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FINANCIAL INNOVATIONS AND PERFORMANCE OF DEPOSIT TAKING SACCOS IN NAIROBI CITY COUNTY, KENYA

Amabel Amondi Ouma
MSc (Finance) student, Kenyatta University, Kenya
&
Job Omagwa, PhD
School of Business, Department of Accounting & Finance, Kenyatta University, Kenya
&
Dominic Ngaba
School of Business, Department of Accounting & Finance, Kenyatta University, Kenya

Abstract
The study sought to determine the effect of financial innovations on performance of Deposit Taking SACCOs (DTS) in Nairobi City County, Kenya. Most SACCOs in Kenya have sustained huge investment in innovations and training of manpower to handle new technologies. Thus, it remains unclear if adoption of financial innovations has major effect on DTS financial performance. The specific objectives of the study were: to determine the effect of new products, new service process and new organizational form on financial performance, and to determine the moderating effect of firm characteristics on the relationship between financial innovations and performance of DTS in Nairobi City County, Kenya. The target population was licensed DTS in Nairobi City County, Kenya whereas the accessible population was 19 DTS that had been operating and licensed by SASRA between the years 2010 to 2014. Purposive sampling technique was used to pick respondents; the sample size was 76 senior employees though only 68 responded. Primary data was collected using questionnaires while secondary data was obtained from financial statement of the SACCOs. Multiple regression analysis (standard), Hierarchical regression analysis and Descriptive analysis were used to analyse data with the aid of statistical programs SPSS version 21. The study found that new products and new service processes had significant effect on the financial performance while new organizational form had insignificant effect on liquidity and profitability and significant effect on capital adequacy. The study further found that firm characteristics had significant moderating effect on the financial innovations - performance relationship. The study generally concluded that financial innovations greatly influenced performance of SACCOs in Nairobi City County. We further conclude that firm characteristics positively moderate the relationship between financial innovations and performance. The study recommended that the SACCOs to adopt financial innovations strategies to enhance efficiency in all their operations boost profitability and expand their market share focusing on firm characteristics as a competitive advantage.

Keywords: Deposit Taking SACCOs, Financial Innovations, Performance, Firm Characteristics, New Service Process, New Organizational Form

I. Introduction and Background

Vol. 2, No. 02; 2018

ISSN: 2456-7760

In the provision of financial services within Kenyan economy, SACCO subsector stands out as a major player to both the households, and small and medium sized businesses. Thereby, verified by the SACCOs' membership which improved from 2.97 million in 2012 to 3.30 million in 2013 (SASRA, 2013). The Deposit Taking SACCOs (DTS) account for three quarters (75%) of the SACCO subsector's assets, deposits and membership which is attained by introduction of novel products, continued efforts to draw deposits from persistent antagonistic promotion and prompt adoption of innovations (SASRA 2013). These considerable developments have enabled convenient and efficient service access to the SACCOs' members (Njeri, 2013). Similarly, by embracing new approaches, DTS ability to manage risks, enforce leading contracts and reduce transaction costs of delivering credit have been reduced (Maina, 2011).

Financial innovations are adopted by SACCOs as competitive strategy to surpass its rivals and presumed as vital means to endure in the volatile and dynamic sector to attain its objectives, retain success and improve its performance in the competitive business environment. Consequently, the SACCOs must adopt new innovative means to finance their activities rather than only relying on members' deposits (Maorwe, 2011) and employ innovative strategies aimed at achieving competence in all operational levels by employing the most excellent practices that guarantee sustainability and growth (Mutuku, 2014).

Firm characteristics and attributes may possibly manipulate the altitude of a firm's performance. Ferreira *et al.*, (2008) also indicate that firms' characteristics that determine firms' ability to form business relationships are characteristics related to firms' size, age, reputation and legitimacy, and to organizational factors such as transparency and control mechanisms that firms have in place. These give the firm a superior hand to obtain admittance to various types of resources, information, market access, and innovation opportunities (Lipparini & Sobrero, 1994). Conversely, without efficient marketing strategy in the market, a firm is fated to remain small, may be mislaid from its existing market share or may be forced to exit its business. Thus, it is a great obligation to a firm with a small market share to exploit perfect marketing strategies to enlarge its sales and market share (Whitford & Zeitlin, 2004).

Financial performance measures the financial health and survival probability of a firm over a given period of time (Wanjiru, 2012). Hence diverse methods are adopted by different firms basing on their organizational goal. Njeri, (2013) also contends that a firm's goal may be financial (such as an increase in sales, profits) or non- financial (such as customer satisfaction, market expansion, financial viability, efficiency). Although, many firms, desire to implement only financial indicators to measure their performance (Grant *et al.*, 1988) nevertheless, financial elements are not merely indicator for measuring firm performance. A firm requires combining financial measurement with non-financial measurement in order to adapt to the changes of both internal and external environments (Krager and Parnell, 1996).

Several studies had not been consistent in documenting an affirmative relationship between financial innovation and financial performance. Most studies found a positive association with at least one or two financial performance measures such as; return on assets (ROA) (Njeri, 2013),

Vol. 2, No. 02; 2018

ISSN: 2456-7760

return on equity (ROE) (Makur, 2014) and dividend per share and profitability (Tsuma *et al.*, 2015). In their findings, financial innovation had a significant influence on financial performance whereas Pooja and Singh (2009), and Francesa and Claeys (2010) found a negative correlation between financial innovation and financial performance. Hence, on this basis the study sought to address the knowledge gap associated with such inconsistencies.

II. Research Problem

The SACCO subsector remains a significant player in the provision of financial services to both the Kenyan households and small businesses segment. Though, the sector has faced immense competition from other financial institutions (Tsuma *et al.*, 2015) like commercial banks and micro finances which have an ample financial potential to take the challenge by investing in faster and more competent systems, and reorienting towards innovative products with great quality that can suit customers' needs within the same market (Mutuku, 2014). These other financial institutions aim at low income earners who form the base of SACCO's membership (Njeri, 2013). Financial innovations are thus, extremely vital in the SACCO subsector due to profit and wealth maximization. Consequently, the embracement of technology into service industries is becoming a strong trend as service providers are currently being urged to empower in financial technology to advance their performance. Despite the significance of SACCOs to the Kenyan economy and the citizens, it remains unclear if financial innovations and SACCO characteristics have a significant effect on the financial performance of SACCOs.

The Nyathira (2012) centred on financial innovation and its effect on financial performance of commercial banks in Kenya. The study sought to assess the effect of financial innovation (particularly payment system) on commercial banks' financial performance. The study found that financial innovation has ensured ease, efficiency and safety to the clients increasing their demand for the new innovations while demand for traditional payment systems reduces as customers switch to the more effective payment systems. Muteke (2015) aimed at establishing whether institutional innovation, process innovation and product innovation influence the financial performance of SACCOs in Mombasa County. The results indicated that there was a positive relationship between financial innovation and financial performance. The study thus, concluded that financial innovation is a predictor of financial performance of SACCOs in Mombasa County. Kaguri (2013) sought to determine the relationship between specific firm characteristics and financial performance of life insurance companies in Kenya. The study found a statistically significant effect of the independent variables on financial performance of life insurance companies. There are a few studies, if any, that have attempted to show a link between financial innovations and SACCO's financial performance and the moderating effect of firms characteristics. And this formed a reasonable basis to establish the link in the view of the current study.

III. Objectives of the Study

The study sought to achieve the following specific objectives:

Vol. 2, No. 02; 2018

ISSN: 2456-7760

(i) To determine the effect of new products on financial performance of deposit taking SACCOs in Nairobi City County, Kenya.
(ii) To assess the effect of new service processes on the financial performance of deposit taking SACCOs in Nairobi City County, Kenya.
(iii) To establish the effect of new organizational form on the financial performance of deposit taking SACCOs in Nairobi City County, Kenya.
(iv) To determine the moderating effect of firm characteristics on the relationship between financial innovations and financial performance of deposit taking SACCOs in Nairobi City County, Kenya.

***Null hypotheses were formulated and tested in view of each specific objective at a Significance level of 0.05.**

IV. Significance of the Study

From the study findings and recommendations, Regulatory and advisory body (SASRA) will be able to craft and utilize sound strategies geared towards constantly embracing innovativeness which leads to improved financial performance. Policy makers and other stakeholders will also be aided in assessing and identifying the success or failure of policy initiatives related to financial innovation and in essence the financial performance. The stakeholders will improve their decision making by assessing and measuring degree of performance achieved by the top management through financial innovations decisions and its impact on the growth of their shareholding value. To top management, enable them make informed decisions on effective financial innovations taking into the consideration on their firm's characteristics with the ultimate goal of ensuring that shareholders' wealth is fully utilized. Other SACCOs will be aided in make sound decisions on financial innovations focusing on their firm's characteristics as a competitive tactic with the main goal of improving their firm's financial performance. In addition, firms will understand the importance of creating a better working environment that stimulates, as well as, challenges the employees to innovative reasoning in their operations to utilize firm's scarce resources and competitive advantage with the motive to increase growth and performance of their firms. The study will also help provide information to potential and current scholars with regard to the association of financial innovations, firm's characteristics with financial performance of SACCOs. Future researchers may apply the study results as a source of reference to advance research on the same area or a different service sector with the same aim and objectives or use the research to bridge the knowledge gap in financial innovations.

V. Review of Literature

The study reviewed theories relevant to the study as well as a review of relevant empirical literature.

a. Theoretical Review

Vol. 2, No. 02; 2018

ISSN: 2456-7760

This study was informed by Regulatory Dialectic Theory, Regulation and Taxation Theory, Pecking Order Theory and Agency Theory. According to Regulatory Dialectic Theory, financial innovation is observed as an institutional reaction to financial costs shaped by changes in technology, market needs and political forces, particularly laws and regulations (Awrey, 2011). Kane refers to the interactive process of regulation that follows institutional avoidance and innovation as dialectical process. New regulations emerged and caused incentives to innovate in order to exploit profits by discovering novel mechanisms to circumvent the constraints such as interest rates, products, capital adequacy (Pol, 2009). Within the new financial instruments created to conquer government regulations, there were lethal innovations favourable (after several years and in combination with other factors) to financial crisis (Mishkin, 2006).

Regulation and Taxation Theory assumes that the major impulses to successful financial innovation have come from regulation and taxes (Epstein & Epstein, 2009). Most governments desired to keep varying their structures thus altering the internal rate differentials and creating novel opportunities for financial innovation. The theory further explains that financial innovations are consequences of regulatory barriers and aspiration of financial firms to evade the impact of regulatory constraints (Miller, 1986). This theory is further supported by the M&M proposition II that states that taxes and regulations are the mere reasons for investors to heed what security firms issue whether debt, equity or any other security (Dybicz & Uddbäck, 2006). SACCOs could therefore strive hard to reduce cost as a drive for financial innovation. This could be achieved through reduction from improvement in payments, processing or reduction resulting from new technique to deliver financial services electronically to customers.

Pecking Order Theory states that companies prioritize their sources of financing according to the cost of financing, preferring to raise equity as a financing means of last resort (Teker, Tasseven & Tukel, 2009). Hence, internal funds are used first and when that is depleted, debt is issued and when it is not sensible to issue more debt, equity is used (Ahmad *et al.*, 2012). Firms should take into consideration the methods of raising capital. Thus, external equity is used as a last option because of its adverse selection effect. Agency Theory explains how best organized relationships in which one party (principal) determines the work while another party (agent) do the work (Davis *et al.*, 1997). Agency theory assumes both the principal and agent are motivated by self interest. This assumption of self interest dooms the organization to inevitable intrinsic agency problems namely adverse selection and moral hazard (Schwarcz, 2009). Despite clashing interests amid the shareholders and managers of the organization, subsequently there should be a convergence of interest between the shareholders and the managers (Davis *et al.*, 1997).

b. Empirical Review

The study reviewed various relevant empirical literatures drawn from different industries and different countries as captured hereunder. Njeri (2013) investigated the effects of financial innovation on performance of DTS. The study revealed that there was strong relationship between financial performance and branch network, expenditure in ICT, number of customers using mobile banking and the number of ATMs installed. Nyathira (2012) found that financial

Vol. 2, No. 02; 2018

ISSN: 2456-7760

innovation in payment system resulted to positive influence on financial performance of commercial banks which was in line with the study done on commercial banks in South Sudan by Makur (2014). Tsuma *et al*., (2015) concluded that SACCOs in Kenya have introduced and embraced financial innovations therefore cutting down on operational costs. It further concluded that SACCOs are reaping the benefits of financial innovations particularly increased efficiency, improved service delivery, improved operational performance among many others.

Malik (2011) examined firm specific factors (age, size, volume of capital leverage and loss ratio) to determine their influence on profitability. The study found out that size of the company had significant influence on profitability. Nguyen (2014) found a positive relationship between the firm's size and its capital structure, and negative relationships of the firm's profitability and liquidity with capital structure. Kisengo and Kombo (2014) revealed that firm characteristics had a significant positive effect on performance of the microfinance institutions registered by AMFI. The study recommended that practitioners address and nurture firm characteristics to improve on performance of the sector.

Studies on the relationship between the firms' specific characteristics and financial performance also yields mixed results. The study by Malik (2011) investigated the effects of firm specific factors on the financial performance of both listed life insurance and non-life insurance companies in Pakistan, for the period 2005-2009. The study found out that there was insignificant relationship between profitability and the age of the company. On the other hand, Kaguri (2013) found that age of company is statistically significant to influence financial performance of life insurance companies in Kenya. This finding was in line with the study done on microfinance sector in Kenya by Kisengo and Kombo (2014). This study concluded that structure related characteristics had greatest effect on performance rather than capital related characteristics.

VI. Methodology

The study adopted positivism research philosophy and employed use of both descriptive and explanatory research designs. For the purpose of this study, the target population was licensed deposit taking SACCOs in Nairobi City County, Kenya while accessible population was 19 DTS that had been operation and licensed by SASRA between the years 2010 to 2014. Purposive sampling technique was employed and the sample size of 76 respondents of senior employees selected though only 68 responded. A structured questionnaire was self-administered to gather primary data while secondary data was derived from the financial statement of the SACCOs. SPSS was used to analyze data using regression analysis. The following tests were carried out: Cronbach's Alpha (0.895), normality (Shapiro-Wilk test), multicollinearity (VIF), homogeneity of variance (Levene test).

Data was analyzed using multiple regression analysis (standard) and hierarchical multiple regression analysis aided by the SPSS software (version 21) was used to effect data analysis. In view of regression model, financial innovations indicators were held as independent variables

Vol. 2, No. 02; 2018

ISSN: 2456-7760

and performance as dependent variable while firm characteristics as a moderating variable. In the study, the following multiple regression analysis equation was developed as presented below:

$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$ …… (i)

Where:

Y_i = Performance for i^{th} variable

β_0 = Intercept

$\beta_1 - \beta_3$ = Regression Coefficients

X_1 = New Products

X_2 = New Service Processes

X_3 = New Organizational Form

e = error term

Based on the specific objectives, the following regression equations were also developed:

(i) $Y_P = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$ …..Where: Y_P = Profitability

(ii) $Y_L = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$…..Where: Y_L = Liquidity

(iii)$Y_{CA} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$…..Where: Y_{CA} = Capital Adequacy

Hierarchical Multiple Regression Analysis was employed to test the moderating effect of firm characteristics on the relationship between financial innovations and performance. Therefore, the following equation was adopted.

$Y = \beta_0 + \beta_1 X + \beta_2 M + \beta_3 X*M + e$ …….. (ii)

Where:

Y = Performance

β_0 = Intercept

$\beta_1 - \beta_3$ = Coefficients

X = Financial Innovations

M = Firm Characteristics

X*M = product of financial innovations and firm characteristics

e = error term

VII. Results and Findings

The results findings were summarized and presented in the tables below. For purposes of descriptive statistics, means and standard deviations were used. Results were interpreted to form the basis of key findings.

a. Descriptive Analysis

The summary statistics of the variables; the mean and standard deviation are presented in this section as used in the analysis.

Table 1: Financial Innovation Responses

Descriptive Statistics

Vol. 2, No. 02; 2018

ISSN: 2456-7760

	N	Mean	Std. Deviation
Mobile banking has increased the customer base resulting to increased SACCO's membership and has minimal maintenance costs leading to elevated levels of profitability over their economic lifetime.	17	4.9364	.45681
Modifying and improving FOSA has attracted new customers and maintained the existing customers by meeting their market demands resulting to increased SACCO's asset quality management.	17	4.9156	.39754
Cheques have increased the customers' alternative demand for holding money leading to increased income to the SACCOs.	17	4.8235	.39295
Internet banking has increased the number of users due to reduction in service time hence resulting to increased SACCO's liquidity management.	17	4.8235	.52859
Investment in ATMs installation at different prime locations is backed by increased customer base and leads to SACCO's capital adequacy management.	17	4.7647	.56230
More customers have been attracted by ATM services for they can access their deposits with ease hence increase in SACCO's liquidity management.	17	4.7647	.43724
EFTs influence reduction of operational costs and hence better return on assets for the SACCOs	17	4.5882	.87026
Introduction of debit and credit cards has increased the number of customers resulting to a positive profitability to SACCOs annually.	17	4.1176	1.21873
Valid N (listwise)	17		

Source: Research Data, 2018

From Table 1 above, the research sought to determine response rate to various aspects of financial innovations in the SACCOs. Mobile banking emerged as the most important financial innovations adopted by majority of SACCOs since it scored high with mean of 4.936 compared to all the other financial innovations' factors though debit and credit cards had the highest standard deviation of 1.219. When the coefficient of variation is high, then it is assumed that variation between the real outcome and expected values are big.

The standard deviation is a measure of spread / dispersion of dataset from the mean. When the standard deviation is below 1.0, then the dispersion is close to the mean. From Table 1, the findings show that most of the respondents scored or ticked close to the mean with a standard deviation below 1.0 except for debit and credit cards that had a high standard deviation above 1.0 indicating that the respondents scored away from the mean. However, the general inference is that the data was normally distributed.

Vol. 2, No. 02; 2018

ISSN: 2456-7760

Table 2: Firm Characteristics

Descriptive Statistics			
	N	Mean	Std. Deviation
The age of a SACCO influences the composition of business network which in turn affects the SACCO's profitability.	17	4.8824	.48507
Gaining market share involves employing efficient marketing strategies by the firm to grow its customers' base hence resulting to higher return on asset.	17	4.8824	.48507
Most firms are increasing their market share with the main objective to improve their profitability	17	4.8824	.48507
The size of SACCO is related to the overall SACCO's profitability.	17	4.8824	.48507
The size of the firm affects the management and control of those firms which in turn affect the firm's performance.	17	4.6471	.86177
The age of SACCO has immense impact on the financial performance of SACCO.	17	4.5294	.87447
Valid N (listwise)	17		

Source: Research Data, 2018

The study wanted to determine the effects of firm characteristics on the performance of deposit taking SACCOs in Nairobi. The findings indicated in Table 2 above, show that firm characteristic' factors; age of SACCO, market share and size of SACCO emerged as the most important firm characteristics that had effect on profitability with the highest mean of 4.882 as well as, the least coefficient of variation of 0.485 in comparison to their effect on other financial performance indicators. The study findings reveal that the dispersion of the dataset was close to the mean in that the standard deviation of the data was below 1.0 hence a normal distribution. This means that the firm characteristics significantly had appositive effect on the performance of deposit taking SACCOs in Nairobi.

b. Regression Analysis

In view of results in the Table 3 below, the modelling of regression function was done by taking financial innovations' indicators as predictor variable and profitability as the dependent variable.

Table 3: Model Fitness – Financial Innovations and Profitability

Model Fitness				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.642[a]	.412	.276	.53104

a. Predictors: (Constant), New Products, New services process, New Organizational form

Table 3 above, reveals the success of the model in examining the significance of financial innovations on profitability of deposit taking SACCOs in Nairobi City County, Kenya. The Pearson's correlation / correlation coefficient (R) of 0.642 signifies a fairly strong positive correlation between financial innovations and profitability. Holding other factors constant, the coefficient of determination (R Square) indicates that financial innovations in the regression model explain 41.2% of the variations in profitability of deposit taking SACCOs in Nairobi City County, Kenya.

Table 4 below, presents results on the model overall in terms of significance.

Table 4: ANOVA- Financial Innovations and Profitability

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.569	3	.856	3.037	.067[b]
	Residual	3.666	13	.282		
	Total	6.235	16			
a. Dependent Variable: Profitability						
b. Predictors: (Constant), New Organizational form, New Products, New services process						

The results in Table 4 above, model overall is not a good fit. Since p>0.05 (p=0.067) thus, the model overall is regarded not to be statistically significant. Hence, we fail to reject the null hypothesis of the study and find that financial innovations collectively are a good measure of profitability of DTS in Nairobi County, Kenya.

The regression coefficients in Table 5 below indicate the significance of each financial innovation's indicators on profitability.

Table 5: Regression Coefficient - Financial Innovations and Profitability

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.257	1.285		.978	.346	-1.520	4.033
	New Products	.320	.164	.449	1.947	.073	-.035	.675
	New services process	.452	.289	.383	1.563	.142	-.173	1.076

Vol. 2, No. 02; 2018

ISSN: 2456-7760

	New Organizational form	-.074	.215	-.084	-.343	.737	-.538	.390
a. Dependent Variable: Profitability								

α = 0.05

The regression coefficients of the independent variable (financial innovations) are shown in Table 4.21 above. Results presented in the Table 5 above, indicate that new products is not significant at 0.05 since p>0.05 (p=0.073), new service processes is not significant while p>0.05 (p=0.142) and new organizational form is also not significant in explaining profitability of DTS at 0.05 since p>0.05 (p=0.737). Thus, from this finding null hypothesis failed to be rejected hence conclusion drawn that financial innovations do not have a significant effect on the profitability of deposit taking SACCOs in Nairobi City County, Kenya.

The regression model below is formulated with the model overall being not significant at 0.05 (p=0.346).

$Y_P = 1.257 + .320X_1 + .452X_2 - .074X_3$

Where:
Y_P = Profitability
X_1 = new products
X_2 = new service processes
X_3 = new organizational form

The regression equation above, shown that adoption of new products, new service processes and new organizational form by deposit taking SACCOs at 95% confidence interval all Else held constant, profitability of the SACCO's would stand at 1.257. A unit increase in adoption of new products would lead to increase in profitability by factors of 0.320, a unit increase in adoption of new service processes would raise profitability by factors of 0.452, and an increase of a unit in adoption of new organizational form would lead to a decrease in profitability of the DTS by a factor of 0.074.

The Table 6 below, the modelling of regression function was done by taking financial innovations' indicators as predictor variable and liquidity as dependent variable.

Table 6: Model Fitness - Financial Innovations and Liquidity

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.548[a]	.300	.138	.40584
a. Predictors: (Constant), New Organizational form, New Products, New services process				

Vol. 2, No. 02; 2018

ISSN: 2456-7760

Table 6 above, presents the efficiency of the model in determining financial innovations' influence on liquidity of DTS in Nairobi City County, Kenya. The Pearsons correlation / correlation coefficient (R) of 0.548 indicates a moderate positive correlation between financial innovations and liquidity. Holding other factors constant, the coefficient of determination (R Square) indicates that financial innovations in the regression model collectively explain 30.0% of the variations in liquidity of DTS in Nairobi City County, Kenya.

Table 7 below, presents results on the model overall in terms of significance.

Table 7: ANOVA- Financial Innovations and Liquidity

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.918	3	.306	1.857	.187[b]
	Residual	2.141	13	.165		
	Total	3.059	16			
a. Dependent Variable: Liquidity						
b. Predictors: (Constant), New Organizational form, New Products, New services process						

From Table 7 above, the finding reveals that model overall is not a good fit. Since p>0.05 (p=0.187), model overall is regarded not to be statistically significant. Consequently, we fail to reject the null hypothesis of the study and find that financial innovations collectively are a good measure of liquidity of DTS in Nairobi County, Kenya.

The regression coefficients in Table 8 below indicate the significance of each financial innovation's indicators on liquidity.

Table 8: Regression Coefficient - Financial Innovations and Liquidity

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	3.167	.982		3.224	.007	1.045	5.289
	New Products	.222	.126	.443	1.763	.101	-.050	.493
	New services process	.252	.221	.304	1.139	.275	-.225	.729
	New Organizational form	-.132	.164	-.215	-.805	.435	-.487	.223
a. Dependent Variable: Liquidity								

α = 0.05

Vol. 2, No. 02; 2018

ISSN: 2456-7760

The results from Table 8 above indicates that new products is not significant at 0.05 since p>0.05 (p=0.101), similarly new service processes is not significant at 0.05 since it has p>0.05 (p=0.275) and new organizational form do not have significance in explaining liquidity of DTS at 0.05 since p>0.05 (p=0.435). Consequently, from this finding the null hypothesis was rejected as well as, concluded that financial innovations have a significant influence on the liquidity of deposit taking SACCOs in Nairobi City County, Kenya.

The regression model below is formulated with the model overall being significant at 0.05 (p=0.007).

$Y_L = 3.167 + .222X_1 + .252X_2 - .132X_3$

Where:
Y_L = Liquidity
X_1 = new products
X_2 = new service processes
X_3 = new organizational form

The regression equation above, it was revealed that adoption of new products, new service processes and new organizational form by DTS at 95% confidence interval all Else held constant, liquidity of the Sacco's would raise by 3.167. An increase in new products by a unit would enhance liquidity by factors of 0.222, an increase in new service processes by a unit would increase liquidity by factors of 0.252, and an increase of a unit in adoption of new organizational form would lead to a decrease in liquidity of the Sacco by a factor of 0.132.

From Table 9 below, the modelling of regression function was done by taking financial innovations' indicators as predictor variable and capital adequacy as dependent variable.

Table 9: Model of Fitness - Financial Innovations and Capital Adequacy

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.898[a]	.807	.763	.24830
a. Predictors: (Constant), New Organizational form, New Products, New services process				

Table 9 above indicates the success of the model in examining the effect of financial innovations on capital adequacy of deposit taking SACCOs in Nairobi City County, Kenya. The Pearson's correlation / correlation coefficient (R) of 0.898 reveals a strong positive correlation between capital adequacy and financial innovations. Holding other factors constant, the coefficient of determination (R Square) signifies that financial innovations in the regression model collectively explain 80.7% of the variations in liquidity of DTS in Nairobi City County, Kenya.

Table 10 below presents results on the model overall in terms of significance.

Vol. 2, No. 02; 2018

ISSN: 2456-7760

Table 10: ANOVA- Financial Innovations and Capital Adequacy

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.352	3	1.117	18.124	.000[b]
	Residual	.801	13	.062		
	Total	4.154	16			
a. Dependent Variable: Capital adequacy						
b. Predictors: (Constant), New Organizational form, New Products, New services process						

In Table 10 above, the model overall presents a good fit with $p<0.05$ ($p=0.000$) hence alleged to be statistically significant. Thus, we reject the null hypothesis of the study. The finding above reveals a statistical significant effect of firm characteristics on capital adequacy among DTS in Nairobi City County, Kenya.

The regression coefficients in Table 11 below indicate the significance of each financial innovation's indicators on capital adequacy.

Table 11: Regression Coefficient - Financial Innovations and Capital Adequacy

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.540	.601		.899	.385	-.758	1.839
	New Products	.250	.077	.430	3.258	.006	.084	.417
	New services process	.554	.135	.575	4.099	.001	.262	.846
	New Organizational form	.099	.100	.138	.982	.344	-.118	.316
a. Dependent Variable: Capital adequacy								

$\alpha = 0.05$

The Table 11 above, the findings imply that new products is significant at 0.05 since $p<0.05$ ($p=0.006$) and new service processes have significance in explaining capital adequacy of DTS at 0.05 with $p<0.05$ ($p=0.001$). Thus, from this result, the null hypothesis was rejected. This means that both new products and new service processes are significant in influencing SACCOs' capital adequacy while new organizational form is not significant at 0.05 with a $p>0.05$ ($p=0.344$) hence the null hypothesis failed to be rejected. However, from this result indicates that new organizational form is not significant in explaining changes of capital adequacy of deposit taking SACCOs in Nairobi City County, Kenya.

The regression model below is formulated with the model overall being not significant at 0.05 ($p=0.385$).

$$Y_{CA} = .540 + .250X_1 + .554X_2 + .099X_3$$

Vol. 2, No. 02; 2018

ISSN: 2456-7760

Where:
Y_{CA} = Capital Adequacy
X_1 = new products
X_2 = new service processes
X_3 = new organizational form

The regression equation above, implied that embracing of new products, new service processes and new organizational form by DTS at 95% confidence interval all Else held constant, capital adequacy of the SACCO's would rise by 0.540. An increase of new products by a unit would raise capital adequacy by factors of 0.250, an increase of new service processes by a unit would raise capital adequacy by factors of 0.554, and an increase of a unit in adoption of new organizational form would lead to an increase in capital adequacy of the SACCO by a factor of 0.099.

The study also sought to establish whether firm characteristics have a significant moderating influence on the relationship between financial innovations and performance. The SPSS hierarchical test for moderation was used to test the moderation of firm characteristics on the financial innovations-performance relationship. From Table 12 below, the final output is modelled by taking financial innovations as the predictor variable (in model 1) then financial innovations (new products, new service processes and new organizational form) while in model 2, firm characteristics are entered as independent variables, financial innovations entered as the control variable while performance taken as the dependent variable.

Table 12: Moderating Effect of Firm Characteristics on Financial Innovations and Performance

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.244[a]	.060	-.003	.44362	.060	.949	1	15	.345
2	.871[b]	.758	.723	.23301	. 698	40.370	1	14	.000
a. Predictors: (Constant), Financial Innovations									
b. Predictors: (Constant), Financial Innovations, Firm Characteristics									

Table 12 above, the results in model 2 shows some quantum variation in R2 (R2 change= 0.698) by introducing firm characteristics into the model upon controlling financial innovations. Hence, firm characteristics has a moderating effect on the relationship between financial innovations and performance, and in model 2, the change statistic for F (p=0.000) is smaller than the significance level of 0.05 hence indicating that the change is statistically significant. As a result, the hypothesis that firm characteristics does not have a significant moderating effect on the relationship between financial innovations and performance is rejected.

Vol. 2, No. 02; 2018

ISSN: 2456-7760

The results show that adoption of new products has resulted to increased revenues and profits to DTS in Nairobi City County.This finding concurs with Kemp *et al*., (2003) who posited that successful new products result to increased income. The moderation findings are in line with the authenticity of campaigns carried out by DTS in encouraging their clients to use cheques in conducting transactions and continuous improvement of existing FOSA accounts to suite the ever-changing market demands. Use of cheques by customers generates more returns for the DTS. Nyathira (2012) found that financial innovation in payment systems result into improved financial performance. Similarly, these moderation findings are consistent with the tendency that DTS in Kenya are engaging in partnerships with commercial banks to advance their profitability both directly or indirectly by relating ATM services and EFT within the country hence many SACCOs are attracted to develop such partnerships. Through offering money transfers services by SACCOs, their profitability has continually elevated.

The findings above are also in line with great SACCOs' use of mobile phones and internet services in marketing their numerous deposit products / services as a competitive gain to generate sophisticated value for their clients within the country which is associated to SACCOs' size and market share. Njeri (2013) and Keah (2014) affirmed that SACCOs are appreciating the benefits associated with ICT. To update their clients on deposit offerings, many DTS send emails and messages through mobile phones. These DTS have also displayed their various deposit products / services in their websites, giving detailed benefits and interest rates linked with every product / service. Using of these platforms, DTS have fascinated new customers thus increased businesses and elevated performance. Due to considerable cost reduction over time on internet charges, it has emerged as cost efficient service delivery channel.

VIII. Conclusions and Recommendations

The study makes several conclusions based on the results in line with research objectives and hypotheses. In view of the test of first hypothesis, new products have significant effect on performance of SACCOs. This finding is consistent with other empirical studies hence concludes that, new products have a positive effect on the performance of DTS in Nairobi City County, Kenya. It further concludes that majority of SACCOs prefer to embrace new products as financial innovation strategy with the aim of remaining competitive in the market and increasing the market share thus resulting to increased revenues and profits. The test of second hypothesis indicates that new service processes have significant effect on the performance of DTS which was also supported by the local studies. Thus, the study concludes that new service processes have positive influence on performance of DTS in Nairobi City County, Kenya. The study also concluded that adoption of new service processes by DTS have led to high level of sophisticated novel payment patterns and asset alternatives to holding money, reduction in service time and reduction of operational costs resulting to increased income to the SACCOs.

In view of the third hypothesis, the test found that new organizational form has an insignificant effect with two indicators of performance (liquidity and profitability) while a significant effect with capital adequacy with negative coefficients. This result contradicts some literatures from

Vol. 2, No. 02; 2018

ISSN: 2456-7760

other scholars. This study therefore concludes that new organizational form have a negative effect on performance of DTS in Nairobi City County, Kenya. It further concludes that new organizational form does not directly influence the performance of DTS but are novel practices that cushion the financial strength and stability of SACCOs. Finally, finding from the test of the fourth hypothesis indicates that firm characteristics have a moderating effect on the relationship between financial innovations and performance of DTS. This result was supported by empirical studies done locally within the country. This study concludes that firm characteristics have a positive influence on the relationship between financial innovations and performance. The study also concludes that firm characteristics are a fundamental aspect towards the improvement of DTS' performance in Nairobi City County, Kenya.

The study strongly recommends adoption of financial innovations strategies by various SACCOs operating in Kenya so as to enhance efficiency in all areas of operations, boost profitability and expand their market share focusing on firm characteristics as an additional advantage. Consequently, management of SACCOs should embrace research and development to foresee new and innovative ideas to boost their performance. The regulator and advisory body (SASRA) ought to develop effective regulatory and surveillance structures that will ensure adoption of financial innovation strategies by various DTS focusing on their firm characteristics to boost their efficiency and performance. The study has scholarly findings on the association of financial innovations, firm characteristics with performance of DTS in Nairobi City County. Thus, academicians should obtain potential information on the study area. Lastly, the study findings should also be used by other researchers as a source of reference to for further research on the same area or different service sector with the same objectives to bridge the knowledge gap in financial innovations.

IX. Contribution to Knowledge

The study builds on to corporate finance theory on how financial innovations explain performance of deposit taking SACCOs in Nairobi City County, Kenya as well as the moderating role of firm characteristics. The findings of this study will form a basis of conducting future research where knowledge gaps were identified. The presence of moderating effect by firm characteristics is a clear indication that there could be different features that could moderate the relationship between financial innovations and performance. Recommendations derived from the findings of this study can be further subjected to empirical investigations to reinforce the findings.

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Vol. 2, No. 02; 2018

ISSN: 2456-7760

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