

## **Effects of Financial Innovations on Financial Performance of Savings and Credit Co-operative Societies in Kenya: A case of Kakamega Teachers Co-operative Society Limited**

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**ABSTRACT:** *This paper aims at determining the effects of new organizational processes on financial performance of SACCOs in Kenya. The study was guided by transaction cost innovation theory. The study adopted a descriptive research design in determining the relationship of variables and employed primary data. The population of study was the 53 members of staff of Kakamega Teachers Savings and Credit Co-operative Society Limited. A sample of 44 members of staff was selected for study and the results were generalized. Data was collected by the use of a closed ended questionnaire. The quantitative data was coded on Statistical Package for Social Sciences (SPSS) Version 17 software and data analyzed by use of descriptive and inferential statistics. The findings of the study revealed that process innovations were positively correlated to financial performance.*

**Key words:** *Financial innovation, process innovation, Transaction Cost Innovation Theory.*

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### **I. INTRODUCTION**

A co-operative society is an association of persons united voluntarily to meet their common economic cultural needs and aspirations through a jointly owned and democratically controlled enterprise. The key idea behind a co-operative society is to pool the scarce resources, eliminate the middlemen and to achieve a common goal or interest. Co-operatives are based on seven principles: voluntary and open membership, democratic member control, member economic participation, autonomy and independence, education, training and information, cooperation among co-operatives and concern for the community (Hans, 2006). Through Sessional Paper No. 6 of 1997, on “Co-operatives in a Liberalized Economic Environment”, the Government reviewed its involvement in the management of cooperatives. The Sessional Paper provided a framework under which co-operatives were to survive in a competitive economic environment. The Cooperative societies Act no.12, 1997 was amended in 2004 to instill some discipline in the sector.

Kakamega Teachers Savings and Credit Co-operative Society Ltd (KATECO) was established in 1977 with a paltry 200 members but currently boasts of over 16000 members. The society draws its core membership from teachers in primary and post primary learning institutions in Kakamega and Vihiga Counties. KATECO is among the few SACCOs with FOSA granted license by SASRA to provide banking services in Kenya. The society offers ATM services to members in collaboration with Cooperative bank (SASRA Database, 2013).

#### **1.1 Statement of the problem**

Traditionally, Savings and Credit Cooperatives (SACCOs) are non profit making financial organizations of individuals with a common affiliation. SACCOs, just like commercial banks, accept deposits from members, pay interest (dividends) on deposits out of earnings, and provide credit to members (SASRA Database, 2013). However, Cooperative Societies need to keep up with changing member or customer demands and regulatory requirements (SASRA Database, 2013). Under the Sacco regulatory frame, deposits taking Saccos are required to observe minimum liquidity standards at all times. However there is no mechanism for addressing short-term liquidity borrowing needs in a cost effective and sustainable manner. Additionally, despite the recognition of SACCOs as participants in the national financial system by various government policy

documents, the role of SACCOs in the national payment system has been very limited. Also there is a challenge arising from the current regulations that limits the investments by deposit taking Saccos in land and buildings to 5% of the total assets (SASRA Database, 2013).

Generally, challenges faced by Saccos are caused by economic and macro economic factors like deficiency in contemporary skills, stiff competition from competitors, economic liberalization and regulation of business. The threat to survival of the SACCO sub sector has called for innovative ways of managing and running the sector to ensure sustainability. For example, SACCOs have reacted to the threat posed by commercial banks by opening Front Office Service Activities (FOSAs), for provision of a wide range of products and services to their members (Noyer, 2007). Some SACCO FOSAs have even opened and extended membership to non-SACCO members to ensure improved performance. The question therefore is; what are the effects of financial innovations adopted by Saccos on their financial performance? Studies conducted to establish the effect of financial innovations on financial performance in Kenya concentrated on commercial banks. However, the studies have established existence of a positive relationship. As a result, this study sought to fill the gap by establishing the effects of financial innovations on financial performance of SACCOs in Kenya.

### **1.2 General research objective**

To determine the effects of financial innovations on financial performance of SACCOs in Kenya

### **1.3 Specific research objective**

To determine the effects of process innovations on financial performance of SACCOs in Kenya

### **1.4 Research question**

What are the effects of process innovations on financial performance of SACCOs in Kenya?

## **II. LITERATURE REVIEW**

### **2.1 Introduction.**

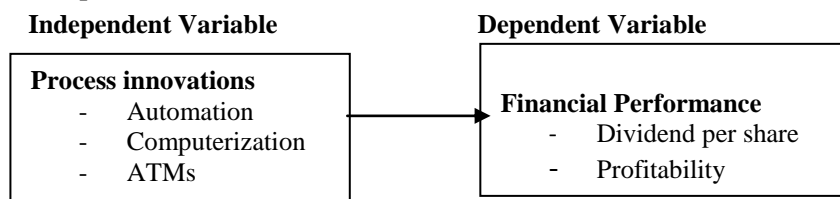
This chapter covers theoretical framework and empirical studies that have been carried out in the area of financial innovation and financial performance. It is divided into five sections: Introduction, Theoretical framework, Conceptual Framework, Review of variables, Empirical literature review.

### **2.2 Theoretical Framework**

#### **2.2.1 Transaction Cost Innovation Theory**

The transaction cost innovation theory's main pioneers are Hicks and Niehans 1983 (as cited by Njeri 2013). They thought that the dominant factor of financial innovation is the reduction of transaction cost, and in fact, financial innovation is the response of the advance in technology which caused the transaction cost to reduce. The reduction of transaction cost can stimulate financial innovation and improve on financial service. This theory studied the financial innovation from the perspective of microscopic economic structure change. Saccos just like other organizations are faced with challenges of ever escalating transaction costs that threaten sustainability. As a result, they have embarked on invention of methods for cutting down transaction costs. This theory was therefore important to this study since it helped the researcher to articulate the significance of financial innovations on the financial performance of Saccos in Kenya as a result of transaction cost cutting measures.

### **2.3 Conceptual Framework**



*Fig. 2.1 Conceptual framework*

## **2.4 Process Innovation**

Process innovation means the implementation of a new or significantly improved production or delivery method (including significant changes in techniques, equipment and/or software). Minor changes or improvements, an increase in production or service capabilities through the addition of manufacturing or logistical systems which are very similar to those already in use, ceasing to use a process, simple capital replacement or extension, changes resulting purely from change in factor prices, customization, regular seasonal and other cyclical changes, trading of new or significantly improved products are not considered innovations (European Commission, 2006).

In their survey of European banking, Goddard, Molyneux, Wilson & Tavakoli (2007) also emphasize the transition process the European Banking is in towards the Single European Banking Market. They mention the importance of technological change especially ATMs (automated teller machines), EFTs and internet banking on the banks' performance and profitability. Casu, Girardone & Molyneux (2004) also provide evidence respectively for cost reduction and productivity gains as a result of technological change for European Union banks.

Process innovations aim at reducing transaction costs and time and maintaining clients and better portfolio management so as to increase the overall firm's financial performance (Kihumba, 2008). Process innovations will continue to be very important to company growth for the reason that without excellence in process innovations, other innovations will be impossible to implement.

## **2.5 Financial performance of SACCOs**

SASRA reports (2008 to 2013) evaluate the performance of the Sacco subsector based on the financial data and information extracted from audited financial statements and reports for the period. It is a legal requirement that the audited financial statements of every Sacco society be registered with the Commissioner for Cooperatives Development before presentation to members at the annual general meeting (Cooperative Societies Act Cap 490, 1997). The total assets for the Sacco subsector grew by 14% to close to Ksh.335 billion in 2013 from Ksh.294 billion recorded in 2012. The growth in assets was funded mainly by member deposits for the sector that stood at Kshs.241 billion posting an increase of 8.4 % in 2013 from Kshs. 213 billion in 2012. The licensed deposit taking Saccos increased the gross outstanding loans by 17.4% to close at Kshs. 253 billion in December 2013 compared to Kshs. 221 billion in December 2012. (SASRA Report 2013).

## **2.6 Empirical review**

A study by Gunday, Ulusoy, Kilic & Alpkan (2011) on the effects of innovations on firms' performance, sought to explore the effect of the organizational, process, product and marketing innovations on the different aspects of firms performance including innovative, production, market and financial performances, based on an empirical study covering 184 manufacturing firms in Turkey. The results revealed positive effects of innovations on firm performance in manufacturing industries. An empirical study by Lin and Chen (2007) on SMEs in Taiwan found out that firm innovation capabilities have greater influence on business performance, marketing performance and ultimately influence on financial performance. Tabas & Beranova (2012) sought to determine possible effect of product innovations on the financial performance of small and medium-sized enterprises in the Czech Republic. From the results of their pilot study of statistical sample of 100 companies, it was evident that continuous innovations are necessary.

In his study on determinants of financial innovation and its effects on bank performance in Kenya, using exploratory research design on a sample of 43 commercial banks in Kenya for a six year period from 2002-2007, Kihumba (2008) sought to investigate the relationship between financial innovations and financial performance of commercial banks, together with the determinants of financial innovation. The study found out that heavy competition and technology are the major drivers of financial innovation. In her study, Njeri (2013) sought to establish effects of financial innovation on the financial performance of deposit taking SACCOs in Nairobi County. The study revealed that there is a positive relationship between financial innovation and financial performance. The study was faced with challenges in terms of the financial constraints and also availability of time to fully conclude the entire data collection

### III. RESEARCH METHODOLOGY

#### 3.1 Introduction

This chapter highlights the research methodology to be used in the study. It is divided into eight sections; Introduction, Research design, Target Population, Sampling and sample size, Data collection procedure and Instruments, Pilot test, and Data Processing and analysis.

#### 3.2 Research Design

The descriptive research design was used in carrying out this study. A descriptive study is designed to establish the influence of a given variable(s) on another variable(s) which depicts causation (Cooper and Schindler, 2006). Descriptive research is typically structured with a clearly stated objective of discovering associations and relationships among different variables. This research design suits this study since it involves collection, verification, and interpretation of evidence to establish facts that address the relationship of the variables. The descriptive research design is unobtrusive and the act of research does not affect the results of the study. This is well suited for cross sectional analysis and in the study, it involved comparing financial results of Saccos with their innovation parameters. The researcher used primary sources of data. Data was obtained from members of staff of KATECO using a structured questionnaire.

#### 3.3 Target population

According to Ngechu (2004) as cited by Wanyoike (2013), a population is a well defined set of people, services, elements, events and group of things or households that are being investigated. The population of this study comprised of the 53 members of staff of KATECO. Confirmation of the current number of staff was obtained from the Human resources manager and the same verified from the annual reports.

#### 3.4 Sampling and sample size

In this study, stratified sampling method was employed in selecting the sample size. The researcher firstly divided the population into strata, and then applied simple randomly sampling in selecting the subjects from the sample (Mugenda and Mugenda, 2003). A sample of forty four (44) members of staff comprising of 5 top managers, 8 middle level managers and 31 subordinate staff was used. Mugenda and Mugenda, (2003) formula was used in selecting the sample as follows:

$$n = \frac{Z^2 pq}{d^2}$$

Where: n = the desired sample size (if the target population is greater than 10,000).

Z = the standard normal deviation at the required confidence level.

d = the level of statistical significance set.

p = the proportion in target population estimated to have characteristics being measured.

q = 1 - p

The proportion in the target population assumed to have the characteristics of interest as recommended by Fisher et al is = 50%, the z- statistics is = 1.96 and the desired accuracy level is = 0.05

Therefore the desired sample size was;

$$n = \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2}$$

$$n = 384$$

Given that the target population is less than 10,000. Therefore the actual sample size will be;

$$n_f = \frac{n}{1 + \frac{n}{N}}$$

Where:

$n_f$  = desired sample size (when population is less than 10,000).

n = desired sample size (when population is more than 10,000).

N = the estimate of population size.

The target population for the study will be 53

$$\begin{aligned} n_f &= \frac{384}{1 + \frac{384}{53}} \\ &= 44 \end{aligned}$$

The sample size used in this study was arrived at by using proportional allocation method by Kothari (2009) and consisted of three homogeneous strata comprising of 6 top managers, 10 middle managers and 37 subordinate staff. The proportional method is as follows: Let; Target population be given by N and Sample size be n,

TABLE 3.1 Number of members of staff used in the study

Strata	Number of staff	Sample	Percentage
Top management	6	5	11%
Middle management	10	8	18%
Subordinate staff	37	31	71%
Total	53	44	100%

### 3.5 Data collection procedure and instrument

In collection of data, this study employed a structured questionnaire consisting of closed-ended questions for ease of analysis. According to Mark, Philip & Adrian (2009) a questionnaire is a data collection instrument in which each person in the study sample is asked to respond to the same set of questions in a pre-determined order. To be successful, the questionnaire should be short and simple (Kothari 2004). The study employed primary data that was collected through the use of a structured questionnaire circulated to the randomly sampled members of management and staff of KATECO.

### 3.6 Pilot test

To ensure that the research instrument was valid, reliable, clear and free from errors, the researcher conducted a pilot study on selected members of Kateco. The questionnaire was tested on members of the society since they were not expected in the actual study.

### 3.7 Validity and Reliability of the research instrument

Reliability of the instrument was tested using Cronbach's Coefficient Alpha based on the order of number arrangement of the questionnaire items. According to Fraenkel and Wallen (2000) as cited by Wanyoike 2013, reliability should be at least 0.70. A Cronbach's Coefficient Alpha of 0.907 was obtained. Therefore the instrument was reliable and acceptable for administration since the alpha obtained was above the recommended value.

TABLE 3.2 validity and reliability

Cronbach's Alpha	No. of Items
.907	19

### 3.8 Data analysis and Presentation

The quantitative data was coded on SPSS software and data analyzed by use of descriptive and inferential statistics. Descriptive analysis involved use of means and standard deviations while inferential analysis involved use of correlation and multiple regression analysis. Data presentation was in form of tables, bar charts, and histograms (Cooper and Schindler, 2006). The relationship between the dependent and independent variables was stated using a mathematical function below:

$$Z = f(X_1)$$

Where Z is the dependent variable and X<sub>1</sub>, is independent variable.

An analytical model of linear multiple regression will be developed as below.

#### Model: (Multiple regression)

$$Y = \alpha + \beta_1 X_1 + e_1$$

Where: Y = Financial performance (dividend per share)

X<sub>1</sub> = Process innovation

α = A constant

β = Regression coefficient for X<sub>1</sub>

e<sub>1</sub> = Margin of error

#### IV. DATA ANALYSIS, PRESENTATION AND DISCUSSIONS

##### 4.1 Introduction

This chapter presents the research findings and discussions on the effect of financial innovation on financial performance of SACCOs in Kenya. It highlights the summary statistics, empirical models, discussions and summary of the findings. Both descriptive (mean and standard deviation) and inferential (correlation and multiple regression) outputs are presented together with the interpretation of the findings.

##### 4.2 Response rate

The researcher realized response from 42 respondents out of the 44 distributed questionnaires. From table 4.1 below, this represented a response rate of 95% which was acceptable. According to Mugenda and Mugenda (2012) a response of 70% and above is acceptable.

TABLE 4.1 response rate

Number of questionnaires Issued	Number of questionnaires returned	Response rate (%)
44	42	95

##### 4.3 Descriptive Statistics

This section presents the results of the descriptive statistical analysis of the data and their interpretations. The descriptive statistics employed include means, modes, medians and standard deviations. The descriptive analysis was useful in developing the basic features of the study population and formation of the basis of the quantitative analysis of the data.

##### 4.3.1 Respondents Demographic Characteristics

The study sought to determine the demographic features of the respondents so as to give some basic insight on the respondents. The characteristics considered in the study were; gender of respondents, level of responsibility in the Sacco and duration worked in Sacco. The findings on the features were summarized below.

TABLE 4.2 gender of respondents \* duration worked in the sacco

			Duration worked in Years				
			0-5	6-10	11-15	16-20	Total
<b>Gender of respondents</b>	Male	Frequency	5	6	10	4	24
		Percent (%)	11.9	14.3	23.8	7.1	57.9
	Female	Count	5	5	6	2	18
		Percent (%)	11.9	11.9	14.3	4.8	42.9
<b>Total</b>	Frequency	10	11	16	5	42	
	Percent (%)	23.8	26.2	38.1	11.9	100.0	

The findings in table 4.2 above reveal that majority of the male respondents (23.8%) had worked for the Sacco between 11 and 15 years. It was also revealed that majority of the male respondents had served the sacco for the longest time i.e. 16-20 years.

TABLE 4.3: level of responsibility \* duration worked in the sacco

			Duration worked in Years				
			0-5	6-10	11-15	16-20	Total
<b>Level of responsibility</b>	Subordinate	Frequency	8	8	10	3	29
		Percent (%)	19.0	19.0	23.8	7.1	69.0
	Middle management	Frequency	1	3	3	1	8
		Percent (%)	2.4	7.1	7.1	2.4	19.0
	Senior management	Frequency	1	0	3	1	5
		Percent (%)	2.4	.0	7.1	2.4	11.9
	<b>Total</b>	Frequency	10	11	16	5	42
		Percent (%)	23.8	26.2	38.1	11.9	100

The findings of table 4.3 above reveal that majority of the respondents 38.1% had worked for the Sacco for a period between 11 and 15 years of which 23.8% were subordinate staff. On the other hand, minority of the respondents (middle and senior management staff) had worked for the Sacco for a period between 0 and 5 years.

TABLE 4.4 gender of respondents \* level of responsibility in the sacco

		Level of responsibility in the sacco				
		Subordinate staff	Middle management	Senior management	Total	
<b>Gender of respondents</b>	Male	Frequency	17	4	3	24
		Percent (%)	58.6%	50.0%	60.0%	57.1%
	Female	Frequency	12	4	2	18
		Percent %	41.4%	50.0%	40.0%	42.9%
<b>Total</b>	Frequency	29	8	5	42	
	Percent (%)	100.0%	100.0%	100.0%	100.0%	

The findings in table 4.4 above reveal that majority of male respondents held senior management and subordinate positions. On the other hand, female and male respondents shared equally the middle management positions.

#### 4.3.2 Process innovations introduced by the Sacco

The second objective of this study sought to determine the effects of new financial processes on financial performance of SACCOs. This objective was achieved by asking the respondents several questions on process innovations within the Sacco. From the findings in table 4.5 below it can be concluded that on average majority of the respondents agreed that the sacco had introduced the various financial innovation processes. They however strongly disagreed that credit and debit cards had been introduced by the sacco.

Based on the analysis in table 4.5 below, the standard deviations for responses to process innovations questions were found to be below 1 point. This shows that the individual responses on process innovations, on average, were less than 1 point away from the mean. These results imply that the distribution of individual data values were close to the mean value. It therefore can be concluded that this was a normal (good) distribution since it yielded a standard deviation below 1 point.

TABLE 4.5 process innovations introduced by the sacco

	N	Minimum	Maximum	Mean	Std. Deviation
Front office service	42	3	5	4.55	.589
Automated operations	42	4	5	4.50	.506
ATM services	42	4	5	4.45	.504
Internet banking services	42	2	5	4.45	.627
M-banking i.e. m-pesa	42	2	5	4.43	.625
EFT services	42	3	5	4.36	.532
Credit and Debit cards	42	1	3	1.89	.618

#### 4.3.3 Financial performance

Financial performance was measured by dividends payment to members of the Sacco. The researcher through the questionnaire asked the respondents to respond to questions regarding payment of dividends by the Saccos. From the findings in table 4.6 below it can be concluded that on average the respondents agreed that the sacco had for the last five years paid dividends consistently, there had been a steady growth of dividend per share since 2009 and that the dividend per share was fairly satisfactory.

From table 4.7, the respondents agreed that there had been a steady growth of income before tax since and that there had been growth of investment assets since 2009. On average the respondents did not agree or disagree to the question whether the sacco had invested the retained earnings. From the findings of table 4.8 below on average, the respondents agreed that the society had realized a reduction in operational costs, financial innovation had improved customer service and hence customer satisfaction and that the sacco had fairly invested in financial innovations.

Consequently as per the analysis in table 4.6 to 4.8 below, the standard deviations for responses to financial performance questions were found to be below 1 point. This implies that the individual responses on financial performance, on average, were less than 1 point away from the mean. These results imply that the distribution of individual data values were closer to the mean value. This was a normal (good) distribution since it yielded a standard deviation below 1.

TABLE 4.6 dividends payment

	N	Minimum	Maximum	Mean	Std. Deviation
Consistent payment of dividends since 2009	42	4	5	4.75	.438
Steady growth of dividend per share since 2009	42	4	5	4.73	.451
Dividend per share is fairly satisfactory	42	4	5	4.66	.479

Key: 5= Strongly Disagree 4= Disagree 3= neither agree nor disagree 2= Agree  
1= Strongly Agree

TABLE 4.7 Investment

	N	Minimum	Maximum	Mean	Std. Deviation
Steady growth of income before tax since 2009	42	2	5	4.11	.920
Growth of investment assets have in the past 5 years	42	3	5	4.07	.818
Investment of retained profits	42	2	5	3.95	.987

Key: 5= Strongly Disagree 4= Disagree 3= neither agree nor disagree 2= Agree  
1= Strongly Agree

TABLE 4.8 Effects of process innovations

	N	Minimum	Maximum	Mean	Std. Deviation
Reduction in operational costs	42	3	5	4.41	.583
Improved customer service	42	3	5	4.39	.538
Investment in innovations	42	3	5	4.36	.574

5= Strongly Disagree 4= Disagree 3= neither agree nor disagree 2= Agree  
1= Strongly Agree

#### 4.4 Inferential statistics

This section presents the results of the correlation and regression analysis done in the study to evaluate the nature of the relationship between the financial innovations (independent variables) and financial performance (dependent variable).

##### 4.4.1 Correlation Analysis

Correlation analysis was used to determine the significance and degree of association of the variables. Correlation is used to analyze the degree of relationship between two variables. It varies between -1 and + 1 indicating perfect negative and perfect positive relationship between two variables respectively. The results of the correlation analysis are summarized in Table 4.9 below.

TABLE 4.9: Summary of correlations

		Process Innovation	Financial Performance
Process Innovation	Pearson Correlation	1	
Financial Performance	Pearson Correlation	.664**	1
	P value	.001	



The correlation summary table 4.9 above indicates that there were significant associations between the independent variable (process innovation) and dependent variable (financial performance). Hence financial innovation was positively correlated to financial performance at 99% confidence level. P value < 0.01. The results show that process innovation is positively correlated to financial performance. The correlation results indicate that process innovations have a significant effect on the financial performance of Kakamega Teachers Savings and Credit Cooperative Society Limited ( $r = 0.664, \alpha = 0.01$ ).

#### 4.4.2 Regression Analysis

Multiple regression analysis was used to determine the relationship between the dependent variable and all the independent variables. This analysis was used to determine the effect of the independent variable on the dependent variable.

#### Assumptions of multiple linear regression

According to Osborne (2001) in the study titled ‘A new look at outliers and fringeliers; their effects on statistic accuracy and Type I and Type II error rates, the following are the multiple linear regression assumptions: Firstly, multiple linear regression needs the relationship between the independent and dependent variables to be linear. It is also important to check for outliers since multiple linear regression is sensitive to outlier effects. The linearity of the variables was tested with scatter plots. Secondly, the multiple linear regression analysis requires all variables to be normal. This assumption was checked with a histogram and a fitted normal curve. The data was found to be normally distributed and hence linearity existed. Thirdly, multiple linear regression assumes that there is little or no multicollinearity in the data.

TABLE 4.10: Multiple regression model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.833 <sup>a</sup>	.693	.685	.28758	2.021

a. Predictors: (Constant), Process Innovation

b. Dependent Variable: Financial Performance

The value of R square in table 4.10 above is 0. 693. This indicates that 69.3% of variance in dependent variable (financial performance) is explained by variance in the independent variable (process innovation). This shows that 69.3% changes in the Sacco’s financial performance could be accounted for by process innovations at 99% confidence interval. The correlation coefficient (R) of 0.833 in the table above shows that there is a strong positive relationship between financial innovations and financial performance.

#### Durbin Watson

It is a test statistic that is used to detect the presence of autocorrelation (a relationship between factors test autocorrelation among regression models). It test that the residuals from a linear regression or multiple regression are independent. When Durbin-Watson factors are between (1) and (3) there is no autocorrelation problem (Alsaeed, 2005). From table 4.10 above, the Durbin Watson value is 2.021 implying that there was no autocorrelation problem on the regression model.

#### Multicollinearity

Collinearity occurs when two predictor variables (e.g.,  $x_1$  and  $x_2$ ) in a multiple regression have a non-zero correlation. Multicollinearity occurs when more than two predictor variables (e.g.,  $x_1, x_2$  and  $x_3$ ) are inter-correlated. Multi- collinearity occurs when there are very high correlations among Xs. Mohammed & Mohammed (2012) refer to multicollinearity problem as actual disparity percentage among variables.

Tolerance indicates how much information multicollinearity has cost the analysis. Tolerance of 1 indicates no multicollinearity (for that predictor) and tolerance values approaching 0 indicate a severe multicollinearity problem. The VIF statistic of a predictor in a model is merely the reciprocal of its tolerance (i.e.,  $VIF = 1/tolerance$ ). This number indicates how much larger the error variance for the unique effect of a predictor (relative to a situation where there is no multicollinearity). The VIF can also be thought of the factor by which your sample size needs to be increased to match the efficiency of an analysis with no multicollinearity.

Results of process innovations indicate tolerance level and VFI of 0.315 and 3.179 respectively. According to Besley 1980 as sighted in (jingyu li 2003) researchers have used VIF= 10 as critical value rule of thumb to determine whether too much correlation existed. The VIF values in the table 4.11 below were less than 10 so there was no multi-collinearity problem. Also if tolerance value is greater than 0.1 but less than 1.0 then there was no multicollinearity problem (Hair, 2006). Tolerance value in the table 4.11 was .315 and therefore there was no multicollinearity problem.

**Table 4.11: Multiple regression results**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	.159	.500		.318	.752		
Process Innovation	.054	.207	.040	.262	.795	.315	3.179

a Dependent Variable: Performance

#### 4.4.3 Analysis of Variances (ANOVA) Results

The results of the ANOVA table 4. 12 below indicate that the model is feasible since it is significant at 0.01. From the ANOVA statistics in table below, the processed data, which is the population parameters, had a significance level of 1% 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. The Anova results shown in Table 4.12 also indicate that there is a significant difference between means of factors affecting the financial performance of the Saccos. (F = 90.357;  $\alpha < 0.01$ ; df = 1, 30; p = 0.01). The study therefore establishes that financial innovations had effects on financial performance of the society. Therefore, financial innovations positively influence the financial performance of the Saccos in Kenya.

TABLE 4.12: Analysis of variances (ANOVA) summary

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	7.473	1	7.473	90.357	.001 <sup>a</sup>
	Residual	3.308	40	.083		
	Total	10.781	41			

a. Predictors: (Constant), Process Innovation

a. Dependent Variable: Financial Performance

The study intended to investigate the effects of financial innovations on financial performance of Saccos in Kenya . From the findings on the regression analysis, adjusted R squared is coefficient of determination which tell the variation in the financial performance due to changes in process innovations. The findings revealed that there was strong relationship between financial performance and financial innovations. The regression equation was

$$Y = \alpha + \beta_1 X_1 + e_1$$

The established regression equation therefore was

$$Y = 0.159 + 0.723 X_1$$

These findings are consistent with the findings of a research conducted by Omwenga (2010) which sought to establish the relationship between financial innovations and financial performance of Commercial banks in Kenya. He used a descriptive survey and studied all the 45 licensed commercial banks that were dully registered by Central Bank of Kenya then. The study found out that financial innovations improved the asset quality hence performance of commercial banks in Kenya. .

## **V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Introduction**

This chapter presents the summary and conclusion on the analysis results of the effects of financial innovations on financial performance of Savings and Credit Co-Operative Societies: a case of Kakamega Teachers Co-operative Society Limited. The chapter is divided into five sections; introduction, the summary of the study, conclusions, and limitations of the study and finally the recommendations for further research.

### **5.2 Summary**

This study aimed at investigating Kakamega Teachers Co-operative and Savings Society Limited with the view of determining the effects of financial innovations on financial performance of Savings and Credit Co-operative Societies in Kenya. To ensure achievement of the set objective, the study was designed and desired primary data of Kateco was collected by use of a structured closed ended questionnaire. Regression analysis on data from a sample of 42 members of staff of Kateco was conducted to examine the financial innovations and financial performance variables. A suitable multiple regression model was designed in order to capture all the relevant variables of the study.

A positive relationship between financial performance and process innovations was established. From the findings on the multiple regression analysis, the value of R square is 0.693. This indicates that 69.3% of variance in dependent variable (financial performance) is explained by variance in the independent variables (financial innovations). This shows that 69.3% changes in the Sacco's financial performance could be accounted for by product, process and institutional innovations at 99% confidence interval. The correlation coefficient (R) of 0.833 shows that there is a strong positive relationship between financial innovations and financial performance.

### **5.3 Conclusions**

SACCOs in Kenya play a significant role in savings mobilization, promotion of investment, economic growth and poverty alleviation. They have huge potential as they will play a key role in the Kenya's achievement of vision 2030 and the Jubilee government aspirations. To be effective and successful, this requires the embracing of effective financial innovations strategies. This study therefore concludes that Saccos in Kenya have introduced and embraced financial innovations e.g. use of money transfer services such as M-pesa. As a consequent of technological innovations such as internet banking and connectivity, ICT, and computer technology, Saccos are now cutting down on operational costs. Saccos are today reaping the benefits of financial innovations particularly increased efficiency, improved service delivery, improved operational performance among many others. Thirdly, Sacco's have partnered with Cooperative bank and have introduced Sacco Link M-banking service. The Sacco Link M-banking Service is available 24 hours a day, 7 days a week and has resulted in efficient and effective access to funds by Sacco members all over the country. As a result of the partnership, members are issued with VISA branded ATM cards that allow 24hour withdrawal access at any Cooperative bank or any VISA branded ATM worldwide.

#### **General objective of the study**

To determine the effects of financial innovations on financial performance of SACCOs in Kenya Multiple linear regression model in Table 7.10 show the value of R which is the model correlation coefficient as 0.833 and the value of R square was 0.693. This indicates that 69.3% of variance in dependent variable (financial performance) is explained by variance in the independent variable (financial innovations). This shows that 69.3% changes in the Sacco's financial performance could be accounted for by process innovations at 99% confidence interval. The correlation coefficient (R) of 0.833 in the table above shows that there is a strong positive relationship between financial innovations and financial performance of saccos.

#### **Specific objective**

To determine the effects of process innovations on financial performance of SACCOs in Kenya. Based on correlation results, process innovation was positively correlated to financial performance at 99% confidence level. P value is  $< 0.01$  and hence financial performance and product innovation move in the same direction. The correlation results indicate that process innovations have a significant effect on the financial performance of Kakamega Teachers Savings and Credit Cooperative Society Limited ( $r = 0.664$ ,  $\alpha = 0.01$ ). From the multiple regression results, the beta coefficient of process innovation is 0.054. This shows that an increase in process innovation leads to an increase in financial performance.

#### 5.4 Recommendations to Sacco management and regulators

Saccos should continue to invest in new and emerging financial innovative strategies to continue realizing the benefits that accrue from new financial innovations e.g. improved customer satisfaction and reduced operational costs. Saccos should for instance explore the possibility of introducing credit and debit cards. Financial innovation will ensure that Saccos remain financially sustainable and competitive in the financial market.

#### 5.5 Recommendations for further study

From the research findings, introduction of financial innovation factors do not account for 100% change in financial performance. It is therefore important that further studies be conducted on other emerging factors affecting financial performance of saccos. Therefore further studies should be conducted on; effects of aggressive marketing on financial performance of SACCOs, effects of risk management strategies on financial performance of SACCOs, effects of corporate governance on financial performance of SACCOs, effects of Credit Reference Bureaus (CRB) on financial performance of SACCOs and effects of government regulation on financial performance of SACCOs

### REFERENCES

- [1] Alsaeed, K., (2005). "The association between firm-specific characteristics and disclosure: the case of Saudi Arabia". *The Journal of American Academy of Business*, Vol.7 No. 1, PP 310-321.
- [2] Casu, B., Girardone, C., Molyneux, P., (2004). Productivity change in European banking. A comparison of parametric and non-parametric approaches. *Journal of Banking and Finance* 28, 2521–2540
- [3] Cooperative Societies (Amendment) Act, 2004. *Enacted by the parliament of Kenya*. Government Printer.
- [4] Cooper, D., & Schindler, P. (2006). *Business Research Methods*. 9th Ed. New Delhi: McGraw-Hill.
- [5] European commission (2006). Community framework for state aid for research and development & innovation. *European Union journal* c323/1, 1725-2423.
- [6] Fraenkel, J. R & Wallen, N. E. (2000). *How to design and evaluate research in education, 4<sup>th</sup> Edition*. McGraw Hill Publishers, Boston.
- [7] Goddard, Molyneux, P., Wilson, J.O.S. and M. Tavakoli, (2007). European banking: An overview, *Journal of Banking & Finance* 31 1911–1935
- [8] Gunday, G., Ulusoy, G., Kilic, K., & Alpkan, L., (2011). Effects of innovation types on firm performance. *International Journal of Production Economics*, 133 (2), 662-76.
- [9] Hair JF, WC Black, BJ Babin, RE Anderson, RL Tatham - (2006). *Multivariate analysis*. Pearson publishers.
- [10] Hans, H. (2006). *Cooperative Principles and Cooperative Law* <http://collections.infocollections.org/ukedu/uk/d/Jh0864e/22.html> Accessed on 25/01/2015
- [11] Hicks, D. & Niehans J. (1983). Financial innovation, multinational banking and monetary policy. *Journal of banking and Finance*, 537-551.
- [12] Jingyu L. (2003) *dividend clienteles' financial leverage clienteles and determinant of dividends policy under New zae land imputation tax regime*. A PHD thesis Massey university.
- [13] Kihumba, C. W., (2008): *Determinants of Financial Innovation and its Effects on Bank performance in Kenya*. Unpublished MBA project UoN.
- [14] Kothari, C.R. (2004). *Research Methodology, Methods and Techniques*. New Age International Publishers, 2nd Ed. New Dehli, India.
- [15] Kothari, C.R. (2009). *Research Methodology, Methods and Techniques*. New Age International Publishers, 2nd Ed. New Dehli, India.
- [16] Lin, C.Y. & Chen, M. Y. 2007. Does innovation lead to performance? An empirical study of SMEs in Taiwan. *Management Research News* 30 (2), 115-132.
- [17] Mark N.K. Saunders, Philip L. & Adrian T.,(2009). *Research Methodology, Methods and Techniques*, New Age International Publishers, 2<sup>nd</sup> Ed. New Dehli, India.
- [18] Mohammed S.& Mohammed M (2012) A Worthy Factors Affecting Dividends Policy Decisions An Empirical Study on Industrial Corporations Listed in Amman
- [19] Mugenda O. & Mugenda A., (2003). *Research methods, Quantitative and Qualitative Approaches*. Acts press, Nairobi Kenya.
- [20] Mugenda O. & Mugenda A., (2012). *Research methods, Quantitative and Qualitative Approaches*. Acts press, Nairobi Kenya.
- [21] Ngechu, (2004). *Understanding the Research Process and Methods: An introduction to Research Methods* Nairobi, Acts Press, 27(13), 1221-1360.
- [22] Njeri J. O (2013). *Effects of financial innovation on the financial performance of deposit taking Saccos. A case of Nairobi County*. Unpublished MBA project UoN
- [23] Noyer, C. (2007). Financial Innovation, Monetary Policy and Financial Stability. *Spring Conference, Banque de France*, 21(6), 116-132.
- [24] Omwenga (2010). *Relationship between financial innovation and financial performance of commercial banks in Kenya*. Unpublished MBA project UoN.
- [25] Osborne, J. W. (2001). *A new look at outliers and fringeliens: Their effects on statistic accuracy and Type I and Type II error rates*. Unpublished manuscript, Department of Educational Research and Leadership and Counselor Education, North Carolina State University.
- [26] SASRA.(2013). *The Sacco Societies Regulatory Authority (SASRA) Supervision Report 2013*. Nairobi, Kenya.
- [27] Tabas, J., Beranova, M., Polak, J., 2012: Evaluation of innovation processes. *Acta Univ. Agric. et Silv. Mendel. Brun. Journal of financial innovation* 60, 2: 523–532. ISSN 1211-8516.
- [28] Wanyoike W. (2013), Effect of compliance to Sasra Regulations on financial performance of Savings and Credit Co-Operatives in Kenya: *Journal of finance*, 63(3), 119-136.