THE EFFECT OF BASEL II REQUIREMENT ON KENYAN COMMERCIAL BANKS' LENDING

BY:

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DECLARATION

I, the undersigned declare that this research project is my original work and affirm to the best of my knowledge that it has not been presented for any academic award in any University.

Signed: …… Date: ……..

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D63/67770/2011

This research project has been submitted for examination with my approval as the University supervisor.

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DEDICATION

This work is dedicated to my family and friends.

ACKNOWLEDGEMENT

First and foremost I would like to thank God for granting me wisdom and His guidance in life and throughout my studies.

Secondly I would like to thank my supervisor, Mr. Cyrus Iraya who has encouraged me and given me innumerable suggestions and constructive criticism that helped immensely in my research.

ABSTRACT

Since 1999 the Basel Committee on Banking Supervision has been working on a revised Capital Accord, which should align regulatory capital requirements with the actual risk associated with banks' assets calculated with modern risk management techniques. The new Accord will increase regulatory capital for lower rating classes and, as a consequence, many observers feared that bank lending would decline (Taylor, 2006). The aim of this paper was to investigate this claim bringing to bear a new and comprehensive dataset of Kenyan bank lending. The study adopted descriptive study design. The populations for this research are the 43 listed Commercial Banks in Kenya analyzed for a period from 2009-2012. The study found that commercial banks risk weighted assed had increased by 79% over the years indicating a similar growth in bank's assets. To meet the asset growth, core capital also increased by 88% with bank's undertaking rights issue between 2011 and 2012 in order to meet the new capital requirements with Basel II. Total loans and advances with a risk weight of 100% also increased by 77% from the year 2009 to 2012. The CAMEL rating also showed continuous growth in all the key ratios over the years under review. The study concludes that Basel II requirement has an impact on banks' capital requirement and asset growth with growth in core capital and risk weighted assets clearly seen over the years. The risk weighted assets growth declined from 26% between 2008 and 2009 to 15% between 2011 and 2012 indicating strained growth on banks assets with implementation of Basel II. The study concludes that Basel II requirement has a clear impact on banks' lending. None of the commercial banks so far is in breach of the minimum capital requirements of 8% as additional capital has being raised through rights issues however further studies need to be done to determine the sustainability of uptake of rights issues to meet capital requirements.

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ABBREVIATIONS

BIS	Bank of International Settlement
CAR	Capital Adequacy Ratio
CAMEL	Capital adequacy, Asset performance, Management capability, Earning, Liquidity
CBK	Central Bank of Kenya
IMF	International Monetary Fund
LIC	Low Income Countries
LPT	Liquidity Preference Theory
MPT	Modern Portfolio Theory
OECD	Organisation for Economic Co-operation and Development
RWA	Risk Weighted Assets
SME	Small and Medium Enterprise

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Since 1999 the Basel Committee on Banking Supervision has been working on a revised Capital Accord, which should align regulatory capital requirements with the actual risk associated with banks' assets calculated with modern risk management techniques. The new Accord will increase regulatory capital for lower rating classes and, as a consequence, many observers feared that bank lending would decline (Taylor, 2006). The aim of this paper is to investigate this claim bringing to bear a new and comprehensive dataset of Kenyan bank lending.

At the outset it is worth mentioning that the series of revisions of the new Accord have already contributed to dampening fears of a large impact on lending to high risk lenders (Porath, 2004). After the first consultative proposals for Basel II were released in June 1999 and January 2001 the Committee received a large number of responses. Concerns about a negative impact on lending to lower rating categories, a characteristic shared by most small and medium sized firms and emerging markets, lead to a reduction of these risk weights in the subsequent revisions.

Furthermore, even in the absence of large changes in capital costs, Basel II might have a significant impact on bank lending flows since small spread changes may induce large portfolio reallocations and, in a market characterized by credit rationing, spread increases may lead to the exclusion of borrowers (Herman, 2003).

Fewer possibilities for regulatory arbitrage might lead to shifts in the pattern of flows to emerging markets. The simple categorization under Basel I gave banks leeway for capital arbitrage by choosing higher-risk assets within a given risk category. In particular, the OECD/non-OECD distinction in principle allowed banks to hold risky assets without commensurate capital. The lower risk weight for short-term lending may have contributed to large inflows of short-term capital before the Asian crisis.

The existing literature initially predicted very large effects of Basel II on emerging markets spread (Reisen, 2002). However, this result was mainly due to a somewhat unrealistic assumption about required rates of return for high-risk assets. Using a more realistic assumption of a hurdle rate for risk adjusted returns (Powell, 2004); (Weder and Wedow, 2002) find much smaller changes in credit spreads.

1.1.1 Basel II Requirement

Basel II is the second of the Basel Accords, which are recommendations on banking laws and regulations issued by the Basel Committee on Banking Supervision. Basel II, initially published in June 2004, was intended to create an international standard for banking regulators to control how much capital banks need to put aside to guard against the types of financial and operational risks banks (and the whole economy) face, (Weder and Wedow, 2002).

One focus was to maintain sufficient consistency of regulations so that this does not become a source of competitive inequality amongst internationally active banks. Advocates of Basel II believed that such an international standard could help protect the

international financial system from the types of problems that might arise should a major bank or a series of banks collapse, (Gordy, 2006). In theory, Basel II attempted to accomplish this by setting up risk and capital management requirements designed to ensure that a bank has adequate capital for the risk the bank exposes itself to through its lending and investment practices. Generally speaking, these rules mean that the greater risk to which the bank is exposed, the greater the amount of capital the bank needs to hold to safeguard its solvency and overall economic stability (Taylor, 2006).

Basel II aims at ensuring that capital allocation is more risk sensitive; enhance disclosure requirements which will allow market participants to assess the capital adequacy of an institution; ensuring that credit risk, operational risk and market risk are quantified based on data and formal techniques; attempting to align economic and regulatory capital more closely to reduce the scope for regulatory arbitrage (BIS, 2003).

Basel II is measured based on three pillars (see appendix 1); Minimum Capital, Supervisory Review and Market Discipline, (BIS, 2003). Minimum capital is the technical, quantitative heart of the accord. Banks must hold capital against 8% of their assets, after adjusting their assets for risk, (Hassan, 2005). Supervisory review is the process whereby national regulators ensure their home country banks are following the rules. If minimum capital is the rulebook, the second pillar is the referee system. Market discipline is based on enhanced disclosure of risk. This may be an important pillar due to the complexity of Basel. Under Basel II, banks may use their own internal models (and gain lower capital requirements) but the price of this is transparency (Herman, 2003).

1.1.2 Banks Lending

In finance, a loan is a debt evidenced by a note which specifies that, among other things, the principal amount, interest rate, and date of repayment. A loan entails the reallocation of the subject asset(s) for a period of time, between the lender and the borrower. In a loan, the borrower initially receives or borrows an amount of money, called the principal, from the lender, and is obligated to pay back or repay an equal amount of money to the lender at a later time. Typically, the money is paid back in regular installments, or partial repayments; in an annuity, each installment is the same amount.

The loan is generally provided at a cost, referred to as interest on the debt, which provides an incentive for the lender to engage in the loan. In a legal loan, each of these obligations and restrictions is enforced by contract, which can also place the borrower under additional restrictions known as loan covenants. Bank lending plays an important role in influencing levels of consumer spending, investment and economic growth (Francis, 2006).

Capital is one of the bank specific factors that influence the level of bank profitability. Capital is the amount of own fund available to support the bank's business and act as a buffer in case of adverse situation (Athanasoglou et al. 2005). Banks capital creates liquidity for the bank due to the fact that deposits are most fragile and prone to bank runs. Moreover, greater bank capital reduces the chance of distress (Decamps, 2004). The cheapest sources of fund capital adequacy is the level of capital required by the banks to enable them withstand the risks such as credit, market and operational risks they are exposed to in order to absorb the potential loses and protect the bank's debtors. The

adequacy of capital is judged on the basis of capital adequacy ratio (Decamps, 2004). Capital adequacy ratio (CAR) shows the internal strength of the bank to withstand losses during crisis. It is directly proportional to the resilience of the bank to crisis situations. It has also a direct effect on the profitability of banks by determining its expansion to risky but profitable ventures or areas (Hassan, 2005).

The bank's asset is another bank specific variable that affects the profitability of a bank. The bank asset includes among others current asset, credit portfolio, fixed asset, and other investments. Often a growing asset (size) is related to the age of the bank, (Athanasoglou et al. 2005). More often than not the loan of a bank is the major asset that generates the major share of the banks income. Loan is the major asset of commercial banks from which they generate income. The quality of loan portfolio determines the profitability of banks. The loan portfolio quality has a direct bearing on bank profitability. The highest risk facing a bank is the losses derived from delinquent loans, Decamps (2004). Thus, nonperforming loan ratios are the best proxies for asset quality. Different types of financial ratios are used to study the performances of banks by different scholars. It is the major concern of all commercial banks to keep the amount of nonperforming loans to low level. This is so because high nonperforming loan affects the profitability of the bank. Thus, low nonperforming loans to total loans shows that the good health of the portfolio a bank. The lower the ratio the better the bank is performing.

1.1.3 Relationship Between Basel II and Banks Lending

The enforcement of capital requirements can link a bank’s capital position with its lending simply as part of the process of a bank meeting regulatory standards. For example, if bank equity is not perfectly elastic, a bank with too little capital could attempt

to improve its capital position by reducing its size, and one way to do that is to decrease loans. Keeley (1990) finds that in the 1980s, banks deficient in capital did adjust their capital positions in part by growing more slowly than other banks. More generally, banks with stronger capital positions have more capacity to expand loans and still meet regulatory capital standards

According to Modern Portfolio Theory, an organisation can attempt to maximize portfolio expected return for a given amount of portfolio risk, or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of various assets. The recent adoption of risk-based capital standards for banks could reinforce the link between a bank's financial condition and its investment decisions. For example, when determining the level of risk-adjusted assets, a zero weight is given to assets with no default risk, such as treasury securities, while riskier assets, such as loans, are given higher weights. As a result, for a given level of capital, a bank can increase its risk-based capital-to-asset ratio simply by reducing the volume of loans held in its portfolio and acquiring treasury securities. Such an adjustment would tend to reduce the growth rate of loans (BIS, 2003).

The options model of the deposit guarantee also suggests another regulatory rationale for linking leverage and the growth of risky assets such as loans. The value of the deposit insurance guarantee is positively related to the degree of asset or nonleverage risk of a bank. This implies that regulatory policy that takes into account the liability of the insurance system can be expected to extend effort to control non leverage risk (Merton, 1977).

Moreover, Furlong and Keeley (1989) show that the positive effect of a rise in nonleverage risk on the value of the insurance guarantee increases with a bank's leverage. That is, with higher leverage and mispriced deposit insurance, a bank would have more incentive to expand nonleverage risk. This suggests that regulatory policy should be most concerned with the expansion of nonleverage risk by institutions with the least amount of capital.

Two ways a bank can increase nonleverage risk are to grow and acquire loans (or other assets) that add to its overall risk or to adjust the composition of its existing portfolio toward riskier assets such as loans. From a regulatory perspective, a link between loan growth and leverage could be rationalized as one way of limiting a bank's ability to exploit the insurance system through either of these two options. Loan growth would be more restricted at banks with less capital since they would have the greatest incentive to increase nonleverage risk.

1.1.4 Commercial Banks in Kenya

As at 31st December 2012, the banking sector consisted of the Central Bank of Kenya, as the regulatory authority, 44 banking institutions, (43 commercial banks and 1 mortgage finance company). Out of the 44 banking institutions, 31 locally owned banks comprise 3 with public shareholding and 28 privately owned while 13 are foreign owned. The foreign owned financial institutions comprise of 9 locally incorporated foreign banks and 4 branches of foreign incorporated banks (Bank Supervision Report, 2012).

Commercial Banks and Mortgage Finance Institutions are licensed and regulated pursuant to the provisions of the Banking Act and the Regulations and Prudential

Guidelines issued there under. They are the dominant players in the Kenyan Banking system and closer attention is paid to them while conducting off-site and on-site surveillance by the Central Bank of Kenya to ensure that they are in compliance with the laws and regulations. The banking sector total net assets stood at Kshs. 2.3 trillion as at 31stDecember 2012 and the 27 locally owned commercial banks accounted for 62.4 percent. The 13 foreign owned commercial banks accounted for 33.4 percent of the sector's net assets (Bank Supervision Report, 2012).

In November 2010, the Bank issued revised Prudential and Risk Management Guidelines applicable to commercial banks, mortgage finance companies and non-bank financial institutions licensed under the Banking Act. These replaced the current Prudential Guidelines last revised in 2006 and the Risk Management Guidelines first issued in 2005. The revision was informed by the need to up-date the banking sector regulatory framework in light of significant changes in the local, regional and global banking sector's operating environment. The key drivers of review of the prudential and risk management guidelines included the desire to adapt new global best practices in banking sector supervision such as the revised Basel Core Principles for Effective Banking Supervision (Bank Supervision Report, 2010).

1.2 Research Problem

Bank regulation in general and capital regulation in particular are widely perceived as having become stiffer in the 1990s. The stiffer regulatory environment in turn is argued to have curtailed bank lending. Furlong (1989) researched on the extent to which capital

standards changed in the 1990s and examined the relationship between capital positions and the bank lending. The empirical results suggested that capital standards did increase in the 1990s. The analysis also showed that bank loan growth rates are positively related to capital-to-assets ratios. Moreover, sensitivity of bank lending to capital positions appeared to have increased in the 1990s.

The phasing in of international, risk-based capital standards and the growing concern over the risk-exposure of the deposit insurance system are viewed as precipitating stiffer bank capital regulation in recent years. This stiffening of capital regulation is argued to have restricted bank lending beginning in 1990, and, thereby, contributed to a credit crunch.

Consistent with this view, Federal Reserve surveys on bank lending practices find that many banks tightened credit standards in 1990and 1991 in part due to the volume of problem loans and capital constraints. In addition, some recent studies find a positive relationship between levels of bank capital and bank loan growth in 1990 (Furlong, 1989).The evidence, however, does not indicate the extent to which the relationship between bank capital and bank lending in recent years marks a change from the past.

Capital standards traditionally have been a component of bank regulatory policy, and enforcement of such standards could be expected to have influenced lending by individual banks even prior to 1990. The purpose of this study is to examine the extent to which bank capital regulation has changed and the effect the change has had on the

relationship between bank capital and lending. The analysis in this study differs from past studies by using cross-section time series data for individual banks from across Kenya rather than cross-section data for a single time period.

Upadhyaya (2009) as part of her research for her doctorate studies at the School of Oriental and Africa Studies, University of London on "Banking sector in Kenya; Shallow & Fragile" pointed out that the banking systems in Sub-Saharan Africa in general and Kenya in particular, are shallow and fragile. This is reflected in low lending levels, high interest rate spreads, high levels of non- performing loans and several banks failure. The banking system in Kenya is highly segmented by size and ownership factors. She identified the four segments as: foreign owned banks, government owned banks, large private owned banks and small private owned banks.

The analysis shows that different segments of the banking sector face clients of significantly different size and type and that this segmentation has a strong impact on performance of banks in each of the segments & is based partly on economic and social factors such as size of banks, structure of ownership and trust between banks and their clients. She demonstrated that due to segmentation, there are varying 'radiuses of trust' within one banking system and that segmentation is a result of fragmentation rather than specialization. Having established that the banking sector as a whole is characterized by high levels of spreads, high non-performing loans and several bank failures. Regulators such as the Central Bank of Kenya (CBK) need to increase the minimal capital requirement of all banks and other stakeholders should be given legislative roles on the

boards of banks. This will increase the direct monitoring of banks and therefore be an additional safeguard against insider lending.

Commercial Banks in Kenya are among the most capitalized banks in the word with a minimum capital requirement of 8% to risk weighted assets against an average of 6% in other countries. This in itself presents a limitation on the level of lending that banks can offer. With the emergence of Basel II, Commercial Banks will in addition be required to hold capital for operational and market risk.

This study discusses the link between capital regulation and bank lending in terms of the capital standards among banks by size and examines how bank lending has changed with emergence of Basel II. The empirical analysis looks at how the relationship between the financial conditions of banks and their lending has changed over time and whether the effects on bank lending vary by bank size.

1.3 Objective of the Study

The objective of the study is to determine the effect of Basel II requirement on Kenyan Commercial Banks' lending. This will be achieved by analyzing the effect of the three pillars of Basel II; capital requirements, supervisory review and market discipline on Commercial Banks' lending.

1.4 Value of the Study

The implementation of Basel II provides the Kenyan banks an opportunity to reduce their credit risk weights as well as reduce their regulatory capital. They can do so by suitably adjusting their portfolios. Some of the other benefits of Basel II would include a more

active portfolio management and forward looking risk assessment in which there would be more activeness in portfolio risk management by access to timelier and higher quality risk information and by differential capital requirement. The pricing of risk will be more proactive and there would also be an improvement in performance management.

This study leads to an improvement in the risk measurement assessment thereby giving banks an opportunity to gain competitive advantage by allocating capital to those processes segments and markets that demonstrate a strong risk return ratio .It will change the treatment of credit risk ensuring that banks have sufficient capital to cover operational risk. Another benefit that banks would get from this study is a better understanding of risk return trade off for capital supporting specific business, customer products and processes.

Banks' senior management will determine corporate strategy, as well as the country in which to base a particular type of business, based in part on how Basel II is ultimately interpreted by various countries' legislatures and regulators and the impact it will have on lending.

The regulator may also use this study to understand the bottom line impact of Basel II implementation in Kenya in term of banks lending and in understanding banks decision on the base lending rate to its customers.

The study adds to the scholarly knowledge and further helps other scholars and academicians who may want to use the study to assess impact of new capital regulation on Banks' lending and financial performance.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter covers the general aspects of literature review based on the impact of Basel II implementation on Commercial Banks lending in Kenya starting with the theoretical literature review, empirical literature and chapter conclusion.

2.2 Theoretical Literature

This section presents a theoretical review of the study. The theories reviewed here are Modern Portfolio Theory, Modigliani and Miller and Liquidity Preference Theory. A critique of the theories and models is then made.

2.2.1 Modern Portfolio Theory

Modern portfolio theory (MPT) is a theory of finance that attempts to maximize portfolio expected return for a given amount of portfolio risk, or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of various assets (Elliott, 2009).

MPT is a mathematical formulation of the concept of diversification in investing, with the aim of selecting a collection of investment assets that has collectively lower risk than any individual asset. More technically, MPT models an asset's return as a normally distributed function (or more generally as an elliptically distributed random variable), defines risk as the standard deviation of return, and models a portfolio as a weighted combination of assets, so that the return of a portfolio is the weighted combination of the

assets' returns. By combining different assets whose returns are not perfectly positively correlated, MPT seeks to reduce the total variance of the portfolio return. MPT also assumes that investors are rational and markets are efficient (Hassan, 2005).

The fundamental concept behind MPT is that the assets in an investment portfolio should not be selected individually, each on their own merits. Rather, it is important to consider how each asset changes in price relative to how every other asset in the portfolio changes in price.

Investing is a tradeoff between risk and expected return. In general, assets with higher expected returns are riskier. For a given amount of risk, MPT describes how to select a portfolio with the highest possible expected return. Or, for a given expected return, MPT explains how to select a portfolio with the lowest possible risk (the targeted expected return cannot be more than the highest-returning available security, of course, unless negative holdings of assets are possible (Taylor, 2006).

Commercial Banks can reduce portfolio risk simply by holding combinations of risk weighted assets that are not perfectly positively correlated (correlation coefficient $-1 \leq \rho_{ij} < 1$). In other words, Banks can reduce their exposure to individual asset risk by holding a diversified portfolio of assets. Diversification may allow for the same portfolio expected return with reduced risk. These ideas have been started with Markowitz and then reinforced by other economists and mathematicians such as Andrew Brennan who have expressed ideas in the limitation of variance through portfolio theory (Smith, 2013).

The MPT theory assists commercial banks in diversifying their portfolio by selection of combination of risk weighted assets thus affecting the credit risk, market risk and operational risk mix (Smith, 2013).

2.2.2 Modigliani and Miller

The Modigliani–Miller theorem- Capital Structure Theory (of Franco Modigliani, Merton Miller) forms the basis for modern thinking on capital structure. The basic theorem states that, under a certain market price process (the classical random walk), in the absence of taxes, bankruptcy costs, agency costs, and asymmetric information, and in an efficient market, the value of a firm is unaffected by how that firm is financed. It does not matter if the firm's capital is raised by issuing stock or selling debt. It does not matter what the firm's dividend policy is (Miller and Modigliani, 1961). Therefore, the Modigliani–Miller theorem is also often called the capital structure irrelevance principle.

2.2.3 Liquidity Preference Theory

Keynes (1942) describes liquidity preference theory saying that people value money for both "the transaction of current business and its use as a store of wealth." Thus, they will sacrifice the ability to earn interest on money that they want to spend in the present, and that they want to have it on hand as a precaution. On the other hand, when interest rates increase, they become willing to hold less money for these purposes in order to secure a profit.

The Liquidity preference theory (LPT) theory assists commercial banks in liquidity management, earnings management and measuring market sensitivity reaction to interest rate changes.

2.3 Measures of Basel II Requirement and Bank Lending

Capital requirements for a specific institution may increase or decrease depending upon its risk profile. An institution's minimum capital requirement will be calculated by dividing its Core and Total Capital by the sum of the value of its Risk-Weighted Assets for Credit Risk, Market Risk and Operational Risk, to arrive at the minimum Tier One and Regulatory capital adequacy ratios respectively (Prudential guidelines, 2010).

The capital risk charge for credit risk is therefore the allocation of capital for the various risk assets by assigning them risk weights based on their category and risk profiles. Institutions are required to assess measure and apply capital charges in respect of their market risks in addition to their credit risk. Market risk is defined as the risk of losses in on and off-balance sheet positions arising from movements in market prices. Operational risk capital charges in a continuum of increasing complexity and risk sensitivity (Prudential guidelines, 2010).

2.3.1 Capital Requirement

Capital requirement is the first pillar which defines the minimum regulatory capital for three different risk categories. Apart from the credit risk and market risk, it processes a capital requirement for operational risk as well. Measures for each are as below:

Credit risk will be measured by applying the recommended risk weights as stipulated in Basel II for the various on and off balance sheet items. Each asset on the balance sheet of a bank was given a weighting between 0% and 100%, where 0% represented the safest

assets such as government bonds and 100% the riskiest exposures such as corporate debt and unsecured personal loans. Loans secured on residential property were given a 50% risk weighting. Banks would be required to hold tier 1 capital of at least 8% of risk weighted assets (RWA) (Prudential guidelines, 2010).

Market risk will be measured by Value at Risk. It is a measure of how the market value of an asset or of a portfolio of assets is likely to decrease over a certain time period in normal conditions (Prudential guidelines, 2010).

Operational risk is risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. Basel II provides the below formula for its computation:

K = [(GI 1 + GI2 + GI3) * α]/n, where;

K = capital charge under the Basic Indicator Approach

GI = Gross Income (GI) is defined as ,Net interest income plus ,Net non-interest income.

α = 15%

n = number of the previous three years for which gross income is positive.

2.3.2 Supervisory Review

Supervisory review is the second pillar which evaluates the risks along with the banks to ensure that the bank management exercises sound judgment and that it has set aside adequate capital to face these risks. It is achieved through computation of CAMEL rating

with commercial banks getting a rating of 1 (best) to 5 (worst), Bank Supervision Report (2012). The measures for each are as below:

Capital Adequacy =Total tier 1 Capital/ RWA as calculated under credit risk.

The component of Tier 1 capital is 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.

Asset Performance = Total Non- Performing Loan/ Total Loan Book

Management Capability= Total operating expenses/Total operating income,

Net loans to customers/number of shares

Earnings= Total Operating Income- Total Operating Expenses.

Liquidity= Liquid Assets/Liquid Liabilities

2.3.3 Market Discipline

Market discipline is the thirds pillar. Banking institutions are monitored by customers, trade counterparties and investors. This type of monitoring is known as market discipline and is measured as below:

Capital Structure = Total Debt/ Total Equity

Risk Exposures= (Foreign Currency Assets- Foreign Currency Liability)/ Tier 1 Capital

Capital Adequacy= Total Tier 1 Capital/ RWA

2.4 Empirical Literature

Bank regulation in general and capital regulation in particular are widely perceived as having become stiffer in the 1990s. The stiffer regulatory environment in turn is argued to have curtailed bank lending. Furlong (1989) researched on the extent to which capital standards changed in the 1990s and examined the relationship between capital positions and the bank lending. The empirical results suggested that capital standards did increase in the 1990s. The analysis also showed that bank loan growth rates are positively related to capital-to-assets ratios. Moreover, sensitivity of bank lending to capital positions appeared to have increased in the 1990s.

The phasing in of international, risk-based capital standards and the growing concern over the risk-exposure of the deposit insurance system is viewed as precipitating stiffer bank capital regulation in recent years. This stiffening of capital regulation is argued to have restricted bank lending beginning in 1990, and, thereby, contributed to a credit crunch.

Consistent with this view, Federal Reserve surveys on bank lending practices find that many banks tightened credit standards in 1990and 1991 in part due to the volume of problem loans and capital constraints. In addition, some recent studies find a positive relationship between levels of bank capital and bank loan growth in 1990, Furlong

(1989). The evidence, however, does not indicate the extent to which the relationship between bank capital and bank lending in recent years marks a change from the past.

Olokoyo (2011) study aimed to test and confirm the effectiveness of the common determinants of commercial banks lending behavior and how it affects the lending behavior of commercial banks in Nigeria. The model used was estimated using Nigerian commercial banks loan advance (LOA) and other determinants or variables such as their volume of deposits (Vd), their investment portfolio (Ip), interest (lending) rate (Ir), stipulated cash reserve requirements ratio (Rr) and their liquidity ratio (Lr) for the period; 1980 – 2005. The model hypothesizes that there is functional relationship between the dependent variable and the specified independent variables. From the regression analysis, the model was found to be significant and its estimators turned out as expected and it was discovered that commercial banks deposits have the greatest impacts on their lending behavior. The study then suggests that commercial banks should focus on mobilizing more deposits as this will enhance their lending performance and should formulate critical, realistic and comprehensive strategic and financial plans.

Porath (2004) did a study investigating whether the new Basel Accord will induce a change in bank lending to emerging markets using a comprehensive data set on German banks` foreign exposure was done. Two interlinked hypotheses were tested on the conditions under which the change in the regulatory capital would leave lending flows unaffected. This would be the case if (i) the new regulatory capital requirement remains below the economic capital and (ii) banks' economic capital to emerging markets already

adequately reflects risk. On both accounts the evidence indicates that the new Basel Accord should have a limited effect on lending to emerging markets.

Berrospide (2010) conducted a study and capital was determined to be a critical determinant of the linkage between financial conditions and real activity, and has received special attention in the recent financial crisis. Panel-regression techniques was used following Bernanke and Lown (1991) and Hancock and Wilcox (1993, 1994) to study the lending of large bank holding companies and found small effects of capital on lending. The effect of capital ratios on lending using a variant of Lown and Morgan's (2006) VAR model was then used, and again modest effects of bank capital ratio changes on lending were found. These results were in marked contrast to estimates obtained using simple empirical relations between aggregate commercial-bank assets and leverage growth, which have recently been very influential in shaping forecasters' and policymakers' views regarding the effects of bank capital on loan growth.

Griffith-Jones (2006) conducted a study to examine the implementation of Basel II in low-income countries (LICs). The aim was to assess the low-income countries' views and concerns on Basel II, whether and how they intended to implement the new Basel Capital Accord, and the challenges they may face in doing so. The study discussed in particular the possible implications of Basel II implementation for competitiveness of LIC banking sectors and financial inclusion. Access to credit by the private sector, including SMEs is a particular important issue in the context of scaling up of aid to LICs.

The study found that most LIC countries are adopting a very cautious approach towards Basel II. Their intentions are first to understand how Basel II works and to have a better grasp of their possible implications, in order to be able to adopt an informed decision on the issue. Such countries also feel they have previous tasks to complete within Basel I more generally within banking regulation before they tackle Basel II. The IMF and the Basel Committee say they share this caution and do not push LICs to adopt Basel II. However, there seems to be pressure from international consulting firms, rating agencies and others for countries to adopt Basel II.

Major challenges comprise the need to build long and reliable data base to run sophisticated risk assessment models, and to build supervisors' capacity to assess, validate and monitor the use of such models. But the issues facing LICs are not simply – or even mainly – technical. There are also broader issues, such as competitiveness of national and foreign banks, access to credit by SMEs, potential increased pro-cyclicality of bank lending resulting from Basel II and their macroeconomic impacts.

Hakura (2011) investigated the impact of the new capital requirements introduced under the Basel II framework on bank lending rates and loan growth. Higher capital requirements, by raising banks' marginal cost of funding, lead to higher lending rates. The data presented in the paper suggested that large banks would on average need to increase their equity-to-asset ratio by 1.3 percentage points under the Basel III framework. Estimations indicate that this would lead large banks to increase their lending rates by 16 basis points, causing loan growth to decline by 1.3 percent in the long run.

The results also suggest that banks' responses to the new regulations will vary considerably from one advanced economy to another (e.g. a relatively large impact on loan growth in Japan and Denmark and a relatively lower impact in the U.S.) depending on cross-country variations in banks' net cost of raising equity and the elasticity of loan demand with respect to changes in loan rates.

Banks are at the epicenter of countries financial needs (Harlalka, 2007). Regulators like the central bank of a country feel the need for an indirect regulatory and monitoring system. Credit risks, market risks and operational risks are the three main criterions on which the Basel system is based. Developing countries like India that are in the boom stage of its financial sector require a system like Basel II which would provide the banks an opportunity to reduce their credit risk weights as well as reduce their required regulatory capital.

2.5 Summary

The study will be based on three theories; Modern Portfolio Theory which attempts to maximize portfolio expected returns for a given amount of portfolio risk, Modigliani and Miller which forms the basis for modern thinking on capital structure and Liquidity Preference Theory which assists commercial banks in liquidity management, earnings management and measuring market sensitivity reaction to interest rate changes.

The measure of Basel II requirement and bank lending will be based on the Central Bank of Kenya; Prudential Guidelines (2010) prescribed measures where capital requirement will be measured by focusing on credit risk, market risk and operational risk. Supervisory

review will be based on CAMEL rating with commercial banks getting a rating of 1 (best) to 5 (worst). Market discipline is measured by focusing on capital structure, risk exposures and capital adequacy.

Furlong (1991) researched on the extent to which capital standards changed in the 1990s and examined the relationship between capital positions and the bank lending. The empirical results suggested that capital standards did increase in the 1990s. The analysis also showed that bank loan growth rates are positively related to capital-to-assets ratios. Moreover, sensitivity of bank lending to capital positions appeared to have increased in the 1990s. The evidence, however, does not indicate the extent to which the relationship between bank capital and bank lending in recent years marks a change from the past.

Olokoyo (2011) study aimed to test and confirm the effectiveness of the common determinants of commercial banks lending behavior and how it affects the lending behavior of commercial banks in Nigeria. From the regression analysis, the model was found to be significant and its estimators turned out as expected and it was discovered that commercial banks deposits have the greatest impacts on their lending behavior. The study then suggests that commercial banks should focus on mobilizing more deposits as this will enhance their lending performance and should formulate critical, realistic and comprehensive strategic and financial plans.

Berrospide (2010) conducted a study and capital was determined to be a critical determinant of the linkage between financial conditions and real activity, and has received special attention in the recent financial crisis.

Review of Basel II Implementation in Low-Income Countries, Griffith-Jones, (2006) was a study done to examine the implementation of Basel II in low-income countries (LICs). The aims were to assess the low-income countries' views and concerns on Basel II, whether and how they intended to implement the new Basel Capital Accord, and the challenges they may face in doing so.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology the study adopted. It looks at the research design, population of the study, sampling methods used, data collection techniques and data analysis technique.

3.2 Research Design

The research is descriptive in nature. Descriptive research can be either quantitative or qualitative. It can involve collections of quantitative information that can be tabulated along a continuum in numerical form, such as scores on a test. Descriptive research involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data collection (Glass & Hopkins, 1984). It often uses visual aids such as graphs and charts to aid the reader in understanding the data distribution. Most quantitative research falls into two areas: studies that describe events and studies aimed at discovering inferences or causal relationships. Descriptive studies are aimed at finding out "what is," so observational and survey methods are frequently used to collect descriptive data (Borg & Gall, 1989).

3.3 Population of the Study

The populations for this research are listed Commercial Banks in Kenya**.** Commercial Banks and Mortgage Finance Institutions are licensed and regulated pursuant to the provisions of the Banking Act and the Regulations and Prudential Guidelines issued there

under. They are the dominant players in the Kenyan Banking system and closer attention is paid to them by the Central Bank of Kenya to ensure that they are in compliance with the laws and regulations.

As at 31st December 2012, the banking sector consisted of the Central Bank of Kenya, as the regulatory authority, 44 banking institutions, (43 commercial banks and 1 mortgage finance company). Out of the 44 banking institutions, 31 locally owned banks comprise 3 with public shareholding and 28 privately owned while 13 are foreign owned. The foreign owned financial institutions comprise of 9 locally incorporated foreign banks and 4 branches of foreign incorporated banks (Bank Supervision Report, 2012).

This study used census method where the entire population of the 43 listed commercial banks (see appendix 2) will be analyzed for a period from 2009-2012.

3.4 Data Collection Techniques

The appropriate data collection tool for this study was secondary data. Secondary data is data collected by someone other than the user. Common sources of secondary data include censuses, organizational records and data collected through qualitative methodologies or qualitative research. Primary data, by contrast, are collected by the investigator conducting the research.

Secondary data analysis saves time that would otherwise be spent collecting data and, particularly in the case of quantitative data, provides larger and higher-quality databases that would be unfeasible for any individual researcher to collect on their own.

Commercial banks in Kenya are among the most heavily regulated sectors in the economy. Central Bank of Kenya, Capital Markets Authority and Nairobi Securities Exchange require commercial banks to disclose their financial statements on a quarterly basis; in addition Banks are required to disclose details on non- performing loans, insider loans, off balance sheet activities, capital strength and liquidity details. This study will focus on the commercial banks balance sheet, income statement and other disclosures which are published on a quarterly basis. The study also used CBK monthly economic reviews and annual bank supervision reports for the period under review.

3.5 Data Analysis Techniques

Regression analysis was used to draw the relationships between the three pillars of Basel II and the factors that determine banks lending. Regression analysis describes the relationship between a quantitative dependent variable and one or more independent variables.

$Y = a + b_1x_1 + b_2x_2 + b_3x_{3+} e$

Where:

Y is the Amount/ Volume of the Loan Book

X_1 is pillar 1- Capital Requirement

X_2 is pillar 2- Supervisory Review

X_3 is pillar 3- Market Discipline

e is an error term

The regression model adopted is as per the requirements in the Prudential Guidelines issued in 2010 where measures of Basel II capital requirement and its subsequent impact

on Banks' lending is defined by the three pillars; Capital Requirement, Supervisory Review and Market Discipline. The specific measures for each of the pillars are as below:

The 3 independent variables in the model are:

X_1 = f (Credit risk, Market risk, Operational risk)

X_2=f (Capital adequacy, Asset performance, Management capability, Earnings, Liquidity)

X_3= f (Capital structure, risk exposures, capital adequacy)

The measurement for each independent variable was computed and rated as below:

Credit Risk = (On-balance sheet asset* risk weight) + (Off- balance sheet asset * risk weight)

Operational Risk= [(Gross income1+ Gross income2+ Gross income3+) *15%]/3,

Capital Adequacy =Total tier 1 Capital/ RWA

Asset Performance = Total Non- Performing Loan/ Total Loan Book

Management Capability= Total operating expenses/Total operating income,

Net loans to customers/number of shares

Earnings= Total Operating Income- Total Operating Expenses.

Liquidity= Liquid Assets/Liquid Liabilities

Capital Structure = Total debt/ Total equity

Risk Exposures= (Foreign Currency Assets- Foreign Currency Liability)/ Tier 1 capital

Capital Adequacy= Total tier 1 Capital/ RWA

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

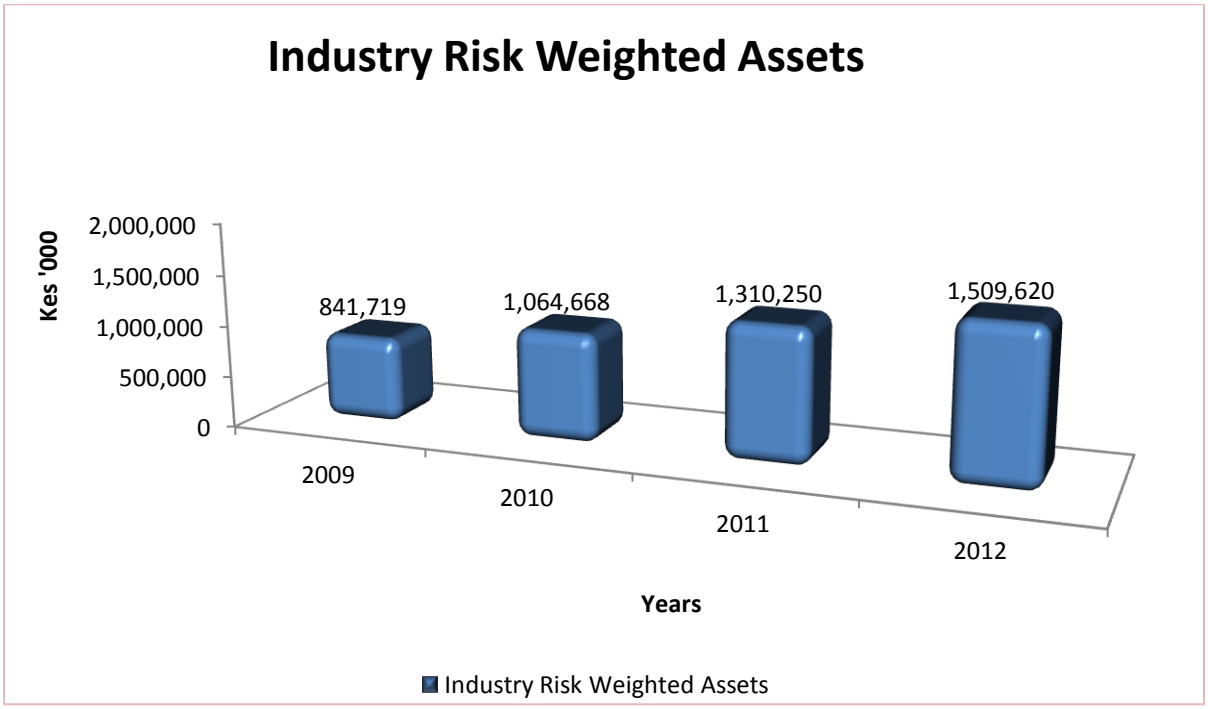
4.1 Introduction

This chapter presents the results of the study. The results are based on the analysis of financial results of 43 Commercial banks in Kenya over a period of 5 years (2009-2012). Multiple linear regressions was established through Ordinary Least Squares (OLS) so as to determine the effect of Basel II requirement on Kenyan Commercial banks' lending. The chapter presents the descriptive results as well as the regression analysis results. A discussion of findings is then made.

4.2 Capital Requirement

Capital requirement is a measure of core capital to risk weighted assets with the minimum regulatory capital set at 10.5%. With the emergence of Basel II requirement, the risk weighted assets value has increased over the years from Kes 842b in 2009 to Kes 1.5trillion in 2012 as a result of including risk weighted assets for operational and market risk as shown below:

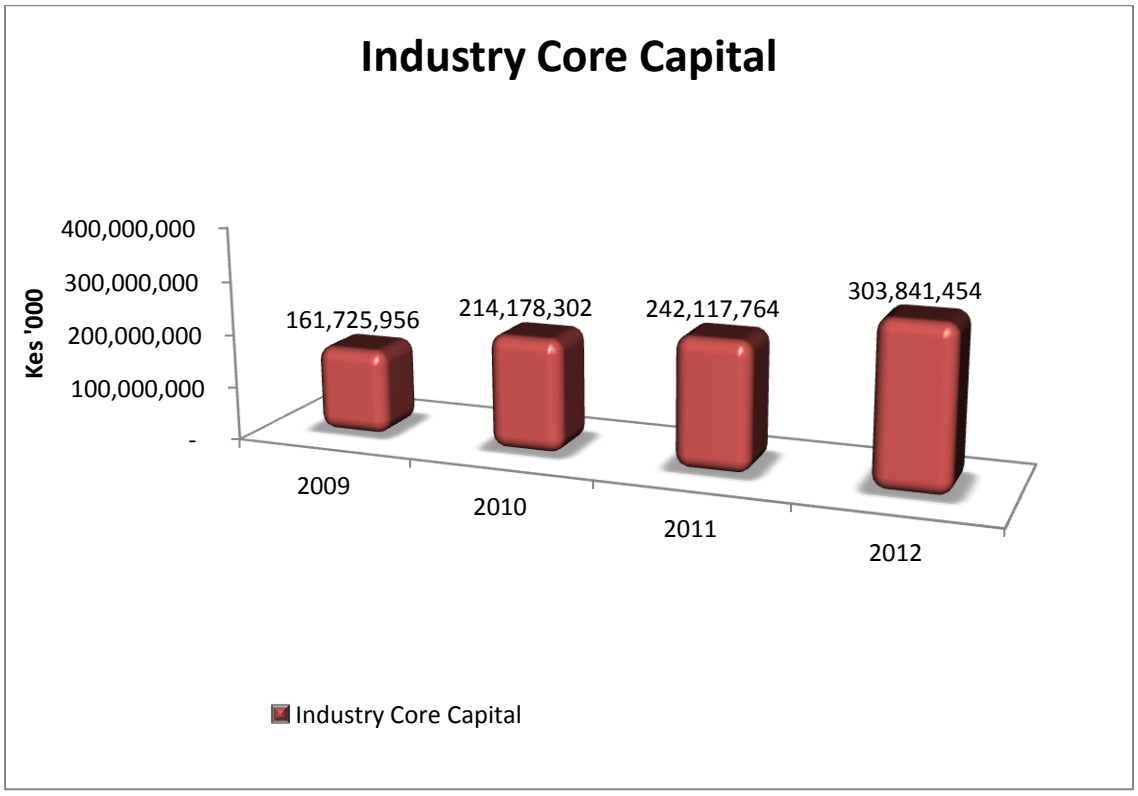
Figure 4.2.1: Industry Risk Weighted Assets



Source: Author (2013)

Banking industry core capital has significantly increased over the years from Kes 162b to Kes 304b in 2012 as a result of Commercial Banks in Kenya raising additional capital through rights issues in order to meet the Basel II higher capital requirements as shown below: (Minimum set core capital by CBK is Kes 1b for each commercial bank).

Figure 4.2.2: Industry Core Capital

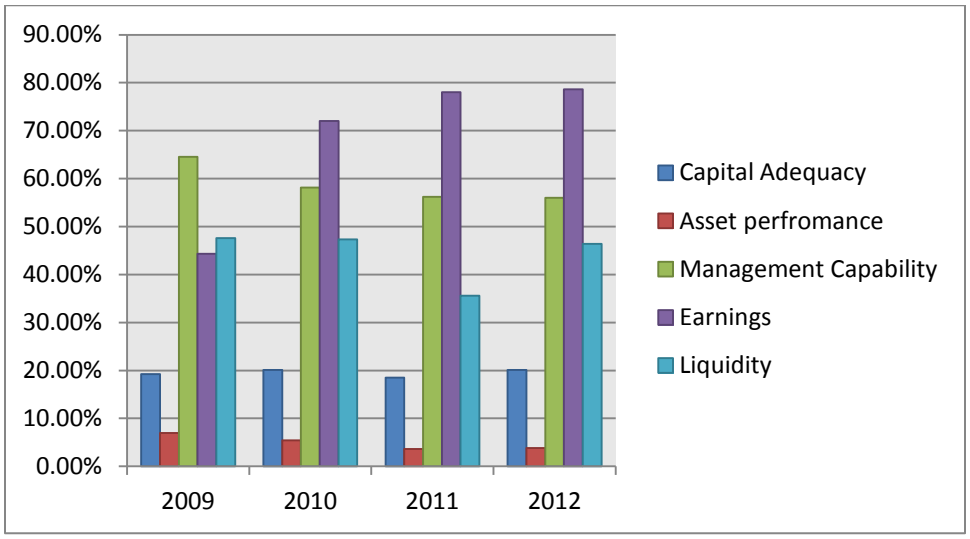


Source: Author (2013)

4.3 Supervisory Review

Central Bank of Kenya achieves this key pillar through conducting a CAMEL rating for individual commercial banks and the banking industry at large as shown below:

Figure 4.3.1: CAMEL Rating

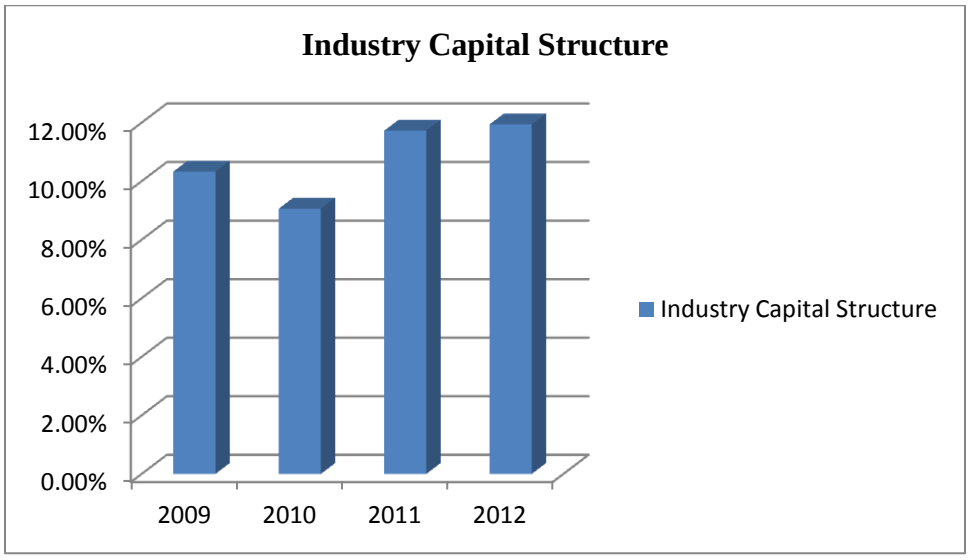


The key CAMEL ratios show a marginally growing trend in capital adequacy from 19.21% in 2009 to 20.13% in 2012 with the minimum requirement as set by CBK at 10.5%. There was reduction in non- performing loans over the years with asset performance showing improvement from 6.94% in 2009 to 3.795 in 2012. Management capability as a measure of cost to benefit has moved from 64.54% in 2009 to 55.98% in 2012 showing need for more focus by management on cost management with the benchmark set at <50%. Profitability has increased significantly as a result of growth in the banking industry from 44.30% in 2009 to 78.63% in 2012. Liquidity ratio has consistently remained flat between 47.62% in 2009 to 46.41% in 2012 with the minimum requirement set by CBK at 20%

4.4 Market discipline

Market discipline is measured by analyzing the capital structure ratio to review the level of debt to equity financing for commercial banks as shown below:

Figure 4.4.1: Industry Capital Structure

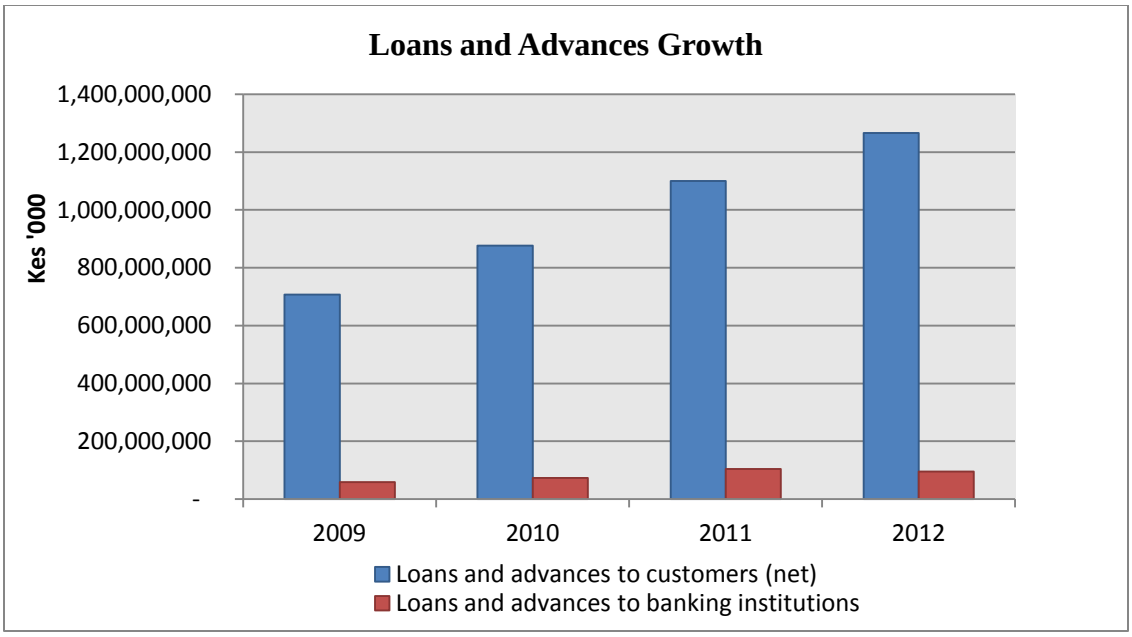


Source: Author (2013)

The debt to equity ratio has grown significantly over the years from 10.33% in 2009 to 11.94% in 2012 showing commercial banks efforts over the years to grow equity in order to meet the set Basel II requirements.

Figure 4.4.2: Loans and Advances Growth

The study sought to explain the impact of Basel II capital requirement on Commercial Bank's lending. This is shown below:



Net loans and advances to customers has increased significantly even with the emergence of Basel II requirement from Kes 707 billion in 2009 to Kes 1.3 trillion in 2012. This is countered with growth in core capital as shown in figure 4.2.2. Loans and advances to banking institutions also grew from Kes 59 billion in 2009 to Kes 96 billion in 2012.

4.5 Regression Analysis

Regression Analysis Model

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.898[a]	.806	.801	.19758

Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable, from the findings in the

above table the value of adjusted R squared was 0.801 an indication that there was variation of 80.1% on commercail banks lendings dues to change in capital requirement , supervsiory review and market discipline at 95% confidence interval . R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table above there was a strong positive relationship between the study variables as shown by 0.898.

Table 2: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.744	2	0.372	2.88	.048[b]
	Residual	23.091	179	0.129		
	Total	23.835	181			

From the ANOVA statics in table above, the processed data, which is the population parameters, had a significance level of 5% which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance (p-value) is less than 5%. It also indicates that the model was statistically significant and that capital requirement, supervsiory review and market disciplines were significantly influencing commercial banks.

Table 3: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.833	.172		4.847	.000
	Capital Requirement	.142	.082	.132	1.739	.034
	Supervisory Review	.643	.082	.586	7.835	.000
	Market Discipline	.232	.083	.246	2.806	.006

The established regression equation was

$Y = 0.833 + 0.142X_1 + 0.643\ X_2 + 0.232\ X_3$

From the above regression equation it was revealed that holding capiatl requirement, supervsiory review and market discipline to a constant zero , lending in commercial banks would stand at 0.833, a unit increase in capital requirement would lead to increase in commercial banks' lending by a factors of 0.142, unit increase in supervisory review would lead to increase in commercial banks' lending by factors of 0.643 and unit increase in market discipline would lead to increase in commercial bank lending by a factor of 0.232. This shows that there was positive association between commercial bank lending and capiatl requirement , supervsiory review and market discipline. The study found that all the sig value for all the variable, capital requirement , supervsiory review and market discipline were found to significantly influence commercial banks lending's.

4.6 Discussion of Findings and Interpretation

From the findings on the adjusted R squared the study revealed that there was a variation of commercial banks' lending dues to change in capital requirement, supervisory review and market discipline. The study further revealed that there was a strong positive relationship between commercial banks lending and Basel II requirement (Capital requirement, Supervisory Review and market discipline).

The established regression equation for period under review was

$$Y = 0.833 + 0.142X_1 + 0.643 X_2 + 0.232 X_3$$

From the above regression equation it was revealed that lending in commercial banks was positively influenced by increase in capital requirement, increase in supervisory review and increase in market discipline. The study found that all the sig value for all the variable, capital requirement , supervisory review and market discipline were found to significantly influence commercial banks lending's .

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the study findings, conclusion, and suggestions for further research.

5.2 Summary of study findings

The objective of this study was to determine the effect of Basel II requirement on Kenyan Commercial Bank's lending. The study adopted a descriptive study design. The population of the study was listed Commercial Bank's in Kenya where published financial statements from 2009- 2012 were analyzed. Data was analyzed using descriptive analysis and regression analysis.

The study found that commercial banks risk weighted assed had increased by 79% over the years indicating a similar growth in bank's assets. To meet the asset growth, core capital also increased by 88% with bank's undertaking rights issue between 2011 and 2012 in order to meet the new capital requirements with Basel II. Total loans and advances with a risk weight of 100% also increased by 77% from the year 2009 to 2012. The CAMEL rating also showed continuous growth in all the key ratios over the years as shown in figure 4.4.1.

From the findings on the adjusted R squared the study revealed that there was a variation of commercial banks' lending dues to change in capital requirement, supervisory review and market discipline. The study further revealed that there was a strong positive

relationship between commercial banks lending and Basel II requirement (Capital requirement, Supervisory Review and market discipline).

The established regression equation for period under review was

$Y = 0.833 + 0.142X_1 + 0.643 X_2 + 0.232 X_3$

From the above regression equation it was revealed that lending in commercial banks was positively influenced by increase in capital requirement, increase in supervisory review and increase in market discipline. The study found that all the sig value for all the variable, capital requirement , supervisory review and market discipline were found to significantly influence commercial banks lending's .

5.3 Conclusion and Recommendation

The study concludes that Basel II requirement has an impact on banks' capital requirement and asset growth with growth in core capital and risk weighted assets clearly seen over the years. The risk weighted assets growth declined from 26% between 2008 and 2009 to 15% between 2011 and 2012 indicating strained growth on banks assets with implementation of Basel II.

Commercial Banks aggressively took up rights issues between 2011 and 2012 as a result of the need to raise additional capital in order to meet the operational and market risk requirement in Basel II. Loans and advances to customers has grown by 77% between 2009 and 2012, however slower growth is marked within the years being 24% between 2010 and 2009 with only 13% growth seen between 2012 and 2011.

The study concludes that that Basel II requirement has a clear impact on banks' lending. None of the commercial banks so far is in breach of the minimum capital requirements of 8% as additional capital has being raised through rights issues.

5.4 Limitations of the Study

The study focused on Commercial Banks in Kenya. The study may therefore be limited by the sample selected for the study and interpretations should therefore be limited to Commercial Banks in Kenya and cannot be generalized to other countries as they have different operating environment from that of Kenya.

The study also heavily relied on the financial results of Commercial and therefore the results are skewed towards financial impact of the new capital requirements rather than also focus on the regulator's perspective on the implementation of the new guidelines.

5.4 Suggestions for Further Research

The study suggests that future studies be undertaken in the future as with the emergence of Basel II requirement, most commercial banks took up rights issues in order to raise their core capital, this will however not be sustainable in the future and commercial banks may be faces with lower assets growth leading to decline in lending or higher interest rates charged on loans in order to meet the Basel II requirement.

The study suggests that future studies be undertaken in the future with the emergence of Basel III between the year 2015 and 2017 with a change on the requirement being raising minimum capital from 8% to 10.5% leading to more strain on commercial banks.

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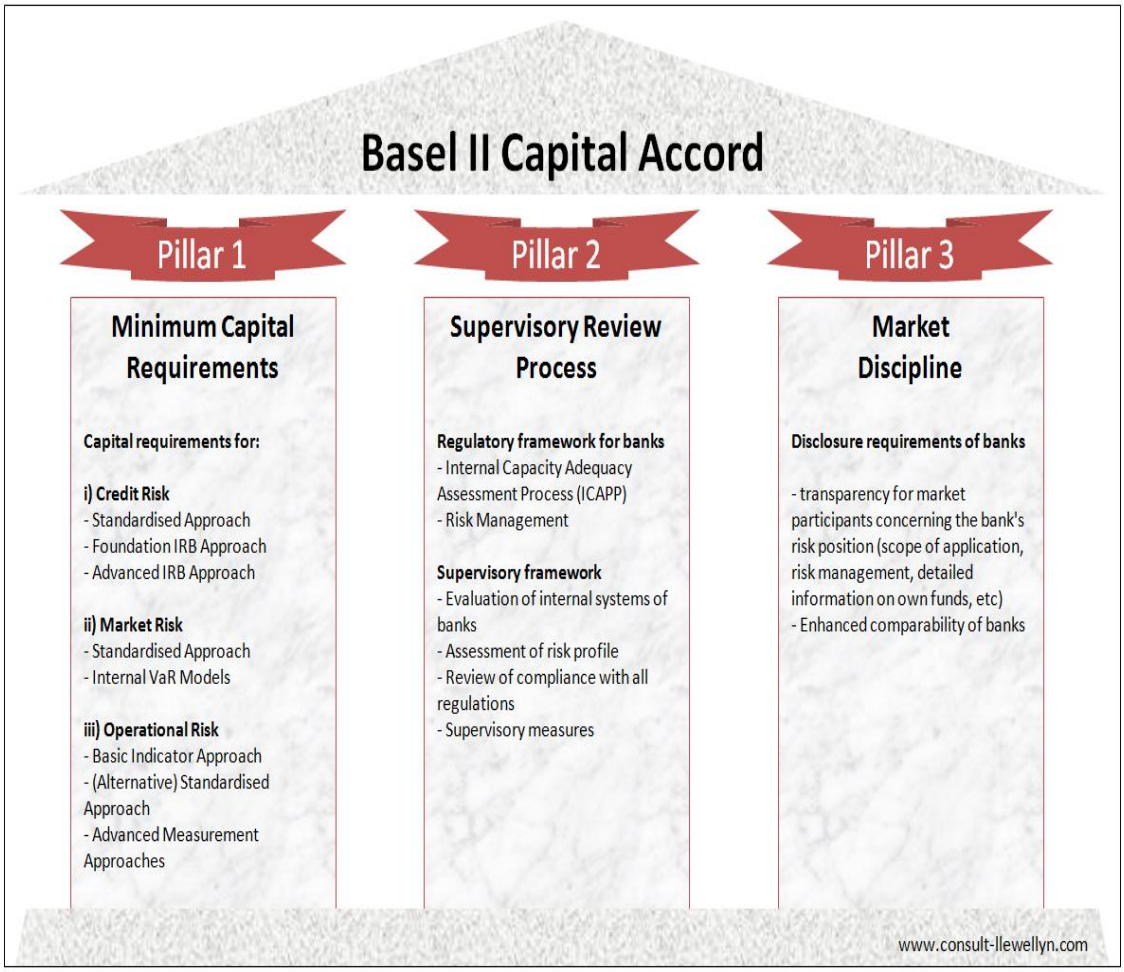
APPENDIX

Appendix 1: Three pillars of Basel II



Appendix 2: List of commercial banks in Kenya

	Commercial Banks in Kenya
1	African Banking Corporation Limited
2	Bank of Africa Kenya Limited
3	Bank of Baroda (K) Limited
4	Bank of India
5	Barclays Bank of Kenya Limited
6	CFC Stanbic Bank Limited
7	Charterhouse Bank Limited
8	Chase Bank (K) Limited
9	Citibank N.A Kenya
10	Commercial Bank of Africa Limited
11	Consolidated Bank of Kenya Limited
12	Co-operative Bank of Kenya Limited
13	Credit Bank Limited
14	Development Bank of Kenya Limited
15	Diamond Trust Bank (Kenya) Limited
16	Dubai Bank Kenya Limited
17	Ecobank Kenya Limited
18	Equatorial Commercial Bank Limited
19	Equity Bank Limited
20	Family Bank Limited
21	Fidelity Commercial Bank Limited
22	Fina Bank Limited
23	First Community Bank Limited
23	First Community Bank Limited
24	Giro Commercial Bank Limited
25	Guardian Bank Limited
26	Gulf African Bank Limited
27	Habib Bank A.G Zurich
28	Habib Bank Limited
29	Imperial Bank Limited
30	I & M Bank Limited
31	Jamii Bora Bank Limited
32	Kenya Commercial Bank Limited
33	K-Rep Bank Limited
34	Middle East Bank (K) Limited
35	National Bank of Kenya Limited
36	NIC Bank Limited
37	Oriental Commercial Bank Limited
38	Paramount Universal Bank Limited
39	Prime Bank Limited
40	Standard Chartered Bank Kenya Limited
41	Trans-National Bank Limited
42	UBA Kenya Bank Limited
43	Victoria Commercial Bank Limited

Source: Bank Supervision Report, 2012