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## THE MODERATING EFFECT OF SENSITIVITY TO MARKET RISK ON INTERNAL DETERMINANTS OF FINANCIAL PERFORMANCE OF SAVINGS AND CREDIT SOCIETIES IN KENYA

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# THE MODERATING EFFECT OF SENSITIVITY TO MARKET RISK ON INTERNAL FACTORS AFFECTING FINANCIAL PERFORMANCE OF SAVINGS AND CREDIT SOCIETIES IN KENYA

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## Abstract

**Purpose:** The purpose of this study was to establish the moderating effect of sensitivity to market risk on internal factors affecting financial performance of savings and credit societies in Kenya.

**Methodology:** The study employed an explanatory research design. The target population was 83 registered deposit taking SACCO's in Kenya that have been in operation for the last five years. The sample size for the study was all 83 SACCOs that have remained in existence since 2011-2015. Census methodology was used in the study. Both primary and secondary sources of data were employed. Multiple linear regression models were used to analyze the data using statistical package for the social sciences (SPSS) and STATA. Descriptive and inferential analysis was conducted to analyze the data. The data was presented using tables and graphs.

**Results:** The moderation results indicated that the interaction effect of sensitivity to market risk on the relationship between the independent variables (except management efficiency) and dependent variable was significant. Since the calculated p value of the interaction was  $0.000 < 0.05$ , and thus sensitivity to market risk has a statistical significant moderating effect on internal determinants of financial performance of savings and credit societies in Kenya.

**Unique contribution to theory, practice and policy:** The study recommended that SACCOs should monitor the variations in market risks, especially interest rates and inflation rates. These macroeconomic factors tend fluctuate often and, hence it's important for the organizations to observe them.

**Keywords:** *sensitivity, market risk, financial performance, savings and credit societies*

## INTRODUCTION

### Background of the Study

Globally the cooperative origin is dated back to 1852 when Herman Frank consolidated two pilot projects in Germany into credit unions. In 1864, Raiffeisen founded the first rural credit union in rural Germany to cater for the needs of the rural poor. The rural communities were considered very small, with seasonal flows of cash and limited human resources hence not bankable (WOCCU, 2008). Since then, there has been a rapid growth in the cooperative movement worldwide based on the organizational methods of Raiffeisen. The first ever SACCO was established in 1844 by Robert Owen (John, 2002). SACCOs belong to a group of cooperatives that are commonly called Raiffeisen cooperatives due to the German originator of this movement in the 1800's (Tache, 2006).

In Africa growth of SACCOs was experienced to the extent that in 1965, Africa Federation of Cooperative Societies Savings and Credit Association (ACCOSSCA) was formed with the principle objective of offering SACCO insurance, education to members and promoting SACCO principles (Ng'ombe & Mikwamba, 2004). There are 28 countries in the continent of Africa with established SACCOs with membership of 16 million which is 8% of the whole world membership, with savings of 62% and loans of 65% being 3<sup>rd</sup> after Asia and North America which has 36 million and 102 million respectively. Africa mobilized 0.4% of the worldwide savings of US\$ 1.1 trillion and 0.4% of international loans given to members standing at US\$ 912 billion (WOCCU, 2009).

SACCO activities contribute 43% of the Gross Domestic Product (GDP). The total assets, total deposits and gross loans of the deposit taking SACCO societies grew by 13.7%, 15.3% and 13.0% to reach Kshs 342.8 billion, Kshs 258.1 billion and Kshs 237.4 billion respectively, hence underscoring the continued role of SACCOs in the mobilization of savings and the provision of credit to Kenyans (SASRA, 2015). However, net loans at the end of 2015 stood at Kshs 251 billion and constituted 73.2% of the total asset base of the SACCOs. SACCOs as co-operatives traditionally rely on their ability to mobilize savings from the members (SASRA, 2015).

In Kenya, co-operative movement was firmly under the reigns of the government as a motivation it was given donor support for capitalization and personnel development. Private traders are not allowed to compete with co-operatives, this era come to an end as more countries adopted reform under the Structural Adjusted Programs (SAP's) aimed at enhancing growth through free market economic model. Under session paper number 6 of 1997 there was the development of commercially autonomous member based cooperative organization which were democratically and professionally managed, self-controlled and self-reliant businesses, 50% of the population derive their livelihood from cooperative that is approximately 250,000 Kenyans are employed or gain most of the income from cooperative (ILO, 2009).

### Problem Statement

The SACCO's subsector remains a significant player in the provision of financial services to the Kenya household and small business segment. Its membership as per 2013 increased to 3.3million from 2.97 million in 2012. SACCO's plays a vital role of pooling resources for investment and wealth creation (Kinyua, 2013). They spur economic growth through the mobilization of domestic savings. According to SASRA report (2010), SACCO activities contribute 43% of the gross domestic product (GDP).

The significance of SACCO's to the Kenyan economy is further evidenced by inclusion in the Vision 2030 economic blue print (Kioko, 2014). Given their significance in the financial sector and poverty alleviation, it is important to investigate the moderating effect of sensitivity to market risk on determinants of performance in order to provide accurate and consistent assessment of savings and credit financial conditions and operations in the area of performance. Zerfeshewa (2010) investigated the determinants of SACCO performance in Ethiopia; Sonja (2010) analyzed SACCO's in Uganda to determine effect of automation on the growth of SACCO's. Based on these studies and the varying gaps in literature, there is need to conduct similar studies in Africa and more so in Kenya. Therefore, the study attempted to establish the moderating effect of sensitivity to market risk on internal factors affecting financial performance of savings and credit societies in Kenya.

### **Research Objective**

To establish the moderating effect of sensitivity to market risk on internal factors affecting financial performance of savings and credit societies in Kenya

## **LITERATURE REVIEW**

### **Theoretical Framework**

#### **Economic Efficiency Theory**

Economic efficiency theory states that companies should achieve their output at the lowest possible cost per unit produced. According to this theory, economies of scale should be exploited to achieve optimal production. The theory focuses on two kinds of efficiency; allocative and productive efficiency, allocative efficiency is achieved by ensuring that all firms in the industry charge optimal prices. In the banking sector, this will result in a reduction of lending rates.

The economic efficiency theory is relevant to this study as it guides in savings mobilization, which will enable SACCOs to create credit out of excess deposits (credit creation) hence SACCO will earn interest. Allocative efficiency in the determination of lending rates among SACCOs will ensure unhealthy competition does not ensue between them. High competition in banking is associated with instability (De Nicoló, Jalal & Boyd, 2006). Productive efficiency is achieved when SACCOs employ all their resources efficiently, producing the most output from the least input (Said, 2011). Productive efficiency guides both the lending and investment decisions of financial institutions. It would involve investing in low risk assets such as government bonds.

### **Empirical Review**

Sensitivity to market risk is the degree to which changes in interest rates, foreign exchange rates, commodity prices, or equity prices can adversely affect capital. Boyd & Smith (2000) conducted a study on the effect of inflation on the performance of commercial banks. The study found that significant negative relationship existed between inflation and the performance of the banking sector. According to the study, a rise in inflation reduces lending activities and equity development. This is because an increase in inflation diminishes the real return on and assets in general. In time of hyperinflation, lenders are gravely at a disadvantage.



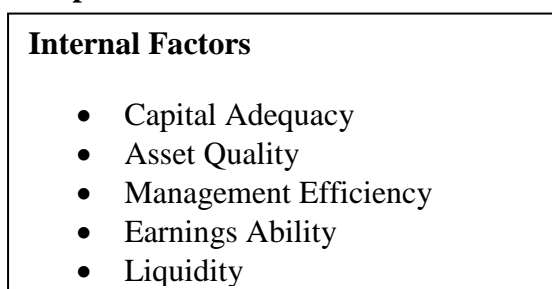
Milanova (2010) examined sensitivity to market risk management in banks. The study focused on interest rate risk management using the Value at Risk (VAR) model. The study found that market interest rates, currency exchange rates, prices of shares and exchange tradable commodities have an adverse impact on bank incomes and capital position. The study recommended rigorous risk management to mitigate against the risk.

Tomuleasa (2014) studied the determinants of European bank performance. The study focused on bank specific factors and macroeconomic variables. The study mentioned that inflation effect on profitability is tethered to the capacity of bank's management to forecast inflation. The study established mixed findings that banks were able to correctly anticipate inflation and had the opportunity to adjust their interest rates accordingly and consequently to earned higher profits. The performance of those that could not predict inflation was adversely affected.

In this study sensitivity to market risk is expected to moderate determinants of financial performance of SACCOs in Kenya. Sensitivity to market risk stands for financial system it covers an assessment of exposure to market risk. The rating system is designed to take into account and reflect all significant financial and operational factors examiners assessed in their evaluation of an institutions performance. Institutions are rated using a combination of specific financial ratios and examiner qualitative judgments and the possibility of an investor to experience losses due to factors that affect the overall financial market (Brockett, Cooper, Golden, Rousseau & Wang, 1997). The market risks rising rate of environment exposure posed by increases in interest rates and inflation rate to unprepared financial institutions like SACCOs are very vast. A rising rate of market risk exposes institutions like SACCOs with liability-sensitive positions to declines in net interest income. Effect of sensitivity to market risk on determinants of performance was tested following adopted model is similar to that used by many of the studies done in the area of moderating effect Muiruri, Memba & Njeru (2015) and Ongore & Kusa (2013).

### Conceptual Framework

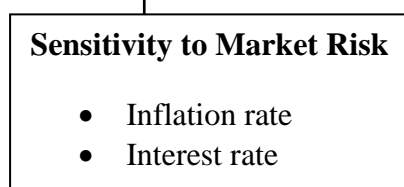
#### Independent variable



#### Dependent variable



#### Moderating Variable



**Figure 1: Conceptual Framework**

## RESEARCH METHODOLOGY

The study employed an explanatory research design. The target population was all the 83 registered deposits taking SACCO's licensed by SASRA as at 31<sup>st</sup> December 2011 to 2015 and has been in operation for the last five years. Therefore, the study used the inclusion criteria to select a total of 83 SACCO's registered by SASRA as at 31<sup>st</sup> December 2011. The sampling frame for the study consisted of all licensed deposit taking SACCO's in operation in Kenya as at 31<sup>st</sup> December, 2011 and still in operation as at 31<sup>st</sup> December 2015 as they appear in the SASRA database. Census methodology was used in the study in order to enable researcher gather sufficient information. The study also used purposive sampling procedure to identify the sample units. The sample size for the study was all 83 SACCO's that have remained in existence since 2011-2015. The questionnaire in this study was divided into three parts. The data collected was keyed into Statistical Package for Social Sciences (SPSS) computer software for analysis. SPSS and STATA software was used to produce frequencies, descriptive and inferential statistics which was used to derive a conclusions and generalizations regarding the population.

## RESULTS AND DISCUSSIONS

### Response Rate

The number of questionnaires that were administered was 83. A total of 71 questionnaires were properly filled and returned. This represented an overall successful response rate of 86% as shown on Table 1. This agrees with Babbie (2004) who asserted that return rates of 50% are acceptable to analyze and publish, 60% is good and 70% is very good. Based on this assertion 86% response rate is adequate for the study.

**Table 1: Response Rate**

<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
Returned	71	86
Unreturned	12	14
<b>Total</b>	<b>83</b>	<b>100</b>

### Demographic Characteristics

This section analyzes the demographic characteristics of the respondents. This section presents the descriptions of the respondents in terms of type of shareholders and period of existence.

#### Type of Shareholder

The respondents were asked to indicate their shareholders. Results in table 2 reveal that 47% of the respondents indicated business men and women, 42% of the respondents indicated the general public while 11% of the respondents indicated government employees. This implies that majority of the SACCOs members and customers are business people and the general public. This implies that most business people rely on SACCOs for finances. This is likely to have a positive influence on Sacco's financial performance.

**Table 2: Type of Shareholder**

<b>Response</b>	<b>Frequency</b>	<b>Percent</b>	
Government employees		8	11.3
General public		30	42.3
Business Men and Women		33	46.5
<b>Total</b>		<b>71</b>	<b>100</b>

The respondents were asked to indicate the number of years their organizations have been in existence. Results in table 3 reveal that majority (68%) of the respondents indicated more than 20 years, 16% indicated 5-10 years, 10% indicated 16-20 years while 7% of the respondents indicated 11-15 years. This implies that majority of the SACCOs have been in the market long enough to gain the prerequisite experience and relevance. This implies that the SACCO's have the potential to be competitive and thus performance well.

**Table 3: Period of Existence**

<b>Response</b>	<b>Frequency</b>	<b>Percent</b>	
5-10 years		11	15.5
11-15 years		5	7
16-20 years		7	9.9
More than 20 years		48	67.6
<b>Total</b>		<b>71</b>	<b>100</b>

### **Descriptive Statistics**

The objective of the study was to establish the moderating effect of sensitivity to market risk on internal determinants of financial performance of savings and credit societies in Kenya. The respondents were asked to respond to statements on sensitivity to market risks. The responses were rated on a five likert scale as presented in Table 4. Majority of 89% (47.90%+40.80%) of the respondents agreed with the statement that our Sacco involves stakeholders in formulating the sensitivity to interest rate policies, 94% agreed with the statement that our Sacco involves the director in formulating the sensitivity to interest rate policies, 87% agreed with the statement that our Sacco involves the regulator in formulating the sensitivity to interest rate policies, 92% agreed with the statement that our Sacco involves stakeholders in formulating the sensitivity to inflation rate policies, 82% agreed with the statement that our Sacco involves the director in formulating the sensitivity to inflation rate policies while 83% of the respondents agreed that our Sacco involves the regulator in formulating the sensitivity to inflation rate policies.

On a five point scale, the average mean of the responses was 4.00 which means that majority of the respondents were agreeing with most of the statements; however the answers were varied as shown by a standard deviation of 0.78.

**Table 4: Sensitivity to Market Risks Descriptive Statistics**

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Std. Dev
Our Sacco involves stakeholders in formulating the sensitivity to interest rate policies	0.00%	1.40%	9.90%	47.90%	40.80%	4.28	0.70
Our Sacco involves the director in formulating the sensitivity to interest rate policies	0.00%	0.00%	5.60%	80.30%	14.10%	4.08	0.44
Our Sacco involves the regulator in formulating the sensitivity to interest rate policies	0.00%	0.00%	12.70%	70.40%	16.90%	4.04	0.55
Our Sacco involves stakeholders in formulating the sensitivity to inflation rate policies	0.00%	1.40%	2.80%	60.60%	31.00%	4.08	1.04
Our Sacco involves the director in formulating the sensitivity to inflation rate policies	0.00%	5.60%	8.50%	73.20%	8.50%	3.72	1.00
Our Sacco involves the regulator in formulating the sensitivity to inflation rate policies	0.00%	0.00%	12.70%	71.80%	11.30%	3.82	0.95
<b>Average</b>						<b>4.00</b>	<b>0.78</b>

### Inferential Statistics

Results in table 5 showed that sensitivity to market risk has a significant moderating effect on all the internal determinants of financial performance of SACCO's in Kenya except management efficiency. This can be explained by the p value of 0.000 which is less than the critical p value of 0.05.

**Table 4.55: Moderating Effect of Sensitivity to Market Risk**

ROA	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
Interaction term2	0.048052	0.0031205	15.4	0.000	0.041936 0.054168
Interaction term 3	-0.94566	0.0565096	-16.73	0.000	-1.05642 -0.83491
Interaction term 4	-1.70E-06	8.86E-06	-0.19	0.848	-1.9E-05 1.57E-05
Interaction term 5	1.139661	0.0727288	15.67	0.000	0.997115 1.282207
Interaction term 6	-0.00083	0.0001009	-8.23	0.000	-0.00103 -0.00063
cons	0.044987	0.0404453	1.11	0.266	-0.03428 0.124258
R <sup>2</sup>	0.9406				
F-statistics	4394.19				
P value	<b>0.000</b>				



$$Y = \beta_0 + \beta_1 X_1 M + \beta_2 X_2 M + \beta_3 X_3 M + \beta_4 X_4 M + \beta_5 X_5 M + \epsilon$$

SACCO Financial Performance =  $0.044987 + 0.048052(\text{Capital Adequacy} * \text{Sensitivity to Market Risk}) - 0.94566(\text{Asset Quality} * \text{Sensitivity to Market Risk}) - 1.70E-06(\text{Management Efficiency} * \text{Sensitivity to Market Risk}) + 1.139661(\text{Earnings Ability} * \text{Sensitivity to Market Risk}) - 0.00083(\text{Liquidity} * \text{Sensitivity to Market Risk})$

## DISCUSSION CONCLUSIONS AND RECOMMENDATIONS

### Discussion

The objective of the study was to establish the moderating effect of sensitivity to market risk on internal determinants of financial performance of savings and credit societies in Kenya. The results indicated that the firms involve stakeholders, directors and regulator in formulation of both the sensitivity to interest rate and inflation rate policies.

The moderation results indicated that the interaction effect of sensitivity to market risk on the relationship between the independent variables (except management efficiency) and dependent variable was significant. Since the calculated p value of the interaction was  $0.000 < 0.05$ , the null hypothesis was rejected and thus sensitivity to market risk has a statistical significant moderating effect on determinants of financial performance of savings and credit societies in Kenya.

### Conclusions

Based on the findings, the study concluded that sensitivity to market risk moderates the interaction between capital adequacy, asset quality, earnings ability, liquidity and financial performance of savings and credit societies in Kenya.

### 5.3 Recommendations

The study recommended that SACCOs should monitor the variations in market risks, especially interest rates and inflation rates. These macroeconomic factors tend fluctuate often and, hence it's important for the organizations to observe them.

### 5.4 Areas for Further Studies

The study recommends that a similar study should be conducted in other financial sectors such as banking sector for comparison purposes.

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