion that protects the bank from insolvency when the value of its assets falls; a bank can meet its obligations to depositors as long as losses on its asset portfolio do not exceed its capital, Marcus (1983).
- c) Performance refers to the ability of the firms to sustain income, stability and growth. It is a measure of relative investment results. Performance is very critical for the well being of all business firms and of great concern to all stakeholders of individual firms.
- d) Coefficient refers to a constant used to multiply another value.

- e) SE Coefficient also referred to as the standard error of the estimate for regression measures the amount of variability in the points around the regression line. It is the standard deviation of the data points as they are distributed around the regression line. The standard error of the estimate can be used to develop confidence intervals around a prediction.
- f) T value is a test to determine if the regression model (equation) is usable. If the slope is significantly different than zero, then we can use the regression model to predict the dependent variable for any value of the independent variable.
- g) Value is the probability that the sample could have been drawn from the population being tested given the assumption of the null hypothesis is true.

### **1.3 Statement of the Problem**

This research is an attempt to identify determinants of profitability of commercial banks as a step towards providing practical guide for improved profitability. A study in Malaysia by Guru, (1999), raised questions, which are relevant to this study:

- Why are some commercial banks more successful than others?
- To what extent, are the performance disparities due to variations in management controllable internal factors and to what extent; do environment related external factors influence the performance of these institutions?

The world has become a small village and for business firms' competition can come from any part of the globe. This would require that commercial banks in Kenya review the way they have been doing business in the past to survive competition. They would need to understand the internal and external factors, which influence their profitability performance. An understanding of the dynamics of the operating relationships would not only be useful for sustaining high profitability but would also be essential for the survival of these commercial

banks by enabling them to hedge against the distress that might originate from external shocks.

Profitability is one of the most important indicators for measuring the success in business. A sustained profitability leads to the continued strengthening of the net worth and value to shareholders. During the last twenty years, the world has seen severe changes that can be explained by globalization. This has allowed capitals to flow from one place to another with neither restriction nor delays. Regardless of the many surrounding factors that can contribute to attract capitals for short periods of time, profitability has been one of the most evident underlying elements of seducing capitals in the long run. Banks are moving more and more towards the most profitable areas seeking the best return related to risk their stockholders are willing to bear, Stinenherr (1994).

Not much is known about factors that determine bank profitability in Kenya. Thus, an explicit analysis of the determinants of commercial bank profitability in Kenya is necessary. Hence, it is hoped that this study will serve to expand the existing literature on banking and finance in Kenya particularly in the context of commercial bank profitability.

#### **1.4 Research Hypothesis**

H0: The internal variables are adequate in explaining bank profitability

H0: The external variables are adequate in explaining bank profitability

#### **1.5 Objectives of the Study**

- To identify the internal determinants of profitability for banks in Kenya.
- To identify the external determinants of profitability for banks in Kenya.

A set of bank characteristics, macroeconomic and regulatory indicators as well as financial structure variables are used in order to explain profitability. The intention is to evaluate whether banks operating in Kenya, also share the same profitability determinants. In particular, it is important to check whether inflation, economic growth, bank size and



capitalization, bank product mix, among others, could be accepted as explanatory variables for profitability.

## **1.6 Importance of the Study**

### **a) Individual Commercial Banks**

The findings would provide a basis for long-term strategic planning by these institutions. The management as the people charged with the design and implementation of procedures and policies related to investment strategies, rely on the determinants of profitability in profit planning.

### **b) The Policy Makers**

The findings would be important in the issue of prudential guidelines on profitability that can be used in policy formulation. Central Bank of Kenya could employ the findings of this study in formulating guidelines that will enhance profitability in the banking sector, while protecting those who rely on bank credit.

### **c) The Investors**

The findings would guide the investors on the best performing institutions to invest in for higher returns.

### **d) Academia and Researchers**

The findings will add to the existing body of knowledge in area of business finance and banking.

## **1.7 Important Assumptions**

- i. In carrying out the study, it was assumed that the banks surveyed would give a representative picture on issues of determinants of profitability by banks in Kenya. This is necessary because it would be difficult to administer the research to all the banks.

- ii. The study assumed that the economy and other systemic factors have an equal contribution to commercial banks profitability. This is important if one is to make any inferences from the data collected, as this factor has not been controlled.

## **CHAPTER TWO**

### **2.0 LITERATURE REVIEW**

#### **2.1 Introduction**

The factors that affect bank profitability are internal and/or external to the bank. The factors within the control of management, which would have an impact on bank profitability, would be those factors, which affect a bank's net interest income, which accounts for about 70 percent of Kenyan commercial banks total income (Central Bank of Kenya, Bank Supervision Report, 2001). It is a reasonable assumption that interest rates charged on loans and interest paid on the various forms of deposits could be expected to have a significant impact on profitability. Thus, the interest rates charged on loans and the volume of the various forms of deposits held are used as proxy to measure the efficiency of asset and liability portfolio management respectively. A review of literature and cross-references reveals many studies about the determinants of commercial bank profitability as discussed below.

#### **2.2 Asset Composition**

Demirguc-Kunt, (1999), in their research on bank profitability found that banks with relatively high non-interest earning assets are less profitable. Margarida and Mendes, (2000), found that the loan-to-asset ratio has a positive impact on interest margins and profitability. Guru, (1999), found that in relation to asset portfolios, the commercial banks should focus on loans rather than investment in securities and investment in subsidiaries where they lack the necessary business expertise in order to improve their profit performance.

Davaajargal, (2000), in his research found correlation between performing loan and profitability to be negative and statistically significant. He also found that loans outstanding was one of the factors determining bank profitability, hence banks need to increase their lending. He concluded that due to the weak legal environment loan repayment is very poor, which increases non-performing loan. As a result of that banks have set aside loan loss

provision. He also found that correlation between securities and bank profitability was positive even though it was not statistically significant.

### **2.3 Deposit Composition**

Demirguc-Kunt, (1999), in their findings concluded that banks that rely largely on deposits for their funding are also less profitable, because deposits entail a high branching and other expenses. Further, variations in overheads and other operating costs are reflected in variation in bank interest margins.

Davaajargal (2000), in the research found that correlation between current accounts of business entities/individuals, Government accounts and bank profitability is strongly negative. He concluded that banks do not need to hold large amounts in current account of business entities, individuals, and Government, because they bear no or little interest. But they should stop paying interest on the unmoving balance of current accounts in order to attract customers.

### **2.4 Liquidity**

In terms of liquidity management, banks involved in the business of transforming short-term deposits into long-term credit would be constantly faced with the risks associated with the maturity mismatch. In order to hedge against liquidity deficits, which can lead to insolvency problems, banks often hold liquid assets, which can be easily converted to cash. However, liquid assets are often associated with lower rates of return. Hence high liquidity would be expected to be associated with lower profitability. Consistent with the foregoing argument, Molyneux and Thornton (1992) had also found a weak inverse relationship between liquidity and bank profitability. However, Bourke's (1989) results had indicated a significant positive relationship between liquidity and bank profitability. One possible reason for the conflicting findings may be different elasticity's of demand for loans in the two samples.

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Guru, (1999), in their research concluded that commercial banks should not over commit in loans, since the liquidity variable as proxied by the loans to deposit ratio, was generally found to have a negative impact on bank profitability.

## **2.5 Expense Management**

The relationship between expenditure and profits may appear to be very straightforward. The lower the expenditure while income remains constant the higher the profits. However, this may not necessarily be so especially if higher expenditure is associated with higher volume of business activity and hence higher revenues as well. Thus, in order to assess a bank's efficiency at expense management, it would be necessary to deflate the expenditure to reflect variations in activity levels. To this extent, in line with Steinherr and Huveneers (1994), the bank's total expenditure would be deflated by total assets to measure the firm specific expense management efficiency by measuring the cost incurred per monetary unit of assets.

Demirguc-Kunt, (1999), in their research on bank profitability found that the differences in the mix of bank activity have an impact on spreads and profitability. Margarida, and Mendes, (2000), in their research found that the net interest margin reacts positively to operating costs, but pre-tax profits do not. This means that less efficient banks charge higher interest rates on loans (or pay lower rates on deposits), therefore passing those costs onto customers. Guru, (1999), in their research, found that efficiency in expense-management was one of the most significant determinants of commercial bank profitability.

## **2.6 Bank Capitalization**

Demirguc-Kunt, (1999), in their research on bank profitability found a positive relationship between capitalization and profitability and a negative relationship between reserves and profitability. Margarida, and Mendes, (2000), found out that well-capitalized banks (i.e., banks with higher equity/assets) face lower expected bankruptcy costs and thus lower funding

costs and higher interest margins on assets. They also found that tighter minimum capital adequacy ratios are associated with stronger revenue generation.

Bashir, (2000), in his study, found that Islamic banks profitability measures respond positively to the increases in capital and loan ratios. Their results also indicate the importance of customer and short-term funding, non-interest earning assets and overhead in promoting banks' profits. Foreign ownership was also seen to have contributed significantly to Islamic banks' profitability. The results also suggest that the tax factors are more important in the determination of bank performance. Marcus (1983) in his study found out that capital to asset ratios respond negatively to increase in the interest rate and to the tax disadvantage of equity finance.

The business of financial intermediation is exposed to various forms of risk. Examples of such risk are interest rate risk and credit risk. In this respect the profitability of a bank would be dependent on the management's attitude towards risk. The risk inherent in a bank and the management's attitude towards risk can be analysed by examining the capital and reserves a bank chooses to hold in addition to its liquidity policies. Banks with high capital–asset ratios would be considered relatively safer, Guru, (1999). Thus, high capital–asset ratios are assumed to be indicators of low leverage and hence low risk. The conventional risk-return hypothesis would therefore imply a negative relationship between capital-asset ratio and bank profitability.

## **2.7 Market Share**

The market share of individual banks may change as a result of competitive behaviour in the banking industry. A change in the market share would certainly have implications on the profit potentials of these institutions. Deposits and loans and advances can be considered as bank output and there is a need to make a choice between a deposit or asset measure of market share. Given that the asset components may include investment in securities and subsidiaries,

which certainly would not be homogenous across firms, the deposit measure of market share is considered to be a more equitable measure of market share for commercial banks Bourke, (1989).

Margarida and Mendes (2000) found that the market share variable was not significant when explaining the Net Interest Margin. They concluded that banks do not differentiate traditional loan and deposit products (and do not exert market power in these markets) but rather less 'conventional' bank products and services. It also means that market structure is not relevant in those traditional activities; however, they do exert market power in some other bank products and services such as off-balance sheet activities.

## **2.8 Market Growth (Or Economic Slowdown)**

The market for deposits and loans may be affected by an economic slowdown and this would certainly have an impact on profitability. As far as banks and other financial intermediaries are concerned these changing market conditions can be measured from either the asset or the liability side. In this context, since the banks' asset portfolios are dependent on their liability portfolio for financing purposes, the market growth is proxied by growth in the M3 component of money supply, which, in Kenya is defined as the aggregate of currency in circulation and savings and fixed deposits, net issues of NCD and REPO transactions of commercial banks, finance companies, merchant banks, and discount houses, (Central Bank of Kenya).

Bourke (1989) had suggested that growth in total market, if particularly associated with entry barriers, might produce potential for banks to earn higher profits. The Kenyan economy has been recording negative or modest growth rate. Thus, in line with Bourke's (1989) argument, market growth can be expected to have a positive impact on Kenyan commercial banks' profitability.

## 2.9 Market Interest Rate

Margarida (2000) found that net interest margin reacts positively to operating costs and hence profitability. Guru (1999) stated that changing market conditions would also have an impact on the market interest rates, which would certainly have a direct impact on bank profitability. Thus, the average annual base-lending rate is used as a proxy for market interest rate in this study.

## 2.10 Inflation Rate

Another important environmental condition, which may affect both the costs, and revenue of any organization including the banking firms, is changes in the general price level or inflationary conditions in the economy. The impact of inflation rates on bank profitability will depend on its effect on bank costs and revenues. Perry (1992), working on banks gains and losses from inflation asserted that the effect of inflation on bank performance depends on whether the inflation is anticipated or unanticipated. If the inflation is fully anticipated and interest rates are adjusted accordingly resulting in revenues, which increase faster than costs, then it may have a positive impact on profitability. However, if the inflation is not anticipated and the banks are sluggish in adjusting their interest rates then there is a possibility that bank costs may increase faster than bank revenues and hence adversely affect bank profitability.

Demirguc-Kunt, (1999), found that inflation was associated with higher realized interest margin and profitability. The positive relationship between inflation and bank profitability implies that bank income increases more with inflation than do bank costs. The corporate tax appears to be passed on fully to bank customers both in the developing and industrial countries. Margarida, and Mendes, (2000), found that the inflation rate was relevant in all models. Inflation brings along higher costs but also higher income. It seems that bank costs increase more than do bank revenues.



Bashir (2000) found that favourable macroeconomic environment seems to stimulate higher profits. Higher GDP per capita and higher inflation rates seem to have a positive impact on the performance measures.

### **2.11 Bank Size**

Heggstad (1977), and Smirlock (1985), considered firm size in their profitability model to take account of the possibility of greater loan and product diversification and accessibility of larger banks to asset markets, which are not available for smaller banks. If indeed this were true in Kenya, it would imply higher profitability for larger banks. In most literature, the total assets of the banks are used as a proxy for bank size. However for it to be included in the model, it has to be transformed. Hence the logarithm of the total assets will be included in the model to proxy for firm size. This is also necessary to obtain more meaningful coefficient for bank size in the regression analysis since the other independent variables are all entered as ratios.

Alper (2001) found that the prevailing high net interest margins allowed for the existence of large number of small banks and persistent net losses from non-interest related activities. The foreign banks in such an environment did not need to increase their size since scale economies did not matter as evidenced by the highest before tax profits accruing to smaller size banks.

### **2.12 Regulation**

Koehn (1980) found that regulations, which increase the capital adequacy requirements would increase the capital–assets ratio and thus reduce risk. This may induce the banks to absorb greater risk in their asset portfolios in the hope of maximizing expected returns. Thus, there is also the possibility of a positive association between capital-assets ratio and bank profitability.

Margarida and Mendes (2000) found that Portuguese and Spanish banks suffered from the liberalization of capital movements (occurred in Portugal in 1992 and in Spain in 1993), both in terms of interest margin and profitability. Given the increased competition brought about by

liberalization, fund holders did look for more efficient banking systems and more profitable applications.

In Kenya, the Central Bank has been issuing guidelines relating to capital adequacy, cash ratio requirements liquidity and reporting requirements. These guidelines have effect on the profitability since deposits with Central Bank do not earn any interest.

### **2.13 Related Studies**

Sinkey (1979), Siems, (1992), suggest that poor asset allocation decisions and insensitivity to customers and markets contribute to an institution's demise and quantifies management role in bank failures. Stanhouse (1986) states that in standard bank portfolio models, the optimal levels of assets holdings are determined for a given level of uncertainty of reserve deficiencies; that is; protecting them against failure to meet their day-to-day obligations. The findings are that, information may be analysed as a variable input in determining an optimal bank portfolio.

In the Kenyan context too, there has been extensive research in the area of banking and finance. Koros (2002) found out in his study, that most of the non-bank financial institutions that converted into banks did not register improved performance as anticipated. The evidence obtained from the study indicated insignificant changes in performance and in many of the performance indicators show a declining trend. Kathanje (2000), in his study on the financial performance before and after liberalization found that the performance of banks improved during the post-liberalization period. Ochung (1999), in his study established a very strong correlation between the deposit of banks and financial institutions and their individual performance, on his study on the relationship between deposit portfolio and bank profitability. He concluded that deposits contribute significantly to the profitability and recommended that banks should undertake to attract deposits at the lowest cost.

## 2.14 Conclusion

From the studies reviewed above, it can be concluded that the factors contributing to bank profitability are both internal and external. These factors differ from one bank to another. There are firm specific factors as well as macro economic factors that contribute to bank profitability.

## **CHAPTER THREE**

### **3.0 RESEARCH METHODOLOGY**

#### **3.1 Population and Sample of the Study**

The population of interest in this study consists of the eight commercial banks quoted on the Nairobi Stock Exchange as at December 2002. The period of study is between 1993 and 2002. The choice of period is ten years and is taken to be reasonable because average ratios shift over time, (Altman E.I., 1968). The whole population will be studied.

For the purpose of this study, an institution must meet the following criteria to be considered relevant for the study:

- i) The firm must be in operation at present
- ii) Its annual accounts must be accessible as the study is based on profitability performance measures that are accounting based.

The objective of using this criterion is to ensure that any outlier that may arise from new or existing firms is eliminated. Bett, (1992) Institutions in the population will be studied separately as they differ in size as well as in terms of profitability. The overall analysis will be conducted on the consolidated results of these institutions.

#### **3.2 Data Collection**

The data relating to the external determinants including market growth, interest rate and inflation rate will be obtained from the Central Bank of Kenya's Quarterly Bulletin and the annual reports over the period 1993 to 2002. The data for the internal determinants considered in this study will be obtained from the annual reports of the sample banks. The data from the above sources was supplemented with the information collected from the discussion and research papers published by the Central Bank of Kenya.

Data will be collected from the firms for a ten-year period (1993-2002). This period is chosen because it coincides with period of sharp focus on Non-performing loans, more disclosure requirements and more strict controls of financial operations.

**3.3 Data Analysis**

Studies on bank profitability consider as appropriate functional form for analysis that is linear. Shorts (1979), and Bourke (1989) after considering several functional forms, conclude that the linear model produced results are as good as any other functional form. Williams, Molyneux and Thornton (1994) and Molyneux, Williams and Thornton (1994) had also employed linear model in their studies on bank profitability. Thus, in this study as well, a linear model will be used to analyze pooled cross-section time series data to isolate the profitability determinants of Kenyan commercial banks.

**3.4 Model Specification.**

This model is adopted from the study of Guru, (1999)

$$Y_{it} = b_0 + \sum_{i=2}^N g_i D_{it} + \sum_{t=2}^T \lambda_t W_{it} + \sum_{k=1}^K b_k X_{kit} + \epsilon_{it} \dots\dots\dots(1)$$

Where:

- $X_{kit}$  = the k-th independent variable for firm - i in year - t
- $Y_{it}$  = the profitability measure of firm –
- $D_{it}$  = the dummy variable to account for cross-sectional differences
- $W_{it}$  = the dummy variable to account for temporal differences
- $N$  = the total number of commercial banks included in the sample
- $T$  = the total number of time periods
- $K$  = the total number of independent or predictor variables
- $\epsilon_{it}$  = the error term



The firm specific dummy variable,  $D_{it}$  assumes a value of one for the  $i$ -th firm and zero otherwise, for the time period  $t=2$  to  $T$ . On the other hand, the dummy variable,  $W_{it}$  assumes a value of one for the  $t$ -th year and zero otherwise for  $i = 2$  to  $N$ .

At this point it is worth noting that only  $N-1$  dummy variables are included to account for cross-sectional differences and  $T-1$  dummy variables for temporal differences. The reason for this is to avoid the problem of perfect multi-collinearity among the dummy variables. A further necessary assumption for the model is that the  $\epsilon_{it}$ 's are independently and identically distributed as  $N(0, \sigma^2)$ .

Before applying the ordinary least squares (OLS) regression techniques, the general unrestricted model represented by equation (1) is tested for temporal and cross-sectional stability. If evidence were found for temporal stability then the dummy variables accounting for temporal differences in the intercept would not be jointly significant and could be removed to yield the following model:

$$Y_{it} = b_0 + \sum_{i=2}^N g_i D_{it} + \sum_{k=1}^K b_k X_{kit} + \epsilon_{it} \dots \dots \dots (2)$$

Similarly, in the absence of temporal stability but presence of cross-sectional stability the appropriate model would be represented as follows.

$$Y_{it} = b_0 + \sum_{t=2}^T \lambda_t W_{it} + \sum_{k=1}^K b_k X_{kit} + \epsilon_{it} \dots \dots \dots (3)$$

However, in the presence of both temporal and cross-sectional stability, the intercept would be equal over time and cross-sectional units and thus the dummy variables  $W_{it}$  and  $D_{it}$  would be irrelevant and hence could be removed to yield the following model.

$$Y_{it} = b_0 + \sum_{k=1}^K b_k X_{kit} + \epsilon_{it} \dots \dots \dots (4)$$

The decision whether or not to include the dummy variables in the profitability model is based on statistical testing which involves the comparison of the error or residual sum of squares



(RSS) of the unrestricted and the restricted models by using the F –test as adopted by Pinyck and Rubinfeld (1991).

### **3.5 Variables Specification**

#### **3.5.1 Dependent Variables**

The dependent variable is a measure of commercial bank profitability. Profitability is best expressed in a ratio. Ratios will be used as measures of bank profitability since they are inflation and size invariant. The choice of the profitability ratio depends on the objective of the profitability measure. The return on assets (ROA), which is the ratio of net income to total assets measures how profitably and efficiently the management, is using the company's total assets. In addition dividing the net income by total assets also takes account of the variation in the absolute magnitude of the profits, which may be size, related. On the other hand, the return on equity (ROE), which is the ratio of net income to total equity, would indicate return to shareholders on the book value of their investments. In line with Bourke (1989) and Molyneux and Thornton (1992) define total equity as shareholders capital and reserves. A reserve is undistributed net profits and it is assumed that management has invested it profitably. In line with the above discussion, the following measures of profitability are considered as alternative measures for the dependent variable in this study:

ROA: Net Profit before tax as a percentage of total assets

ROE: Net Profit before tax as a percentage of equity

#### **3.5.2 Independent Variables**

These are divided into internal determinants and external determinants

##### **3.5.3 Internal Determinants**

- **Asset Composition**

This factor is explained by the following variables:

- i. Loans and advances of each commercial Bank as a percentage of total assets of the commercial bank.
- ii. Investments in securities of each commercial bank as a percentage of total assets

iii. Investments in subsidiaries of each commercial bank as a percentage of total assets

- **Deposit Composition**

This factor is explained by the following variables:

i. Current account deposits of each commercial bank as a percentage of total deposits

ii. Time and savings deposits of each commercial bank as a percentage of total deposits

- Capital, which is given by Capital and reserves of each commercial bank as a percentage of total assets.
- Liquidity, which is measured by the ratio of liquid assets to total deposits.
- Expense management, which is measured by total expenses as a percentage of total assets.

### **3.5.4 External Determinants**

- Market Share, which is given by, total deposits at each bank as a percentage of all banks' total deposits.
- Market Growth, which is defined as the annual growth in the M3 measure of money supply
- Market Interest Rate, which is defined as average annual base lending rate of all commercial banks.
- Inflation Rate, which is defined as the annual percentage change in the Kenyan Consumer Price Index
- Firm Size, which is given by the logarithm of the total assets of each bank
- Regulation which is assigned a dummy variable which will be assigned a value "0" for years prior to 1998 and "1" for years 1998 to 2002.



## **CHAPTER FOUR**

### **4.0 DATA ANALYSIS, INTERPRETATION OF FINDINGS AND DISCUSSIONS**

#### **4.1 Introduction**

This study is an attempt to identify factors that influence earnings of commercial banks. Return on assets and the return on equity are the proxies for the dependent variable. Return on assets measures a company's earnings in relation to all of the resources it had at its disposal, while return on equity is measure of a bank's profitability that accrues to equity shareholders. Internal factors as well as external factors are the independent variables. Proxies for internal independent factors include, asset composition, deposit composition, capital and liquidity. Proxies for independent external factors include market share, market growth, market interest rate, inflation rate, firm size and regulation. The financial ratios were regressed against profitability in an attempt to determine their impact on banks profitability. The results are summarized in Tables 4.1 to 4.50 below.

#### **4.2 Regression Results for Internal Factors Influencing Banks Profitability**

##### **4.2.1 Results for Loans and Advances as a Percentage of Total Assets**

The business of financial intermediation is exposed to various forms of risks such as interest rate and default risk. In this context the bank profitability would be dependent on the management attitude towards risk. We expect a positive relationship between bank profitability and loans and advances. This is because the bank management will only adjust their loans and advances upwards to improve earnings.

The regression results indicate that this variable significantly explains the bank profitability for three banks for the dependent variable, return on assets, with two of those showing a negative relationship and one depicting a positive relationship (Table 4.1). For the regression results of the capital based profitability model, four out of seven banks show some relationship with the other three having the independent variable dropped due to its high

correlation with the other variables. Three out of those four banks depict a negative relationship, with the variable being significant (table 4.2). This is consistent with findings by Davaajargal (2000) who concluded that due to the weak legal environment loan repayment is very poor, which increases non-performing loans. As a result of that banks have set aside loan loss provision that impact negatively on profitability.

**Table 4.1 Loans and Advances as a Percentage of Total Assets with Return on Assets as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	0.193	0.076	2.520	0.053	YES
Kenya Commercial Bank	N/A	N/A	N/A	N/A	N/A
Barclays Bank of Kenya	N/A	N/A	N/A	N/A	N/A
Diamond Trust Bank	N/A	N/A	N/A	N/A	N/A
Standard Chartered Bank	-0.663	0.195	-3.410	0.014	YES
CFC Bank	N/A	N/A	N/A	N/A	N/A
National Bank of Kenya	-1.225	0.437	-2.590	0.049	YES

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.2 Loans and Advances as a Percentage of Total Assets with Return on Equity as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	-3.057	1.066	-2.870	0.045	YES
Kenya Commercial Bank	N/A	N/A	N/A	N/A	N/A
Barclays Bank of Kenya	-3.128	0.389	-8.050	0.0001	YES
Diamond Trust Bank	N/A	N/A	N/A	N/A	N/A
Standard Chartered Bank	-8.161	2.993	-2.730	0.041	YES
CFC Bank	N/A	N/A	N/A	N/A	N/A
National Bank of Kenya	6.571	5.517	1.190	0.279	NO

NOTE: A variable is significant if the p value is less than 0.10

#### 4.2.2 Investment in Securities as a Percentage of Total Assets

Investment in securities is dependent on the volatility of the market. If the impact is positive then banks make high profits. This variable is expected to have a positive impact on the profitability of banks, but of low magnitude given the nature of such assets. If this asset component is dominated by safe investments, then the returns are expected to be low. If

dominated by stock then the returns can be high or losses could result given that such assets are extremely risky.

The regression results for the asset based profitability model, with the return on assets as the dependent variable indicate that the variable is significant in three out of the seven banks. One bank has the coefficient depicting a positive relationship while the other two have the coefficients depicting a negative relationship (Table 4.3).

The results for the capital based profitability model, with the return on equity as the dependent variable indicate that the variable is significant in three out of the seven banks. Two have the coefficients depicting a positive relationship with only one, depicting a negative relationship (Table 4.4). These findings are consistent with those by Davaajargal (2000).

**Table 4.3 Investments in Securities as a Percentage of Total Assets with Return on Assets as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	0.193	0.076	2.520	0.053	YES
Kenya Commercial Bank	N/A	N/A	N/A	N/A	N/A
Barclays Bank of Kenya	N/A	N/A	N/A	N/A	N/A
Diamond Trust Bank	N/A	N/A	N/A	N/A	N/A
Standard Chartered Bank	-0.663	0.195	-3.410	0.014	YES
CFC Bank	N/A	N/A	N/A	N/A	N/A
National Bank of Kenya	-1.225	0.437	-2.590	0.049	YES

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.4 Investments in Securities as a Percentage of Total Assets with Return on Equity as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	N/A	N/A	N/A	N/A	N/A
Kenya Commercial Bank	11.729	2.044	5.740	.001	YES
Barclays Bank of Kenya	-0.944	0.280	-3.370	0.0015	YES
Diamond Trust Bank	4.632	2.031	2.280	0.0072	YES
Standard Chartered Bank	N/A	N/A	N/A	N/A	N/A
CFC Bank	1.084	0.681	1.590	0.163	NO
National Bank of Kenya	N/A	N/A	N/A	N/A	N/A

NOTE: A variable is significant if the p value is less than 0.10

### 4.2.3 Investment in Subsidiaries as a Percentage of Total Assets

Guru (1999), in their study found a negative relationship between bank profitability and investment in subsidiaries. They concluded that banks lack the necessary business expertise. The findings in relation to both asset-based measures of bank profitability and capital-based measures of bank profitability indicate that for the three banks that have subsidiaries, the coefficients for two of those depict a negative relationship and one shows a positive relationship. Two banks reflect the variable as significant for both the asset based and the capital based profitability model (Table 4.5 and Table 4.6). These findings are consistent with those by Guru (1999).

**Table 4.5 Investments in Subsidiaries as a Percentage of Total Assets with Return on Assets as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	N/A	N/A	N/A	N/A	N/A
Kenya Commercial Bank	N/A	N/A	N/A	N/A	N/A
Barclays Bank of Kenya	N/A	N/A	N/A	N/A	N/A
Diamond Trust Bank	1.183	0.455	2.600	0.04	YES
Standard Chartered Bank	-0.170	0.081	-2.100	0.0810	YES
CFC Bank	N/A	N/A	N/A	N/A	N/A
National Bank of Kenya	-4.036	9.532	-0.420	0.70	NO

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.6 Investments in Subsidiaries as a Percentage of Total Assets with Return on Equity as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	N/A	N/A	N/A	N/A	N/A
Kenya Commercial Bank	N/A	N/A	N/A	N/A	N/A
Barclays Bank of Kenya	N/A	N/A	N/A	N/A	N/A
Diamond Trust Bank	15.21	8.433	1.800	0.131	NO
Standard Chartered Bank	-2.318	0.975	-2.380	0.063	YES
CFC Bank	N/A	N/A	N/A	N/A	N/A
National Bank of Kenya	-849.1	96.990	-8.750	0.0001	YES

NOTE: A variable is significant if the p value is less than 0.10

#### 4.2.4 Current Account Deposits as a Percentage of Total Deposits

Guru (1999), in their study on bank profitability found current account deposit was the most profitable component probably due to the fact that no direct interest is paid on current account deposits. From the regression results, five out of the seven banks studied have the variable showing some relationship with the other two having the variable dropped due to unusual observations. For the asset-based measures of bank profitability, the coefficients have three out of the five depicting a negative relationship and the other two a positive relationship. Only one bank depicts the variable as significant (table4.7). For the Capital-based measures of bank profitability, the coefficients have four out of the five depicting a negative relationship and one, a positive relationship. There are only two banks that show the variable as significant (Table 4.8).

These findings are consistent with those by Davaajargal (2000). They are however inconsistent with those by Guru (1999) may be due to the fact that banks have started offering payments on current account deposits by linking these accounts to other savings accounts and allowing funds to be transferable from one account to the other.

**Table 4.7 Current Account Deposits as a Percentage of Total Deposits with Return on Assets as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	0.078	0.199	0.390	0.712	NO
Kenya Commercial Bank	-0.806	0.300	-2.690	0.0430	YES
Barclays Bank of Kenya	-0.535	0.611	-0.880	0.414	NO
Diamond Trust Bank	N/A	N/A	N/A	N/A	N/A
Standard Chartered Bank	N/A	N/A	N/A	N/A	N/A
CFC Bank	-0.083	0.061	-1.350	0.234	NO
National Bank of Kenya	1.491	1.005	1.480	0.198	NO

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.8 Current Account Deposits as a Percentage of Total Deposits with Return on Equity as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	-2.457	1.148	-2.14	0.099	YES
Kenya Commercial Bank	N/A	N/A	N/A	N/A	N/A
Barclays Bank of Kenya	15.74	3.692	4.260	0.005	YES
Diamond Trust Bank	-3.632	4.472	-0.810	0.454	NO
Standard Chartered Bank	N/A	N/A	N/A	N/A	N/A
CFC Bank	-0.420	0.281	-1.500	0.185	NO
National Bank of Kenya	-6.843	8.271	-0.830	0.440	NO

NOTE: A variable is significant if the p value is less than 0.10

#### 4.2.5 Time and Savings Deposits as a Percentage of Total Deposits

Guru (1999), in their study on bank profitability found Time and savings deposits to be a less profitable component since they involve explicit interest payments.

The regression results show that this factor has been dropped for the five out of seven banks studied. This was due to its high correlation with other variables. For both the asset based profitability model and the capital based model, one bank has the coefficient depicting a positive relationship and the other a negative relationship. For both models only one bank in each case depicts the variable as significant. (Table 4.9 and 4.10).

These findings are consistent with those by Guru (1999).

**Table 4.9 Time and Savings Deposits as a Percentage of Total Deposits with Return on Assets as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	0.387	0.225	1.720	0.146	NO
Kenya Commercial Bank	-1.155	0.376	-3.070	0.028	YES
Barclays Bank of Kenya	N/A	N/A	N/A	N/A	N/A
Diamond Trust Bank	N/A	N/A	N/A	N/A	N/A
Standard Chartered Bank	N/A	N/A	N/A	N/A	N/A
CFC Bank	N/A	N/A	N/A	N/A	N/A
National Bank of Kenya	N/A	N/A	N/A	N/A	N/A

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.10 Time and Savings Deposits as a Percentage of Total Deposits with Return on Equity as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	1.959	0.910	2.150	0.098	YES
Kenya Commercial Bank	-3.120	1.652	-1.890	0.108	NO
Barclays Bank of Kenya	N/A	N/A	N/A	N/A	N/A
Diamond Trust Bank	N/A	N/A	N/A	N/A	N/A
Standard Chartered Bank	N/A	N/A	N/A	N/A	N/A
CFC Bank	N/A	N/A	N/A	N/A	N/A
National Bank of Kenya	N/A	N/A	N/A	N/A	N/A

NOTE: A variable is significant if the p value is less than 0.10

#### 4.2.6 Capital to Assets Ratio

Demirguc-Kunt, (1999), in their research on bank profitability found a positive relationship between capitalization and profitability and a negative relationship between reserves and profitability. Margarida, and Mendes, (2000), found that well-capitalized banks (that is, banks with higher equity/assets) face lower expected bankruptcy costs and thus lower funding costs and higher interest margins on assets. They also found that tighter minimum capital adequacy ratios are associated with stronger revenue generation. High capital to assets ratios are assumed to be indicators of low leverage and hence low risk. The conventional risk return hypothesis would imply a negative relationship between capital – asset ratio and bank profitability.

From the regression results for the asset-based profitability model, four out of the seven banks depict this variable as having some relationship with bank profitability. The coefficients show two banks having a positive relationship and the other two having a negative relationship. Only one bank shows the variable as significant in explaining bank profitability (table 4.11).

The findings for the capital based profitability model, depict two out of the seven banks having this variable as being significant. The coefficients show the two having a negative relationship (table 4.12). These findings are consistent with the findings by Demirguc-Kunt, (1999), in which case the negative relationship may be due to the contribution by the reserves.

**Table 4.11 Capital and Reserves as a Percentage of Total Assets with Return on Assets as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	-0434	0.072	-6.010	0.0090	YES
Kenya Commercial Bank	N/A	N/A	N/A	N/A	N/A
Barclays Bank of Kenya	-0.220	0.222	-0.199	0.360	NO
Diamond Trust Bank	N/A	N/A	N/A	N/A	N/A
Standard Chartered Bank	N/A	N/A	N/A	N/A	N/A
CFC Bank	0.254	0.235	1.080	0.330	NO
National Bank of Kenya	0.308	0.527	0.580	0.584	NO

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.12 Capital and Reserves as a Percentage of Total Assets with Return on Assets as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	-5.503	0.774	-7.110	0.0020	YES
Kenya Commercial Bank	N/A	N/A	N/A	N/A	N/A
Barclays Bank of Kenya	N/A	N/A	N/A	N/A	N/A
Diamond Trust Bank	N/A	N/A	N/A	N/A	N/A
Standard Chartered Bank	-6.663	1.656	-4.020	0.01	YES
CFC Bank	N/A	N/A	N/A	N/A	N/A
National Bank of Kenya	N/A	N/A	N/A	N/A	N/A

NOTE: A variable is significant if the p value is less than 0.10

#### 4.2.7 Loans to Deposits Ratio

Banks are involved in the business of transforming short-term deposits into long-term credit. They would constantly be faced with the risk associated with maturity mismatch. Liquid assets are often associated with low rates of return. High liquidity is expected to be associated with lower profitability. Molyneux and Thornton (1992) found a weak inverse relationship between liquidity and bank profitability. Bourke (1989), found a significant positive relationship between liquidity and bank profitability.

From the observations of the regression results, for the asset based profitability model, three banks show a positive relationship between liquidity and bank profitability and two depict a negative relationship. Coefficients of two banks depict a significant positive relationship with bank profitability (Table 4.13). This is consistent with the findings by Bourke (1989). From the regression results of the capital based profitability model, the coefficients of four banks



show a positive relationship between liquidity and bank profitability and one depict a negative relationship. The coefficients for three of those banks depict that there is a significant positive relationship with bank profitability (Table 4.14). This finding is consistent with the findings by Bourke (1989).

**Table 4.13 Loans to Deposit Ratio with Return on Assets as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	-0.031	0.075	-0.140	0.896	NO
Kenya Commercial Bank	0.689	0.169	4.080	0.009	YES
Barclays Bank of Kenya	N/A	N/A	N/A	N/A	N/A
Diamond Trust Bank	0.130	0.072	1.810	0.12	NO
Standard Chartered Bank	0.512	0.150	3.420	0.014	YES
CFC Bank	-0.043	0.051	-0.850	0.435	NO
National Bank of Kenya	N/A	N/A	N/A	N/A	N/A

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.14 Loans to Deposit Ratio with Return on Equity as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	2.283	0.702	3.250	0.031	YES
Kenya Commercial Bank	7.790	2.069	3.760	0.009	YES
Barclays Bank of Kenya	N/A	N/A	N/A	N/A	N/A
Diamond Trust Bank	1.442	0.722	2.000	0.102	NO
Standard Chartered Bank	6.320	2.306	2.740	0.0410	YES
CFC Bank	-0.296	0.195	-1.510	0.181	NO
National Bank of Kenya	N/A	N/A	N/A	N/A	N/A

NOTE: A variable is significant if the p value is less than 0.10

### 4.3 Regression Results for External Factors Influencing Banks Profitability

#### 4.3.1 Growth in M3 Money Supply

Bourke, (1989) in their findings on bank profitability found a positive relationship between profitability and growth in total market. If this is particularly associated with entry barriers, it might produce potential for banks to earn higher profits.

From the regression results, the coefficient depicts a negative relationship between bank profitability and market growth for the asset-based profitability model. Only one bank depicts a significant negative relationship with bank profitability (Table 4.15). For the capital based

profitability model six banks depict a negative relationship with bank profitability and only one depicts a positive relationship. Only one bank depicts a significant negative relationship with bank profitability (Table 4.16). This is inconsistent with findings by Bourke (1989). The reason for this observation may be due to the fact that growth in the money supply was not associated with market growth. This growth was due to illegal printing of money, as was the case in the 1992 and 1997 electioneering period to finance the campaigns.

**Table 4.15 Growth in M3 Money Supply with Return on Assets as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	-0.087	0.059	-1.460	0.195	NO
Kenya Commercial Bank	-0.395	0.251	-1.580	0.1660	NO
Barclays Bank of Kenya	-0.154	0.091	-1.69	0.142	NO
Diamond Trust Bank	0.316	0.235	1.340	0.228	NO
Standard Chartered Bank	-0.084	0.073	-1.150	0.294	NO
CFC Bank	-0.316	0.068	-4.650	0.040	YES
National Bank of Kenya	-0.614	0.384	-1.600	0.161	NO

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.16 Growth in M3 Money Supply with Return on Equity as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	-1.340	0.826	-1.620	0.156	NO
Kenya Commercial Bank	-2.64	2.54	-1.04	0.34	NO
Barclays Bank of Kenya	-0.760	1.269	-0.600	0.571	NO
Diamond Trust Bank	2.205	1.767	1.250	0.259	NO
Standard Chartered Bank	-1.400	0.993	-1.410	0.208	NO
CFC Bank	-1.279	0.600	-2.130	0.077	YES
National Bank of Kenya	13.99	23.610	0.590	0.575	NO

NOTE: A variable is significant if the p value is less than 0.10

### 4.3.2 Inflation

Perry (1992), found that the impact of inflation on banks profitability depends on whether the inflation is anticipated or unanticipated. If the inflation is fully anticipated and interest rates are adjusted accordingly resulting in revenues increasing faster than costs, then it may have a positive impact on profitability. The positive relationship between inflation and bank profitability implies that bank income increases more with inflation than do banks costs.

However if the inflation is not anticipated and the banks are sluggish in adjusting their interest rates then there is a possibility that bank costs may increase faster than bank revenues and hence adversely affect bank profitability.

The regression results of asset based profitability model, shows insignificant conflicting results with three banks showing a positive relationship and four other banks showing a negative relationship. Two banks show a significant positive relationship between inflation and profitability (Table 4.17). This is consistent with the findings by Perry (1992).

For the capital based profitability model, there is a negative relationship between inflation and bank profitability for five banks with two depicting a positive relationship (table 4.18). From this relationship it can be concluded that management did not anticipate inflation, probably due to the fact that it does not significantly influence profitability.

**Table 4.17 Inflation Rate with Return on Assets as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	0.054	0.026	-2.050	0.0870	YES
Kenya Commercial Bank	-0.067	0.111	-0.600	0.572	NO
Barclays Bank of Kenya	-0.005	0.404	-0.130	0.900	NO
Diamond Trust Bank	-0.077	0.104	-0.730	0.491	NO
Standard Chartered Bank	0.010	0.033	0.300	0.776	NO
CFC Bank	0.026	0.030	0.860	0.424	NO
National Bank of Kenya	0.367	0.170	2.150	0.075	YES

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.18 Inflation Rate with Return on Equity as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	-0.006	0.366	-0.020	0.987	NO
Kenya Commercial Bank	-1.137	1.128	-1.010	0.352	NO
Barclays Bank of Kenya	-0.147	0.563	-0.260	0.803	NO
Diamond Trust Bank	-0.437	0.784	-0.560	0.598	NO
Standard Chartered Bank	0.684	0.440	1.550	0.171	NO
CFC Bank	0.119	0.266	0.450	0.67	NO
National Bank of Kenya	-2.870	10.470	-0.270	0.793	NO

NOTE: A variable is significant if the p value is less than 0.10



**Table 4.20 Market Interest Rate with Return on Equity as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	-3.116	0.917	-3.400	0.015	YES
Kenya Commercial Bank	-1.885	2.822	-0.670	0.529	NO
Barclays Bank of Kenya	-2.986	1.409	-2.120	0.078	YES
Diamond Trust Bank	-4.188	1.962	-2.130	0.077	YES
Standard Chartered Bank	0.596	1.102	0.540	0.608	NO
CFC Bank	-1.152	0.666	-1.730	0.135	NO
National Bank of Kenya	-20.60	26.210	-0.790	0.460	NO

NOTE: A variable is significant if the p value is less than 0.10

#### 4.3.4 Bank Size

The size variable accounts for size related to economies and diseconomies of scale. Heggstad (1977) and Smirlock (1985) considered firm size to take account of the possibility of greater loan and product diversification and accessibility of larger banks to assets markets, which are not available for small banks. The expected relationship for this variable is positive.

From the regression results this variable was totally insignificant to the bank profitability for the asset based profitability model. The coefficients for five banks were negative and only two had a positive relationship (Table 4.21).

From the regression results this variable was only significant to the bank profitability for the capital based profitability model for only one bank (Table 4.22). The coefficients for six banks were negative and only one had a positive relationship. These results contradict the findings by Heggstad (1977) and Smirlock (1985). The reason for this contradicting finding may be due to the fact that all the banks in the sample are quoted and hence have access to the assets market.

**Table 4.21 Bank Size with Return on Assets as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	0.198	0.099	-2.010	0.138	NO
Kenya Commercial Bank	-0.309	0.416	-0.744	0.511	NO
Barclays Bank of Kenya	-0.050	0.113	-0.446	0.686	NO
Diamond Trust Bank	-1.770	0.775	-2.285	0.106	NO
Standard Chartered Bank	-0.032	0.063	-0.497	0.653	NO
CFC Bank	-0.009	0.054	-1.728	0.183	NO
National Bank of Kenya	0.277	0.669	0.414	0.707	NO

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.22 Bank Size with Return on Equity as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	0.012	0.003	4.344	0.024	YES
Kenya Commercial Bank	-0.286	0.186	-1.537	0.199	NO
Barclays Bank of Kenya	-0.122	0.107	-1.137	0.338	NO
Diamond Trust Bank	-0.177	0.077	-2.285	0.106	NO
Standard Chartered Bank	-0.242	0.113	-2.814	0.121	NO
CFC Bank	-0.095	0.049	-1.936	0.148	NO
National Bank of Kenya	-0.531	0.864	-0.660	0.556	NO

NOTE: A variable is significant if the p value is less than 0.10

### 4.3.5 Market Share

Margarida (2000) found that market share was not significant in explaining the Net Interest margin and hence the profitability. The market share of individual banks may change as a result of competitive behaviour in the banking industry. A change in the market share would have implications on the profit potentials. This variable is expected to have a positive impact on bank profitability.

From the regression results, this variable is insignificant in explaining banks profitability for the asset based profitability model. The relationship depicted by the coefficients is positive for five banks and negative for two banks (Table 4.23). For the capital based profitability measure of bank profitability, the variable is significant for two banks. The coefficients depict a positive relationship for six banks and a weak negative relationship for one bank. The coefficients for two banks show some positive significance of the variable to the profitability (Table 4.24). These findings are consistent with the findings by Margarida (2000). The reason

for this observation may have been due to the insignificant change in the market share of banks for the period of study.

**Table 4.23 Market Share with Return on Assets as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	0.026	0.014	1.799	0.170	NO
Kenya Commercial Bank	0.001	0.010	-0.122	0.911	NO
Barclays Bank of Kenya	-0.004	0.003	-1.144	0.336	NO
Diamond Trust Bank	0.034	0.045	0.753	0.506	NO
Standard Chartered Bank	0.002	0.002	0.705	0.936	NO
CFC Bank	0.010	0.008	1.313	0.280	NO
National Bank of Kenya	-0.531	0.864	-0.660	0.556	NO

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.24 Market Share with Return on Equity as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	0.021	0.006	3.482	0.040	YES
Kenya Commercial Bank	0.002	0.007	0.358	0.739	NO
Barclays Bank of Kenya	-0.001	0.003	-0.011	0.992	NO
Diamond Trust Bank	0.003	0.004	0.753	0.506	NO
Standard Chartered Bank	0.012	0.004	2.834	0.066	YES
CFC Bank	0.013	0.008	1.749	0.179	NO
National Bank of Kenya	0.064	0.122	0.524	0.637	NO

NOTE: A variable is significant if the p value is less than 0.10

#### 4.3.6 Regulation

Koehn (1980) found that regulations, which increase capital adequacy to increase capital to assets ratio, have a possibility of a positive relationship with bank profitability. Guru (1999) pointed out that changes in the regulatory conditions in the banking market could affect profitability potentials of these institutions. The regulations are expected to have an impact on bank profitability depending on whether they create entry barriers. If they create entry barriers, they are expected to have a positive impact on profitability.

From the regression results, this variable is insignificant in explaining the profitability. The relationship depicted by the results is conflicting with the coefficients for three banks showing a positive relationship and the other four showing a negative relationship for the asset based profitability model (Table 4.25). From the results of the capital based profitability model the

coefficients depict a positive relationship for four banks and a negative relationship for three banks (Table 4.26). None of the banks coefficients depicts this variable as significant. This may be due to the fact that all the banks in the study are quoted and hence have been complying with the listing requirements.

**Table 4.25 Regulation with Return on Assets as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	0.002	0.001	0.109	0.920	NO
Kenya Commercial Bank	-0.004	-0.475	-0.578	0.604	NO
Barclays Bank of Kenya	0.008	-0.022	0.347	0.751	NO
Diamond Trust Bank	-0.075	0.058	-1.279	0.291	NO
Standard Chartered Bank	-0.008	0.008	-0.349	0.979	NO
CFC Bank	0.031	0.016	1.961	0.145	NO
National Bank of Kenya	-0.061	0.146	-0.042	0.703	NO

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.26 Regulation with Return on Equity as the Dependent Variable**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
National Industrial Credit	-0.009	0.0080	-1.097	0.353	NO
Kenya Commercial Bank	-0.037	0.0410	-0.897	0.420	NO
Barclays Bank of Kenya	0.004	0.021	0.169	0.877	NO
Diamond Trust Bank	-0.007	0.006	-1.279	0.291	NO
Standard Chartered Bank	0.002	0.014	0.171	0.875	NO
CFC Bank	0.021	0.014	1.465	0.239	NO
National Bank of Kenya	2.000	3.678	0.546	0.623	NO

NOTE: A variable is significant if the p value is less than 0.10

#### 4.4 Significant Independent Variables

The results show that loans and advances variable is the most significant internal factor, while inflation and market interest rates are the most important external factors though not significant in explaining the bank profitability for the asset based profitability model (Table 4.27). Loans and advances, investment in securities and loan to deposit ratio are the most significant internal factors, while market interest rate is the most significant external factor in explaining the bank profitability for the capital based profitability model (table 4.28)



**Table 4.27 Significance of the Independent Variables of the Asset Based Profitability Model**

VARIABLES	Significant		Not Significant	
	Number of cos.	%	Number of cos.	%
Loans and Advances	3	38%	4	62%
Investment in Securities	2	25%	5	75%
Investment in Subsidiaries	2	25%	5	75%
Current Account Deposits	1	13%	6	87%
Time and Savings Deposits	1	13%	6	87%
Capital and Reserves	1	13%	6	87%
Loans to Deposits Ratio	2	25%	5	75%
Growth in M3 Money Supply	1	13%	6	87%
Market Interest Rates	2	25%	5	75%
Inflation	2	25%	5	75%
Bank Size	0	0%	7	100%
Market Share	0	0%	7	100%
Regulation	0	0%	7	100%

**Table 4.28 Frequency Table of significance for the Independent Variables of the Capital Based Profitability Model**

VARIABLES	Significant		Not Significant	
	Number of cos.	%	Number of cos.	%
Loans and Advances	3	38%	4	62%
Investment in Securities	3	38%	4	62%
Investment in Subsidiaries	2	25%	5	75%
Current Account Deposits	2	25%	5	75%
Time and Savings Deposits	1	13%	6	87%
Capital and Reserves	2	25%	5	75%
Loans to Deposits Ratio	3	38%	4	62%
Growth in M3 Money Supply	1	13%	6	87%
Market Interest Rates	3	38%	4	62%
Inflation	0	0%	7	100%
Bank Size	1	13%	6	87%
Market Share	2	25%	5	75%
Regulation	0	0%	7	100%

#### 4.4.1 Significant Independent Variables Correlation to Profitability

For the most important internal factors for the asset based profitability model, loans and advances variable is negatively correlated to bank profitability. On the other hand, market interest rate is positively correlated to the bank profitability (table 4.29). The most important internal factor for the capital based profitability model, loans and advances variable is also negatively correlated to bank profitability while investment insecurities and loans to deposit ratio are positively correlated to bank profitability. On the other hand, market interest rate is

positively correlated to the bank profitability for the capital based profitability model (table 4.30)

**Table 4.29 Frequency for Significant Variables of the Asset Based Profitability Model**

VARIABLES	Positive		Negative	
	Number of cos.	%	Number of cos.	%
Loans and Advances	1	33%	2	67%
Investment in Securities	2	100%	0	0%
Investment in Subsidiaries	1	50%	1	50%
Current Account Deposits	0	0%	1	100%
Time and Savings Deposits	0	0%	1	100%
Capital and Reserves	0	0%	1	100%
Loans to Deposits Ratio	2	67%	1	33%
Growth in M3 Money Supply	0	0%	1	100%
Market Interest Rates	0	0%	2	100%
Inflation	1	50%	1	50%
Bank Size	0	0%	0	0%
Market Share	0	0%	0	0%
Regulation	0	0%	0	0%

**Table 4.30 Frequency for Significant Variables of the Capital Based Profitability Model**

VARIABLES	Positive		Negative	
	Number of cos.	%	Number of cos.	%
Loans and Advances	0	0%	3	100%
Investment in Securities	2	67%	1	33%
Investment in Subsidiaries	0	0%	2	100%
Current Account Deposits	1	50%	1	50%
Time and Savings Deposits	1	100%	0	0%
Capital and Reserves	2	100%	0	0%
Loans to Deposits Ratio	3	100%	0	0%
Growth in M3 Money Supply	0	0%	1	100%
Market Interest Rates	0	0%	3	100%
Inflation	0	0%	0	0%
Bank Size	1	100%	0	0%
Market Share	2	100%	0	0%
Regulation	0	0%	0	0%

#### 4.4.2 Coefficient of Determination

The coefficient of determination shows the power of the explanatory variables in accounting for the variations in the dependent variable. For the purpose of this study, if eighty percent of the variation in the dependent variable is explained then the explanatory variables are taken to be significant. For the Internal Variables of both the Asset based profitability and the capital based profitability Models, three companies out of the seven, studied show that the independent variables significantly explain the variation in the dependent variable (Table 4.31 and 4.32). For the external Variables of the Asset based profitability model, two banks out of the seven, studied show that the independent variables significantly explain the variation in the dependent variable, while the results of the capital based profitability model depict only one bank showing that the independent variables significantly explain the variation in the dependent variable (Table 4.33 and 4.34).

**Table 4.31 Coefficient of Determination for the Internal Variables of the Asset Based profitability Model**

COMPANY	COEFFICIENT	SIGNIFICANT
National Industrial Credit	82.3%	YES
Kenya Commercial Bank	84.5%	YES
Barclays Bank of Kenya	32.8%	NO
Diamond Trust Bank	56.0%	NO
Standard Chartered Bank	86.6	YES
CFC Bank	44.3%	NO
National Bank of Kenya	44.6%	NO

**Table 4.32 Coefficient of Determination for the Internal Variables of the Capital based profitability Model**

COMPANY	COEFFICIENT	SIGNIFICANCE
National Industrial Credit	98.5%	YES
Kenya Commercial Bank	78.0%	NO
Barclays Bank of Kenya	88.1%	YES
Diamond Trust Bank	48.1%	NO
Standard Chartered Bank	78.4%	NO
CFC Bank	66.2%	NO
National Bank of Kenya	91.4%	YES

**Table 4.33 Coefficient of Determination for the External Variables of the Asset based profitability Model**

COMPANY	COEFFICIENT	SIGNIFICANCE
National Industrial Credit	81.7%	YES
Kenya Commercial Bank	49.8%	NO
Barclays Bank of Kenya	34.8%	NO
Diamond Trust Bank	41.3%	NO
Standard Chartered Bank	52.5%	NO
CFC Bank	85.8%	YES
National Bank of Kenya	43.4%	NO

**Table 4.34 Coefficient of Determination for the External Variables of the Capital based profitability Model**

COMPANY	COEFFICIENT	SIGNIFICANCE
National Industrial Credit	86.4%	YES
Kenya Commercial Bank	51.6%	NO
Barclays Bank of Kenya	51.2%	NO
Diamond Trust Bank	44.8%	NO
Standard Chartered Bank	31.4%	NO
CFC Bank	67.3%	NO
National Bank of Kenya	10.6%	NO

## 4.5 Regression Results for Individual Banks Profitability

### 4.5.1 Banks Rankings Based on ROA and ROE

The rankings of banks based on the return on assets and return on equity were undertaken. The results are as shown in table 4.35 and 4.36 below. From these results it can be deduced that a banks return on assets and returns on equity can be used as different profitability measurements. Further analysis based on individual banks determinants is undertaken (Tables 4.37 – 4.50).

**Table 4.35 Banks Rankings Based on their Return on Assets**

Bank	Return on Assets	Rank
National Industrial Credit	7%	1
Barclays Bank of Kenya	6%	2
Standard Chartered Bank	5%	3
CFC Bank	5%	4
Diamond Trust Bank	3%	5
Kenya Commercial Bank	2%	6
National Bank of Kenya	-2%	7

**Table 4.36 Banks Rankings Based on their Return on Equity**

Bank	Return on Equity	Rank
Standard Chartered Bank	61%	1
Barclays Bank of Kenya	51%	2
National Industrial Credit	39%	3
CFC Bank	30%	4
Kenya Commercial Bank	18%	5
Diamond Trust Bank	15%	6
National Bank of Kenya	-38%	7

### 4.5.2 National Industrial Credit Bank

This bank has been ranked highest in terms of the returns on assets (table 4.35). Loans and advances has been identified as a significant variable that contributes positively to the profitability of the bank. Two other internal factors, current accounts deposits and time and savings deposits contribute positively to the bank's profits. The Capital and Reserves and

Loans to deposit ratios contribute negatively to the bank's profitability (table 4.36). The only external factor that is significant is inflation. It contributes negatively to banks profitability. Three external variables (growth in M3 money supply, market interest rates and inflation) contribute negatively to the bank's profitability while the other three (bank size, market share and regulation) contribute positively to the bank's profitability (table 4.37).

In terms of the returns on equity, this bank has been ranked third (table 4.38). A number of internal factors that are significant have contributed negatively to the profitability; loans and advances, current account deposits and capital and reserves. There are also other significant internal factors that have contributed positively to the profitability. They are, time and savings deposits and loans to deposit ratio. The external factors have also depicted some significance. Market interest rate depicts a negative relationship, while bank size and market share depict a positive relationship (table 4.38).

**Table 4.37 National Industrial Credit Bank Results for the Asset Based Profitability Model**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
Loans and Advances	0.193	0.076	2.520	0.053	YES
Investment in Securities	N/A	N/A	N/A	N/A	N/A
Investment in Subsidiaries	N/A	N/A	N/A	N/A	N/A
Current Account Deposits	0.078	0.199	0.390	0.712	NO
Time and Savings Deposits	0.387	0.225	1.720	0.146	NO
Capital and Reserves	-0.434	0.072	-6.010	0.009	YES
Loans to Deposits Ratio	-0.031	0.075	-0.140	0.896	NO
Growth in M3 Money Supply	-0.087	0.059	-1.460	0.195	NO
Market Interest Rates	-0.117	0.066	-1.780	0.126	NO
Inflation	-0.054	0.026	-2.050	0.087	YES
Bank Size	0.198	0.099	-2.010	0.138	NO
Market Share	0.026	0.014	1.799	0.170	NO
Regulation	0.002	0.001	0.109	0.920	NO

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.38 National Industrial Credit Bank Results for the Capital Based Profitability Model**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
Loans and Advances	-3.057	1.066	-2.870	0.045	YES
Investment in Securities	N/A	N/A	N/A	N/A	N/A
Investment in Subsidiaries	N/A	N/A	N/A	N/A	N/A
Current Account Deposits	-2.457	1.148	-2.140	0.099	YES
Time and Savings Deposits	1.959	0.910	2.150	0.098	YES
Capital and Reserves	-5.503	0.774	-7.110	0.002	YES
Loans to Deposits Ratio	2.283	0.702	3.250	0.031	YES
Growth in M3 Money Supply	-1.340	0.826	-1.620	0.156	NO
Market Interest Rates	-3.116	0.917	-3.400	0.015	YES
Inflation	-0.006	0.366	-0.020	0.987	NO
Bank Size	0.012	0.003	4.344	0.0240	YES
Market Share	0.021	0.006	3.482	0.04	YES
Regulation	-0.009	0.008	-1.097	0.353	NO

NOTE: A variable is significant if the p value is less than 0.10

### 4.5.3 Barclays Bank of Kenya

This bank has been ranked second both in terms of return on assets and returns on equity (table 4.35 and 4.36). There are no significant factors for the asset based profitability model.

Seven variables depict a negative relationship, while two variables depict a positive relationship (table 4.39). From these findings it can be deduced that other factors other than the ones studied contribute to the profitability of this bank.

From the coefficients of the capital based profitability model, four variables are significant.

Three of those variables namely loans and advances, investments in securities and market interest rates depict a negative relationship, while current account deposits depicts a negative relationship (table 4.40).

**Table 4.39 Barclays Bank of Kenya Results for the Asset Based Profitability Model**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
Loans and Advances	N/A	N/A	N/A	N/A	N/A
Investment in Securities	-0.058	0.050	-1.150	0.293	NO
Investment in Subsidiaries	N/A	N/A	N/A	N/A	N/A
Current Account Deposits	-0.535	0.611	-0.880	0.414	NO
Time and Savings Deposits	N/A	N/A	N/A	N/A	N/A
Capital and Reserves	-0.220	0.222	-0.199	0.360	NO
Loans to Deposits Ratio	N/A	N/A	N/A	N/A	N/A
Growth in M3 Money Supply	-0.154	0.091	-1.690	0.142	NO
Market Interest Rates	0.025	0.101	0.250	0.812	NO
Inflation	-0.005	0.404	-0.130	0.900	NO
Bank Size	-0.050	0.113	-0.446	0.686	NO
Market Share	-0.004	0.003	-1.144	0.336	NO
Regulation	0.008	-0.022	0.347	0.751	NO

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.40 Barclays Bank of Kenya Results for the Capital Based Profitability Model**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
Loans and Advances	-3.128	0.389	-8.050	0.0001	YES
Investment in Securities	-0.944	0.280	-3.370	0.015	YES
Investment in Subsidiaries	N/A	N/A	N/A	N/A	N/A
Current Account Deposits	15.74	3.692	4.260	0.005	YES
Time and Savings Deposits	N/A	N/A	N/A	N/A	N/A
Capital and Reserves	N/A	N/A	N/A	N/A	N/A
Loans to Deposits Ratio	N/A	N/A	N/A	N/A	N/A
Growth in M3 Money Supply	-0.760	1.269	-0.600	0.571	NO
Market Interest Rates	-2.986	1.409	-2.120	0.078	YES
Inflation	-0.147	0.563	-0.260	0.803	NO
Bank Size	-0.122	0.107	-1.137	0.338	NO
Market Share	-0.001	0.003	-0.011	0.992	NO
Regulation	0.004	0.021	0.169	0.877	NO

NOTE: A variable is significant if the p value is less than 0.10

#### 4.5.4 Standard Chartered Bank

This bank has been ranked third in terms of returns on assets (table 4.35). There are three significant internal factors. From the coefficients of the variables two internal factors, that is, loans and advances and investment in subsidiaries depict a negative relationship to the bank profitability, while loans to deposit ratio depicts a positive relationship. The only external factor that is significant is market interest rate, which depicts a positive relationship. These



factors may have contributed to the bank's performance (table 4.41). In term of the return on equity, this bank has been ranked first (table 4.36). From the variable coefficients of the capital based profitability model there are four internal variables (loans and advances, investment in subsidiaries, and capital and reserves, which depict a negative relationship and loans to deposits ratio, which depicts a positive relationship. The only external factor that is significant is market share, which depicts a positive relationship (table 4.42).

**Table 4.41 Standard Chartered Bank Results for the Asset Based Profitability Model**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
Loans and Advances	-0.663	0.195	-3.410	0.014	YES
Investment in Securities	N/A	N/A	N/A	N/A	N/A
Investment in Subsidiaries	-0.170	0.081	-2.100	0.081	YES
Current Account Deposits	N/A	N/A	N/A	N/A	N/A
Time and Savings Deposits	N/A	N/A	N/A	N/A	N/A
Capital and Reserves	N/A	N/A	N/A	N/A	N/A
Loans to Deposits Ratio	0.512	0.150	3.420	0.014	YES
Growth in M3 Money Supply	0.316	0.235	1.340	0.228	NO
Market Interest Rates	0.207	0.081	2.550	0.044	YES
Inflation	0.010	0.033	0.300	0.776	NO
Bank Size	-0.032	0.063	-0.497	0.653	NO
Market Share	0.002	0.002	0.705	0.936	NO
Regulation	-0.008	0.008	-0.349	-0.979	NO

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.42 Standard Chartered Bank Results for the Capital Based Profitability Model**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
Loans and Advances	-8.161	2.993	-2.730	0.041	YES
Investment in Securities	N/A	N/A	N/A	N/A	N/A
Investment in Subsidiaries	-2.318	0.975	-2.380	0.063	YES
Current Account Deposits	N/A	N/A	N/A	N/A	N/A
Time and Savings Deposits	N/A	N/A	N/A	N/A	N/A
Capital and Reserves	-6.663	1.656	-4.020	0.100	YES
Loans to Deposits Ratio	6.320	2.306	2.740	0.041	YES
Growth in M3 Money Supply	-1.400	0.993	1.410	0.208	NO
Market Interest Rates	0.596	1.102	0.540	0.608	NO
Inflation	0.684	0.440	1.550	0.171	NO
Bank Size	-0.242	0.113	-2.814	0.121	NO
Market Share	0.012	0.004	2.834	0.066	YES
Regulation	0.002	0.014	0.171	0.875	NO

NOTE: A variable is significant if the p value is less than 0.10

#### 4.5.5 CFC Bank

This bank has been ranked fourth, both in terms of return on assets and return on equity (table 4.35 and 4.36). The only significant variable for both the capital based and asset based profitability models is Growth in M3 money supply. This coefficient of this variable depicts a negative relationship with bank's profitability (table 4.43 and 4.44). For the asset based profitability model, six variables depict a positive relationship while four variables depict a negative relationship to bank profitability. From the results of the capital based profitability model, four variables depict a positive relationship, while five variables depict a negative relationship to bank profitability (Table 4.43 and 4.44)

**Table 4.43 CFC Bank Results for the Asset Based Profitability Model**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
Loans and Advances	N/A	N/A	N/A	N/A	N/A
Investment in Securities	0.156	0.124	1.260	0.263	NO
Investment in Subsidiaries	N/A	N/A	N/A	N/A	N/A
Current Account Deposits	-0.083	0.061	-1.350	0.234	NO
Time and Savings Deposits	N/A	N/A	N/A	N/A	N/A
Capital and Reserves	0.254	0.235	1.080	0.33	NO
Loans to Deposits Ratio	-0.043	0.051	-0.850	0.435	NO
Growth in M3 Money Supply	-0.316	0.068	-4.650	0.004	YES
Market Interest Rates	0.102	0.075	1.360	0.223	NO
Inflation	0.026	0.030	0.860	0.424	NO
Bank Size	-0.009	0.054	-1.728	0.183	NO
Market Share	0.010	0.008	1.313	0.28	NO
Regulation	0.031	0.016	1.961	0.145	NO

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.44 CFC Bank Results for the Capital Based Profitability Model**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
Loans and Advances	N/A	N/A	N/A	N/A	N/A
Investment in Securities	1.084	0.681	1.590	0.163	NO
Investment in Subsidiaries	N/A	N/A	N/A	N/A	N/A
Current Account Deposits	-0.420	0.281	-1.500	0.185	NO
Time and Savings Deposits	N/A	N/A	N/A	N/A	N/A
Capital and Reserves	N/A	N/A	N/A	N/A	N/A
Loans to Deposits Ratio	-0.296	0.195	-1.510	0.181	NO
Growth in M3 Money Supply	-1.279	0.600	-2.130	0.077	YES
Market Interest Rates	-1.152	0.666	-1.730	0.135	NO
Inflation	0.119	0.266	0.450	0.670	NO
Bank Size	-0.095	0.049	-1.936	0.148	NO
Market Share	0.013	0.008	1.749	0.179	NO
Regulation	0.021	0.014	1.465	0.239	NO

NOTE: A variable is significant if the p value is less than 0.10

#### 4.5.6 Diamond Trust Bank

This bank has been ranked fifth in terms of returns on assets and sixth in terms of return on equity (table 4.35 and 4.36). From the results of the asset based profitability model there are only two significant factors, these are, investment in securities and investment in subsidiaries. These two factors contribute positively to bank profitability. Coefficients of three internal variables (investment in securities, investment in subsidiaries and loans to deposits ratio) are positive and the other internal factors were dropped due to high correlation with the other variables (table 4.45). The results of the capital based profitability model, show investment in securities as the only significant internal variable.

Market interest rate is the only significant external variable. The coefficient of this variable depicts a negative relationship to profitability (table 4.46). The coefficients of three internal variables (investment in securities, investment in subsidiaries and loans to deposits ratio) depict a positive relationship while current account deposits depicts a negative relationship. The coefficients of two external variables (growth in M3 money supply and market share) depict a positive relation while the coefficients of four external variables (market interest rate,

inflation, bank size and regulation) depict a negative relationship to bank profitability (table 4.46).

**Table 4.45 Diamond Trust Bank Results for the Asset based profitability Model**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
Loans and Advances	N/A	N/A	N/A	N/A	N/A
Investment in Securities	0.416	0.110	3.790	0.009	YES
Investment in Subsidiaries	1.183	0.455	2.600	0.04	YES
Current Account Deposits	N/A	N/A	N/A	N/A	N/A
Time and Savings Deposits	N/A	N/A	N/A	N/A	N/A
Capital and Reserves	N/A	N/A	N/A	N/A	N/A
Loans to Deposits Ratio	0.130	0.072	1.810	0.12	NO
Growth in M3 Money Supply	0.316	0.235	1.340	0.228	NO
Market Interest Rates	-0.500	0.261	-1.920	0.104	NO
Inflation	-0.077	0.104	-0.730	0.491	NO
Bank Size	-1.770	0.775	-2.285	0.106	NO
Market Share	0.034	0.045	0.753	0.506	NO
Regulation	-0.075	0.058	-1.279	0.291	NO

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.46 Diamond Trust Bank Results for the Capital based Profitability Model**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
Loans and Advances	N/A	N/A	N/A	N/A	N/A
Investment in Securities	4.632	2.031	2.280	0.072	YES
Investment in Subsidiaries	15.21	8.433	1.800	0.131	NO
Current Account Deposits	-3.632	4.472	-0.810	0.454	NO
Time and Savings Deposits	N/A	N/A	N/A	N/A	N/A
Capital and Reserves	N/A	N/A	N/A	N/A	N/A
Loans to Deposits Ratio	1.442	0.722	2.000	0.102	NO
Growth in M3 Money Supply	2.205	1.767	1.250	0.259	NO
Market Interest Rates	-4.188	1.962	-2.130	0.077	YES
Inflation	-0.437	0.784	-0.560	0.598	NO
Bank Size	-0.177	0.077	-2.285	0.106	NO
Market Share	0.003	0.004	0.753	0.506	NO
Regulation	-0.007	0.006	-1.279	0.291	NO

NOTE: A variable is significant if the p value is less than 0.10

#### 4.5.7 Kenya Commercial Bank

This bank was ranked sixth in terms of the return on assets and fifth in terms of return on equity (table 4.35 and 4.36). From the regression results of the asset-based profitability model, there are four significant internal variables. These are investment in securities, current account deposits time and savings deposits and loans to deposits ratio. The coefficients of investment

in securities and loans to deposit ratio depict a positive relationship while the coefficients of current account deposits and time and savings deposits depict a negative relationship. None of the external factors shows any significance to the bank's profitability. The coefficients depict five external factors having a negative relationship to bank profitability and only one having a positive relationship (Table 4.47).

From the results of the capital based profitability model, only investment in securities and loans to deposit ratio are significant with their coefficients depicting a positive relationship. Time and savings deposits though not significant depicts a negative relationship to bank profitability. None of the external variables is significant. Five external variables depict a negative relationship and only one depicts a positive relationship to bank profitability (table 4.48).

**Table 4.47 Kenya Commercial Bank Results for the Asset based Profitability Model**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
Loans and Advances	N/A	N/A	N/A	N/A	N/A
Investment in Securities	0.896	0.186	4.830	0.005	YES
Investment in Subsidiaries	N/A	N/A	N/A	N/A	N/A
Current Account Deposits	-0.806	0.300	-2.690	0.043	YES
Time and Savings Deposits	-1.155	0.376	-3.070	0.028	YES
Capital and Reserves	N/A	N/A	N/A	N/A	N/A
Loans to Deposits Ratio	0.689	0.169	4.080	0.009	YES
Growth in M3 Money Supply	-0.395	0.251	-1.580	0.166	NO
Market Interest Rates	-0.044	0.278	-0.160	0.881	NO
Inflation	-0.067	0.111	-0.600	0.572	NO
Bank Size	-0.309	0.416	-0.744	0.511	NO
Market Share	0.001	0.010	-0.122	0.911	NO
Regulation	-0.004	-0.475	-0.578	0.604	NO

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.48 Kenya Commercial Bank Results for the Capital based Profitability Model**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
Loans and Advances	N/A	N/A	N/A	N/A	N/A
Investment in Securities	11.73	2.044	5.740	0.001	YES
Investment in Subsidiaries	N/A	N/A	N/A	N/A	N/A
Current Account Deposits	N/A	N/A	N/A	N/A	N/A
Time and Savings Deposits	-3.120	1.652	-1.890	0.108	NO
Capital and Reserves	N/A	N/A	N/A	N/A	N/A
Loans to Deposits Ratio	7.790	2.069	3.760	0.009	YES
Growth in M3 Money Supply	-2.640	2.540	-1.040	0.34	NO
Market Interest Rates	-1.885	2.822	-0.670	0.529	NO
Inflation	-1.137	1.128	-1.010	0.352	NO
Bank Size	-0.286	0.186	-1.537	0.199	NO
Market Share	0.002	0.007	0.358	0.739	NO
Regulation	-0.037	0.041	-0.897	0.420	NO

NOTE: A variable is significant if the p value is less than 0.10

#### 4.5.8 National Bank of Kenya

This bank is ranked the lowest in terms of return on assets and return on equity. ROA and ROE are negative (Table 4.35 and 4.36). From the regression results of the asset based profitability model, loans and advances is the only significant internal variable and inflation is the only significant external variable. The coefficient of the said internal factor depicts a negative relationship with bank profitability and the external variable depicts a positive relationship. The coefficients depict three internal variables (loans and advances, investment in securities and investment in subsidiaries) having a negative relationship to bank profitability and two variables (current account deposits and capital and reserves) having a positive relationship. For the external variables, the coefficients depict three variables (growth in M3 money supply, market interest rate and regulation) having a negative relationship and the other three variables (inflation, bank size and market share) having a positive relationship to bank profitability (Table 4.49). The regression results of the capital based profitability model, show investment in the subsidiaries as the only significant variable and its coefficient having a negative relationship with bank profitability. Two of the internal variables have negative coefficients and one has positive coefficients to bank profitability. The coefficients

for the external variables depict three variables (growth in M3 money supply, market interest rate and regulation) having a positive relationship and the other three variables (inflation, bank size and market share) having a negative relationship (Table 4.50).

**Table 4.49 National Bank of Kenya Results for the Asset Based Profitability Model**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
Loans and Advances	-1.225	0.437	-2.590	0.049	YES
Investment in Securities	-4.109	4.342	-0.950	0.387	NO
Investment in Subsidiaries	-4.036	9.532	-0.420	0.700	NO
Current Account Deposits	1.491	1.005	1.480	0.198	NO
Time and Savings Deposits	N/A	N/A	N/A	N/A	N/A
Capital and Reserves	0.308	0.527	0.580	0.584	NO
Loans to Deposits Ratio	N/A	N/A	N/A	N/A	N/A
Growth in M3 Money Supply	-0.614	0.384	-1.600	0.161	NO
Market Interest Rates	-0.736	0.426	-1.730	0.350	NO
Inflation	0.367	0.170	2.150	0.075	YES
Bank Size	0.277	0.669	0.414	0.707	NO
Market Share	0.012	0.022	0.545	0.623	NO
Regulation	-0.061	0.146	-0.042	0.703	NO

NOTE: A variable is significant if the p value is less than 0.10

**Table 4.50 National Bank of Kenya Results for the Capital Based Profitability Model**

BANK	COEFFICIENT	SE COEFFICIENT	T-VALUE	P-VALUE	SIGNIFICANT
Loans and Advances	6.571	5.517	1.190	0.279	NO
Investment in Securities	N/A	N/A	N/A	N/A	N/A
Investment in Subsidiaries	-849.0	96.99	-8.750	0.0001	YES
Current Account Deposits	-6.843	8.271	-0.830	0.440	NO
Time and Savings Deposits	N/A	N/A	N/A	N/A	N/A
Capital and Reserves	N/A	N/A	N/A	N/A	N/A
Loans to Deposits Ratio	N/A	N/A	N/A	N/A	N/A
Growth in M3 Money Supply	13.99	23.61	0.590	0.575	NO
Market Interest Rates	-20.68	26.21	0.079	0.46	NO
Inflation	-2.870	10.47	-0.270	0.793	NO
Bank Size	-0.531	0.864	-0.660	0.556	NO
Market Share	0.064	0.122	0.524	0.637	NO
Regulation	2.000	3.678	0.546	0.623	NO

NOTE: A variable is significant if the p value is less than 0.10

**5.0 SUMMARY, FINDINGS, CONCLUSIONS, LIMITATIONS OF THE STUDY AND SUGGESTIONS FOR FURTHER RESEARCH****5.1 Summary, Conclusions and Recommendations**

This research has illustrated how banks, different in terms of their characteristics and experience, differ in their management of profits. This is a very important issue for bank management, policy makers, and shareholders. The study was conducted with the aim of trying to identify the internal determinants and external determinants of profitability for banks in Kenya.

The study found out that the only internal factor that contributes to profitability is the loans component. This may be due to the fact that most commercial banks hold the loans as their biggest portion of the total assets. It is therefore recommended that the bank management should try and optimize on the optimal mix of loans to assets for higher profits. From the results, only market interest rates showed some significance. This may be due to the fact that since all these banks under consideration are quoted, they may be affected by the external factors in the same way and hence none has the advantage over the others to earn higher profits. The market interest rate may have been significant due to the fact that different banks charge different rates of interest and therefore the average base lending rate may not be a reflection of the individual lending rates.

The above findings provide an insight into the characteristics and practices of the successful commercial banks in terms of profitability. In view of these findings, conclusions can be made which may be useful to bank management policy makers and shareholders. Since there is no consensus on the financial factors that contribute to the bank profitability, it can be concluded that individual bank managers use different strategies to achieve their profitability objectives. Commercial banks should be prudent in providing credit for the financing of investments in highly volatile sectors such as the stock market and the property market. In this context,



lending to the productive sectors with proper monitoring systems and sound credit management is recommended. In the case of investments in subsidiaries, the commercial banks must ensure that they have the knowledge and management expertise to properly supervise and manage the acquired businesses so that they do not affect the profitability of the acquiring bank.

The commercial banks should not over commit in loans, since the liquidity variable as proxied by the loans to deposit ratio was generally found to have a negative impact on bank profitability. One of the possible reasons for this may be the higher cost of funding these loans through the high interest inter-bank borrowings and higher rates of non-performing loans

## **5.2 Limitations of the Study**

The individual banks annual reports formed the main source of data for this study. In view of this the sample size for commercial banks was restricted due to the inaccessibility of these reports for some of the institutions for the full period of study. This may have affected the reliability of the results in view of the reduced sample size.

Another problem was that, the extent of disclosure was limited among banks especially during the first half of the sample period namely from 1993 to 1996. However, streamlining of the format of financial reports and extent of disclosure appears to have taken place during the second half of the sample period from 1997 to 2002. As a result, continuous data for the full sample period were not available for some explanatory variables, especially the expense management that was not studied.

In view of the large number of variables included in the profitability models there was a possibility of high inter correlation particularly in relation to the time varying external determinants with similar trends. This may lead to multi collinearity problems. The MINITAB statistical software dropped some of the variables in estimating the profitability models. Nevertheless, since the coefficients in the profitability models were not seriously affected in

respect to the expected signs and significance, the problem of multi collinearity was generally ignored.

### **5.3 Suggestions for Further Research**

In the course of this study a number of areas for further research were identified. This study focused on the quoted commercial banks. A further research may extend the analysis to include the unquoted banks operating in Kenya in their samples. To this extent, a comparative analysis of the profitability performance of quoted and unquoted banks could be carried out.

In this study, market interest rates as presented by base lending rates was used as a measure of capital scarcity. However since bank profits depend on interest income and interest expense, the difference between the loan and deposit rates may have been a more appropriate determinant of profitability compared to one market rate. Thus, interest rate spread or margin can be used as an explanatory variable in place of market interest rate.

## APPENDICES

### APPENDIX I REFERENCES

- Afolabi S. and O. Ademola, "*Market Share and Profitability in Commercial Banking*". The Case of Nigeria: Journal of Management Studies Vol. 8 No. 1 March 1976 Pp 52-57
- Alper C.E. and M.H. Berument (2001), "*The Disinflation Program and the Structure of Turkish Banking Sector*", Istanbul, Turkey.
- Altman E.I. (1968) "*Financial Ratios Discriminant Analysis and the Prediction of Corporate Bankruptcy*", Journal of Finance 23, Page 589-609
- Banking Act, Incorporating 2001 Amendments
- Bashir A.M., (2000), "*Determinants of Profitability and Rate of Return Margins in Islamic Banks: Some Evidence from Middle East*".
- Bett K (1992) "*Financial Performance of the Banking Sector. The Case of Kenyan Banks and Financial Institutions*", Unpublished MBA Thesis, Nairobi, University of Nairobi.
- Bourke, Philip (1989), "*Concentration and Other Determinants of bank Profitability In Europe, North America and Australia.*" Journal of Banking and Finance, Vol. 13, 65-79.
- Central Bank Website ([www.centralbank.go.ke](http://www.centralbank.go.ke))
- Cooper et al, "*The Financial System and Economic Policy*". Adison – Wesley Publishing Company Inc. 1993
- Davaajargal, L (2000) "*Bank Profitability in Mongolia*".
- Demirguc-Kunt, A. and H. Huizinga (1999), "*Determinants of Commercial Bank Interest Margins and Profitability: Some International Evidence*",
- The World Bank Economic Review, Vol. 13, No 2, 379-408
- Doran, H.E and Guise J.W. (1984), "*Single Equation Methods in Econometrics: Applied Regression Analysis*", Armidale (Australia), UNE Publishing Unit.
- Frame, Scott W. and Christopher L. Holder (1994), "*Commercial Bank Profits in 1993.*" Federal Reserve Bank of Atlanta, Vol. 79, No.4, 22-27.
- Foyston, Richard and Nora Almeida (1992), "*Measuring Bank Profitability: A Critical Input to Achieving Superior Bank Strategy.*" Banker's Journal Malaysia, June 13-17.
- Gardner M.J. (2000), "*Managing Financial Institutions*", 4<sup>th</sup> Edition, The Dryden Press.
- Guru, K.B. and B. Shanmugam (1999), "*Determinants of Commercial Bank Profitability in Malaysia*". [afbc.banking.unsw.edu.au](http://afbc.banking.unsw.edu.au)

- Haslem, John (1968), ***“A statistical Analysis of the Relative Profitability of Commercial Banks”***, Journal of Finance, Vol. 23 (March), 167-176.
- Haslem, John (1969), ***“A Statistical Analysis of Commercial Bank Profitability”***. Journal of Business, Vol. 42 (January), 22-35.
- Heggestad, Arnold A. (1977), ***“Market Structure, Risk and Profitability in Commercial Banking”***. The Journal of Finance, Vol. 32, No. 4, 1207-1216.
- Kapoor, R and Dlabay (1994), ***“Personal Finance”***, Third Edition, Library of Congress Catalog, USA
- Kathanje M.N. (2000), ***“An Evaluation of Financial Performance of the Kenyan Banking Sector for the period 1987 – 1999”***, Unpublished MBA Thesis, Nairobi, University of Nairobi
- Koehn, M and A. M. Santomero (1980), ***“Regulation of Bank Capital and Portfolio”***, Journal of Finance, Vol. 35, 1235-1250.
- Koros, G.K. (2002), ***“An Evaluation of the Financial Performance of Non Banking Financial Institutions that Converted into Banks”***, Unpublished MBA Thesis, Nairobi, University of Nairobi
- Marcus A.J., ***“The Bank Capital Decision: A Time series Cross Section Analysis”***, Journal of Finance Vol. XXXVIII NO. 4 September 1983, PP 1217-1230.
- Margarida, A. and V. Mendes (2000), ***“Commercial Bank Interest Margins and Profitability: Evidence for some EU Countries”***.
- Molyneux, Philip and John Thornton (1992), ***“Determinants of European bank Profitability: A Note.”*** Journal of banking and Finance, Vol. 16, No. 6, 1173-1178.
- Molyneux, Phil, D.M. Lloyd Williams and John Thornton (1994), ***“Competitive Conditions in European Banking.”*** Journal of Banking and Finance, Vol.18, 445-459.
- Ochung D.O. (1999) ***“An Empirical Analysis of The Relationship Between Deposit Portfolio and Profitability: The Case of Publicly Quoted Banks and Financial Institutions in Kenya”*** Unpublished MBA Thesis, Nairobi, University of Nairobi
- Oscar T.B. ***“The Central Fund of the Ghana Credit Union and The Mobilization of Finances”***, Journal of Management Studies Vol. 10 No. 2, October 1978, pp 127-128.
- Perry, Philip, (1992), ***“Do Banks Gain or Lose From Inflation.”*** Journal of Retail Banking, Vol. 14, No.2 (Summer), 25-30.
- Pindyck, Robert S. and Daniel L. Rubinfeld (1991), ***“Econometric Models and Economic Forecasts”***, Third Edition, McGraw-Hill International Edition.
- Siems Thomas F.(1992), ***“Quantifying Management’s Role in Bank Survival”***, Economics Review (Federal Reserve Bank of Pallas) Pp. 29-41.

Sinkey, J.F. Jr, "***Problem and Failed Institutions in the Commercial Banking Industry***". Greenwich, C.T. JIA Press, 1979.

Short, Brock K. (1979), "***The Relationship Between Commercial Banks' profit rates and Banking Concentration in Canada, Western Europe and Japan.***" Journal of banking and Finance, Vol. 3, 209-219.

Smirlock, Micheal (1985), "***Evidence of (Non) Relationship between Concentration and Profitability in Banking.***" Journal of Money, Credit and Banking, Vol. 17, 69-83

Stanhouse B. "***Commercial Bank Portfolio Behaviour and Endogenous Uncertainty***". Journal of Finance Vol. XLI, No. 5 December 1986.

Stinenherr, A. and C. Huveneers (1994), "***On the Performance of Differently Regulated Financial Institutions: Some Empirical Evidence.***" Journal of Banking and Finance, Vol. 18, 271-306.

Williams, D.M. Lloyd, Phil Molyneux and John Thornton (1994), "***Market Structure and Performance in Spanish Banking.***" Journal of Banking and Finance, Vol. 18, 433-443.

## **Appendix II Structure of the Banking Industry in Kenya**

Category Of Institution	Number
Commercial Banks	46
Non Banking Financial Institutions	5
Building Societies	4
Mortgage Financial institutions	2
Foreign Exchange Bureaus	48

## **Appendix III List of Quoted Banks Studied**

National Industrial Credit  
Barclays Bank of Kenya  
Standard Chartered Bank  
CFC Bank  
Diamond Trust Bank  
Kenya Commercial Bank  
National Bank of Kenya