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FACTORS INFLUENCING FINANCIAL INTERMEDIATION OF SAVINGS AND CREDIT CO-OPERATIVE SOCIETIES IN KIAMBU COUNTY

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Abstract: **Financial intermediation is an institution that facilitates the channeling of funds between Lenders and borrowers indirectly. That is, savers (lenders) give funds to an intermediation institution (such as a bank), and that institution gives those funds to spenders (borrowers). There have been growing concerns over the financial soundness of some Sacco's in Kiambu County with a few having collapsed in the recent past. Recent developments in the subsector may point to intermediation. This includes a sustained increase in SACCO lending rates accompanied by a loss of customer base. The study examined the factors influencing financial intermediation of saving and credit co-operative societies in Kiambu County. Focusing on Capital adequacy, asset quality, liquidity, diversification as the main variable. The research adopted descriptive research design with census technique the target population of the study is 42 SACCOS registered in Kiambu County. Data were collected with a questionnaire and were analyzed with SPSS version 24.00 then the results were presented in graphs and tables. The finding established that capital adequacy ($\beta 1 = 0.097$, $p < 0.05$), liquidity ($\beta 2 = 0.237$, $p < 0.05$), asset quality ($\beta 3 = 0.246$, $p < 0.05$) and income diversification ($\beta 4 = 0.407$, $p < 0.05$) had a positive and significant effect on financial intermediation. Therefore, manager of deposit-taking Sacco's in Kenya must hold enough capital as it is an enhancer of financial intermediation. Also, the management should effectively manage credit risk to ensure that there are adequate levels of liquidity to meet current needs when they are due. Moreover, efforts should be on ensuring that the agency problem between shareholders and management is minimized to have lower levels of non-performing assets. Finally, it is recommended for Sacco's to expand their resources within their existing business lines where they possess distinctive comparative advantages.**

Keywords: **Asset quality, Capital Adequacy, Data Envelopment Analysis, Financial intermediation.**

1. INTRODUCTION

A co-operative is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise [3]. Financial intermediation is an institution that facilitates the channeling of funds between Lenders and borrowers indirectly. That is, savers (lenders) give funds to an intermediation institution (such as a bank), and that institution gives those funds to spenders (borrowers).

Financial Cooperatives are referred to in different terms in different countries. In countries like UK, USA, Canada, and Australia, they are referred to as credit unions. In Kenya, they are referred to as Savings and Credit Cooperative Societies (SACCOs). According to [6], credit unions were originally distinguished from other financial institutions by their emphasis on small value, unsecured, non-mortgage loans to individuals and households. Financial intermediation is typically an institution that facilitates the channeling of funds between lenders and borrowers indirectly. That is, savers (lenders) give funds to an intermediary institution (such as a bank), and that institution gives those funds to spenders (borrowers).

In addition to stability, efficiency enables financial institutions to provide affordable services with the potential of drawing a larger number of Kenyans to the financial system [9]. Kenya's vision 2030 envisages a financial sector that can (i) improve stability, (ii) enhance efficiency in the delivery of credit and other financial services, and (iii) improve access to financial services and products for a much larger number of Kenyan households. This is informed by a significant number of Kenyans who are financially excluded. The 2013 Financial Access survey revealed that 25.4% of the adult population is totally excluded from financial services [5].

2. EMPIRICAL REVIEW

[11] The study used the DEA and truncated regression model to investigate the determinants of efficiency in Gulf cooperation countries (GCC) banking sector. The study revealed that there was compelling evidence that a stringent capital requirement, a strong supervisory review, transparency, and market discipline promote efficiency. The results were argued to support the hypothesis that increased capital requirement will reduce lending, enhance loan quality, and decrease monitoring costs.

[13] Investigated the effects of Basel capital adequacy framework on the economic efficiency of banks in Kenya during the period 2001-2011. The study adopted data envelopment analysis (DEA) to analyze banks economic efficiency. The study found out that the behavior of the Kenyan banking sector regarding resource allocation and utilization (efficiency) was affected by the level of capital held by the bank and the country's economic situation. The study found that the existence of voluntary capital cushions as measured by the leverage ratio had no implications for the efficacy of banks in Kenya but risk-based capital cushions positively influenced bank efficiency.

[8] Investigated the main determinants of Italian banks' cost efficiency over the period 1993–1996, by employing a Fourier-flexible stochastic cost frontier to measure X-efficiencies and economies of scale. The results indicated that the most efficient and profitable institutions are more able to control all aspects of costs, especially labor costs. Most significantly, the study revealed that inefficiencies appeared to be inversely correlated with capital strength and positively related to the level of non-performing loans in the balance sheet. This they argued that it could be an indication that higher capital ratios may prevent moral hazard both for the bank and its managers.

[14] Assessed the performance of co- operatives in Malaysia using a data envelopment analysis approach with a sample of 56 out of the 70 co-operative groups. The productivity and efficiency scores were then regressed upon the co-operative variables (turnover, member, equity) using non-linear Tobit regression. The second-stage analysis attempted to investigate if any of the co-operative group characteristics (turnover, profits, members' equity, and membership) have any influence on the efficiency scores. The result showed that turnover, profit, and equity were statistically significant in influencing technical efficiency.

Turnover was positively correlated to all three scores which postulate that the higher the turnover of co-operative groups, the greater the efficiency scores. The result showed that as equity and members increased all three efficiency scores decrease suggesting that co-operatives are less efficient when membership size and equity gets bigger. [9] Examined the trends in efficiency and productivity changes of the banking industry in Kenya during the post-liberalization period (1997-2009). Efficiency scores and total factor productivity growth are estimated using the output-oriented DEA model. Regarding ownership and size, foreign banks are found to be more efficient than local banks. And in the local category, local private is more efficient than the local public. Large sized banks are found to be more efficient than medium and small banks.

[12] undertook a study focused on the relationship between capital adequacy and the cost-income ratio on one side and bank profitability on the other hand. He evaluated Kenyan Commercial banks between 1998 and 2007. The study found out that there exists a negative relationship between the equity capital ratio and profitability. Non-risk weighted capital adequacy measure (i.e. the equity capital ratio) was found to be negatively related to profitability of a bank (as measured by both ROA and ROE) while a positive relationship between risk-adjusted capital adequacy measure (i.e. tier 1 risk-based capital ratio and core capital ratio) and profitability of a bank (as measured by both ROA and ROE). He argued that the differential relationships between bank profitability and capital could be explained by the differential effects of various measure of capital adequacy (due to risk measurement) on the profitability of the bank.

3. CONCEPTUAL FRAMEWORK

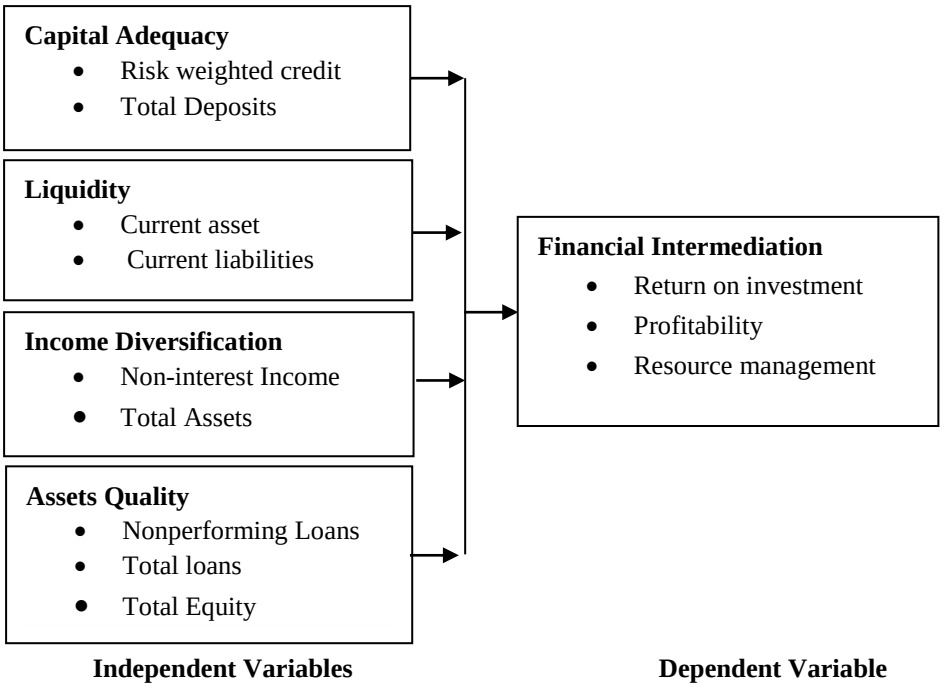

Figure 3.1: Conceptual Framework

4. SUMMARY AND CRITIQUE OF EXISTING LITERATURE

Two measures of efficiency have been widely used in evaluating efficiency of financial institutions. A considerable number of researchers have used a non-parametric approach; Data Envelopment Analysis (DEA) [1]. Other researchers used a parametric approach such as the Stochastic Frontier Analysis (SFA) [8]. The authors who have used DEA have credited it with the fact that no functional relationship (between production inputs and outputs) has to be assumed and its capability to handle multiple inputs and outputs. In the second stage analysis, the methodology used include; ordinary least square, Tobit regression and truncated regression model using double bootstrap.[4] used both Tobit regression and double bootstrap methodology indicating that the latter offers more relevant results.

5. RESEARCH METHODOLOGY

The descriptive research design was used to allow the researcher to gather, summarize, present and interpret information for clarification. Descriptive research design was adopted because the study involved an investigation of the firm characteristics and their relationship with financial intermediation efficiency of deposit-taking Saccos in Kenya. Descriptive research is used to obtain information concerning the current status of the phenomena to describe "what exists "concerning variables or conditions in a situation [10]. The target population consisted of 42 licensed deposit taking Saccos in Kiambu County. The study employed a census approach to collect data from the respondents. Hence no sampling techniques were used. The study used self-administered questionnaires and observation schedules. This study utilized both primary and secondary data. Questionnaires were used to collect primary data which was distributed to the staff. The researcher made personal-follow ups to ensure that the questionnaires are filled and collected.

6. RESULTS AND DISCUSSION

Response Rate

The study focused on 42 licensed deposit-taking SACCOs in Kiambu County.

Capital adequacy

Capital adequacy was measured regarding risk-weighted and total capital. As evidenced in table 6.1, capital adequacy was highest in 2013 (mean = 2.59) and lowest in 2015 (mean = 1.64). Capital adequacy has however been on a declining trend over the years. It could be that as the years progressed, the SACCOs were on the premise that higher capital proportions reduce lending and lead to inefficiency.

	Risk a weighted		**total capital**		**Capital Adequacy**	
	Mean	Std	Mean	Std	Mean	Std
2013	0.17	0.07	4306862.00	437.69	2.59	0.19
2014	0.17	0.07	7017120.00	791.71	2.18	0.19
2015	0.12	0.02	7876983.00	722.70	1.64	0.88
2016	0.12	0.02	3760085.00	336.01	1.94	1.04
2017	0.13	0.03	3375898.00	517.59	1.91	0.22

Liquidity

Liquidity refers to the ability of financial institutions to meet up deposit withdrawals, maturing loan request, and liabilities without setback [2]. Basing on the results in table 6.2, the current assets outweigh the liabilities from the year 2013 to 2017 except 2015.The liquidity levels were highest in 2016 (mean = 1.565148) and lowest in 2015 (mean = 0.998597).The firms have high liquidity levels that could facilitate financial intermediation.

	Liquidity				
	current asset		**current liabilities**		**Liquidity**
	mean	**Std**	**mean**	**std**	**mean**
2013	54617360	1309	37703798	3186.539	1.44859
2014	55441177	1460	41617010	2074.502	1.332176
2015	42292021	1835	42351422	1725.516	0.998597
2016	51715781	1320	33042111	1241.15	1.565148
2017	49698065	8757	44553677	510.6385	1.115465

Asset quality

Asset quality is the ratio of non-performing loans to gross loans and advances is used as the indicator of asset quality. The results on asset quality are highlighted in table 6.3. Basing on the findings, asset quality was highest in 2017 (mean = 13.64623) meaning that the quality of loans was high hence the SACCOs were not spending a greater portion of their incomes on recovering loans. However, the asset quality was lowest in 2013 (mean = 1.480148).

	Total Equity		**Gross loan portfolio**		**Asset Quality**
	mean	**std**	**Mean**	**Std**	**mean**
2013	4150110	1791.537	6142778	2635.297	1.480148
2014	4347388	1813.237	6792931	2613.317	1.562532
2015	4140124	19339.43	6211613	3096.849	1.500345
2016	4176154	1996.569	6487027	3698.111	1.55335
2017	3930492	2253.379	53636380	4471.503	13.64623

Income diversification

The results on income diversification are presented in table 6.4. Income diversification was at 34.83% in 2016 which was the highest while the lowest was in 2015 (29.11%). Income diversification was lowly evidenced among the SACCOs. It could be that the management of the SACCOs was of the opinion that the diversification of the operation exposed them to greater risks leading them to engage in minimal income diversification.

	Non-interest income		Total assets		Diversification
	mean	std	mean	Std	Mean
2013	8150349	1860.8701	28237219	1523.1751	0.2886
2014	7604428	1624.6962	25425712	1587.5724	0.2991
2015	6872979	1610.2210	23606368	1409.5534	0.2911
2016	6368379	1133.9579	18283136	135.8713	0.3483
2017	6327144	1478.9492	21613631	183.2563	0.2927

ROA

Financial intermediation was measured regarding ROA and ROE. The findings are illustrated in table 6.5. From the findings, financial intermediation by the SACCOs was highest in 2013 (mean = 0.4128) and declined to its lowest in 2014 (mean = 0.0612). Overall, the SACCOs possess the capacity to satisfy market needs.

	ROA		**ROE**		**Financial intermediation**
	mean	**std**	**mean**	**std**	**Mean**
2013	0.0389	0.0183	0.3739	0.0173	0.4128
2014	0.0120	0.0150	0.0492	0.0208	0.0612
2015	0.0415	0.1655	0.0401	0.0274	0.0816
2016	0.0625	0.0527	0.1742	0.0402	0.2367
2017	0.0588	0.0149	0.1511	0.0115	0.2099

Correlation Analysis

Correlation analysis is conducted to study the level at which two variables move or diverge together from one case to the next, and to assess the significance of the connection. This analysis generates a correlation coefficient which explains the extent to which the two variables move together. The correlation coefficient is coded as "r." The "r" value range is between 0 to ±1. The value of zero (0) indicating that there is no relationship between the two variables. The value of ±1 showing that there is a perfect linear relationship between the two variables. A positive value shows that the two variables move together in the same trend, and when the "r" is a negative value, it shows that the variables move in opposite direction or trend.

Table 6.6: Summary of Pearson's Correlations

	Financial intermediation	Capital adequacy	Liquidity	Asset quality	Income Diversification
Financial intermediation	1				
Capital adequacy	.319**	1			
	(0.001)				
Liquidity	.667**	.326**	1		
	(0.000)	0.001			
Asset quality	.717**	.369**	.676**	1	
	(0.000)	(0.000)	(0.000)		0
Income Diversification	.721**	0.131	.570**	.676**	1
	(0.000)	(0.000)	(0.000)	(0.000)	

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

The Table presents Pearson correlation results of the study dependent and independent variables to assess the association of the variables. Findings revealed that Capital adequacy was positively and significantly associated with financial intermediation ($r = 0.319$, $\rho<0.01$). Further, Liquidity was positively and significantly correlated to financial intermediation ($r = 0.667$, $\rho<0.01$). Likewise, Asset quality was positively correlated with financial intermediation ($r = 0.717$, $\rho<0.01$). Also, income diversification was indicated to positively relate with financial intermediation ($r = 0.721$, $\rho<0.01$). This implies that capital adequacy, liquidity, asset quality, and income diversification are expected to influence financial intermediation.

Regression Analysis

According to table 4.7, the R-value indicates a relatively strong correlation between predictor variables and the consequent variable (financial intermediation). This is because the R-value is positive (.812). This means that financial intermediation recorded was attributed to a certain percentage of predictor variables. According to the value of the R-Square, 65.9% of financial intermediation could be explained by independent variables. Therefore, independent variables would have a 65.9% influence on financial intermediation while the remaining 34.1% could be attributed to other factors other than predictor variables.

Table 4.7: Model Summary

Model	R	R Square	Adjusted R Square	Std. The error of the Estimate	Durbin-Watson
1	.812a	0.659	0.645	0.61941	1.77

a Predictors: (constant), Diversification , Capital adequacy , Liquidity , Asset quality

b Dependent Variable: financial intermediation

Table 4.8: Coefficient of Estimate

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	-1.048	0.444		-2.362	0.02		
Capital adequacy	0.179	0.121	0.097	1.486	0.001	0.819	1.221
Liquidity	0.329	0.115	0.237	2.846	0.005	0.507	1.974
Asset quality	0.303	0.118	0.246	2.575	0.012	0.385	2.599
Income diversification	0.508	0.105	0.407	4.846	0.000	0.499	2.005

a Dependent Variable: financial intermediation

Findings in table 4.8 showed that Capital adequacy had coefficients of the estimate which was significant basing on $\beta 1 = 0.097$ (p-value = 0.001 which is less than $\alpha = 0.05$) thus we conclude that Capital adequacy has a positive and significant effect on financial intermediation. This suggests that there is up to 0.097 unit increase in financial intermediation for each unit increase in Capital adequacy. The effect of Capital adequacy is more than the effect attributed to the error, this is indicated by the t-test value = 1. 486. Consistent with the results, [7] established that with higher capital and liquidity, the better banks can support businesses and households in bad times hence they are more capable of absorbing losses and upholding lending. Furthermore, [13] found that risk-based capital cushions positively influence bank efficiency.

Furthermore, the effect of Liquidity was stated by the t-test value = 2.846 which implies that the standard error associated with the parameter is less than the effect of the parameter. However, [15] in a study of the Malaysian banking sector established that more efficient banks tend to be less liquid. The reason for this is that the banks had high liquidity levels at the expense of other investment opportunities which could generate earnings. Similarly, [15] indicated a negative relationship between bank efficiency and the level of liquid assets held by the bank.

Also, findings showed that asset quality had coefficients of the estimate which was significant basing on $\beta 3 = 0.246$ (p-value = 0.012 which is less than $\alpha = 0.05$) implying Asset quality has a significant effect on financial intermediation. The results suggest that asset quality brings about improved financial intermediation. As such, for every unit increase in asset quality, there is also an increase in financial intermediation by the same unit. Furthermore, the effect of asset quality was stated by the t-test value = 2.575 which implies that the standard error associated with the parameter is more than the effect of the parameter. The results are in tally with that of Gulati, (2015) which concluded that a lower level of non-performing assets would facilitate higher efficiency in banking operations.

7. CONCLUSION

The findings of the study support the notion that capital adequacy enhances financial intermediation by deposit-taking Saccos. The implication is that adequate capital facilitates the operations of Saccos without interruptions. As such, adequate capital is an important parameter in assessing the stability of Saccos. Despite the effect of capital adequacy being two-fold, there is a higher probability the Sacco's have not engaged in greater risk-taking which is prevalent with increased capital. The take away is that capital adequacy has enabled better financial intermediation among the deposit-taking Saccos.

Also, liquidity facilitated financial intermediation of deposit-taking Saccos. The results suggest that it is beneficial for financial institutions to hold high liquidity as it aids in supporting activities when external finance is unavailable. Therefore, deposit taking Sacco's that have inadequate liquidity are likely to obtain high-interest loans which will lead to the decline of returns. Overall, liquidity enhances financial intermediation of deposit-taking Saccos. Besides, asset quality is a key determinant of future earnings of deposit-taking Saccos. Precisely, the loans issued by the Sacco's comprise its most valuable assets since they determine a greater percentage of the firm's income. Therefore, the quality of the loan is key. In the case of non-performing assets, the Sacco's intermediation role is impaired since greater efforts are dedicated to the recovery of overdue assets. Emphasis should, therefore, be on ensuring asset quality.

Finally, the study has revealed that income diversification improves financial intermediation. The results suggest that diversification lowers the risk among the Sacco's thereby facilitating their financial intermediation. This is however contrary to some prior studies that are of the idea that diversification leads to a decline in efficiency. There is thus a need for further studies on the same to validate the results.

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