

**THE IMPACT OF CORE CAPITAL ON THE PROFITABILITY OF
COMMERCIAL BANKS IN KENYA**

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DECLARATION

This Research Project is my original work and has not been presented for a degree in any other university.

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This Research Project has been submitted for examination with my approval as the University supervisor.

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DEDICATION

To God Almighty from Whom all good things come, and to Sandra, my youngest daughter, who was usually around when I was writing the project.

ABSTRACT

This research was undertaken in order to determine the influence of core capital on profitability of commercial banks in Kenya. The objective of the study was to determine the effect of core capital effect on profitability. So far no studies have successfully shown this effect on the banks and this study will help to determine to what proportion core capital influences profitability of commercial banks in Kenya.

The researchers ran an explanatory study on all the 43 commercial banks in Kenya. Data was analyzed using Microsoft excel software and was presented using scatter plot graphs and frequency tables. Secondary data obtained from the Central Bank of Kenya Bank Supervision Annual Reports was analyzed through Simple Linear Regression. The results showed that there exists a positive linear relationship between core capital and profitability. It also showed that 20% of the profitability is affected by the core capital.

Consistent with previous estimations that inadequate core capital in the banks was a cause of less profitability in the commercial banks this study determined that banks have a responsibility to ensure their capital base is adequate enough to be able to offer loans and other vital financial services to their customers. The study recommended that the banks should ensure their capital base is adequate enough be in a position to earn higher revenues and make higher profits. Its main limitation was in using only one independent variable ending up underestimating the explanatory power of the resulting model.

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LIST OF ABBREVIATIONS

BBK:	Barclays Bank of Kenya Limited
BCBS:	Basle Committee for Bank Supervision
CAR:	Capital-Asset Ratio
CBK:	Central Bank of Kenya
COOP:	Cooperative Bank of Kenya Limited
DER:	Debt-Equity Ratio
df:	Degrees of Freedom
DTMFI:	Deposit Taking Microfinance Institution
FOREX:	Foreign Exchange
IMF:	International Monetary Fund
KCB:	Kenya Commercial Bank Limited
MS:	Mean Sum of Squares
NBFI:	Non- Bank Financial Institution
NI:	Net Income
NSE:	Nairobi Securities Exchange
ROA:	Return on Assets
ROC:	Return on Capital
ROE:	Return on Equity
SACCOs:	Savings and Credit Co-operative Societies
SS:	Sum of Squares
STT:	Static Trade-Off Theory

CHAPTER ONE

INTRODUCTION

1.1. Background to the Study

Banks are financial institutions that accept deposits from the public and make loans to their customers. Commercial banks extend credit (loans) to different types of borrowers for many different purposes and for them a good loans portfolio is the most profitable asset in their statement of financial position (Mishkin, 2004). Banks face a number of risks in the course of their lending activities, and since they play an important financial intermediary role in economies, much attention has been given to them by governments, central banks, multilateral financial agencies and the general public, among others. While regulatory consensus has viewed capital as an essential tool to limit risk in banking, there has been less agreement among economic theorists (Dermirguc-Kunt, Detragiache and Merrouche, 2010). The 2008 financial crisis demonstrated that existing capital regulation, in its design or its implementation, was inadequate to prevent a panic in the financial sector, and once again governments around the world had to step in with emergency support to prevent a collapse.

Since the first Basle capital accord in 1988, the prevailing approach to bank regulation has put capital at front and center: more capital should make banks better able to absorb losses with their own resources, without becoming insolvent or necessitating a bailout with public funds (Dermirguc-Kunt, Detragiache and Merrouche, 2010). The capital base of a bank is important in the bank's ability to undertake banking risks and, in particular, lending activities. This has been emphasized more following the 2008 world financial crisis that led to the collapse of major multinational banks and companies in the developed economies (BCBS, 2009). A key recommendation by banking regulators and the multilateral financial organizations, such as IMF, was that commercial banks should be well-capitalized. These institutions asserted that profitable banks are more stable and are in a better position to withstand market shocks than banks with low profitability and that one of the factors that can contribute to the profitability of a bank is its level of core capital because it is this capital that enables the bank to collect more deposits and lend more to the public and thus be in a position to earn higher revenues and make higher profits. Thus governments have gone to great lengths to legislate stringent capital adequacy requirements

in their respective banking legislations in order to assure banking sector stability (Gudmundson, Ngoka and Odongo, 2013).

In an effort to promote stability in the banking sector and, after a period of worldwide financial liberalisation and deregulation, the Basle Committee on Banking Supervision developed the Basel Capital Accord of 1988(Basel I) which led to the adoption of a new capital adequacy framework (Basel II) in 2004 and this marked the beginning of a new phase of re-regulation with an attempt to bring about an international harmonisation of banking regulations (Bichsel and Blum, 2005).

The importance of bank profitability, based on their core capital, can be analyzed from the micro and macro levels of the economy. One of the factors that can contribute to the profitability of a bank is its level of core capital because it is this capital that enables the bank to collect more deposits and lend more to the public and thus be in a position to earn higher revenues and make higher profits. At the micro level, profit is the essential prerequisite of a competitive banking institution and the cheapest source of funds. Indeed, without profits, any firm cannot attract outside capital (Gitman, 2007). Thus, profits play a key role in persuading depositors to supply their funds on advantageous terms. By reducing the probability of financial trouble, impressive profits figures also help reassure a bank's other stakeholders, i.e. investors, borrowers, managers, employees, external product and service suppliers, and regulators (Anyanwaokoro, 1996).

Capital adequacy has been a focus of many studies and regulators as it is considered to be one of the main drivers of any financial institution's profitability (Bourke, 1989; Berger, 1985; Navapan and Tripe, 2003; White and Morrison, 2001). There is a view that profitable banks are more stable and are in a better position to withstand market shocks than banks with low profitability (Central Bank of Kenya Bank Supervision Annual report, 2005). One of the factors that can contribute to the profitability of a bank is its level of core capital because it is this capital that enables the bank to collect more deposits and lend more to the public and thus be in a position to earn higher revenues and thus make higher profits. In contrast, other studies argue that in a world of perfect financial markets, capital structure and hence capital regulation is irrelevant (Modigliani and Miller, 1958). On the other hand, White and Morrison (2001) argued that the

government and regulators need to ensure that commercial banks have enough of their own capital at stake. Bichsel and Blum (2005) supported this position, arguing that these regulations help in reducing negative externalities (e.g. the disruption of the payments system) in addition to boosting the slow economic growth. It is this effect of core capital on profitability that this research project is seeking to interrogate.

1.1.1. Core Capital of Commercial Banks

The Basel Committee on Banking Supervision, whose Basel III rules form the basis for global bank regulation, defines core capital as that part of the shareholders' equity that the bank has to support all the risks it takes: lending, trading, among others (BCBS, 1999). It essentially will consist of equity capital and retained profits. Core capital is also known as Tier 1 capital and is the amount paid up to originally purchase the stock (or shares) of the bank, retained profits (subtracting accumulated losses), and other qualifiable Tier 1 capital securities. It is that part of equity that would be difficult to distribute to the shareholders and serves as permanent capital in the bank. Core capital provides a cushion for a bank against business shocks such as loan defaults, foreign exchange losses and interest rate shocks. The capital also provides a signal that the bank is well prepared to undertake more business (CBK, 2005).

In a number of jurisdictions, a bank with higher core capital is in a position to lend more loans and collect more deposits from the public because the law pegs lending to any one borrower, a group of borrowers and connected lending to the amount of core capital (Gudmundson, Ngoka and Odongo, 2013). Likewise, the amount of deposits to be collected from the public by the bank is also pegged to the amount of core capital that the bank holds. In most jurisdictions, this requirement has been enacted in local banking laws such that banks that do not meet minimum thresholds are subjected to punitive penalties and withdrawal of the banking license if the violation persists to the detriment of the general public. Core capital may be seen from an absolute amount perspective (e.g. Kshs. 250m) or from a ratio perspective (e.g. 8%). This research project will focus on the absolute amount perspective as a measure of capital adequacy in a commercial bank.

1.1.2. Profitability of Commercial Banks

The term profit means the excess of revenue over expenses. The profitability of a commercial bank can be measured using a number of ratios. The data for the computation of these ratios is obtained from the statement of financial position and the statement of comprehensive income. The income of banks is mainly comprised of interest earned from loans and advances and interest earned from investment in government securities. The expenses are mainly comprised of interest paid on the deposits and other operating expenses. The more loans the bank lends to its customers, the higher the income it generates. If it manages the expenses side well, the profitability would be higher. Some of the profitability ratios are (Brealy and Myers, 2003); net interest margin, return on assets, and return on equity.

Profitability in commercial banks is determined by the ability of the banks to retain capital, absorb loan losses, support future growth of assets, and provide return to investors. The largest source of income to the bank is interest income from lending activity less interest paid on deposits and debt. It is an important criterion to measure the efficiency or overall performance of any organization. Profitability analysis can be based on financial ratios, absolute figure, and statistical information regarding the financial transactions and the present value of the stream of profit flow. Profit and profitability are two separate concepts. The first one indicates absolute measurement while the latter indicates relative measurement that is profit in relation to some other variable. In commercial banks the profit is defined as the difference between total income and total expenditure. Income and expenditure sources of the commercial banks may be grouped under two heads: interest and non-interest sources.

Profitability measures derive directly from the income statement. There are various measures of profitability: (a) Return on Equity (ROE) - it is the ratio of net income to equity. It often serves as a target profitability measure at the overall bank level; (b) Market Return on Equity- is a price return, or the ratio of the price variation between two dates of the bank's shares. Under some specific conditions, for example, when the Price Earnings ratio remains constant, it can serve as a profitability benchmark. Both ROE and the market return on equity should be in line with shareholders expectations for a given level of risk of the bank's shares. A current order of magnitude for the target ROE is 15% after 25% before tax (Bessis, 2005); (c) Return on Assets

(ROA) is another measure of profitability for banking transactions. It is the most common calculation of ROA. It is the ratio of the current periodical income, interest income and current fees, divided by asset (Bessis, 2005).

1.1.3. Relationship between Core Capital and Profitability of Commercial Banks

Core capital and profitability are expected to be linearly related. Gudmundson, Ngoka and Odera (2013) also observed that bank capital structure has a significant and important effect on bank performance. Obiero (2002) observed that between 1984 and 2001 there were 39 financial institutions which failed, of which 14 failed partly due to non-performing loans and undercapitalization. The core capital enables a bank to lend more because lending to any one person, a group of related persons and even to insiders of the bank is usually linked to the bank's level of capital (CBK, 2005). The higher the level of lending, the more interest income the bank can earn and thus the higher level of profits.

1.1.4. Commercial Banks in Kenya

Commercial banks in Kenya date back to 1896 when the predecessor of the current Kenya Commercial Bank, the National Bank of India opened an outlet in Mombasa. Eight years later in 1904, the bank extended its operations to Nairobi. The Kenyan banking sector has undergone tremendous developments since the sector was placed under the supervisory arm of the Central Bank of Kenya in 1966. The number of licensed commercial banks has grown to stand at 44 as at December 31st 2012 (CBK Bank Supervision Annual Report, 2012). During this period, a number of banks entered the market while a number also exited. A large number of those banks that exited the market, mostly in the mid-1980s and mid-1990s, did so due to financial problems, and their exit has been attributed largely to undercapitalization, high non-performing loans, mismanagement, illiquidity and low profitability (Central Bank of Kenya Bank Supervision Annual Report, 2005).

According to Thygeson (1995), commercial banks perform the role of servicing and portfolio risk management. Commercial banks in Kenya, among other roles, act as intermediaries between savers and borrowers, provide investment opportunities for savers and provide savers with experts in financial management. The activities of commercial banks are regulated and supervised

by the CBK. However despite the government efforts to streamline the banking sector by introducing statutory regulations measures which include capital adequacy measures, creation of Deposit Protection Fund, more banks have been put under receivership or even collapsed due to their financial performance (Obiero, 2002).

In Kenya, core capital is defined by The Banking Act, Cap 488, as being composed of permanent shareholders' equity (issued and fully paid-up ordinary shares and perpetual non-cumulative preference shares), disclosed reserves such as ordinary share capital and perpetual non-cumulative share premium, retained earnings and 50% un-audited after-tax profits, less investments in subsidiaries conducting banking business, investment in equity instruments of other institutions, intangible assets (excluding computer software) and goodwill. The current year-to-date 50% un-audited after tax profits will qualify as part of core capital, if and only if, the institution has made adequate provisions for loans and advances, proposed dividends and other appropriations have been deducted.

As at the end of year 2012 the Banking Act required that all licensed banking institutions should maintain an absolute core capital of Kshs. 1 billion and, in terms of percentage, the core capital to total risk-weighted assets should be a minimum of 8%. A number of banks met these minimum thresholds while a few did not meet them. Indeed, a number of the large banks (i.e. KCB, BBK, COOP, Equity Bank, Standard Chartered bank) had core capitals far higher than the minimum required by the law. This research study seeks to establish whether the two (core capital and profitability) are related, the nature of the relationship and to determine the effect of core capital on profitability.

1.2. Problem Statement

Core capital is the basis upon which banks extend loans to their customers and thus earn interest income which increases or decrease banks' profits. The level of core capital influences the amount of profits made. The higher the core capital the higher the lending ability and thus the higher the interest earned and, by extension, the profits generated. The expected relationship is that the profitability of a bank is linearly related to the core capital of the bank, that is, as the level of core capital increases, profitability also increases and vice versa. A study conducted by

Dermirguc-Kunt, Detragiache and Merrouche (2010) using a multi-country panel of banks to find out whether better capitalized banks fared better in terms of stock returns during the 2008 world financial crisis found that: (i) before the crisis, differences in capital did not affect subsequent stock returns; (ii) during the crisis, higher capital resulted in better stock performance, most markedly for larger banks and less well-capitalized banks; (iii) there is evidence that higher quality forms of capital, such as Tier 1 capital, were more relevant.

Various local studies that have been conducted have yielded conflicting findings regarding the effect of core capital on profitability of commercial banks. Ndungu (2003), in a study on the determinants of profitability of quoted commercial banks in Kenya, found that sound asset and liability management had a significant influence on profitability. Kiambi (2011) in a study conducted on the two variables found that the two are positively related but weakly. A study done by Mwega (2009) did not establish any clear relationship between core capital and profitability in the banking sector. The Central Bank of Kenya Bank Supervision Annual Report (2009) emphasized that core capital is key to financial soundness of commercial banks and the banking sector. Xuezhui and Dickson (2012) conducted a study on the Tanzanian banking sector and established that core capital had a negative impact on a bank's profitability.

While the aforementioned research outcomes provide valuable insights on core capital, they have not indicated a clear effect of core capital on profitability in commercial banks in Kenya. Given the gaps posed by the above empirical studies, this study poses the research question, "What is the effect of core capital on profitability in commercial banks in Kenya?" The study hypothesizes that commercial banks' capital is negatively (positively) correlated to ROC (Return on Capital). To answer the above question, the study, therefore, shall seek to determine the effect of core capital on profitability. This will be done by reviewing various profitability measures and, in particular, the ROC ratios. ROC is an important indicator that measures the profitability of banks.

1.3. Research Objective

The objective of this study is to determine the effect of core capital on profitability of commercial banks in Kenya.

1.4. Value of the Study

The study will be useful to commercial banks as it will inform the relationship between the two variables, the effect of core capital on profitability, and facilitate the development of mechanisms and policies to maximize their profits. The government will also benefit by obtaining information and getting an understanding of the importance of implementing various capital adequacy policies and legal frameworks that would encourage the growth of commercial banks. The research will also contribute to the already existing body of knowledge, highlight further areas of research and serve as a basis for future empirical research by researchers. Finally, the research will assist central banks and other banking regulatory agencies in the formulation and implementation of capital adequacy policies in the banking sector.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

In this chapter, previous studies related to the topic are reviewed. The chapter covers a review of theories on capital structure, review of empirical studies that have been done on capital structure and profitability, a detailed discussion on capital and profitability and finally a conclusion from the literature review. There are a number of capital structure theories. Some of these are discussed below.

2.1.1. Net Income (NI) Theory

The Net Income theory was introduced by David Durand. According to this approach, the capital structure decision is relevant to the valuation of the firm. This means that a change in the financial leverage will automatically lead to a corresponding change in the overall cost of capital as well as the total value of the firm. According to the NI approach, if the financial leverage increases, the weighted average cost of capital decreases and the value of the firm and the market price of the equity shares increases. Similarly, if the financial leverage decreases, the weighted average cost of capital increases and the value of the firm and the market price of the equity shares decreases. The theory has some assumptions which are; there are no taxes, the cost of debt is less than the cost of equity and that the use of debt does not change the risk perception of the investors.

In this approach, the cost of debt is identified as a cheaper source of financing than equity sharecapital. The more application of debt in the capital structure brings down the overall cost of capital. The weighted average cost of capital will come down due to more application of leverage in the capital structure, only with reference to cheaper cost of raising debt than the equity share capital cost. This approach highlights that the application of leverage influences the overall cost of capital and that affects the value of the firm.

2.1.2. Net Operating Income Approach

This is another approach developed by Durand, which has the underlying principle that the application of leverage does not have any influence on the value of the firm through the overall

cost of capital. According to this approach, the market value of the firm is not affected by the capital structure changes. The approach asserts that the market value of the firm is ascertained by capitalizing the operating income at the overall cost of capital which is constant. The theory says that the more application of leverage leads to the bringing down of the explicit cost of capital on one side and on the other side implicit cost of debt is expected to go up. How will implicit cost of debt go up? The more application of debt leads to increase in the financial risk among the investors that warranted the equity shareholders to bear additional financial risk of the firm. Due to additional financial risk, the shareholders require the firm to pay additional dividends over the existing period. The increase in the expectations of the shareholders with reference to dividends hikes the cost of equity. Under this approach, no capital structure is found to be an optimum capital structure. The major reason is that the debt-equity ratio does not influence the cost of overall capital, which always remains constant. It is finally concluded that this approach highlights that application of leverage never makes an attempt to enhance the value of the firm.

2.1.3. The Traditional approach

Traditional approach is an intermediate approach between the Net Income Approach and Net Operating Income Approach (Navapan and Tripe, 2003). According to this approach, an optimum capital structure does exist, market value of the firm can be increased and the average cost of capital can be reduced through a prudent manipulation of leverage and that the cost of debt increases if debt is increased beyond a definite limit. This is because the greater the risk of business, the higher the rate of interest the creditors would ask for. The rate of equity capitalization will also increase with it. Thus, there remains no benefit of leverage when debts are increased beyond a certain limit. The cost of capital also goes up. Thus, at a definite level of mixture of debt to equity capital, the average cost of capital also increases. The capital structure is optimum at this level of the mix of debt to equity capital.

2.1.4. Static Trade-Off Theory

In Static Trade-Off Theory (STT), firms decide for a predetermined capital structure and try to stick to it through time. The firm is viewed as setting a target debt-to-value ratio and gradually moving towards it. This target would be set up as a trade-off between the cost and benefit of debt. In addition, Myers (1984) suggests that adverse selection costs overwhelm the forces that

determine the optimal leverage in the trade-off theory. A firm's optimal debt ratio is usually viewed as determined by a trade-off of the costs and benefits of borrowing, holding the firm's assets and investment plans constant. The firm is portrayed as balancing the value of interest tax shields against various costs of bankruptcy or financial embarrassment. The firm is supposed to substitute debt for equity, or equity for debt, until the value of the firm is maximized.

2.1.5. Pecking Order Theory

The Pecking Order Theory was developed by Stewart, Myers and Nicholas (1984). It states that companies prioritize their sources of financing (from internal financing to equity) according to the principle of least effort or least resistance, preferring to raise equity as a financing means of last resort. Hence internal funds are used first, and when that is depleted, debt is issued, and when it is not sensible to issue any more debt, equity is issued (Modigliani and Miller, 1958). This theory maintains that business adheres to a hierarchy of financing sources and prefers internal financing when available and debt is preferred over equity if external financing is required.

The firm prefers internal to external financing and debt to equity if it issues securities. In the pure Pecking Order Theory, the firm has no well-defined target debt-to-value ratio. The theory holds that firms that are more lucrative are naturally less indebted since they can finance their new projects without the need to issue debt or equity. The reluctance in issuing new equity is mainly due to asymmetric information between managers and new stockholders. It is based on the idea of asymmetric information between managers and investors. Managers know more about the true value of the firm and the firm's riskiness than less informed outside investors (Westerfield, 2008).

2.1.6. Market Timing Theory

The theory postulates that managers issue securities depending on the time varying costs of relative equity and debt and thus issuance decisions have a long term effect on capital structure because the observed capital structure at any particular date is the outcome of prior issuance decision. Thus firms prefer to issue equity when the relative cost is low and prefer to issue debt when equity cost is high (Kwast and Rose, 1982). Since the promised payments to bondholders

are fixed, stockholders are entitled to what is left over after the fixed payments; stock prices are more sensitive than bond prices to any proprietary information about the firm's future performance. If management has favorable information that is not yet reflected in market prices the release of such information will cause a larger increase in stock than in bond prices and so the current stock price will appear more undervalued to managers than current bond prices (Molyneux and Thornton, 1992).

2.2. Capital Structure Theories and Profitability

Capital structure theories have different views on the effect of leverage on profitability. The trade-off theory argues that firms generally prefer debt for tax considerations. Profitable firms would, therefore, employ more debt because increased leverage would increase the value of their debt tax shield (Myers, 1984). In addition to the tax advantage of debt, agency and bankruptcy costs may encourage highly profitable firms to have more debt in their capital structure. This is because highly profitable firms are less likely to be subject to bankruptcy risk because of their increased ability to meet debt repayment obligations. Thus, they will demand more debt to maximize their tax shield at more attractive costs of debt. For these considerations, the trade-off theory predicts a positive relationship between leverage and profitability.

However, the Pecking Order Theory of Myers and Majluf (1984), predicts the opposite. It predicts a negative association between leverage and profitability because highly profitable firms will be able to generate more funds through retained earnings and then have less leverage. Therefore, it is expected that there is negative relationship between profitability and leverage ratio.

2.3. Review of Empirical Studies

A number of studies have been conducted, both locally and internationally, to establish not only this relationship, but the impact of capital on profitability as well. On the local scene, Kenya, a number of studies and authorities indicate that capital adequacy and profitability are positively correlated. Ndungu (2003), in a study on the determinants of profitability of quoted commercial banks in Kenya, found that sound asset and liability management had a significant influence on profitability. Kiambi (2011), in a study conducted on the two variables, found that two are

positively related but weakly. A study done by Mweha (2009), did not establish any clear relationship between core capital and profitability in the banking sector.

According to Matu (2001), the poor performance of commercial banks puts pressure on them to retain to retain high lending rates in an attempt to minimize the losses associated with these loans. The Central Bank of Kenya Bank Supervision Annual Report (2009) emphasized that core capital is key to financial soundness of commercial banks and the banking sector.

On the international front, Xuezhui and Dickson (2012) conducted a research on Tanzania's banking sector in 2012 and found that core capital had a negative impact on a bank's profitability. The study tried to establish the impact of liquidity, capital and assets on bank profitability. Whereas the study established that liquidity and assets positively affected profitability, it also found out that capital negatively affected profitability.

In banking, as in any industry, higher leverage normally means higher returns (but also greater risk). Yet, two recent studies actually find a negative relationship between leverage and returns in banking. Berger (1994), reports a statistically significant positive relationship between return-on-equity (ROE) and the capital-asset ratio (CAR, the inverse of leverage) among American banks in the 1980's. Likewise, Demirguc-Kunt and Huizinga (1999) studied 80 countries in the years 1988-1995, and they also report a statistically significant positive relationship between capital and returns. The fact that leverage increases returns seems to follow directly from the very nature of business. In its strongest form, the "leverage formula" predicts that return-on-equity should increase linearly with the debt-equity ratio (DER). How can this be reconciled with the empirical results? Berger (1995) suggests that highly capitalized banks were able to attract higher earnings because of lower expected bankruptcy costs which enabled them to pay lower interest on uninsured debt. In a similar vein, Flannery and Rangan (2002), also report a capital build-up among US banks in 1986-2000, and they attribute this build-up to an increasingly competitive environment in the last two decades, promoting banks to hold capital beyond legislative needs (market discipline). Another possibility is that the negative correlation between leverage and profitability could reflect special circumstances of the 1980s and early 1990s. The 1980s was a decade of financial liberalization, and the early 1990s was a time of financial

turmoil. In one decade there is small variation in banks' leverage. The difference in leverage among banks, at least in Europe and in North America, is small. Conceivably, successful banks could tend to be both more capitalized and more profitable in the short run, which could obscure the fundamental positive correlation between leverage and returns.

The concept of capital structure as used in Kenya refers not only to choices regarding capital structure (or the mix debt/equity) but also to the kind of securities used to structure the equity and the debt that is influenced by the outside context. In other words, it attempts to understand why certain choices regarding debt and equity are made (capital structure in a strict sense), while observing the ownership structure and debt structures. For this reason, some authors do not believe it is justifiable to analyze only capital structure as the mix of debt and equity, since it is strictly related to other aspects concerning the structure of equity and debt (Fluck, 1998; Heinrich, 2000). Njoroge (2001) examined the relationship between dividend payout and financial ratios. The results obtained were that the most significant variable in making dividend decisions is return on assets while return on equity and growth in assets are not considered in making dividend decisions.

According to the Signaling Hypothesis (Acharya, 1988), managers have 'inside information' regarding future performance. If their compensation packages include stocks and/or stock options it will be cheaper for a safe bank than for a risky bank to signal expected improved performance in the future by increasing capital today. Therefore, capital entails profitability. Stiroh (2000) gives another argument for this causation. When banks overcome high entry barriers by increasing their capital levels, they gain access to profitable activities such as issuing guarantees and subordinated notes, and acting as intermediaries in derivative markets.

2.4. Conclusion from the Literature Review

Titman and Wessels (1988) enumerated key attributes in determining capital structure. They include asset structure, growth, uniqueness, industry classification, size earnings and volatility. Profit is generally measured in shilling terms. Profitability ratios show a company's overall efficiency and performance. Determinants of commercial bank profitability can be categorized into two categories, namely internal and external. In the banking industry, as in any industry, it is

common knowledge that higher leverage normally means higher returns (but also greater risk). It can be seen that there exists no local literature on the effects of capital structure on performance. This is the gap the study seeks to address by investigating the effect of core capital on profitability of commercial banks in Kenya.

The research project will seek to determine this effect using data that has been compiled by the Central Bank of Kenya (CBK), the authoritative regulator of the banking sector in Kenya. The CBK is presumed to have been conferred power and authority to access more and detailed data on the operations of the commercial banks that it licenses and regulates. It is the CBK that monitors financial operation in the state by regulating fiscal indiscipline thus ensures proper performance of economy following controlled possible inflation forces which may accrue.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

The chapter outlines the overall methodology used in the study for gathering and analyzing data in order to achieve the research objective. This includes the research design, target population of the study, sampling techniques, sample size, sample frame, data collection methods, research procedures and data analysis and presentation.

3.2. Research Design

Research design is the arrangement of conditions for collection and analysis of data in a way that combines their relationship with the purpose of research (Mugenda and Mugenda, 1999). It is the overall plan of conducting the study and it helps to answer the research questions and achieve the objective of the study. In this context, therefore, the research design entailed the collection of CBK Bank Supervision Annual Reports that covered the financial year 2012 period. These reports contain massive data on commercial banks' financial positions and performances and it is from these reports that the relevant data (core capital and profitability) was picked from for analysis.

This study used cross-sectional survey criteria. This research was of empirical nature because of the nature of data collected. Mugenda and Mugenda (1999), describes research design as the outline plan or scheme that is used to generate answers to research problems.

The researcher chose this research design because the research was not confined to the collection and description of the data but also sought to both establish the existence of certain relationships among the variables as well as determining the effect of core capital on profitability. It is a research design used when data is collected to describe persons, organizations, settings, and a phenomenon e.g. to administer a survey to a random sample of employees in a company to describe the characteristics of the company's population. Its advantage is that it is used to portray a situation or a group of people fully. However it does not seek to include information on causes that influence the characteristics or occurrence of certain events. Hence the design was selected to satisfy this aspect of the study variables (Mugenda and Mugenda 1999).

3.3. Population and Sample Size

Mugenda and Mugenda (2003), describes a population as a complete set of individuals, cases or objects with some common observable characteristics. A particular population has some characteristics that differentiate it from other populations. A target population on the other hand is that population to which the researcher wants to generalize the results of the study.

The target population of this study was all the 43 commercial banks operating in Kenya as at 31st December 2012. This target population provided data that was used to answer the research questions raised by the researcher on how core capital impacts commercial banks' profitability.

The sample size was the same 43 licensed commercial banks. This sample size was selected because the number of banks involved is few, in the average of 40 over time, the information sought is easily available from the CBK Bank Supervision Annual Reports, the time period involved is one year (2012), and the tools used to analyze the data are able to take any amount of data.

3.4. Data collection

Secondary data for the purpose of this study was used. The data covered the period of the year 2012 and was extracted from the Central Bank of Kenya Bank Supervision Annual Reports. These CBK annual publications report commercial banks' summarized data on capital, profitability, liquidity, earnings, among other vital statistics, on the banks' financial performance and condition and was obtained from the Bank Supervision Department of the CBK and on the CBK's website.

3.5. Data Analysis Procedure

Straits and Singleton (1993) defined data analysis as systematically looking for patterns in the data collected and formulating ideas that account for those patterns. The process was broken down into three related tasks namely organizing, developing ideas, drawing and verifying conclusions. For quantitative data, the researcher used Microsoft Excel to carry out the data analysis. It incorporated all the most important popular analytical procedures for use in financial

investment, social sciences and business research. The findings were presented in percentages, scatter-plots and frequency tables. To determine the effect, simple linear regression was used. The effect of core capital on profitability was targeted for that matter.

A linear regression dimension of the independent and dependent variables was estimated using the linear regression model below to determine this effect. The analysis was quantitative and descriptive in nature. In regression analysis we try to estimate or predict the average value of one variable on the basis of the fixed values of the other variable(s). Thus we wanted to know whether the core capital will predict the profitability of the commercial banks in Kenya. The model used is of the form;

$$Y = \alpha + \beta X + \varepsilon$$

Values for the profitability of each bank were regressed against corresponding core capital values and the resulting/deriving regression model was as follows;

$$ROE = \alpha + \beta C + \varepsilon$$

Where;

ROE = the profitability measure and is a ratio of Earnings Before Tax to Total Shareholders' Funds

α = the value of profitability when C(Capital) is Zero

β = the regression coefficient of change induced on Profitability by Capital

C = the core capital of banks

ε = the error of measurement

The research assumed that the error term, ε , reduced to an insignificant value when the sample model was used instead of the population model. This is based on an underlying regression analysis assumption which says that the factors or variables not explicitly included in the model, and therefore subsumed in ε , do not systematically affect the mean value of the dependent variable i.e. their effect is zero.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1. Introduction

This chapter presents the computed results and interpretation of findings on the effect of core capital on profitability of banks in Kenya. Data on all the 42 commercial banks operating in Kenya as at 31st December 2012 was obtained for the research study. Secondary data was extracted from the Central Bank of Kenya Bank Supervision Annual Reports and was analyzed through Simple Linear Regression.

4.2. Data Presentation

Data presentation is very important because it helps to organize the large amount of data in an easy and understandable manner. The research study incorporated various means to summarize and present data so as to condense the large amount of data albeit in an attractive way. The research study used tabulation and diagrammatic presentation for this purpose. Tables were used to present the data in an organized and orderly format. Diagrammatic representation included the use of radar charts and scatter plot graphs to give a visual summary of the data.

4.2.1. Regression Model

A simple regression model was developed to determine the effect of core capital on profitability of banks in Kenya.

The sample regression model used was $ROE = \alpha + \beta C$

Where;

ROE = the profitability measure and is a ratio of Earnings Before Tax to Total Shareholders' Funds

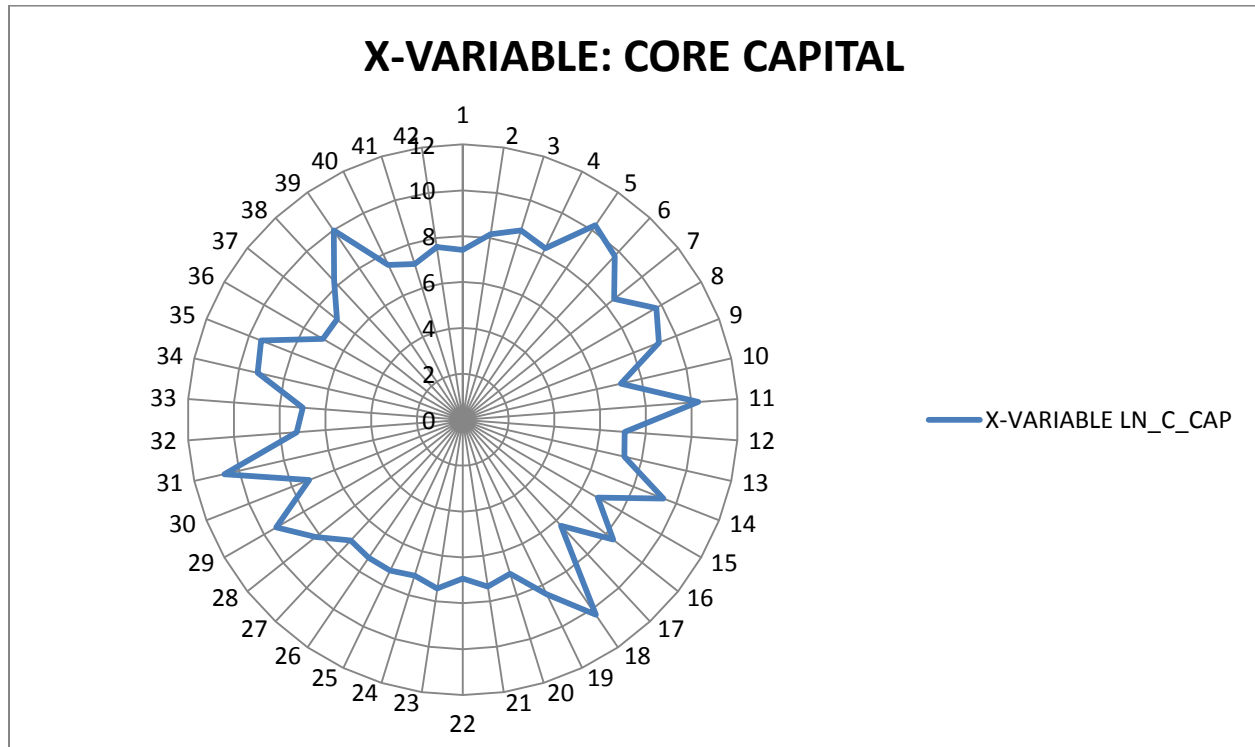
α = the value of profitability when C (Capital) is Zero

β = the regression coefficient of change induced on Profitability by Core Capital

C = the Core Capital of banks

4.2.2. Data Description

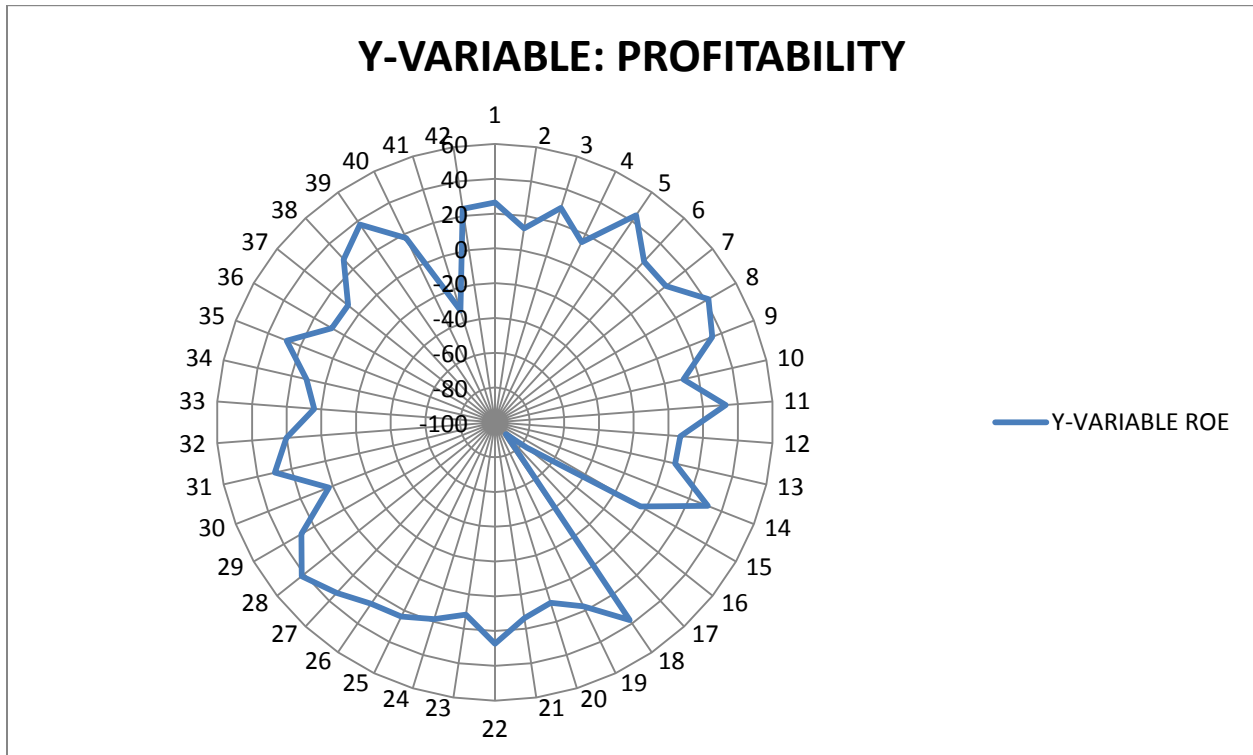
Fig 1: Core Capital Radar Chart



Source: Author 2013

This radar chart gave a general overview of the core capital and its characteristics. The core capital did not seem to be quite volatile. The core capital (given in millions of Kshs.) ranged with values from the lowest observation of 548 to the highest observation of 42,125. Thus the range was 41,577. This showed that the data had some influential observations (if not outliers) that were governing the direction and impact of the analysis. A set of data may be considered as influential observations because they may have excessive effects on the outcome of an analysis. The removal of these observations may change the results of statistical findings. On the other hand, retaining them in the sample data threatens the generalizing of your interpretation and may limit your model to only be used for the particular case study. Another observation from Fig. 1 is that there are no negative values for the core capital variable.

Fig 2: Profitability Radar Chart



Source: Author 2013

This radar chart gave the general characteristics that are inherent in the profitability of commercial banks in Kenya for the year 2012. The profitability had a very wide range since its values varied from -90.8% to 44% profitability ratio. Thus, there was a range of 134% for the 42 commercial banks being studied. This showed that the sample data set for the profitability contained outliers. These outliers may have been due to changes in the market or some random unexplained factors that are beyond the scope of the research study. The outliers have a great impact on the analysis results and often end up changing the resulting regression models.

Table 1: Core Capital (Ksh. M) and Profitability (ROE) of Commercial Banks

	1	2	3	4	5	6
Bank	ABC	BOA	BARO	BOI	BARC	CFC
Core Capital (in millions)	1645	3577	5637	3989	28329	17034
ROE (%)	26.4	12.7	28.9	14.9	44	26

Source: Author 2013

	7	8	9	10	11	12
Bank	CHASE	CITI	CBA	CONSO	COOP	CREDIT
Core Capital (in millions)	4651	16931	9712	1171	29414	1188
ROE (%)	25.8	41.7	34.3	11.2	33.1	6.9

Source: Author 2013

	13	14	15	16	17	18
Bank	DBK	DTBK	DUBAI	ECOBANK	ECB	EQUITY
Core Capital (in millions)	1372	12029	893	4374	548	29525
ROE (%)	6.3	31.4	-3.3	-76.7	-90.8	37.6

Source: Author 2013

	19	20	21	22	23	24
Bank	FAMILY	FIDELITY	FINA	FIRSTCB	GIRO	GUARD
Core Capital (in millions)	4619	1119	1561	1008	1694	1219
ROE (%)	17.4	8.6	13.9	27.3	11.7	18.3

Source: Author 2013

	25	26	27	28	29	30
Bank	GULF	HABIB_Z	HABIB	IMPERIAL	IMB	JAMIB
Core Capital (in millions)	1482	1457	1314	3648	11862	1325
ROE (%)	23.9	26.3	33.8	42	28.5	2.5

Source: Author 2013

	31	32	33	34	35	36
Bank	KCB	KREP	MEB	NBK	NIC	OC_BANK
Core Capital (in millions)	42125	1419	1079	9622	12569	1139
ROE (%)	29.8	20.1	4.2	11	28.6	8.2

Source: Author 2013

	37	38	39	40	41	42
Bank	PARA	PRIME	STCHART	TRANSB	UBA	VICTO
Core Capital (in millions)	1106	3816	21623	1790	1215	2019
ROE (%)	7.9	27.8	37.6	17.6	-32.6	24.1

Source: Author 2013

4.2.3. Correlation and Regression Analysis

Correlation analysis involves the measuring of the relationship between two or more random variables. It determines whether a linear relationship exists between the variables, the strength of that relationship (if it exists), and the nature of the relationship. Regression analysis is a mathematical expression that tries to establish the cause and effect relationship (causality) between two variables whereby one and only one dependent variable is deemed to be responding to changes in the other independent variable(s). Thus, regression can be looked at as a progression of correlation analysis since it does not stop at determining whether a relationship exists between the two variables. Statistically speaking the mathematical model is expressed as $y=f(x)$ where y is the dependent variable and x is/are the independent variable(s). The main use of regression is for predictive purposes.

Regression analysis has two categories. It can either be: (i) simple linear regression where only two variables are used, that is, the dependent variable and one independent variable; or (ii) multiple linear regression where more than two variables are used, that is to say, the dependent variable and more than one independent variable.

4.2.3.1. Linear Regression Analysis

Firstly, the population model needs to be determined. The population model is of the form $Y = \alpha + \beta_1 X_1 + \dots + \beta_n X_n + \epsilon$. From this model the sample model is drawn which is of the form $y = \alpha + \beta_1 x_1 + \dots + \beta_n x_n$ where actual values of the variables from the sample is used for the analysis. The error term, ϵ , is disregarded in the sample model because as the sample is much smaller than the population, it assumed that the error value becomes zero or a number so close to zero that it is statistically insignificant.

Once the sample model is determined, a data matrix needs to be drawn out where for every observation for values of y , there is a corresponding x observation. The size of the sample should be such that there are at least 30 observations. If the observations are less than 30 then it is recommended to run a different parametric test since results will be inconclusive. Once the data matrix has been established, a confidence interval is established then the regression analysis is run to compute the model parameters.

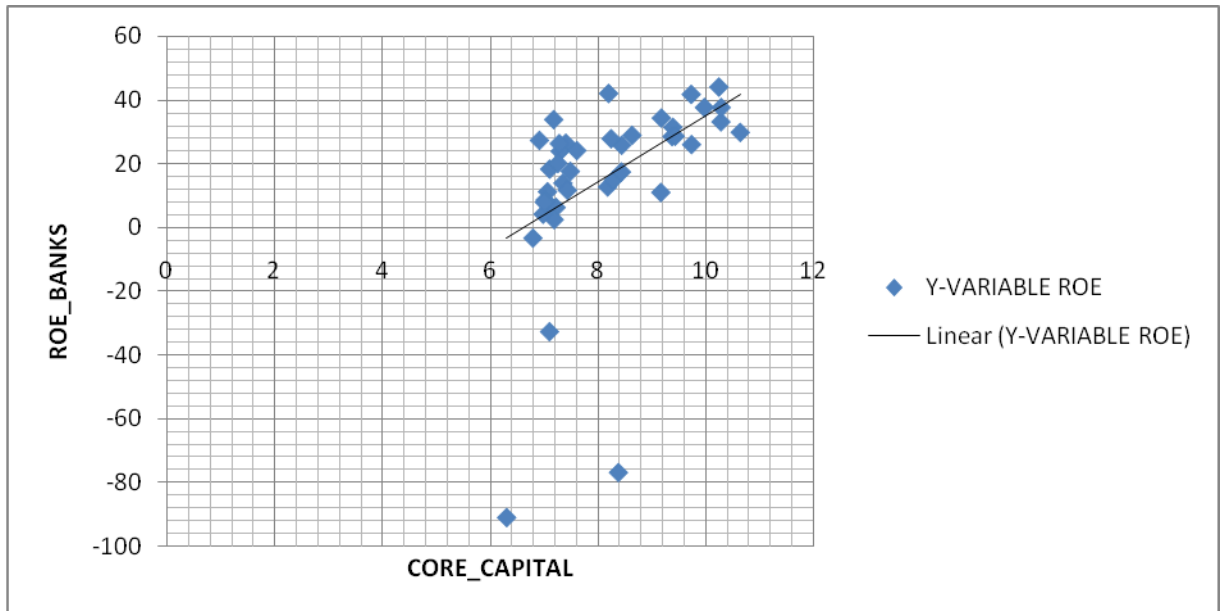
These results are then evaluated to determine the statistical significance of the obtained results. This is achieved through the evaluation of the significance of overall results as well as individual model parameters. Interpretation of the results is sequentially done to determine the findings of the analysis. This is communication to the lay person and it provides meaning to the statistical results. The sample regression findings are then used to infer about the population and reevaluate the model again if the need arises.

Table 2: Regression Statistics

REGRESSION STATISTICS				
MODEL	Multiple R	R ²	Adjusted R ²	Observations
	0.4678	0.2188	0.1993	42

Source: Author 2013

Fig. 3: Scatter plot



Source: Author 2013

4.2.3.2. Assumptions for the Study

Two important assumptions were adopted specifically for this study to help in both the computation and the interpretation of the available data. These assumptions made the computations simpler for the researcher and will enable the reader to better understand the results of the regression analysis

4.2.3.3. Validity

The research assumed a 98 percent confidence interval or 2 percent significance level (both leading to identical conclusions) for the data used. These values helped to verify the truth or the falsity of the data. Thus, the closer to 100 percent the confidence interval (and thus, the closer to 0 percent the significance level), the higher the accuracy of the data used and analyzed is assumed to be.

4.2.3.4. Homoskedasticity

Instead of running the regression $ROE = \alpha + \beta C$ the researcher ran $\ln ROE = \alpha + \beta C$ so as to reduce heteroskedasticity (unequal variance) in the data. The log transformation compressed the scales in which the variables were measured, that is, from dealing with values of millions to values of ones and tens for the core capital. This provided the study with a more manageable scale for displaying the data that was ran on Microsoft Excel.

4.2.3.5. Multiple R

Multiple R is a value that normally lies between zero and one. It was the coefficient of correlation between core capital and profitability and it played a double role. Firstly, it determined whether a linear association exists between the core capital variable and the profitability variable. Secondly, it measured this strength or degree of (linear) association between the two variables. From Table 2, the Multiple R, being at 0.4678, showed that there was a moderate relationship between the two variables i.e. at 46.78%. From the scatter plot above in Fig. 3, the data showed a general linear association i.e. linearity between the two variables just as the data from Table 2 interpreted.

4.2.3.6. R-Square/Adjusted R²

This is known as the coefficient of determination. It is a summary measure of “goodness of fit” which tells how well the sample regression line (also known as the line of best fit) fits the data. This line of best fit is simply the locus of geometrical expectations of the dependent variable values from the fixed values of the explanatory variable. From Fig. 3, the points that fell below the line of best fit were the explained variations/changes in the profitability of the banks i.e. they were attributed to the coefficient of change, β . Those points that fell above the sample regression line were the unexplained changes in the profitability of the banks, thus they were due to some error or due to the constant, α .

The data in Table 2 went on to show that 19.93% of changes in the profitability had been accounted for by changes in the core capital of banks in Kenya. Thus, around 80% of changes in profitability was explained by some other yet unexplained factor(s) contained in the constant, α , or was due to some error.

4.2.3.7. F-Statistic and Significance F

These two statistics are a measure of the overall significance of the regression model i.e. whether the resulting regression model was reliable to predict the values of profitability. From the results in Table 3, there are three related parameters that are used to compute the value of the F-stat, that is, the degrees of freedom (df), the sum of squares (SS), and the mean sum of squares (MS).

Table 3: Anova Table

ANOVA TABLE					
Source	df	SS	MS	F-stat	Significance F
Regression	1	6394.653	6394.653	11.205	0.001785
Residue	40	22827.89	570.6973		
Total	41	29222.55			

Source: Author 2013

Table 4: Parameters

	Coefficients	SE	t Stat	P-value	Lower98%	Upper98%
Intercept	-68.9041	25.4682	-2.0755	0.00997	-130.62	-7.1882
CoreCapital	10.3748	3.0994	3.3474	0.00179	2.8642	17.8853

Source: Author 2013

The df gives the number of independent observations out of the total number of observations. Since the research ran simple linear regression (which involves only one independent variable), the number of total independent variables in the study are 42 (the number of analyzed observations) minus one, which is 41. This one parameter thus put only one restriction on the overall model. Thus the model had an F distribution with 1 numerator degree of freedom and 40 denominator degrees freedom.

When computing for the SS for regression, calculation for the sum of squares of the difference between the data points of the dependent variable on the line of best fit and the actual observations on the points of the dependent variable, provided it is below the line of best fit is

run. When calculating for the SS for residue, the same procedure is followed, provided though that the points of the dependent variable are above the line of best fit. The total SS is a summation of the SS for both regression and residue.

The MS is simply the SS divided by the df for the regression and residue sum of squares. Once these two values are obtained, they are divided to come up with the computed F-stat. Once the F-stat is computed, a value of F from the F-distribution tables is looked up using the numerator and denominator degrees of freedom. Therefore, the F-stat is a ratio that evaluates the explained portion versus the unexplained portion of the dependent variable.

When the computed F-Statistic lies above the value 4.08 (F-stat in the tables at 98% confidence level), then the regression model is statistically significant. Alternately, at 2% significance level, when significance F is less than 0.02, then the deriving model is statistically significant. Both the F-Statistic and the Significance F in the data output in Table 3 showed that the resulting model was statistically significant. Thus, the model was reliable/sufficient enough to be used for decision making purposes.

From the values contained in Table 4, the deriving regression model was thus,
 $ROE = -68.9041 + 10.3748C$

4.2.3.8. Coefficients

They showed the nature of the relationship between the individual model parameters (α , and β) and the dependent variable (profitability). From Table 4, the nature of the relationship between the profitability of banks in Kenya and the constant (α) was negative while the nature of the relationship between the profitability and the coefficient of change (β) was positive, thus there was a positive relationship between the change in core capital and the profitability of banks in Kenya. This showed that, according to the regression findings, as the core capital increased, the profitability increased.

4.2.3.9. t-Stat and P-value

These both showed the significance of individual model parameters. The t-Stat is an absolute value, thus its positive or negative nature is disregarded. The P-value can be converted into a percentage but the t Stat cannot. These two statistics go hand in hand and are negatively related. The higher the t Stat the more significant the parameter of interest while the lower the P-value the more significant the parameter of interest. From the values in Table 3, the core capital was more statistically significant than the intercept/constant, α . At 98% confidence interval (2% significance level), when the t Stat is greater than 2.326 the results are statistically significant. Thus, from the resulting model, both the constant, α , and the core capital values were statistically significant. Additionally, according to the data output, the core capital had more statistical significance than the other random unexplained factors and it could logically be used to predict the values of profitability to a certain extent.

4.3. Summary and Interpretation of Findings

A sample of 42 banks was selected and simple linear regression analysis was conducted. The sample regression model used was $ROE = \alpha + \beta C$ which was generated to determine the effect of core capital on profitability of commercial banks in Kenya. This showed a mathematical expression of the relationship between the two variables whereby the profitability was considered to be responding to changes in the core capital. This meant that when we plotted the values on a chart, we could see a pattern and make predictions about the profitability of commercial banks in Kenya. A mathematical relationship however does not mean that there is an actual relationship between the two variables. The ROE was the dependent variable while the core capital was the explanatory variable. The constant α explained those changes occurring in the dependent variable but was not changes occurring in the explanatory variable. The coefficient of change β was the change in the dependent variable in respect to a unit change in the explanatory variable.

The research study established that there existed a positive linear relationship between the core capital and the profitability of commercial banks in Kenya. The coefficient of correlation, R-Squared, went further to show the strength of this relationship in the two variables. This degree

of association showed moderate linearity between the two variables, being at approximately 50%.

The regression model went on to show that 19.93% of changes in the profitability had been accounted for by changes in the core capital of banks in Kenya. For simple linear regression, this shows that core capital has major influence on the profitability of banks in Kenya, *ceteris paribus*. This determination is quite strong for a single variable therefore. However, points of the dependent variable that fell above the line of best fit were more as compared to points of the dependent variable that fell below the line of best fit. Any data falling below the line of best fit is referred to as explained variations in the dependent variable while any data falling above the line of best fit is referred to as unexplained variations in the dependent variable. Thus, the explanatory power of the regression model was quite weak.

The research findings showed that the deriving model is statistically significant. This is primarily showed by two statistical parameters, the F-stat and significance F. Since the computed F-stat (11.205) was greater than the F-stat from the table (4.08) at 98 % confidence interval, then the resulting model is statistically significant. The F-stat is a ratio that evaluates the explained portion of the dependent variable in relation to the unexplained portion. The higher the F value, the more significant the deriving model is. The significance F showed this as well. At 2% significance level, the significance F (0.001785) was less than the significance level (0.02) implying that the model was statistically significant.

Coefficients show the nature of the relationship between the different parameters against the dependent variable. The nature of relationship between the individual parameters and the dependent variable, profitability, was determined. There was a negative relationship between the constant and the profitability of commercial banks in Kenya. However the nature of the relationship between core capital and profitability is positive.

The t stat was used to test for significance of individual parameters. At 98% confidence interval (2% significance level), when the t Stat is greater than 2.326 the results are statistically significant.

4.3.1. Major Findings and Comparison with Past Studies

Major studies have been undertaken in the past concerning the relationship of the two variables and the effect of core capital on profitability of commercial banks in Kenya. Some of the previous studies were consistent with the research study findings in section 4.2 while others negate these findings and have found a negative relationship between the two variables or little to no influence of core capital on the profitability of commercial banks in Kenya. These previous studies were carried out on both the banking sector in Kenya as well as internationally.

In Kenya, a number of studies and authorities indicate that capital adequacy and profitability are positively correlated. Ndungu (2003), in a study on the determinants of profitability of quoted commercial banks in Kenya, found that sound asset and liability management had a significant influence on profitability. The Central Bank of Kenya Bank Supervision Annual Report (2009) emphasized that core capital is key to financial soundness of commercial banks and the banking sector. Internationally, Demircuc-Kunt and Huizinga (1999) studied 80 countries in the years 1988-1995, and they report a statistically significant positive relationship between capital and returns. This shows a consistency with the research study findings in section 4.2. Thus, the research results support these previous studies carried out on the particular topic.

However, not all studies are consistent with the result findings and some previous studies have found a negative relationship between the two variables. Other studies have found little or inconclusive impact of core capital on the profitability of commercial banks in Kenya. Findings by Xuezhui and Dickson (2012) that conducted a research on Tanzania's banking sector in 2012 and found that core capital had a negative impact on a bank's profitability. The study tried to establish the impact of liquidity, capital and assets on bank profitability. Whereas the study established that liquidity and assets positively affected profitability, it also found out that capital negatively affected profitability. In Kenya two of the studies carried out had findings that were inconsistent with the findings in section 4.2. Kiambi (2011), in a study conducted on the two variables, found that the two variables are positively related but weakly. Another study done by Mwege (2009), did not establish any clear relationship between core capital and profitability in the banking sector.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS

5.1. Summary of the Findings

This chapter presents a general summary of findings, conclusions, policy recommendations limitations of the study. It presents a summary of the results of the effect of core capital of commercial banks on profitability of the banks in Kenya.

According to the findings in Chapter 4, the aim of this study was to determine the effect of core capital on profitability of banks in Kenya. The chapter gives a summary and conclusions after which it draws policy recommendations. The recommendations are presented based on the objective of the study after which recommendations for further studies are drawn.

Secondary data was obtained from the Central Bank of Kenya Bank Supervision Annual Reports and analyzed through simple linear regression. The scope of this study covered only the one factor of core capital to help determine its influence on profitability of commercial banks in Kenya. The resulting regression model was $ROE = -68.9041 + 10.3748C$

From the research findings presented in Chapter 4, there existed a positive linear relationship between core capital and profitability of banks in Kenya which is at a moderate association of about 50%. The research also determined that 20% of the total changes in profitability could be explained by the core capital, ceteris paribus. Thus, 80% of changes in the profitability was attributable to variability in some other random factors or was due to some error.

These random factors may have included technology, illiquidity, non-performing loans, the different interest rates offered by the banks, government regulation, and so forth. However, this does not mean that the model required all the random unexplained variables in order to explain the changes in profitability. An additional factor (independent variable) to the regression

equation could affect the whole model and thus the explanatory power of the core capital on profitability may increase significantly.

5.2. Conclusion

The research project focused on the absolute amount perspective as a measure of capital adequacy in a commercial bank. The profitability was evaluated through the measure of ROE. Simple linear regression was conducted on the two variables to establish their relationship and determine the influence of core capital on profitability of commercial banks in Kenya.

Several valuable observations can be inferred from the above summary findings regarding the effect of core capital on profitability of commercial banks in Kenya. Firstly, there was a significant linear relationship between core capital of commercial banks and profitability of banks in Kenya. At approximately 50% correlation, this showed that the relationship between the two variables is statistically significant. Secondly, the overall model was statistically significant and could be used for decision-making purposes to help forecast or predict the profitability of commercial banks in Kenya. This is evident from the values computed for the F-stat and the values of significance F. Thirdly, 20 percent of total changes in profitability could be attributed to changes in the core capital of commercial banks in Kenya, *ceteris paribus*. For simple regression, the core capital had a strong influence on the profitability since all other factors that could influence profitability were held constant.

Further the study concluded that both the independent variable and the y-intercept were statistically significant at 98 % confidence interval. The other random factors that were not included in the research study such as technology, the target market, different interest rates offered by the banks, government regulation, among others, could be alternative drivers behind the profitability of the commercial banks in Kenya. These other random factors (contained in the y- intercept) showed a negative relationship with profitability. However, the core capital had more statistical significance in explaining the changes in the profitability as compared to all other random unexplained factors.

5.3. Policy Recommendations

Core capital was solely used in the research study to determine what effect it had on profitability of commercial banks in Kenya. With a 20 percent effect as a sole independent variable affecting profitability in the study the findings of this study have an implication on all stakeholders in the banking industry in Kenya.

The findings of the research study found out that there was a positive linear correlation between core capital and profitability. Moreover, it was established that 20 percent of changes in the profitability of commercial banks can be attributed only to core capital, thereby making core capital a vital element of profitability of commercial banks in Kenya. Further research needs to be carried out to establish the effect of other factors such as total loans, non-performing loans, deposits, etc. on the profitability of commercial banks in Kenya.

The shareholders of commercial banks need to ensure that their banks are well-capitalized since it has been shown that capital influences profitability (by about 20%). The shareholders also need to ensure that management efficiently uses capital since capital influences the level of profitability.

The Government and the Central Bank also need to take keen interest on the capital base of commercial banks. With the instability in the overall global economy, profitable commercial banks are more stable and are in a better position to withstand market shocks than banks with low profitability.

Banks are at the very core of the Kenyan economy. They borrow funds from sectors with surplus and channel these funds to the sectors with need, thus supporting investment and economic growth. A bank's level of core capital is therefore a key factor that can influence the profitability of banks. This capital may enable the banks to collect more deposits and lend more to the public and thus be in a position to earn higher revenues and make higher profits. Stringent regulations should thus be set by the Treasury to foster a stable and more competitive banking sector. It is therefore this study's strong recommendation that commercial banks in Kenya should be adequately or well-capitalized to guarantee financial stability over time.

5.4. Limitations of the Study

The research study, however, must be carefully used considering these limitations:

First, in regression analysis, it is impossible to make a definitive statement about causation and regression analysis. That is, unless the data are obtained in a controlled environment we can never rule out some other variable is causing the variation. Thus, statistical significance is not necessarily practical significance.

Secondly, outliers i.e. the observations whose value exceeds the values of other observations in the sample by a large amount are generally ignored in the research study but their inclusion may greatly influence the regression model results and interpretation.

Thirdly, the data that was obtained for the study was non-experimental in nature i.e. it was not subject to the control of the investigator. This created a problem because it was hard to determine the exact effect of one variable on the other variable.

Finally, using only one independent variable *ceteris paribus* for predictive purposes is not sufficient. This ends up underestimating the explanatory power of the resulting regression model. The addition of other explanatory variables may give room for better analysis on the variables of interest.

5.5. Suggestions for Future Studies

The study concentrated on the year 2012 since it was the most recent data available. Future studies may use one bank and a range of many years e.g. from 1980 to date and this can be helpful to confirm or disapprove the findings of this study.

Also, future studies could use more than one variable to explain the profitability of the commercial banks in Kenya. This may help to explain the changes in the profitability more. Multiple regressions tend to be more explanatory than simple regressions.

A similar research study may be done on all financial institutions as well, including those that are not banks, such as insurance companies and pension funds so as to establish whether this effect holds true on all financial institutions.

Further studies may be carried out on commercial banks that are quoted in the Nairobi Securities Exchange or on any of the NSE segments, such as the NSE 20-Share index to confirm or disapprove the research findings.

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APPENDIXI: LIST OF BANKS

Licensed Commercial Banks in Kenya as at 31st December 2012

1. African Banking Corporation Ltd
2. Bank of Africa Kenya Ltd
3. Bank of Baroda Ltd
4. Bank of India
5. Barclays Bank of Kenya Ltd
6. CFC Stanbic Bank Ltd
7. Charterhouse Bank Ltd (under statutory management) *
8. Chase Bank Ltd
9. Citibank N.A.
10. Commercial Bank of Africa Ltd
11. Consolidated Bank of Kenya Ltd
12. Co-operative Bank of Kenya Ltd
13. Credit Bank Ltd
14. Development Bank of Kenya ltd
15. Diamond Trust Bank of Kenya ltd
16. Dubai Bank Ltd
17. Ecobank Ltd
18. Equatorial Bank Ltd
19. Equity Bank Ltd
20. Family Bank Ltd
21. Fidelity Commercial Bank Ltd
22. Fina Bank Ltd
23. First Community Bank ltd
24. Giro Commercial Bank Ltd
25. Guardian Bank Ltd
26. Gulf African Bank ltd
27. Habib A. G. Zurich
28. Habib Bank Ltd

29. I & M Bank Ltd
30. Imperial Bank Ltd
31. Jamii Bora Bank Ltd
32. Kenya Commercial Bank Ltd
33. K-Rep Bank Ltd
34. Middle East Bank Ltd
35. National Bank of Kenya Ltd
36. NIC Bank Ltd
37. Oriental Commercial Bank Ltd
38. Paramount Universal Bank Ltd
39. Prime Bank Ltd
40. Standard Chartered Bank Ltd
41. Transnational Bank Ltd
42. UBA Bank Ltd
43. Victoria Commercial Bank Ltd

APPENDIX II: CORE CAPITAL AND PROFITABILITY VALUES

	<u>Core Capital (X-variable)</u>	<u>ROE (Y-variable)</u>
<i>ABC</i>	7.405495663	26.4
<i>BOA</i>	8.182279739	12.7
<i>BARO</i>	8.637107288	28.9
<i>BOI</i>	8.291295852	14.9
<i>BARC</i>	10.25164129	44
<i>CFC</i>	9.742966626	26
<i>CHASE</i>	8.444837529	25.8
<i>CITI</i>	9.73690154	41.7
<i>CBA</i>	9.181117513	34.3
<i>CONSO</i>	7.065613364	11.2
<i>COOP</i>	10.28922603	33.1
<i>CREDIT</i>	7.0800265	6.9
<i>DBK</i>	7.224024808	6.3
<i>DTBK</i>	9.39507568	31.4
<i>DUBAI</i>	6.794586581	-3.3
<i>ECOBANK</i>	8.383433201	-76.7
<i>ECB</i>	6.306275287	-90.8
<i>EQUITY</i>	10.29299264	37.6
<i>FAMILY</i>	8.43793351	17.4
<i>FIDELITY</i>	7.020190708	8.6
<i>FINA</i>	7.353081921	13.9
<i>FIRSTCB</i>	6.915723449	27.3
<i>GIRO</i>	7.434847875	11.7
<i>GUARD</i>	7.105786129	18.3
<i>GULF</i>	7.301147806	23.9
<i>HABIB_Z</i>	7.284134806	26.3
<i>HABIB</i>	7.180831199	33.8

<i>IMPERIAL</i>	8.201934351	42
<i>IMB</i>	9.381095292	28.5
<i>JAMIB</i>	7.189167738	2.5
<i>KCB</i>	10.64839667	29.8
<i>KREP</i>	7.257707677	20.1
<i>MEB</i>	6.983789965	4.2
<i>NBK</i>	9.171807422	11
<i>NIC</i>	9.438988744	28.6
<i>OC_BANK</i>	7.037905963	8.2
<i>PARA</i>	7.008505182	7.9
<i>PRIME</i>	8.246958033	27.8
<i>STCHART</i>	9.981512842	37.6
<i>TRANSB</i>	7.489970899	17.6
<i>UBA</i>	7.102499356	-32.6
<i>VICTO</i>	7.610357618	24.1

APPENDIX III: MICROSOFT EXCEL DATA

BANK	CORE CAPITAL	LN CORE CAPITAL	LN ROE
<i>ABC</i>	1645	7.405496	26.4
<i>BOA</i>	3577	8.18228	12.7
<i>BARO</i>	5637	8.637107	28.9
<i>BOI</i>	3989	8.291296	14.9
<i>BARC</i>	28329	10.25164	44
<i>CFC</i>	17034	9.742967	26
<i>CHASE</i>	4651	8.444838	25.8
<i>CITI</i>	16931	9.736902	41.7
<i>CBA</i>	9712	9.181118	34.3
<i>CONSO</i>	1171	7.065613	11.2
<i>COOP</i>	29414	10.28923	33.1
<i>CREDIT</i>	1188	7.080026	6.9
<i>DBK</i>	1372	7.224025	6.3
<i>DTBK</i>	12029	9.395076	31.4
<i>DUBAI</i>	893	6.794587	-3.3
<i>ECOBANK</i>	4374	8.383433	-76.7
<i>ECB</i>	548	6.306275	-90.8
<i>EQUITY</i>	29525	10.29299	37.6
<i>FAMILY</i>	4619	8.437934	17.4
<i>FIDELITY</i>	1119	7.020191	8.6
<i>FINA</i>	1561	7.353082	13.9
<i>FIRSTCB</i>	1008	6.915723	27.3
<i>GIRO</i>	1694	7.434848	11.7
<i>GUARD</i>	1219	7.105786	18.3
<i>GULF</i>	1482	7.301148	23.9
<i>HABIB_Z</i>	1457	7.284135	26.3
<i>HABIB</i>	1314	7.180831	33.8
<i>IMPERIAL</i>	3648	8.201934	42
<i>IMB</i>	11862	9.381095	28.5
<i>JAMIB</i>	1325	7.189168	2.5
<i>KCB</i>	42125	10.6484	29.8
<i>KREP</i>	1419	7.257708	20.1
<i>MEB</i>	1079	6.98379	4.2
<i>NBK</i>	9622	9.171807	11
<i>NIC</i>	12569	9.438989	28.6
<i>OC_BANK</i>	1139	7.037906	8.2
<i>PARA</i>	1106	7.008505	7.9
<i>PRIME</i>	3816	8.246958	27.8
<i>STCHART</i>	21623	9.981513	37.6

TRANSB	1790	7.489971	17.6
UBA	1215	7.102499	-32.6
VICTO	2019	7.610358	24.1

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.46778842
R Square	0.218826005
Adjusted R Square	0.199296656
Standard Error	23.88927176
Observations	42

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	6394.653	6394.653	11.20498	0.001785
Residual	40	22827.89	570.6973		
Total	41	29222.55			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	-68.90408293	25.46818	-2.7055	0.009974	-120.377	-17.431
Core Capital	10.3747696	3.099366	3.347384	0.001785	4.110717	16.63882

Line Fit Plot

