Effect of Capital on the Financial Performance of Commercial Banks in Kenya

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ABSTRACT---- ***This study sought to examine the effect of capital on the financial performance of commercial banks in Kenya. The specific objectives of the study were to determine the effects of core capital, subordinate capital and risk weighted capital on the financial performance of commercial banks in Kenya. The study adopted a descriptive research design. The target population was the listed commercial banks in Kenya as licensed by the Central Bank of Kenya as of 2014. The study was based on secondary data retrieved from the banks' annual audited financial reports spanning 5 years between 2010 and 2014. The study was based on quantitative data. The study findings showed that the core capital to total risk weighted assets for the Tier I banks decreased from year 2010 to year 2014 while that of the Tier II banks decreased from year 2010 to year 2014. The findings also showed that the total capital to total risk weighted assets for the Tier I banks decreased from year 2010 to year 2014 while that of the Tier II banks decreased from year 2010 to year 2014. The findings further showed that both Tier I and Tier II banks maintained their core capital to total risk weighted assets ratios and their total capital to total risk weighted assets ratios at a significantly higher level than the set minimum requirement of 8% and 12%, respectively.***

Keywords--- Basel capital adequacy framework, Capital adequacy, Core capital, Subordinate capital, Risk weighted capital

1. INTRODUCTION

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 (Barrios & Blanco, 2003). 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 various stakeholders (Calice, 2010). 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, 2013). The 2008 financial crisis demonstrated that existing capital regulation, in its design or 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 (Moreno, 2011).

1.1 Capital Adequacy and Performance of Banks: A Global Perspective

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 (Demirguc-Kunt *et al*., 2013). 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 (CBK, 2014). According to Mathuva (2009), 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.

On financial stability, emerging evidence reveal that regulatory policy that restrict entry and banks' activities are negatively associated with bank stability (Schuermann, 2014). Beck *et al*. (2006) argue that banking systems with more restrictions on banks' activities and barriers to bank entry are more likely to suffer systemic banking distress, while capital regulations are not significantly associated with the likelihood of suffering a crisis. Moreover, in highly concentrated markets, financial institutions may believe they are "too-big-to-fail" and this may lead to riskier investments. Empirically, there are several recent studies which have supported this hypothesis. Laeven and Levine (2009) and Berger *et al*. (2009) both found an

inverse relationship between higher market concentration and financial stability suggesting that the risk of bank failures increase in more concentrated markets.

1.2 Bank Capital Regulation in Kenya

Banking is undoubtedly one of the most regulated industries in the world, and the rules on bank capital are one of the most prominent aspects of such regulation. This prominence results from the central role that banks play in financial intermediation, the importance of bank capital for bank soundness and the efforts of the international community to adopt common bank capital standards (Blundell-Wignall & Atkinson, 2010). The 1988 Basel Accord, on Bank Capital Standards, was a major milestone in the history of banking regulation, setting capital standards for most significant banks worldwide and has now been adopted by more than 100 countries (BCBS, 2010).

The 1988 Basel Accord primarily focused on credit risk and appropriate risk-weighting of assets. Assets of banks were classified and grouped in five categories according to credit risk, carrying risk weights of 0% (for example cash, bullion, home country debt like Treasuries), 20% (securitizations such as mortgage-backed securities (MBS) with the highest AAA rating), 50% (municipal revenue bonds, residential mortgages), 100% (for example, most corporate debt), and some assets given No rating. Banks with an international presence are required to hold capital equal to 8% of their risk-weighted assets (RWA) (BCBS, 2010).

Commercial Banks in Kenya are licensed and regulated pursuant to the provisions of the Banking Act and the Regulations and Prudential Guidelines issued there under. 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. This replaced the current Prudential Guidelines last revised in 2006 and the Risk Management Guidelines first issued in 2005 (Mathuva, 2009). 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 (Kenya Bank Supervision Report, 2010).

2. THEORETICAL FRAMEWORK

The study was based on three theories namely the capital buffer theory, static trade-off theory and pecking order theory, as presented in the subsequent subsections.

2.1 The Capital Buffer Theory

In capital buffer theory, banks aim at holding more capital than recommended. Regulations targeting the creation of adequate capital buffers are designed to reduce the procyclical nature of lending by promoting the creation of countercyclical buffers (Von Thadden, 2004). The capital buffer is the excess capital a bank holds above the minimum capital required (Jokipii & Milne, 2011). The capital buffer theory holds that banks with low capital buffers attempt to rebuild an appropriate capital buffer by raising capital and banks with high capital buffers attempt to maintain their capital buffer. More capital tends to absorb adverse shocks and thus reduces the likelihood of failure (Rime, 2001). Banks raise capital when the portfolio risk goes up in order to keep up their capital buffer as sighted by Laeven and Levine (2009) which appears to relate to capital adequacy and performance of the banks.

2.2 Static Trade-off Theory

The static trade-off theory affirms that firms have optimal capital structures, which they determine by trading off the costs against the benefits of the use of debt and equity. The theory predicts that firms target their financial structures in a way that if the actual leverage ratio deviates from the optimal one, the firm will adapt its financing behaviour in a way that brings the leverage ratio back to the optimal level (Luigi & Visinescu, 2009). According to this theory, debt has an advantage of tax shield (Rochet, 1992). However, debt cannot be indefinitely used as the source of financing as there is a trade-off between tax shield advantage on one hand and bankruptcy cost and financial distress on the other hand (Frank & Goyal, 2007). Debt financing has one major advantage over equity financing-the interest on debt is deducted before corporate tax is paid. But debt also increases financial risk (Myers, 1984).

2.3 Pecking Order Theory

Pecking order theory of capital structure states that firms have a preferred hierarchy for financing decisions. Firms will borrow instead of issuing equity when internal cash flow is not sufficient to fund capital expenditure. The highest preference is to use internal financing before resorting to any form of external funds. Internal funds incur no flotation costs and require

no additional disclosure of financial information that may lead to a possible loss of competitive advantage (Booth *et al*., 2001). If a firm must use external funds, the preference is to follow a certain order of financing sources: debt, convertible securities, preferred stock, and common stock (Myers, 1984). This order reflects the motivations of the financial manager to retain control of the firm, reduce the agency costs of equity, and avoid negative market reaction to an announcement of a new equity issue. The amount of debt will reflect the firms' cumulative need for external funds (Miles *et al*., 2011).

The theory has two key assumptions about financial managers. The first of these is the likelihood that a firm's managers know more about the company's current earnings and future growth opportunities than outside investors. There is a strong desire to keep such information proprietary. The use of internal funds prevents managers from having to make public disclosures about the company's investment opportunities and potential profits to be realized from investing in them. The second assumption is that managers will act in the best interests of the company's existing shareholders. The managers may even forgo a positive-NPV project if it would require the issue of new equity, since this would give much of the project's value to new shareholders at the expense of the old (Shyam-Sunder & Myers, 1999). However the theory has some limitations since it does not explain the influence of taxes, financial distress, security issuance costs, agency costs, or the set of investment opportunities available to a firm upon that firm's actual capital structure. It ignores the problems that can arise when a firm's managers accumulate so much financial slack that they become immune to market discipline (Myers, 1984).

2.4 Empirical review

2.4.1 Core Capital and Bank Performance

Tier 1 (core) capital in Basel I consists of the most liquid and reliable capital on a bank's balance sheet, namely equity capital and disclosed reserves (BCBS, 1988). Tier 1 capital includes (a) permanent shareholder's equity in the form of common stock, perpetual non-cumulative preferred stock and minority interests in equity accounts of consolidated subsidiaries; (b) disclosed reserves such as retained earnings, share premiums or other surplus and (c) qualifying innovative capital instruments up to a maximum of 15 percent of Tier 1 capital. Goodwill is deducted (Von Thadden, 2004).

In an investigation of how capital affected bank performance during financial crises, Berger and Bouwman (2013) found a direct association and considerable impact of capital on bank profitability. They noted that while operating at international level, banking regulators demand high level of capital to make sure that the banks are more capable to take extra risks associated with global trading. According to Gropp and Heider (2010) there is a straight connection between the core capital held and the earnings of the local banks. They asserted that more capitalized banks are more profitable because they have sufficient financial resources to invest in high return investments which generate higher returns for the banks (Gropp and Heider, 2010). Capital plays a vital role in the performance of a bank, as the banks that have higher capitals perform well as compared to undercapitalized ones. A direct association between capital levels and the bank profit was concluded in a study of European commercial banks by Goddard *et al*. (2004). A significant direct link between the core capital and profit of banks was also found by Lee and Hsieh (2013) and Lipunga (2014).

2.4.2 Subordinate Capital and Bank Performance

Subordinate (Tier 2) capital in Basel I consist of less reliable capital then that of Tier 1. Tier 2 capital includes (a) undisclosed reserves that have been accepted by the bank's supervisory authority; (b) general loan-loss reserves limited to 1.25 percent of risk weighted assets; (c) hybrid (debt, equity) capital instruments; (d) subordinated debt limited to 50 percent of Tier 1 capital and (e) asset revaluation reserves (BCBS, 2010).

Generally, banks are expected to absorb losses from their normal earnings. But there may be some unanticipated losses which cannot be absorbed by normal earnings. Capital comes in handy on such abnormal loss situations to cushion off the losses. In this way, capital plays an insurance function (Aspal & Nazneen, 2014). Adequate capital in banking is a confidence booster. It provides the customer, the public and the regulatory authority with confidence in the continued financial viability of the bank. Confidence to the depositor that his money is safe; to the public that the bank will be, or is, in a position to give genuine consideration to their credit and other banking needs in good as in bad times and to the regulatory authority that the bank is, or will remain, in continuous existence (Caggiano & Calice, 2011).

2.4.3 Risk Weighted Capital and Bank Performance

Olalekan and Adeyinka (2013) examined the effect of capital adequacy on profitability of deposit-taking banks in Nigeria. Primary data was collected through questionnaires involving a sample of 518 distributed to staff of banks with a response rate of 76%. Also published financial statement of banks were used from 2006 - 2010. The findings for the primary data analysis revealed a non-significant relationship but the secondary data analysis showed a positive and significant relationship between capital adequacy and profitability of bank. This implied that for deposit-taking banks in Nigeria, capital adequacy played a

key role in the determination of their profitability. It was also discovered that capitalization and profitability were indicators of bank risk management efficiency and cushioned against losses not covered by current earnings.

Onaolapo and Olufemi (2012) examined the effects of capital adequacy conditionality on the performance of selected banks within the Nigerian banking sector. The study employed mainly secondary data obtained from the publications of regulatory agencies like the Central Bank of Nigeria in a ten year period 1999-2008. Ordinary Least Square (OLS) estimation obtained from an SPSS 17.0 package was adapted to analyze relationship between the variables while the Augmented Dickey Fuller (ADF) was used to test the stationary of the time series data employed. The findings indicated that all the performance indicators tested such as Returns on Assets, Returns on Capital Employed and Efficiency Ratios among others did not reflect much on Capital Adequacy Ratio (CAR) of the Nigerian banking sector.

Goddard *et al*. (2004) investigated profitability of European banks using cross sectional data during 1990s. The results showed that the relationship between the capital to asset ratio and profitability was positive. Athanasoglou *et al*. (2013) examined the effect of bank specific, industry specific and macroeconomic determinants of bank profitability in Greece. The coefficient of capital variable was positive and highly significant reflecting the sound financial condition of Greek banks. Kosmidou *et al*. (2005) investigated the impact of banks' characteristics, macroeconomic conditions and financial market structure on banks' net interest margin and return on average assets (ROAA) in the UK commercial banking industry over the period 1995-2002. The results showed that capital strength is one of the main determinants of UK banks performance providing support to the argument that well capitalized banks face lower cost of going bankrupt, which reduces their cost of funding or that they have lower needs for external funding which results in higher profitability. However, Ngo (2006) investigated the relationship between bank capital adequacy and profitability and the results showed no significant relationship between capital and profitability.

3. STUDY POPULATION AND MODEL OF ANALYSIS

Target population in statistics is the specific population about which information is desired. According to Ngechu (2004), a population is a well-defined set of people, subjects, elements, events, group of things or households that are being investigated. This definition ensures that population of interest is homogeneous. The target population of this study was the 11 listed commercial banks in Kenya as provided for by the CBK and NSE databases.

The sampling design of this study was based on Kothari's (2004) hypothesis which postulates that a sample of 100% of the target population is used when the target population is small. Therefore, the sample size for the study was all the 11 listed commercial banks in Kenya. Census technique was used to select all the 11 listed commercial banks in Kenya. Cooper and Schindler (2003) indicate that census technique frequently minimizes the sampling error in the population. This in turn increases the precision of any estimation methods used.

The study adopted descriptive research design. This was because descriptive research design is appropriate where the study seeks to describe the characteristics of certain groups, estimate the proportion of people who have certain characteristics and make predictions (Cooper and Schindler, 2011). The design was also suitable since it helps to describe the state of affairs as it exists without manipulation of variables (Kothari, 2004).

For the purpose of this study, the researcher used secondary data. The secondary data was obtained from the published annual audited financial reports spanning five years (2010-2014) for the commercial banks in Kenya. The study adopted panel data model in data collection and analysis.

Data collected was edited, coded and classified into different components to facilitate a better and efficient analysis. For the purpose of this study, capital adequacy was analyzed using its various components namely; core capital, subordinate capital and risk weighted capital. For the purpose of the analysis, the listed commercial banks were categorized into Tier I and Tier II banks. In analysing the quantitative data, the study used descriptive statistics using Statistical Package for Social Sciences (SPSS version 20.0). Pearson's Correlation Coefficient analysis was used to test the strength of the relationship between the dependent and independent variables. Multiple regression analysis was used to test the effect of the capital variables on the financial performance of the commercial banks in Kenya.

The study used a regression model to examine the relationship between capital and financial performance of commercial banks in Kenya. The regression model specification was as follows;

$$ROA_{it} = \beta_0 + \beta_1 CC_{it} + \beta_2 SC_{it} + \beta_3 RWC_{it} + \mu_{it}$$

Where;

ROA = Return on Assets

CC = Core capital

SC = Subordinate capital

RWC = Risk weighted capital

i = the 11 listed commercial banks in Kenya from the 1st to the 10th

t = time period in years, starting from year 1,2,…year 5 [that is, 2010-2014]

μ = error term of the model

β_1- β_3 = regression model coefficients

4. RESEARCH FINDINGS AND DISCUSSIONS

The main objective of the study was to investigate the effect of capital on the financial performance of commercial banks in Kenya between 2010 and 2014. Data was collected from the published annual reports of the 11 listed commercial banks in Kenya over the five year period (2010-2014) based on the study variables.

4.1 Financial Performance (ROA) of the Commercial Banks

4.1.1 Financial Performance (ROA) of Tier I banks

The study sought to establish the financial performance of the Tier I banks in Kenya over the 5 year period between 2010 and 2014. Tier I banks in Kenya include Equity Bank, Barclays Bank, Kenya Commercial Bank, Standard Chartered Bank and Co-operative Bank. The findings were as follows;

Table 4.1 Return on assets values for Tier I banks

	ROA values (%)					
	2010	**2011**	**2012**	**2013**	**2014**	**Mean**
Equity Bank	5.6	5.5	5.1	5.3	6.4	5.58
Barclays Bank	6.1	4.9	4.7	3.7	3.7	4.62
Kenya Commercial Bank	3.9	3.5	3.6	3.8	4.2	3.80
Standard Chartered Bank	3.8	3.6	4.1	4.2	4.7	4.08
Co-operative Bank	2.8	3.1	3.8	3.9	3.0	3.32

Regarding the financial performance of the Tier I banks, on the aggregate, the lowest value for ROA for the Tier I banks was a mean of 4.12% in year 2011 while the highest value was a mean of 4.44% in year 2010. This indicates that the financial performance of the Tier I banks fluctuated over the 5 year period (as shown by ROA mean values of 4.44% in 2010; 4.12% in 2011; 4.26% in 2012; 4.18% in 2013 and 4.40% in 2014). However, this indicates that there was a general increase in the financial performance of the Tier I banks, more so between 2011 and 2014 (Mean=4.12% in 2011 to mean=4.40% in 2014). This agreed with Kombo (2014) who reported that between 2003 and 2012, the large banks in Kenya classified as Tier I banks reported increased financial performance. This is as shown in Table 4.2.

Table 4.2 Financial performance (ROA) of Tier I banks

	Tier I banks		
Year	**N**	**Mean (%)**	**Std. Dev.**
2010	5	4.44	1.3686
2011	5	4.12	1.0257
2012	5	4.26	0.6269
2013	5	4.18	0.6535
2014	5	4.40	1.2826

4.1.2 Financial Performance (ROA) of Tier II Banks

The study sought to establish the financial performance of the Tier II banks in Kenya over the 5 year period between 2010 and 2014. Tier II banks in Kenya include I&M Bank, NIC Bank, National Bank of Kenya, Diamond Trust Bank, CfC Stanbic Bank and Housing Finance (HF) Group. The findings were as follows;

Table 4.3 Return on assets values for Tier II banks

	ROA values (%)					
	2010	**2011**	**2012**	**2013**	**2014**	**Mean**
I&M Bank	3.4	2.9	2.3	3.8	3.6	3.20
NIC Bank	3.2	3.4	2.9	3.0	2.9	3.08
National Bank of Kenya	3.4	2.3	1.1	1.2	0.7	1.74
Diamond Trust Bank	3.5	2.9	3.2	3.6	2.9	3.22
CfC Stanbic Bank	1.3	1.2	2.1	2.8	3.1	2.10
HF Group	1.3	2.1	1.7	1.7	1.4	1.64

Regarding the financial performance of the Tier II banks, on the aggregate, the lowest value for ROA for the Tier II banks was a mean of 2.22% in year 2012 while the highest value was a mean of 2.68% in year 2010 and in year 2013. This indicates that the financial performance of the Tier II banks fluctuated over the 5 year period (as shown by ROA mean values of 2.68% in 2010; 2.47% in 2011; 2.22% in 2012; 2.68% in 2013 and 2.43% in 2014). This also agreed with Kombo (2014) who reported that between 2003 and 2012, Tier banks in Kenya posted mixed financial performance results. This is as depicted in Table 4.4.

Table 4.4 Financial performance (ROA) of Tier II banks

	Tier II banks		
Year	**N**	**Mean (%)**	**Std. Dev.**
2010	6	2.68	1.0760
2011	6	2.47	0.7763
2012	6	2.22	0.7705
2013	6	2.68	1.0362
2014	6	2.43	1.1239

A comparison of the financial performance levels of the Tier I and Tier II banks indicates that the performance of the Tier I banks was higher than the performance of the Tier II banks over the 5 year period as indicated by their ROA mean values (in Table 4.3 and Table 4.4, respectively). This is consistent with CBK (2014) which observed that 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. This also concurred with Caggiano and Calice (2011) who asserted that irrespective of the viewpoint, a general consensus is that banks with higher capital and liquidity buffers are better able to support businesses and households in bad times since buffers enhance the capacity of banks to absorb losses and uphold lending during a downturn.

4.2. Core Capital to Total Risk Weighted Assets of the Commercial Banks

4.2.1 Core Capital to Total Risk Weighted Assets of Tier I Banks

The study sought to establish the core capital to total risk weighted assets of Tier I banks in Kenya over the 5 year period between 2010 and 2014. The findings were as follows;

Table 4.5 Core capital to risk weighted assets values for Tier I banks

	Core capital to risk weighted assets values (%)					
	2010	**2011**	**2012**	**2013**	**2014**	**Mean**
Equity Bank	22	15	20	18.6	14.8	18.08
Barclays Bank	26.6	24.1	22.7	15.2	15.7	20.86
Kenya Commercial Bank	23.1	19.9	18.8	18.7	17.1	19.52
Standard Chartered Bank	14	12	16	17	16	15.00
Co-operative Bank	16.2	16.0	20.3	15.7	14.6	16.56

4.2.2 Core Capital to Total Risk Weighted Assets of Tier II Banks

The study sought to establish the core capital to total risk weighted assets of Tier II banks in Kenya over the 5 year period between 2010 and 2014. The findings were as follows;

Table 4.6 Core capital to risk weighted assets values for Tier II banks

	Core capital to risk weighted assets values (%)					
	2010	**2011**	**2012**	**2013**	**2014**	**Mean**
I&M Bank	18.9	18.1	17.0	15.1	15.8	16.98
NIC Bank	14.6	15.0	15.6	14.8	14.4	14.88
National Bank of Kenya	36	28.2	27.3	17.1	12.9	24.30
Diamond Trust Bank	14	12	16	17	16	15.00
CfC Stanbic Bank	10.4	12.6	15.2	17.7	17.5	14.68
HF Group	24.4	21.4	19.1	13.1	11.1	17.82

On aggregate, the lowest value for core capital to total risk weighted assets for the Tier I banks was a mean of 15.64% in year 2014 while the highest value was a mean of 20.38% in year 2010. This represented a negative change in the core capital to total risk weighted assets mean values of 4.74% over the 5 year period. The steady decline in core capital to total risk weighted assets mean values over the 5 year period indicates that on average the Tier I banks reduced their core capital holding over the 5 year period. However, it is clear from the findings that the Tier I banks maintained their core capital to total risk weighted assets ratios at significantly higher level than the set minimum requirement of 8%, implying a sound capital base. This is as shown in Table 4.6.

Similarly, on aggregate, the lowest value for core capital to total risk weighted assets for the Tier II banks was a mean of 14.75% in year 2014 while the highest value was a mean of 19.93% in year 2010. This represented a negative change in the core capital to total risk weighted assets mean values of 5.18% over the 5 year period. The steady decline in core capital to total risk weighted assets mean values over the 5 year period indicates that on average the Tier II banks reduced their core capital holding over the 5 year period. However, it is also clear from the findings that the Tier II banks maintained their core capital to total risk weighted assets ratios at significantly higher level than the set minimum requirement of 8%, implying that they too had a sound capital base. This is as shown in Table 4.7

This indicates that Tier I banks maintained relatively higher core capital to total risk weighted assets ratios than the Tier II banks over the 5 year period. This therefore showed that core capital to total risk weighted assets ratios of the commercial banks positively related to their financial performance. The standard deviation values indicate variation in the core capital to risk weighted assets ratios among the various commercial banks. This agreed with Osterberg and Thomson (1996) who explored the determinants of leverage in US banking holding companies (BHCs) in the period 1987-8 and found that the capital ratio and earnings are positively correlated, and this relationship is more positive for banks which are close to the regulatory minimum. This was also in agreement with Albertazzi and Gambacorta (2009) who described a positive relationship between bank profitability and core capital ratio. They noted that the higher the capital ratio the more will be the bank profitability. Similarly, Gropp and Heider (2010) asserted that more capitalized banks are more profitable because they have sufficient financial resources to invest in high return investments which generate higher returns for the banks.

Table 4.7 Core capital to total risk weighted assets of Tier I and Tier II banks

	Tier I Banks			Tier II Banks		
	Core capital to total risk weighted assets ratio			Core capital to total risk weighted assets ratio		
Year	**N**	**Mean (%)**	**Std. Dev.**	**N**	**Mean (%)**	**Std. Dev.**
2010	5	20.38	5.1693	6	19.93	9.1646
2011	5	17.40	4.6910	6	18.25	5.7937
2012	5	19.56	2.4419	6	18.65	4.4689
2013	5	17.04	1.6103	6	15.82	1.7759
2014	5	15.64	1.0065	6	14.75	2.4387

Source: Individual firms' websites (2015)

4.3 Subordinate Capital to Total Risk Weighted Assets of the Commercial Banks

4.3.1 Subordinate Capital to Total Risk Weighted Assets of Tier I Banks

The study sought to establish the subordinate capital to total risk weighted assets of Tier I banks in Kenya over the 5 year period between 2010 and 2014. The results were as follows;

Table 4.8 Subordinate capital to risk weighted assets values for Tier I banks

	Subordinate capital to risk weighted assets values (%)					
	2010	**2011**	**2012**	**2013**	**2014**	**Mean**
Equity Bank	6	7	10	5	2.5	6.10
Barclays Bank	4.6	3.7	3.1	0.7	0.3	2.48
Kenya Commercial Bank	0.1	0.8	3.9	3.8	3.9	2.50
Standard Chartered Bank	0	2	2	4	4	2.40
Co-operative Bank	0.3	0.4	3.5	5.4	7	3.32

4.3.2 Subordinate Capital to Total Risk Weighted Assets of Tier II Banks

The study sought to find out the subordinate capital to total risk weighted assets of Tier II banks in Kenya over the 5 year period between 2010 and 2014. The results were as follows;

Table 4.9 Subordinate capital to risk weighted assets values for Tier II banks

	Subordinate capital to risk weighted assets values (%)					
	2010	**2011**	**2012**	**2013**	**2014**	**Mean**
I&M Bank	1	0.6	0.3	3.9	3.1	1.78
NIC Bank	0.9	0.9	0.8	0.8	6.5	1.98
National Bank of Kenya	1	1.3	1.1	1	1	1.08
Diamond Trust Bank	3.1	2.6	2.1	3.4	2.1	2.66
CfC Stanbic Bank	5.8	6.4	1.2	2.8	3.6	3.96
HF Group	24.4	21.4	19.1	13.1	11.1	17.82

4.4 Risk weighted Capital to Total Risk Weighted Assets of the Commercial Banks

4.4.1 Risk Weighted Capital to Total Risk Weighted Assets of Tier I Banks

The study sought to find out the risk weighted capital to total risk weighted assets values of Tier I banks in Kenya over the 5 year period between 2010 and 2014. The results were as follows;

Table 4.10 Risk weighted capital to risk weighted assets values for Tier I banks

	Risk weighted capital to risk weighted assets values (%)					
	2010	**2011**	**2012**	**2013**	**2014**	**Mean**
Equity Bank	28	22	30	23.6	17.3	24.18
Barclays Bank	31.2	27.8	25.8	15.9	16.0	23.34
Kenya Commercial Bank	23.2	20.7	22.7	22.5	21.0	22.02
Standard Chartered Bank	14	14	18	21	20	17.40
Co-operative Bank	16.5	16.4	23.8	21.1	21.6	19.88

4.4.2 Risk Weighted Capital to Total Risk Weighted Assets of Tier II Banks

The study also sought to establish the risk weighted capital to total risk weighted assets values of Tier II banks in Kenya over the 5 year period between 2010 and 2014. The findings were as illustrated in the table below;

Table 4.12 Risk weighted capital to risk weighted assets values for Tier II banks

	Risk weighted capital to risk weighted assets values (%)					
	2010	**2011**	**2012**	**2013**	**2014**	**Mean**
I&M Bank	19.9	18.7	17.3	19.0	18.9	18.76
NIC Bank	15.5	15.9	16.4	15.6	20.9	16.86
National Bank of Kenya	37	29.5	28.4	18.1	13.9	25.38
Diamond Trust Bank	18.4	16.8	19.8	20.5	18.9	18.88
CfC Stanbic Bank	10.4	12.6	15.2	17.7	17.5	14.68
HF Group	24.4	21.4	19.1	13.1	11.1	17.82

With respect to risk weighted capital to risk weighted asset ratio, on the aggregate, the lowest value for risk weighted capital to total risk weighted assets for the Tier I banks was a mean of 19.18% in year 2014 while the highest value was a mean of 24.06% in year 2012. This represents a decline in the risk weighted capital to total risk weighted assets mean values of 2.4% between 2010 and 2011, followed by an increase of 3.88% between 2011 and 2012 and lastly a decline of 4.88% between 2012 and 2014. Thus, in general, there was a decline in the risk weighted capital to total risk weighted assets ratios of the Tier I banks over the period under study. This showed that on average the Tier I banks reduced their risk weighted capital holding over the 5 year period. However, it is clear from the findings that the Tier I banks maintained their risk weighted capital to total risk weighted assets ratios at a significantly higher level than the set minimum requirement of 12%, implying a sound capital base. This is illustrated in Table 4.12.

Similarly, with respect to risk weighted capital to risk weighted asset ratio, on the aggregate, the lowest value for risk weighted capital to total risk weighted assets for the Tier II banks was a mean of 18.13% in year 2014 while the highest value was a mean of 25.95% in year 2010. This represented a negative change in the risk weighted capital to total risk weighted assets mean values of 7.82% over the 5 year period. The steady decline in risk weighted capital to total risk weighted assets mean values over the 5 year period indicates that on average the Tier II banks reduced their risk weighted capital holding over the 5 year period. However, it is also clear from the findings that the Tier II banks maintained their risk weighted capital to total risk weighted assets ratios at a significantly higher level than the set minimum requirement of 12%, implying that they too had a sound capital base. This is illustrated in Table 4.12.

Table 4.12 Risk weighted capital to total risk weighted assets of Tier I and II banks

	Tier I Banks			Tier II Banks		
	Risk weighted capital to total risk weighted assets ratio			Risk weighted capital to total risk weighted assets ratio		
Year	**N**	**Mean (%)**	**Std. Dev.**	**N**	**Mean (%)**	**Std. Dev.**
2010	5	22.58	7.3254	6	25.95	13.6933
2011	5	20.18	5.3415	6	22.32	7.5338
2012	5	24.06	4.3861	6	21.30	6.0650
2013	5	20.82	2.9525	6	19.12	2.0390
2014	5	19.18	2.4232	6	18.13	2.9918

4.5 Correlation Analysis

To ascertain the nature of relationship between the study's independent variables and the dependent variable, the researcher conducted correlation analysis using the means of the study variables data over the 5 year study period.

Results of the Pearson's correlation coefficient (as illustrated in Table 4.15) depicts that there is a weak positive relationship between core capital to total risk weighted assets ratio and listed commercial banks' financial performance ($r=0.348$, p-value <0.05). Therefore, it can be implied that an increase in core to total risk weighted assets ratio is associated with increased commercial banks' financial performance. There is also a weak positive relationship between subordinate capital to total risk weighted assets ratio and listed commercial banks' financial performance ($r=0.319$, p-value <0.05). Therefore, it can be implied that an increase in subordinate to total risk weighted assets ratio is associated with increased commercial banks' financial performance. Further, there is a significant positive relationship between risk weighted capital to total risk weighted assets ratio and listed commercial banks' financial performance ($r=0.505$, p-value <0.05), implying that an increase in risk weighted capital is associated with increased commercial banks' financial performance. This agreed with Demirgüç-Kunt and Huizinga (1999) who carried out a study on the determinants of commercial bank interest margins and profitability among banks of 80 developed and developing nations. They concluded that the general result identified a positive association between the core capital ratio and bank profitability. On their part, Pasiouras and Kosmidou (2007) argued that banks with higher equity to asset ratio will normally have lower needs of external funding and therefore higher profitability.

Table 4.13 Correlation Matrix

	Return on assets	Core capital to total risk weighted assets	Subordinate capital to total risk weighted assets	Risk weighted capital to total risk weighted assets
Return on assets (r)	1.000			
(p) Sig. (2 tailed)				
Core capital to total risk weighted assets (r)	0.348	1.000		
(p) (2 tailed)	0.036			
Subordinate capital to total risk weighted assets (r)	0.319	0.162		
(p) (2 tailed)	0.021	0.248	1.000	
Risk weighted capital to total risk weighted assets (r)	0.505	0.024	0.093	1.000
(p) Sig. (2 tailed)	0.019	0.326	0.107	

Pearson's product moment correlation analysis was used to assess the relationship between the study variables.

4.6 Regression analysis

4.6.1 Test of the Model and Data

Before running the regression model, the researcher performed a test of the model and data using normality tests. Use of inferential parametric statistical procedures requires that the assumptions of such tests of normality are tested. This is to assist the graphical tests to be performed about the normality of the data to check for skewness and kurtosis coefficients. This test helps to confirm whether the data follows a normal distribution or not. If the normality is not achieved, the results may not depict the true picture relationship amongst the variables. In this study, normality was tested using Kolmogorov-Smirnov Test and the Shapiro-Wilk Test. The Shapiro-Wilk Test is more appropriate for small sample sizes (< 50 samples), but can also handle sample sizes as large as 2000. For this reason, this study used the Shapiro-Wilk test as our numerical means of assessing normality. If the Sig. value of the Shapiro-Wilk Test is greater than 0.05, (P-value test statistic) the data is normal. If it is below 0.05, the data significantly deviate from a normal distribution.

Table 4.14 Shapiro-Wilk Test of Normality

Variables	**Kolmogorov-Smirnov[a]**			**Shapiro-Wilk**		
	Statistic	**df**	**Sig.**	**Statistic**	**Df**	**Sig.**
CC	.262	10	.182	.801	10	.357
SC	.314	10	.182	.713	10	.357
RWC	.285	10	.182	.720	10	.357
Return on assets	.276	10	.182	.737	10	.357

a. Lilliefors Significance Correction

Source: Field data (2016)

4.6.2 Regression Analysis Results

To determine the relationship between the study's independent variables and the dependent variable, the study used the following panel data regression model;

$ROA_{it} = \beta_0 + \beta_1 CC_{it} + \beta_2 SC_{it} + \beta_3 RWC_{it} + \mu_{it}$

Table 4.15 Regression Analysis Results

Dependent Variable: ROA				
Method: Least Squares				
Sample: 2010-2014				
Included observations: 11				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Core capital	0.474	.279	1.70	.032
Subordinate capital	0.296	.221	1.34	.041
Risk weighted capital	0.612	.313	1.96	.027
C	5.913	2.406	2.46	.000
R-squared	0.7248	Mean dependent variable		9.18
Adjusted R-squared	0.7066	S.D. dependent variable		2.103
S.E. of regression	1.5602	Akaike info criterion		3.049
Sum squared resid	14.7154	Schwartz criterion		3.621
Log likelihood	-14.0281	Hannan-Quinn criterion		3.482
F-statistic	5.3410	Durbin-Watson statistic		1.433
Prob (F-statistic)	0.0164			

The analysis of the panel data regression model as above resulted to the following equation;

$ROA (Y) = 5.913 + 0.474CC + 0.296SC + 0.612RWC + \varepsilon$

According to the equation above [that is, $ROA (Y) = 5.913 + 0.474CC + 0.296SC + 0.612RWC + \varepsilon$], taking all factors (that is, core capital, subordinate capital and risk weighted capital) constant at zero, financial performance of the commercial banks would be 5.913. A unit increase in core capital would lead to a 0.474 increase in the banks' financial performance; a unit increase in subordinate capital would lead to a 0.296 increase in the banks' financial performance while a unit increase in risk weighted capital would lead to a 0.612 increase in the banks' financial performance. This means that there exists a positive relationship between capital and the commercial banks' financial performance.

4.6.3 Core capital and financial performance

Table 4.15 showed that there is a positive relationship between core capital and listed commercial banks' financial performance (β=0.474 and P value < 0.05). this is possibly because adequate capital levels enable banks to be in a position to absorb losses with their own resources, without becoming insolvent or necessitating a bailout. Adequate capital levels also enhance a bank's ability to undertake its banking business and, in particular, lending activities. This indicated that a unit increase in core capital would lead to an increase in the financial performance of the listed commercial banks by 0.474 units. This agreed with Olalekan and Adeyinka (2013) who examined the effect of capital adequacy on profitability of deposit-taking banks in Nigeria and found a positive and significant relationship between capital adequacy and profitability of bank.

4.6.4 Subordinate capital and financial performance

Table 4.15 also showed that there is a positive relationship between subordinate capital and listed commercial banks' financial performance (β=0.296 and P value < 0.05). This is so because banks with higher capital and liquidity buffers are better able to support businesses and households in bad times since buffers enhance the capacity of banks to absorb losses and uphold lending during a downturn. This showed that a unit increase in subordinate capital would lead to an increase in

the financial performance of the listed commercial banks by 0.296 units. This agreed with Ngo (2006) who examined the relationship between endogenous capital and profitability in banking and found it to be positive.

4.6.5 Risk weighted capital and financial performance

Table 4.15 further showed that there is a significant positive relationship between risk weighted capital and listed commercial banks' financial performance (β=0.612 and P value < 0.05). This is so because it is the capital that enables the bank to collect more deposits and lend more, thus be in a position to earn higher revenues and hence make higher profits. Therefore, a unit increase in risk weighted capital would lead to an increase in the financial performance of the listed commercial banks by 0.612 units. This concurred with Goddard *et al*. (2004) who investigated profitability of European banks using cross sectional data during 1990s. Their study results showed that the relationship between the capital to asset ratio and profitability was positive.

5. CONCLUSION

Given the higher mean values of core capital to total risk weighted assets ratio for the Tier I banks compared to those of Tier II banks over the 5 year period and the corresponding better financial performance of the Tier I banks compared to that of Tier II banks (as shown by the ROA mean values) over the same period, the study concludes that the level of core capital positively relates to the financial performance of the commercial banks in the country.

6. RECOMMENDATIONS

The study recommends that for optimal bank performance, the commercial banks should be allowed to set their own benchmarks of capital adequacy ratios beyond the minimum capital requirement specified by the CBK depending on their desired safety levels and as long as it is in line with their risks exposures. The study also recommends that a study should be conducted to investigate the effect of the recent law on bank interest caps on the Kenyan commercial banks lending activities.

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