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## Capital Adequacy and Financial Performance of Deposit Taking Saving and Credit Cooperative Societies in Kenya

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### **Abstract:**

*The study sought to evaluate the relationship between capital adequacy and financial performance of deposit taking saving and credit cooperative societies in Kenya. A sample of 103 DTSs was randomly drawn and data derived from their financial statements for the year ended 31<sup>st</sup> December 2014. The study used three proxy ratios to measure financial performance; return on assets (ROA), return on equity (ROE) and net interest margin (NIM). Capital adequacy was measured using two ratios; core capital to total assets and core capital to total deposits. The results revealed that there exists positive significant relationship between financial performance and capital adequacy ratios. This indicates as the amount of capital held increases, financial performance is enhanced. It is therefore recommended that the regulator continues to enforce capital adequacy regulations. This will not only improve their stability but also enhance their financial performance.*

**Keywords:** Capital adequacy, deposit taking SACCOs, financial performance

### **1. Introduction**

Over the last decade, regulators of financial institutions have tightened the capital requirement particularly following the 2007-2009 financial crises. This is because capital has long been recognized as one of the key factors to be considered when the safety and soundness of a particular financial institution is being assessed (Osei-Assibey & Asenso, 2015). Gudmundsson, Ngoka-kisinguh and Odongo (2013) posit that the main reason for the hastened build-up of capital is the perception that stronger banks are likely to withstand financial turbulences and therefore increase banking sector stability. Abdalla and Obeidat (2013) agree that capital plays a very important role in maintaining safety and solidarity of banks as it represents the buffer gate that prevents any unexpected loss that banks might face which might reach depositors funds. This is because banks operate in a highly uncertain environment leading to exposure to various risks.

Though capital adequacy framework under the BASEL Accord is primarily meant for commercial banks, there is a concerted effort to emulate the same in other financial institutions. This includes Micro Finance Institutions (MFIs), Insurance Companies and Saving & Credit Co-operative Societies (SACCOs) (also referred to as Credit Unions). SACCOs particularly have continued to play a significant role in financial intermediation and have gradually grown to become effective competitor to the commercial banks. Fried, Lovell and Love (1993) argued that SACCOs differ from commercial banks in two key respects. First, the objective of SACCOs is primarily collating savings to offer credit to owners; while for commercial banks the overriding objective is maximizing shareholder returns. Secondly, for SACCOs, the owners are the customers, while for commercial banks the customers are predominantly non-owners.

Kenya is an interesting case study for the Africa continent given that Kenya has the largest and the most vibrant SACCO sector in Africa commanding 67% and 62% of the total assets and deposits/savings respectively (Sacco Societies Regulatory Authority (SASRA), 2011). Of importance is the Deposit Taking Saccos (DTS) Accounts which account for 78% and 77% of the total assets and deposits respectively of the entire Sacco subsector in Kenya (SASRA, 2013).

Due to the significant role of the DTS in the financial intermediation it became necessary to institute regulations to enhance stability and soundness of the sector. The advent of prudential regulations was marked by the enactment of the Sacco Society Act, 2008. The ACT effectively put in place the Sacco Society Regulatory Authority (SASRA) which is charged with the role of regulating, licensing and supervising deposit taking Sacco Societies in Kenya. In executing its mandate, SASRA has enforced capital requirement where DTSs are required to have a core capital of not less than; Kshs. 10 million and 10% of total assets, institutional capital of not less than 8% of total capital, and core capital of not less than 8% of total deposits. Evidently the capital adequacy requirement is still basic as envisaged by Tier I capital requirement of the Basel accord.

While it is widely accepted that capital adequacy is instrumental in enhancing the stability of financial institutions, empirical evidence on its effect on financial performance especially for SACCOs (credit unions) is scanty. This study therefore sought to evaluate the relationship between capital adequacy and financial performance of deposit taking saving and credit cooperative societies in Kenya. Consequently, the following hypothesis was tested.

- $H_0$ : There exists no statistically significant relationship between capital adequacy and financial performance of deposit taking saving and credit cooperative societies in Kenya.

The paper is organized as follows; the next section presents a literature review. Section 3 discusses the methodology. The empirical analysis and results are presented in section 4. Section 5 concludes the study and provides policy recommendations.

## 2. Literature Review

Capital adequacy requirement is well theoretically grounded; The buffer theory of Calem and Rob (1999) predicts that a bank approaching the regulatory minimum capital ratio may have an incentive to boost capital and reduce risk in order to avoid the regulatory costs triggered by a breach of the capital requirements. However, poorly capitalized banks may also be tempted to take more risk in the hope that higher expected returns will help them to increase their capital (Ochei, 2013). This effectively opines that the relationship between capital adequacy and profitability can either be positive or negative depending on the risk taking behavior of the institution.

The Modigliani and Miller theory of capital structure in presence of taxes predicts that; stricter capital requirements will mean banks are less able to exploit any favorable tax treatment of debt. This would raise banks' costs as compared to what they would have incurred had they held their desired debt to equity ratio. Thus the higher the level of regulatory equity that is required to be held the larger the increase in costs is likely to be (Barrell et al., 2009; Miles & Marcheggiano, 2011). This would imply that the weighted average cost of capital is likely to be high resulting to the firms rejecting many investment opportunities thereby reducing their future returns.

Theoretically and empirically there is convergence of opinions that capital adequacy is essential in enhancing stability of financial institutions. However there exists scanty and contradicting empirical evidence on its effects financial performance of such institutions. Different scholars have used different measures of financial performance of financial institutions. This includes Return on Assets (ROA), Return on Equity (ROE) and Net Interest Margin (NIM). ROA measures profitability from the perspective of the overall efficiency of how a bank utilizes its total assets whereas ROE captures profitability from the shareholders' perspective (San & Heng, 2013). NIM is defined as a ratio of the difference between interest income (interest on lending) and interest expenditure (interest on deposits) to total earning assets (Osei-Assibey & Asenso, 2015).

Earlier studies on capital adequacy as a determinant of profitability of banks revealed that a high capital adequacy ratio (CAR) should signify a bank that is operating over-cautiously and ignoring potentially profitable trading opportunities (Goddard, Molyneux, & Wilson, 2004) which implies a negative relationship between equity to asset ratio and bank performance. At the same time, banks with higher equity to asset ratio will normally have lower needs of external funding and therefore higher profitability (Pasiouras & Kosmidou, 2007). This depicts a possibility of both positive and negative relationship.

Barnor and Odonkor (2012) used a panel data of 21 commercial banks in Ghana over the periods 2000-2010 to study the relationship between capital adequacy and performance. The results indicated a negative and insignificant relationship between capital adequacy ratio (CAR) and ROA but observed a negative but significant relationship between capital adequacy ratio (CAR) and ROE. Similarly, Mathuva (2016) in a study of deposit taking SACCOS in Kenya over the period 2008-2013 found a negative and significant relationship between capital to asset ratio (CA) and both ROA and ROE. The negative relationship implies that, as more capital is set aside as a buffer for banks safety; it negatively affects the financial performance. In other words, financial institutions may reduce investment opportunities so as to hold the minimum capital requirement.

Muthuva (2009) in a study of commercial banks in Kenya for the period 1998 to 2007 used return on assets and return on equity as proxies for bank profitability. The study revealed that profitability is positively related to the core capital ratio and tier 1 risk based capital ratio. Olalekan and Adeyinka (2013) while studying deposit taking banks in Nigeria for the period 2006 - 2010 found similar results; a positive and significant relationship between CAR and profitability of banks. Additionally, San and Heng, (2013) in a study of Malaysian commercial banks found similar result.

On net interest margin (NIM); it is expected that a high minimum capital requirement results to high cost of equity funds which will lead to high lending rates. Accompanied by a reduction in interest paid on member's deposits this results to an increase in NIM depicting a positive relationship between CAR and NIM. Moreover, Kopecky and Vanhooose (2006) hypothesize that the imposition of binding capital requirements on a previously unregulated banking system unambiguously increases the market loan rate and reduces aggregate lending.

Osei-Assibey and Asenso (2015) using specific commercial bank-level panel data from 2002-2012 in Ghana found a positive relationship between a net minimum capital ratio and the net interest margin. This suggested that a high net minimum capital requirement could widen the spread between the lending rate and the saving rates. It is argued that regulatory capital requirements elicit interest rate and credit adjustments and result in changes in risk-taking tendencies by banks to stay competitive.

The reviewed literature shows that there exists empirical evidence that a relationship between capital adequacy and financial performance exists. However, the nature of the relationship is inconclusive with some studies depicting a direct and others an inverse relationship. Additionally, many studies have so far concentrated on commercial banks. Despite the advent of prudential regulations on SACCOs (credit unions) with emphasis on capital adequacy, there exists no empirical evidence of its effects on financial performance. The study sought to fill the gap by evaluating the relationship between asset quality and intermediation efficiency of deposit taking SACCOs in Kenya.

**3. Methodology**

The study used data derived from financial statement of 103 DTSs for the year ended 31<sup>st</sup> December 2014. The choice of the year was informed by the end of four years (ending December 2013) transition period within which all deposit taking SACCOs were required to fully comply with the prudential regulations issued by the regulator; Sacco Society Regulatory Authority (SASRA). The data was extracted from SASRA database.

The study uses the following regression Models

$$ROA = \beta_0 + \beta_1CAQ + \beta_2ASQ + \beta_3MEFF + \beta_4LIQ + \epsilon_1 \dots \dots \dots 1$$

$$ROE = \beta_0 + \beta_1CAQ + \beta_2ASQ + \beta_3MEFF + \beta_4LIQ + \epsilon_1 \dots \dots \dots 2$$

$$NIM = \beta_0 + \beta_1CAQ + \beta_2ASQ + \beta_3MEFF + \beta_4LIQ + \epsilon_1 \dots \dots \dots 3$$

**3.1. Control Factors**

To adequately evaluate the effects of Capital Adequacy on financial performance the study will control for the other variables likely to influence financial performance. These are particularly factors within the direct control of managers and can be best explained by the CAMEL framework. The regulator uses the CAMEL model in evaluating the financial performance of financial institutions (Ogilo, 2012; Olweny & Shiphoh, 2011; Ongore & Kusa, 2013). These variables include Capital Adequacy, Asset Quality, Management Efficiency, Earnings Ability and Liquidity. Earning ability is however excluded since it is the dependent variable

| Category                     | Measure               | Proxy | Definition                                |
|------------------------------|-----------------------|-------|---|
| <b>Dependent Variable</b>    |                       |       |   |
| Financial Performance        | Return on Assets      | ROA   | $\frac{NetSurplusBeforeTax}{TotalAssets}$ |
|                              | Return on Equity      | ROE   | $\frac{NetSurplusBeforeTax}{TotalEquity}$ |
|                              | Net Interest Margin   | NIM   | $\frac{NetInterest}{TotalEarningAssets}$  |
| <b>Independent Variables</b> |                       |       |   |
|                              | Capital Adequacy      | CAQ   | $\frac{CoreCapital}{TotalAssets}$         |
|                              |                       |       | $\frac{CoreCapital}{TotalDeposits}$       |
|                              | Asset Quality         | ASQ   | $\frac{NonPerformingLoans}{GrossLoans}$   |
|                              | Management Efficiency | CIR   | $\frac{Cost}{TotalIncome}$                |
|                              | Liquidity             | LIQ   | $\frac{Loans}{TotalAssets}$               |

Table 1

**4. Results and Discussion**

**4.1. Descriptive Statistics**

Table 2 shows the descriptive statistics of the study variable. Financial performance as measured by return on assets (ROA) had an average 0.024 with a standard deviation of 0.022. This mirrors the results published by the regulator where all 181 licensed DTS reported an average ROA of 0.025. Return on equity (ROE) gave an average of 0.174 while the regulator reported an average of 0.188 over the study period. The minimum values of ROA and ROE indicated that some DTSs reported losses in the year under study. Lower level of ROA indicates some inefficiency in utilization of the assets held.

Capital adequacy as measured by core capital to total deposit had an average of 0.258 whereas core capital to total assets had an average of 0.158. However, the former depict a higher variability than the latter. This explains that DTSs differ significantly in terms of deposits held compared to the total assets. The average of assets quality as measured by the ratio of nonperforming loans to total loan was 0.039. This indicates that the assets held by SACCOs are relatively better.

Managerial efficiency as measured by cost income ratio 0.191. This contrasts findings by Muthuva, (2009), who found the cost income ratio of commercial banks averaging 0.6766. This shows that the SACCO management is significantly efficiency in terms managing costs. Liquidity as mean measured by loans to deposit ratio was 1.085. This was lower compared to what was reported by the regulator for all DTSs (1.1095) indicating that the DTSs in the sample were more liquid.

|                               | N   | Minimum | Maximum | Mean  | Std. Deviation |
|-------------------------------|-----|---------|---------|-------|----------------|
| ROA                           | 103 | -0.076  | 0.097   | 0.024 | 0.022          |
| ROE                           | 103 | -0.472  | 0.600   | 0.174 | 0.154          |
| NIM                           | 103 | 0.041   | 0.935   | 0.478 | 0.167          |
| Core Capital to Total Deposit | 103 | 0.019   | 0.984   | 0.258 | 0.190          |
| Core Capital to Total Assets  | 103 | 0.015   | 0.401   | 0.158 | 0.081          |
| NPLs to Gross Loans           | 103 | 0.001   | 0.504   | 0.039 | 0.068          |
| Cost to Income                | 103 | 0.030   | 0.757   | 0.191 | 0.108          |
| Total Loans to Total Deposits | 103 | 0.242   | 1.757   | 1.085 | 0.257          |

Table 2: Descriptive Statistics of the study variables

#### 4.2. Correlation Analysis

Table 3 present the Karl Pearson's correlation coefficients for the variables under study. It indicates that there exist positive significant correlation between ROA and ROE and both measures of capital adequacy; core capital to total assets and core capital to total deposits. This depicts existence of a direct relationship implying that; as capital is enhanced in DTSSs, their financial performance improves. A significant negative correlation is reported between ROA and ROE and assets quality. This indicates that as the ratio of nonperforming loans to gross loans reduces (assets quality improves), performance of DTSSs is enhanced.

The managerial efficiency as measures by cost income ratio had a significant negative correlation with both ROA and ROE. This manifests inverse relationships to the effect that a reduction in cost income ratio (improvement in managerial efficiency) is accompanied by improvement in financial performance. It is noted that net interest margin (NIM) did not exhibit any significant correlation with the variables under study.

|                              | ROA | ROE    | NIM   | Core Capital to Total Deposit | Core Capital to Total Assets | NPLs to Gross Loans | Cost to Income | Total Loans to Total Deposit |
|------------------------------|-----|--------|-------|-------------------------------|------------------------------|---------------------|----------------|------------------------------|
| ROA                          | 1   | .727** | .242* | .093*                         | .244*                        | -.150               | -.489**        | .130                         |
| ROE                          |     | 1      | .169  | .299**                        | .320**                       | -.211*              | -.547**        | .147                         |
| NIM                          |     |        | 1     | -.076                         | .039                         | .018                | .179           | -.035                        |
| Core Capital to Total Dep.   |     |        |       | 1                             | .733**                       | .052                | .153           | .012                         |
| Core Capital to Total Assets |     |        |       |                               | 1                            | .029                | .316**         | -.016                        |
| NPLs to Gross Loans          |     |        |       |                               |                              | 1                   | .169           | -.074                        |
| Cost to income               |     |        |       |                               |                              |                     | 1              | -.160                        |
| Total Loans to Total Dep.    |     |        |       |                               |                              |                     |                | 1                            |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Table 3: Product moment correlation coefficient

#### 4.3. Regression Analysis

The study used three proxy ratios to measure profitability of SACCOs; return on assets (ROA), return on equity (ROE) and net interest margin (NIM). Capital adequacy was measured using two ratios; core capital to total assets and core capital to total deposits. The regression results are presented in table 4. The results indicate that financial performance as measured by return on assets (ROA) has a positive significant relationship with capital adequacy ratios. The same results (positive significant) are revealed when financial performance is measured using return on equity (ROE). These results are consistent with earlier studies (Muthuva, 2009; Olalekan & Adeyinka, 2013; Ongore & Kusa, 2013; San & Heng, 2013). It however contrasts finding in other studies (Barnor & Odonkor, 2012; Mathuva, 2016; Ochei, 2013).

The results support the argument that; well capitalized financial institutions face lower costs of external financing, which reduces their costs and enhances profits. It reinforces the regulators push for highly capitalized financial institutions. According to Athanasoglou, Brissimis and Delis (2008), a bank with a sound capital position is able to pursue business opportunities more effectively and has more time and flexibility to deal with problems arising from unexpected losses, thus achieving increased profitability. Additionally, strong capital positions increases the confidence of depositors to continuously deposit money into the institution (San & Heng, 2013).

The results revealed that financial performance as measured by net interest margin had no significant relationship with capital adequacy ratios. It provides no evidence that imposition on capital adequacy requirement would have an effect on the net interest margin as hypothesized by Kopecky and Vanhoose (2006). This could be explained by the fact that interest margins in SACCOs (credit unions) are relatively stable due to pressure by members as pointed out by Esho, Kofman and Sharpe (2005).

It can also be noted that asset quality as measured by the ratio of nonperforming loans to gross loans has a negative relationship though not significant. Additionally no significant relationship was found between liquidity (as measures by ration of total loans to

total deposits) and financial performance. The study revealed a negative significant relation between costs to income ratio and both ROA and ROE which was consistent with findings by Mathuva (2016). Its relationship with NIM was insignificant.

|                          | Model 1(a)      | Model 1(b)     | Model 2(a)      | Model 2(b)      | Model 3(a)     | Model 3(b)     |
|--------------------------|-----------------|----------------|-----------------|-----------------|----------------|----------------|
| Dependent Variable       | ROA             | ROA            | ROE             | ROE             | NIM            | NIM            |
| Constant                 | 0.026(0.009)**  | 0.034(0.010)** | 0.320(0.068)**  | 0.319(0.066)**  | 0.436(0.089)** | 0.447(0.088)** |
| Core Capital to Assets   | 0.120(0.022)**  |                | 0.323(0.165)**  |                 | -0.040(0.216)  |                |
| Core Capital to Deposits |                 | 0.020(0.010)*  |                 | 0.179(0.066)**  |                | -0.093(0.088)  |
| NPLs to Gross Loans      | -0.018(0.025)   | -0.023(0.018)  | -0.280(0.189)   | -0.257(0.186)   | -0.033(0.248)  | -0.025(0.246)  |
| Cost to Income           | -0.125(0.017)** | -0.101(0.18)** | -0.662(0.127)** | -0.692(0.119)** | 0.288(0.166)   | -0.303(0.158)  |
| Total Loans to Deposits  | 0.003(0.007)    | 0.004(0.008)   | 0.039(0.053)    | 0.40(0.052)     | -0.005(0.069)  | 0.02(0.068)    |
| R Square                 | 0.420           | 0.255          | 0.343           | 0.364           | 0.054          | 0.043          |
| Adjusted R Square        | 0.397           | 0.225          | 0.316           | 0.338           | 0.016          | 0.004          |
| F value                  | 17.766          | 8.384          | 12.775          | 14.029          | 1.408          | 1.108          |
| Prob. (F-statistic)      | 0.000           | 0.000          | 0.000           | 0.000           | 0.237          | 0.357          |

Table 4: Regression Results

## 5. Conclusion

The objective of the study was to evaluate the relationship between capital adequacy and financial performance of deposit taking saving and credit cooperative societies in Kenya. The study used three proxy ratios to measure financial performance of SACCOs; return on assets (ROA), return on equity (ROE) and net interest margin (NIM). Capital adequacy was measured using two ratios; core capital to total assets and core capital to total deposits. The study revealed that ROA and ROE are the most important measures of financial performance for SACCOs as opposed to NIM. The results revealed that there exists positive significant relationship with between financial performance and capital adequacy ratios.

This corroborates the efforts by the regulator to enforce minimum capital to be held by DTSs in Kenya. This supports the argument that well capitalized financial institutions face lower costs of external financing, which reduces their costs and enhances profits. It is therefore recommended that the regulator continues to enforce capital adequacy regulations and continually review them with time. This will not only improve their stability but also enhance their financial performance.

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