

Influence of Loan Loss Provisioning Ratio Prudential Regulations on Financial Performance of Deposit Taking Savings and Credit Cooperatives in Kenya

*¹Nancy A. Okeyo, ²Fredrick Odoyo, ³Omboi Bernard

United States International University – Africa

Email: ¹nancyokeyo715@gmail.com

²sodoyo@usiu.ac.ke

³bomboi@usiu.ac.ke

*Corresponding author

Cite: Okeyo, N.A., Odoyo, F., & Omboi, B. (2023). Influence of Loan Loss Provisioning Ratio Prudential Regulations on Financial Performance of Deposit-Taking Savings and Credit Cooperatives in Kenya. *The University Journal*, 5(3), 77-90.

Abstract

The purpose of this study was to examine the effect of loan loss provisioning ratio regulations on the financial performance of deposit taking Savings and Credit Cooperatives (SACCOs) in Kenya. The study was based on the modern portfolio theory and used a positivist philosophical approach. A mixed study strategy was employed that incorporated both primary and secondary data sources spanning the years 2014 to 2021. The study population consisted of 175 deposit-taking SACCOs (DT-SACCOs) and stratified random sampling was used to choose 105 DT-SACCOs that are regulated by the SACCO Societies Regulatory Authority (SASRA). Additionally, purposive sampling was used to select the chief executive officers (CEOs) of the selected DT-SACCOs. The primary data for this study was obtained by the administration of questionnaires to CEOs. The secondary data was gathered from published financial reports of the 105 DT-SACCOs. The gathered data was analyzed using both descriptive and inferential statistics. The results of the study indicated that the loan provisioning ratio had a significant and negative effect on the financial performance of DT-SACCOs in Kenya ($\beta = -0.502$, $t = -5.987$, $p < 0.05$). The study recommends to management of DT-SACCOs to always adhere to prudential guidelines on loan loss provisioning ratio, and implement credit control mechanisms like performing evaluations of credit policy and ensuring that there are skilled personnel authorizing and approving loans. The study also recommends to leaders in DT-SACCOs to adopt and execute effective strategies to minimize non-performing loans engaging in effective and detailed customer profiling.

Key Words: Loan loss provisioning ratio, Deposit Taking SACCO, Financial performance, Prudential regulations.

Introduction

The core focus of credit management regulations in deposit taking Savings and Credit Cooperative Organizations (DT-SACCOs) primarily involves the effective management of liquidity, complemented by the incorporation of some aspects of credit portfolio risk assessment. The SACCO credit requirement encompasses the many operations undertaken by a SACCO in relation to the provision of services, recording of transactions, analysis, and

collection of payments from debtors. The SACCO credit requirement pertains to the punctual fulfillment of borrowers' contractual responsibilities. The degree of asset quality is negatively correlated with the quantity of non-performing assets (NPLs). In accordance with Alukwe, Ngugi, Ogollah, and Orwa (2015), NPL refers to a credit facility for which the payment of interest and/or principal has gone beyond the designated due date for a certain duration. The topic of NPLs has garnered significant interest, as highlighted by Bikker and Metzmakers (2010). This is mostly due to the direct correlation between a high volume of NPLs within the financial system and the subsequent occurrence of failures of financial institutions. In the Kenyan context, the regulation of credit management is governed by legislation, namely the SACCO Society Act of 2008 (SASRA, 2020). This legal framework outlines the procedures for loan distribution by SACCOs, loan provisions and highlights the significance of implementing regulations and restrictions pertaining to loan disbursements.

SACCO Societies Regulatory Authority (SASRA) mandates that SACCOs must establish a loaning policy that explicitly outlines the loan concentration limit, terms and conditions of insider lending, and provision of quarterly statements for each ongoing credit facility to borrowers. However, despite these credit regulations, certain SACCOs still have a significant proportion of non-performing loans (delinquencies) that necessitate write-offs (SASRA, 2023). This calls for empirical evidence relating loan loss provisions to financial performance to inform policy and practice. In Kenya, DT-SACCOs have faced many challenges that have jeopardized their sustainability and financial performance in the long run. In relation to the metric of return on assets (ROA), the financial performance of DT-SACCOs showed fluctuations, characterized by a fall from 2.65% in the year 2020 to 2.52% in the year 2021, followed by a further decline to 2.39% in the year 2022 (SSAR, 2023). This occurred in spite of the implementation of prudential regulations on loan loss provisioning in the SACCO sector. SASRA, which is the key regulator in the sector, adopted the CAMEL (Capital adequacy, Asset quality, Management, Earnings, and Liquidity) model to monitor the DT-SACCOs (SSAR, 2020). According to SSAR (2020), there were a total of 175 DT-SACCOs with a membership count of 5.47 million members. The DTS regulations 2010 require SACCOs to adhere to the aging percentages as given by the guidelines as 1% provision for performing loans, 5% provision for watch loans, 25% provisioning for substandard loans, 50% provisional for doubtful loans, and 100% provisioning for loss category loans (SSAR, 2012). The primary factor affecting the overall asset quality, financial performance, and sustainability of a SACCO is the loan portfolio and the credit administration program (Paxton, 2020). This study thus seeks to determine the influence of the loan loss provisioning requirements by SASRA on the financial performance of DT-SACCOs in Kenya.

The Problem

DT-SACCOs have encountered several obstacles that have posed a significant risk to their long-term viability and financial stability. The financial performance of DT-SACCOs has shown oscillations in respect to the measure of Return on Assets (ROA). According to the SSAR (2023), there was a decrease from 2.65% in 2020 to 2.52% in 2021, followed by a further dip to 2.39% in 2022. These observations indicate negative trends in key performance measures, which pose a significant danger to the multibillion-shilling sector. These occurrences have transpired notwithstanding the implementation of loan loss provision guidelines. This raises concerns over the impact of loan loss provisioning on the performance of financial institutions. In their study, Osano and Kamau (2019) examined the impact of CAMEL prudential regulations on the financial performance of commercial banks operating

in Kenya. The study findings indicate a statistically significant and favorable correlation between loan loss regulations and profitability. However, this study failed to address the contextual gap since it focused only on commercial banks rather than DT-SACCOs. Furthermore, the study conducted by Musabi and Mbithi (2018) established a statistically significant positive correlation between prudential rules and the financial performance of commercial banks in Kenya. In a study conducted by King'ori et al. (2017), it was shown that there exists a notable correlation between the prudential regulations and the financial performance of microfinance banks operating in Kenya. The existing study has resulted in information gaps due to their focus on commercial and microfinance banks rather than DT-SACCOs. Moreover, within the Kenyan context, there exists a dearth of knowledge on the effect of the prevailing prudential regulations on loan loss provisioning ratio on the performance of DT SACCOs.

Objective

The general objective of the study was to determine the effect of loan loss provisioning ratio requirement on financial performance of DT-SACCOs in Kenya.

Literature Review

Theoretical Review

This study was anchored on the modern portfolio theory (MPT) which is attributed to Harry Markowitz (1952). This theory of investments emphasizes on minimization of risk by combining various proportions of several assets or maximizing expected returns from a given level of portfolio risk (Elton, Gruber, Brown & Goetzmann, 2009). The theory encourages investors to diversify their assets in order to hedge against unsystematic risk (Shipway, 2009).

The theory focuses on choosing a combination of assets which has lower risk compared to an individual asset. According to MPT theory combining assets whose returns are not perfectly positively correlated leads to a reduction of the total variance of the portfolio. The main assumption of the theory is that investors are rational and markets are efficient (Pfaff, 2012). The fundamental concept of MPT that is relevant to this study is that when having a portfolio of loans, it is important to assess the risks of the various borrowers to ensure that the total portfolio quality is not jeopardized. The theory supported the study by justifying the use of prudential regulations as a tool for promoting asset quality and reducing loan losses (SSAR, 2011).

Conceptual Framework

Figure 1 illustrates the conceptual framework that was used to guide the study and hypothesizes a direct linear relationship between loan loss provisioning requirement and the financial performance of DT-SACCOs in Kenya.

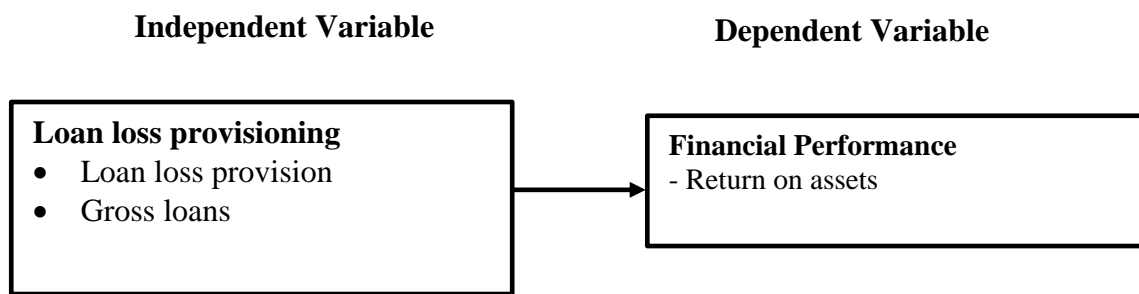


Figure 1. Conceptual Framework

The conceptual framework for the study is presented in Figure 1. The independent variable is loan loss provisioning. To safeguard members' deposits, SASRA as the sector regulator requires all DT-SACCOs to provide adequate protection of their assets against loan losses through adequate loan loss provisioning (SASRA, 2013). A loan loss provision refers to an expenditure shown on the income statement, which is specifically allocated to account for potential losses arising from loans and loan payments that may not be recovered in full. DT-SACCOs are obligated to include the possibility of loan defaults and associated costs in their financial records in order to provide a precise evaluation of their overall financial well-being. In the current context where SACCOs are re-establishing themselves commercially and where non-shareholding members are allowed to access their services, credit risk management becomes of critical importance. The risk of failure of the SACCO becomes even more enhanced if credit risk management is not integrated as a key part of a company's overall risk management strategy, continuously monitored, and remaining adaptive to the changing borrower's behaviour. The dependent variable in the study was financial performance which was measured using return on assets which is a percentage of the surplus of the DT-SACCOs to their total assets. Based on this conceptual framework, the following null hypothesis was tested:

H_0 : Loan provisioning ratio requirement has no significant effect on financial performance of DT-SACCOs in Kenya.

Empirical Review

In Japan, Bikker and Metzmakers (2008) did a study on the effects of loan provisioning on financial performance and found out a significantly positive impact of loan growth on provisions due to application of prudential regulations. And, in agreement with Porteous et al. (2010) who found out that the main regulatory changes which affected provisioning were changes in loan classification standards, which were particularly intense in the late 1990s and early 2000s, when Japan tightened its guidelines on loan classification, and improved the financial performance of the banks. Another study by Berger and De young (1997) used the Granger Causality methodology (GCM) and established that the efficiency of banks decreases with increase in non-performing loans. In contrast, Borio et al. (2001) did a study on the correlation of bank loan provisions with performance for ten members of the OECD and found a positive relationship. Besides, Barus (2017) aimed to examine the impact of asset quality on the financial performance of savings and credit societies in Kenya. The study concluded that asset quality influenced the financial performance of savings and credit societies in Kenya.

Osoro and Muturi (2015) sought to determine the relationship between loan loss provisioning and the performance of SACCOs in Kisii County, Kenya. The study found that asset quality had a negative and insignificant relationship with performance. Maingi (2014) studied factors affecting the financial performance of SACCOs in Kenya. The study employed a descriptive research design. The study population was 5 SACCOs in Nairobi. The study employed the Pearson correlation model to measure the degree of association and the multiple regression model to estimate the casual relationship. The finding indicated there is a weak positive correlation between loan portfolio and performance. Njoroge (2013) in a relatively limited study, sought to establish the determinants of technical efficiency of SACCOs in Nairobi County. The study adopted a three-year (2010 -2013) panel data and found that credit risk management had a significant influence on the technical efficiency of cooperative societies. Another study in Kenya by Musabi and Mbithi (2018) examined the impact of loan loss provisioning on the financial performance of banks. The population consisted of 43 banks throughout the time frame spanning from 2012 to 2016. The results of the study revealed a statistically significant negative relationship between loan loss provisioning rules and financial performance.

Methodology

Philosophy and Design

The study used a positivist philosophical framework, using scientific and quantitative data to empirically evaluate hypotheses (Sekaran & Bougie, 2016). The research approach used in this study was correlational, chosen for its alignment with positivist philosophical beliefs and its utilization of techniques of inquiry and data analysis to ascertain the impact of one variable on another (Kothari & Garg, 2019).

Target Population and Sampling Technique

The data was obtained from a specific population consisting of 175 DT-SACCOs that were registered by SASRA as of December 31, 2020 (SSAR, 2021). A total of 175 CEOs were selected from the 175 DT SACCOs to participate in the questionnaire survey. This decision was made based on their comprehensive knowledge and grasp of the prudential legislation governing individual SACCOs and their financial performance. A sample of 122 DT-SACCO was selected using stratified random selection, as determined by the sample size formula developed by Yamane (1967).

Data Collection and Data Analysis Methods

The study used a mix of primary and secondary data sources. The secondary data was collected from the SACCOs governed by SASRA. This data was obtained from the audited and published annual financial reports of the 175 DT-SACCOs. The data was collected over a span of seven years, namely from 2014 to 2020. The selection process for secondary data included considering the publication date, author identity, and reliability of the sources. The primary data for this study was collected via the administration of a questionnaire to the chief executive officers (CEOs) of the selected SACCOs. The collection of primary data was undertaken in order to provide insights into the gaps that were observed during the analysis of secondary data. Specifically, the focus was on understanding the perspectives of DT-SACCOs about the importance of prudential laws on capital, as well as their views on the impact of these regulations on financial performance. The collected data was subjected to

analysis utilizing descriptive statistics, including frequencies, percentages, and averages, as well as inferential statistics, specifically linear regression analysis. The analysis of the data was conducted using the Stata Statistical software.

Results

The survey sent questionnaires to a total of 122 CEOs of DT-SACCOs. Out of the 122 CEOs, 105 completed and returned the questionnaire, resulting in a response rate of 86.1%. With respect to the gender composition of the participants, it was observed that 65% of the respondents identified as male, while only 35% identified as female. In terms of age distribution, 44.8% of the participants fell within the 31-40 years age range, while 30.5% fell within the 41-50 years age range. Additionally, 9.5% of the participants were between 51-60 years old, 7.6% were beyond 60 years old, and another 7.6% fell within the 21-30 years age range. The majority of respondents (60%) had undergraduate degrees, while 28.6% held master's degrees, 5.7% had postgraduate degrees, and an additional 5.7% possessed certificates, based on their greatest level of educational attainment.

Descriptive Statistics for Financial Performance

The dependent variable under investigation in this study was financial performance which was measured using ROA. From Table 1, the number of observations was eight hundred and forty (840), the number of DT-SACCOs in Kenya assessed was 105 represented by (n) and the number of years was eight (2014-2021) represented by (T).

Table 1. Summary Statistics of ROA

Variable		Mean	Std. Dev.	Min	Max	Observations
ROA	Overall	.364	6.568	-147.277	79.205	N = 840
	Between		2.257	-18.466	8.525	n = 105
	Within		6.172	-128.447	71.044	T = 8

The average value of the ROA was reported as 0.364. The standard deviation of the total ROA is reported as 6.568. The standard deviation among the 105 DT-SACCOs is reported as 2.257, while the standard deviation within the eight-year period is reported as 6.172. The standard deviation values exhibited a modest elevation, indicating that the ROA of SACCO had a marginal variation from the mean, both in the overall assessment and during the 8 years. As a result, the lowest overall ratio is -147.277, whilst the highest ratio is 79.205. The least value observed among DT-SACCOs is -18.466, while the greatest value is 8.525. The lowest value seen throughout the span of eight years is -128.447, while the greatest value observed during this period is 71.044. The results indicate that some DT-SACCOs had a negative ROA during certain years examined.

Descriptive Statistics for Loan Loss Provisioning

Loan Provisional Ratio Requirement was identified as the independent variable of the study. The primary data collected was evaluated utilising a 5-point Likert scale, with values ranging from 1 (strongly disagree) to 5 (strongly agree). The resulting descriptive statistics were derived from a total of 105 responses. Results are provided in Table 2.

Table 2. Loan Provisional Ratio Requirement Summary Statistics

Statement	SD	D	N	A	SA	Mean	Standard Deviation
The 1% provisioning of performing loans is necessary	3.5%	9.7%	24.8%	24.8%	37.2%	3.82	1.144
The 5% provisioning of watch category loans should be reduced to 1% to increase performance	8.8%	9.7%	27.4%	30.1%	23.9%	3.59	1.211
Portfolio at risk (PAR) of 5% should be increased to 10%	8.8%	10.6%	24.8%	31%	24.8%	3.52	1.225
Loans at loss category should be provided at 100%	13.3%	8.8%	19.5%	30.1%	28.3%	3.51	1.344

The results obtained and presented in Table 2 established that the majority of the respondents agreed to a great extent that the 1% provisioning of performing loans is necessary (Mean = 3.82, SD = 1.144). Respondents agreed to a great extent that the 5% provisioning of watch category loans should be reduced to 1% to increase performance (Mean = 3.59, SD = 1.211) and agreed that portfolio at risk (PAR) of 5% should be increased to 10% (Mean = 3.52, SD = 1.225). The findings also highlighted that respondents agreed that loans at loss category should be provided to at 100% (Mean = 3.51, SD = 1.344). The analysis of the standard deviation values indicates that the responses to the loan provisional ratio requirement did not exhibit significant deviation from the mean, as the observed values were relatively small (less than 2).

The secondary data gathered was also analyzed using descriptive statistics. The measurement of loan provisioning involved the computation of a ratio between non-performing loans and gross loans. Descriptive statistics were used to compute summary statistics for loan provisioning over the eight years. The findings are provided in Table 3.

Table 3. Summary Statistics of Loan Provisioning

Variable		Mean	Std. Dev.	Min	Max	Observations
Loan Provisioning	Overall	.418	4.616	0.87	97.009	N = 840
	Between		1.639	0.125	12.341	n = 105
	Within		4.317	-11.833	85.086	T = 8

The findings provided in Table 3 show that the number of observations was eight hundred and forty (840), the number of DT-SACCOs in Kenya assessed was 105 represented by (n) and the number of years was eight (2014-2021) represented by (T). The mean of the loan provisioning was given by 0.418. The standard deviation for the overall ratio is given by 4.616 while between the 105 SACCOs was given by 1.639 while the standard deviation within the eight years was given by 4.317. The standard deviation values were slightly high which means that both the overall and within the 8-year period assessed the loan provisioning of Kenyan SACCOs deviated slightly from the mean. Consequently, the minimum overall ratio is 0.87 while the maximum is 97.009. The minimum value between SACCOs is 0.125 while the maximum is 12.341. The minimum value within the eight years is given by -11.883 while the maximum within the years is given by 85.086.

Pooled Ordinary Least Squares Regression

The study applied the pooled Ordinary Least Squares regression model to assess the influence of loan loss provisions on the financial performance of DT-SACCOs. Before fitting the model, they conducted several diagnostic tests to ensure that the pooled linear regression model adopted did not violate the assumptions of the classical linear regression model. The diagnostic tests conducted were tests for normality, multicollinearity, autocorrelation, stationarity, and heteroscedasticity tests. The tests indicated that the model was appropriate and the findings are presented in Table 4.

Table 4. Effect of Loan Provisional Ratio Requirement on Financial Performance

Model Summary					
R	R ²	Adjusted R ²	Std. Error	F Change	Sig.
.523	.346	.267	0.1134	14.35	.001
Regression Coefficients					
	Beta	Std. Error	t-statistics	Sig.	
(Constant)	0.278	.029	9.656	.000	
Loan Provisioning	-0.502	.084	5.987	.002	

The results presented in Table 4 show that the r-square value was 0.346. This implies that up to 34.6% of the variation in financial performance in DT-SACCOs is explained by loan provisioning requirement. The remaining percentage, that is, 65.4%, is explained by other factors that were not incorporated in the model. To establish the significance of the regression model used, analysis of variance (ANOVA) was used. ANOVA shows the fitness of the

model to the data and the results presented in Table 5 indicate that the model was a good fit to the data ($F = 14.35$, $p < 0.05$). < 0.05). These findings imply that the overall regression model to examine the effect of loan loss provisioning requirement on financial performance of DT-SACCOs in Kenya was appropriate.

The regression results also provide the beta coefficient, constant, and their significance. The study established the model significance using both p values as well as critical t values.

The regression model obtained was;

$$Y = 0.278 - 0.502 X_1$$

Where: Y = Financial performance, and X_1 = Loan loss provisioning ratio.

The unstandardized regression coefficient for loan loss provisioning ratio was -0.502 which indicates that a unit increase in loan loss provisioning ratio is likely to reduce the financial performance of DT-SACCOs in Kenya by 0.502. The t-statistic for the regression coefficient for loan loss provisioning ratio was significant at a 5% level of significance ($t = -5.987$, $p < 0.05$). The null hypothesis on the non-significance of loan loss provisioning ratio on the financial performance of DT-SACCOs was rejected.

Discussion of Results

The findings established that loan loss provisioning had a significant negative effect on the financial performance of DT-SACCOs in Kenya. The findings support the results by Berger and De young (1997) who used the Granger Causality methodology (GCM) and found that the efficiency of banks decreases with increase in non-performing loans. Besides, Borio et al. (2001) undertook a study on the correlation between bank loan provisions and financial performance and established a negative association. The findings by Borio et al. (2001) are thus consistent with the findings from the current study. Additionally, another study by Maingi (2014) who studied factors affecting the financial performance of SACCOs in Kenya had consistent findings. The study employed a descriptive research design using a population was 5 SACCOs in Nairobi. The findings indicated that there is a negative correlation between loan portfolio and performance indicating as loan losses increased, financial performance decreased.

The findings from the study disagree with the findings by Barus (2017) who investigated the effect of asset quality on the financial performance of savings and credit societies in Kenya. The study employed an explanatory research design. The target population was 83 registered deposits taking SACCOs in Kenya that had been in operation for the last five years. The sample size for the study was all 83 SACCOs that have remained in existence since 2011-2015. The univariate regression results showed that asset quality positively influenced the financial performance of savings and credit societies. These findings contradict the findings from the current study. Another study that contradicts the findings from the current study was by King'ori, et al. (2017) who investigated the relationship between asset quality and financial performance of microfinance banks in Kenya. The study determined that non-performing loans had a positive relationship with financial performance and the relationship was significant.

Conclusions

This study sought to determine the effect of loan provisioning ratio requirement on financial performance of DT-SACCOs in Kenya. The findings implied that an increase in loan loss provisioning ratio is likely to reduce the financial performance of DT-SACCOs in Kenya and vice versa. These findings led to the rejection of the null hypothesis that loan provisioning ratio requirement has no significant effect on financial performance of DT-SACCOs in Kenya. The study, therefore, concluded that loan loss provisioning and non-performing loans were detrimental towards the financial performance of DT-SACCOs in Kenya.

Recommendations and Areas for Further Study

The study established that loan provisioning ratio requirement had a significant negative influence on the financial performance of DT-SACCOs in Kenya. The study recommends to leaders in DT SACCOs to adopt and execute effective strategies to minimize NPLs, by engaging in effective and detailed customer profiling. Leaders in DT-SACCOs should understand that better risk-taking and customer profiling are made possible by better data. Therefore, management in DT-SACCOs should combine information on financial assets and their financial and consumption patterns for its members which is expected to reduce debt collection costs and time to recovery. Moreover, management in DT-SACCOs should build a workflow management platform to allow communication between credit and commercial units for a better integration and collaboration across units and redesign the operational model for high-value loans.

While this study offers significant empirical evidence about the effect of loan loss provisioning on the financial performance of DT-SACCOs, there are areas that need more exploration. This study primarily focused on DT-SACCOs. Future study efforts might explore the impact of prudential regulations on the financial performance of non-deposit taking SACCOs, microfinance organizations, and commercial banks. The execution of such studies would enhance the ability to extrapolate findings to a broader economic framework. Additionally, the present study examined the impact of loan loss provisioning requirements on financial performance. Future empirical studies should focus on exploring other factors related to prudential regulation that can influence the financial performance of DT-SACCOs. These variables could include aspects such as corporate governance, rules for managing complaints, procurement guidelines, guidelines for dividend payments, and risk management guidelines.

References

- Allen, E., & Maghimbi, S. (2009). African cooperatives and the financial crisis. *CoopAFRICA Working Paper No. 3*.
- Alukwe, G. H., Ngugi, P. K., Ogollah, K., & Orwa, G. (2015). Corporate governance Challenge to regulatory compliance by Deposit Taking Savings and Credit Co-operative Societies in Kenya. *Journal of Business Management and Finance*, 6(2), 98 – 107.
- Barth, J.R., Caprio, G., & Levine, R. (2013). Bank regulation and supervision: What works best. *Journal of Financial Intermediation*, 13(2), 205-248.
- Barus, J. J. (2017). Effect of liquidity on financial performance of savings and credit societies in Kenya. *International Journal of Finance*. 2(7), 34-47.
- Berger, A. N., & De Young, R. (2010). Problem loans and cost efficiency in commercial banks. *Journal of Banking and Finance*, 21(6), 849-870.
- Bikker and Metzmakers (2010), loan quality and growth of DTS. Nairobi. Jomo Kenyatta university.
- Birchall, J. (2021). Members owed business approach to the classification of co-operatives and Mutuals. *Journal of Co-operative Studies*, 44(2), 4-15.
- Bitar, M, Pukthuanthong, K. & Walker, T. (2018). The effect of capital ratios on the risk, efficiency and profitability of banks: Evidence from OECD countries. *Journal of International Financial Markets, Institutions and Money*, 53(3), 227-262.
- Borio, C., Furfine, C., & Lowe, P. (2001), Procyclicality of the financial system and financial stability; issues and policy options. BIS Papers No. 1, Bank for International Settlements
- Borio, C., Furfine, C., & Lowe, P. (2014), *Procyclicality of the financial system and financial stability; issues and policy options*. BIS Papers No. 1, Bank for International Settlements
- Chortareas, G., Garza-Garcia, J.G., & Girardone, C. (2011). Banking sector performance in Latin America: market power versus efficiency, *Review of Development Economics*, 15(2), 307-325.
- Cuevas, C., & Buchenau, J. (2018). *Financial Cooperatives – Issues in Regulation, Supervision and Institutional Strengthening*. Washington DC: World Bank.
- Das, A., & Ghosh, S. (2006). Financial deregulation and efficiency: An empirical analysis of Indian Banks during the post-reform period. *Review of Financial Economics*, 15 (3), 193-221.

- Deelchand, T., & Padgett, C. (2009). *The relationship between risk, capital and efficiency: Evidence from Japanese cooperative banks*. ICMA Centre Discussion Papers in Finance DP2009-12. Retrieved from <https://doi.org/10.2139/ssrn.1525423>
- Gaganis, C., & Pasiouras, F. (2018). Financial supervision regimes and bank efficiency: International evidence. *Journal of Banking & Finance*, 37(12), 5463-5475.
- Gwahula R. (2019). Commercial banks Efficiency in Tanzania: A non-parametric Approach. *European Journal of Business and Management*, 9 (21), 55-67.
- Hantke D. M. (2003). The Public Interest Theory of Regulation: Non-Existence or Misinterpretation? *European Journal of Law and Economics*. 15 (3). 165-194.
- Hertog, J. D. (2012). *Economic Theories of Regulation*. Edward Elgar Publishing.
- Hertog, J.D. (2010). *Review of economic theories of regulation*. Koopmans Research Institute.
- Kamau, W. A. (2019). Intermediation efficiency and productivity of the banking sector in Kenya. *Interdisciplinary Journal of Research in Business*, 1(9) 12-26.
- King'ori, S., Kioko, W., & Shikumo, H. D. (2017). Determinants of Financial Performance of Microfinance Banks in Kenya. *Research Journal of Finance and Accounting*.
- Kivuvo, R. M., & Olweny, T. (2014). Financial performance analysis of Kenya's SACCO sector using the Altman Z Score model of corporate bankruptcy. *International Journal of Business and Social Science*, 5(9), 34-52.
- Kothari, C. R., & Garg, G. (2019). *Research Methodology* (4th ed.). New Age International Publishers.
- Maghyereh, A.I., & Awartani, B. (2014). The effect of market structure, regulation, and risk on banks efficiency. *Journal of Economic Studies*, 41(3), 405 – 430.
- Maingi, S. M. (2014). Factors Affecting the Financial Performance of SACCOs in Kenya: A Case of Selected SACCO's. *The International Journal of Business & Management*, 2(8), 180.
- Marwa, N.W., & Aziakpono, M.J. (2015). Technical and scale efficiency of saving and credit cooperatives in Tanzania. *ERSA Working Paper # 510*.
- Mhembwe, S., & Dube, E. (2017). The role of cooperatives in sustaining the livelihoods of rural communities: The case of rural cooperatives in Shurugwi District, Zimbabwe. *Jàmbá: Journal of Disaster Risk Studies*, 9(1), 1-9.
- Musabi, A. B., & Mbithi, M. (2018). Influence of prudential regulations on financial performance of commercial banks in Kenya. *Strategic Journal of Business & Change Management*, 5(4), 1176–1190.

- Mutinda, C. M. (2016) *Impact of Prudential Regulatory Framework on Financial Performance of Deposit Taking SACCOS In Kenya*. Unpublished MBA Thesis, University of Nairobi.
- Njoroge, L.W. N. (2013). Determinants of financial performance in savings and credit cooperative societies in Nairobi. (Master's project), University of Nairobi.
- Omollo, O. V., & Ronga, C. (2016). Strategic Factors Affecting Compliance with the SACCO Act of 2008 by Financial Co-operatives in Kenya: A Case of Nairobi County SACCO. *Science Journal of Business and Management*. 4 (3), 90-1-1.
- Osoro, E. M., & Muturi, W. (2015). Effects of liquidity risk management practices on the financial performance of savings and credit cooperative societies in Kisii County, Kenya. *International Journal of Social Sciences and Project Planning Management*, 1 (4), 68-85.
- Pasiouras, F. (2021). International evidence on the impact of regulations and supervision on banks' technical efficiency: An application of two-stage data envelopment analysis. *Review of Quantitative Finance and Accounting*, 39 (2), 187–223.
- Paxton, J. (2020). Technical Efficiency in the Rural Financial Sector: Evidence from Mexico. *The Journal of Developing Area*, 59(2),101-119.
- Pigou, A. C. (1932). *The Economics of Welfare*: Macmillan and Co.
- Porteous, et al (2010). Prudential regulation of microfinance. Financial access initiative, 1-26
- Rosengard, J. K. (2011). *Oversight is a Many-Splendored Thing: Choice and Proportionality in Regulating and Supervising Microfinance Institutions: The Handbook of Microfinance*. World Scientific Publishing.
- SACCO Societies Regulatory Authority (SASRA) (2012). SACCO Supervision Report: Deposit Taking SACCOs. <http://www.sasra.go.ke>
- SACCO Societies Regulatory Authority (SASRA) (2013). SACCO Supervision Report: Deposit Taking SACCOs. <http://www.sasra.go.ke>
- SACCO Societies Regulatory Authority (SASRA) (2020). SACCO Supervision Report: Deposit Taking SACCOs. <http://www.sasra.go.ke>
- SACCO Societies Regulatory Authority (SASRA) (2023). SACCO Supervision Report: Deposit Taking SACCOs. <http://www.sasra.go.ke>
- SACCO Societies Regulatory Authority (SASRA). (2014). *SACCO Supervision Annual Report, 2015 (Deposit-taking SACCOs)*. <http://www.sasra.go.ke>
- Sekaran, U., & Bougie, R. (2016). Research methods for business: A skill-building approach (7th ed.). Wiley & Sons.
- Shar, A. K. (2016). Why Capital Adequacy Regulation for Banks? *Journal of Financial Regulation and Compliance*, 14(3),278-291.

White, W. (2014). *The Prudential Regulation of Financial Institutions: Why Regulatory Responses to the Crisis Might Not Prove Sufficient*. OECD Economics Department Working Papers, No. 1108, OECD.

World Council of Credit Unions (WOCCU) (2020). *2017 Statistical Report*. The Global Network of Credit Unions and Financial Cooperatives.