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BOARD DIVERSITY AND PERFORMANCE: EXPLORING THE MODERATING EFFECTS OF INNOVATION EFFORTS

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ABSTRACT

Purpose of the study: The purpose of this study was to examine the moderating effects of innovative efforts on the relationship between board diversity and performance.

Problem statement: The study was premised on the hypothesis that innovative efforts spearheaded by a diverse board is crucial for the organizational survival, performance and growth. This study tested the hypothesis that SACCO Boards taking cognizant of their vital role of safeguarding the interests of stakeholders by embracing innovative efforts will maintain good performance, ward off competition, and respond to the ever-changing market needs of their stakeholders.

Methodology: The study adopted descriptive cross-sectional and correlational research designs. Data was collected from 105 respondents from a sample size of 108 Deposit Taking Saccos in Kenya. A semi structured questionnaire was used to collect primary data. Descriptive and Inferential Analysis were conducted using *R* software.

Results of the study: The study revealed that board diversity has a statistically significant and positive effect on performance, while the moderating effect of innovative efforts is statistically insignificant but positive.

Conclusion and policy recommendation: The study take cognizant of the important role of diverse boards in improving organizational performance, whilst embracing innovative efforts. The study recommends the need to ensure that boards are diverse based on competency, qualifications and experiences and that innovative culture is an integral part of the organizational culture.

Keywords: *Board diversity, Innovation Efforts, Performance, SACCOs, Kenya*

INTRODUCTION

As the global economy continues to be reshaped by ever changing technologies, board of directors remain critical resource to organizations to keep searching for ways to better integrate innovation into their strategy (Cheng & Groysberg, 2020). Competition among firms has become a central goal to dominate the market. The organisations are now putting more attention to innovation to ensure their products and services are competitive enough in the ever changing and challenging business environment. As mentioned by Schumpeter (1934), innovation efforts remain a critical dimension of economic change. Ryan (2011) points out that innovation efforts involve not only production of new products but also discovering completely new markets. Innovation is now considered unavoidable for companies that want to develop and maintain a competitive advantage and gain into new markets (Stock *et al.*, 2002). Innovation is a key element of business success and survival (Auka & Mwangi, 2013; Barbara & Alberto, 2009) and sustainable competitive advantage (Abou-Moghli *et al*., 2012; Bulankulama & Khatibi, 2014; Porter, 1980; Stock *et al*., 2002).

Business firms are finding their businesses under threat due to competitive environment they operate. The culprits are members of a new wave of digital upstarts that capitalize on changes in technology, customer behavior, and the availability of data to create innovative, customer-friendly alternatives to the services incumbents offer. These are the drivers of development that were envisaged by Schumpeter at the beginning of the 20th century. Schumpeter's view is that industries must incessantly revolutionize the economic structure from within, that is innovate with better or more effective processes and products. Abrupt changes in external and internal business environment, requires commensurate changes. Changes in the business environment creates competition. Porter (1998) contend that firms must increasingly compete, to defeat competition, win new customers (Hana, 2013), and retain the existing customers.

Evidently, the Kenyan SACCOs are operating in this ever dynamic, complex, and competitive environment. Innovation should be at the top of boards and CEO's agendas. Innovation is a critical survival ingredient in their quest towards survival and growth. A study by (Farida & Setiawan, 2022) concluded that innovation can mediate the strong relationship between business strategy and competitive advantage. Hence, SACCOs have no option but to continuously implement innovation measures that will keep them ahead of their competitors (Auka & Mwangi, 2013; Otii *et al*., 2020). SACCOs should place an emphasis on establishing a suitable innovative culture. Firms that continuously innovate contribute significantly to economic growth (Atalay et al., 2013; Momanyi *et al*., 2023). Mukanzi and Mwai (2020) alludes that SACCOs must continuously innovate to maintain good performance, ward off competition, and respond to the ever-changing market needs of their members.

Innovation involves change and high technology which is the most powerful tool for strengthening competitiveness. Within the Business organizational context, innovation may be linked to positive changes in efficiency, productivity, quality, competitiveness, and market share. D'Emidio *et al*. (2015) claims that to seize the opportunities, SACCOs must learn to tap the potential for innovation made possible by four evolving trends: higher customer expectations, the rise of the mobile internet, big data and advanced analytics and the internet

of things. In essence, this is what Maina et al. (2020) recommended that the regulated DT-SACCOs should continue to invest in new and promising innovative solutions and strategies to continue realizing the benefits of financially sustainable enterprise.

Board diversity matters with to regard making strategic decisions. The Board of Directors have statutorily responsible for the overall oversight of their organization on behalf of their shareholders. They operate as the representatives of the firm's stockholders (Pearce *et al*., 2008). Board members are individually and jointly accountable to the shareholders. The boards monitor the performance of top management to achieve an adequate return for shareholders, while preventing conflicts of interest and balancing competing demands on the corporation (OECD, 2015). Board is designed to address the conflicts of interest between managers (agent) and shareholders (principal) and to bring their interests into congruence (Kiambati *et al*., 2013). Hence, the board is an important internal governance control mechanism (Agrawal & Knoeber, 1996; Fama & Jensen, 1983) for aligning the interests of managers and all stakeholders to a firm (Agrawal & Knoeber, 1996).

In principle, corporate governance involves balancing the interests of a company's many stakeholders, such as shareholders, management, customers, suppliers, financiers, government, and the community. An effective corporate governance framework ensures the board sets the values of the company, whereas the full-time executives are engaged in the day-to-day operational management of the company (Monks & Minow, 2011). With the increasing competition, innovation can be very important to achieve better performance and strengthen competitive advantages (Farida & Setiawan, 2022). Innovation facilitates survival and growth of organizations in today's turbulent, dynamic, and highly competitive environment. Hence, this study sought to examine the moderating effects of innovative efforts on the relationship between board diversity and performance of SACCOs in Kenya.

STUDY OBJECTIVES

1. To establish the extent to which board diversity relates to performance of SACCOs.
2. To determine the moderating role of innovation efforts on the relationship between board diversity and performance of SACCOs.

HYPOTHESES FOR THE STUDY

H_{01}: There is no significant relationship between board diversity and performance of SACCOs.

H_{02}: There is no significant moderating influence of innovation efforts on the relationship between diversity and performance of SACCOs.

THEORITICAL REVIEW

Resource Dependence Theory

Pfeffer and Salancik propounded the Resource Dependence Theory (RDT) in their publication of *The External Control of Organizations: A Resource Dependence Perspective* in 1978. RDT explains the basis of the organizational survival which is dependent on the

critical resources in its possession. Pfeffer and Salancik (2003) alludes that survival can only be assured if the organisations have the capability to acquire and maintain resources. The downside to this proposition is the underlying problem that organisations are not in complete control of all the required resources. Therefore, organisations success is dependent on the happenings in both internal and external environment. However, heavy dependency on the external environment poses innumerable risks and uncertainties to the organisations. Hence, fundamental to the RDT postulations, is the exploration of various options in which organisations can minimize environmental dependences. Hillman *et al*. (2009) outlines five options as proposed by RDT that organisations can enact to minimize environmental dependences. They include mergers/vertical integration, joint ventures and other inter-organizational relationships, boards of directors, political action, and executive succession.

Board of Directors are considered to bring significant contribution to organisations (Abdullah & Valentine, 2009; Ayuso & Argandona, 2007; Pfeffer, 1972; Pfeffer & Salancik, 1978), as they bring information of advisory and counsel, facilitates access to channels of information and potential linkage between the firm and environment, preferential access to resources and legitimacy to minimize dependence or gain resources (Pfeffer & Salancik, 1978). However, RDT has received critique on the basis that its assumes that organizations are shaped primarily by materialistic forces; it fails to delineate the relationship shared between the environment and organization (Casciaro & Piskorski, 2005; Johnson, 1995). Secondly, Casciaro and Piskorski (2005) argue that power imbalance and mutual dependence are distinct theoretical dimensions of RDT which have opposite effects on an organization's ability to reduce dependencies by absorbing sources of external constraint. Finally, RDT has received critique on its emphasis that organisational survival with little or no focus on the organization's performance per se (Pahlevan & Kyid, 2014). Nonetheless, in this study, RDT provided the understanding of the critical role of the board of directors in an organisation.

Stakeholders Theory

Freeman (1984) developed the Stakeholders Theory to addresses morals and values in managing an organization. Freeman (1984) identified the groups which are stakeholders of a corporation. Abdullah and Valentine (2009) notes that managers in organizations serve to meet the interests of those groups because they have a network of relationships with them. Network of relationships can affect the orientation of the decision-making process by the senior executives. The stakeholder theory is then concerned with the nature of these relationships in terms of both processes and outcomes for the firm and its stakeholders (Freeman, 1984). In the minds of stakeholder theorists, the managerial decision-making process is assumed to address all the stakeholders who have intrinsic value, with no domination of any sets of interests (Donaldson & Preston, 1995). Rodriguez *et al*. (2002) argues that the relations between firms and their stakeholders are evidently not of the same kind. Therefore, Rodriguez *et al*. (2002) proposed to classify these relationships as consubstantial, contractual, and contextual stakeholders.

In the Sacco context, Stakeholder theory helps in the understanding that the Sacco activities have an impact on the external environment requiring their accountability to a wider audience outside their owners. The stakeholder theorists dictates that the decisions made by the boards and senior executives has a far-reaching impact outside the primary stakeholders. However, Stakeholder theory is not without limitations and weaknesses. Writing in 2001, Jensen argued that the stakeholder theory requires that managers should make decisions considering the

interests of all stakeholders, without no clear trade-offs among these competing interests making the process difficult and possibly making managers remain unaccountable. Secondly, the theory does not consider the different influential levels of organization's stakeholders to guide the management in arriving at a trade-off. Thirdly, Blattberg (2004) objected to the assumption that the interests of the various stakeholders can be balanced against each other. Finally, Mansell (2013) argued that the principles of the market economy are undermined with the application of a political concept, 'social contract' to the corporation as dictated by stakeholders' theory.

Dynamic Capabilities Theory

In 1934, Schumpeter propounded the dynamic capability's view which recognizes the need for firms to have a better understanding of market dynamics. according to Teece (2007) and Teece and Pisano (1994) dynamic capability's view focuses on the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments. Further, Teece (2007) observes that the goal of the Dynamic Capabilities Theory lies with the ability to reconfigure operational capabilities and deploy new ones to address turbulent environments. The emphasis is in the resource configurations that create value and not on dynamic capabilities that can be duplicated. This is why innovative efforts remain a critical factor for firms to create value and sustain competitive advantage. The Dynamic Capabilities Theory is not without critique. Writing in 2008, Easterby-Smith and Prieto argue that the stability of the model of Dynamic Capabilities Theory varies with different market environments. Further, Easterby-Smith and Prieto (2008) raises question on whether dynamic capabilities are unique to individual firms. Nevertheless, Dynamic Capabilities Theory helps in understanding how organizations can manipulate its resources to contribute to a firm's performance or its competitive advantage (Helfat *et al*., 2007). Teece *et al*. (1997) argue that dynamic capabilities are particularly important for performance in situations of environmental change when a firm's needs to rejuvenate.

EMPIRICAL REVIEW

Drawing on the resource-based theory, Bin Khidmat *et al.* (2020) examined the impact of board diversity on firm's performance. Data was collected from A-listed companies registered in Shanghai SSE 180 and Shenzhen 100 for the period 2007 to 2016. Fixed effects model and panel generalized method of moment estimation were applied to cater the endogeneity problem. The study controlled for several firms and board characteristics. Bin Khidmat *et al*. (2020) found that gender diversity, education diversity and foreign national diversity have a positive and significant effect on firm performance. The study concluded that age and independence diversity seemed not to be an essential determinant of firm performance.

Khan *et al*. (2023) sought to investigate the impact of comprehensive board diversity on firm performance across 188 non-financial firms over the period of 12 years from 2009 to 2020 in Pakistan. Khan *et al*. (2023) examined seven board members' diversity attributes (e.g., gender, age, nationality, ethnicity, educational level, educational background, and tenure) with both the accounting-based and market-based performance indicators. The analyses were made using random effects regression, robust regression, and generalized method of moment. Khan *et al.* (2023) found that board members' nationality, ethnicity and educational level div tudied the influence of board attributes size, gender diversity, skills, and meetings on SACCOs ersities are significantly positively related to firm performance. In contrast, age and educational background diversities negatively affect firm performance. However, gender and

tenure diversities have an insignificant relationship with firm performance. This study was undertaken in the context of Pakistani firms. The findings may not be generalizable to other economies because different economies have different institutional settings and governance structures.

Mlay *et al*. (2022) s board's role performance in Tanzania. The study was guided by Resource dependency theory and Agency theory. A questionnaire was adopted to collect data for board roles from a sample size of 198 SACCOS boards' chairpersons and data for board attributes was collected from annual audited financial statements. Mlay *et al*. (2022) found that board meetings and board financial skills had a positive and significant influence on the SACCOs board's role performance in Tanzania, while board size and board gender diversity had no significant influence on the board roles' performance. In a similar study conducted in 2023, Mlay et al. examined the impact of board characteristics—such as size, gender diversity, skills, and meeting frequency on the financial performance of SACCOSs in Tanzania. Financial performance indicators were net loan income, operating efficiency ratio, and deposit-to-asset ratio. They found that board size is positively associated with the operating efficiency ratio, while women's board members had no relationship with financial performance. The current sought to corroborate the findings of the studies by Mlay et *al*. (2022) and Mlay *et al*. (2023) considering the different regulatory regime the two studies were conducted in.

Quelhas (2021) found a strong positive correlation between the innovation and financial performance of 140 predominantly manufacturing firms from Brazil, Russia, India, and China using a five years' data (2008-2012). The study analyzed two measures of innovation (number of patents registered domestically and internationally), three measures of financial performance (ROA, ROE and return on sales) with control variables (firm size; firm age; international shareholders; government shareholders; educational level of principal CEO; proportion of employees with degrees; home country of firm; year; and industry). Momanyi *et al*. (2023) sought to investigate the effect of financial innovations on financial performance of DT-SACCOs in Kenya. The study adopted a descriptive survey design with quantitative and qualitative approaches. The study drew conclusions that financial innovations have a positive and significant effect on the financial performance of DT-SACCOs in Kenya. Based on their study findings, Momanyi *et al*. (2023) observes that financial innovations play a crucial role in enhancing the financial performance of these DT-SACCOs in Kenya. Hence, Momanyi *et al*. (2023) recommended that the DT-SACCOs should put more effort into enhancing financial innovations to improve their financial performance.

Empirical investigation relating to the factors that explain performance of the Deposit Taking SACCOs has been widely done both locally and internationally. In adopting descriptive survey research design and census sampling technique, Murage *et al*. (2018) studied the effect of interest rates on financial performance of 7 DT-SACCOs in Kisii County, Kenya. Financial performance was measured by staff perception to determine the level of profitability of DT-SACCOs. Questionnaires were utilized to gather primary data from 70 respondents. Descriptive statistics and multiple regression were used in data analysis. Their study revealed that DT-SACCOs adopted interest rate technique as a strategy for income generation from the issued loans. Further, they found that interest rate had a positive effect on financial performance of DT-SACCOs in Kisii County. Masika and Simiyu (2019) adopted causal design to examine the effect of firm characteristics on the financial performance of DT-SACCOs licensed by SASRA in Nairobi County extended from the period 2012 to 2015. The

indicator for financial performance was profitability. The study findings reveal that firm characteristics measured by firm size, leverage, growth, and liquidity explain 42.3% of financial performance of DT-SACCOs. All the indicators of predictor variable were positively and significantly related to profitability. Masika and Simiyu study focused on firm characteristics as the predictor of financial performance of DT-SACCOs in Nairobi County.

Waithira and Kinyua (2020) adopted descriptive research design to conduct a study on the effects of service differentiation strategy on performance of DT-SACCOs in Nairobi City County, Kenya. The indicators of performance were brand image, customer satisfaction, customer loyalty and increased market share. Descriptive research design was employed. Probability sampling design was used to draw a sample size of 123 management employees (of all 41 DT-SACCOs) out of the total population of 410. Proportionate stratified random sampling was used to ensure equal representation of different strata. To identify respondents within the respective Sacco, systematic random sampling was used. Questionnaires were used to collect data with a response rate of 63%. Data analysis was through descriptive statistics and simple linear regression statistics. They concluded that service differentiation had positive and significant effect on performance of DT-SACCOs in Nairobi City County Kenya. Their study recommended future studies in other locations to better understand Deposit Taking SACCOs organizational performance. Kithandi (2022) examined the effect of corporate governance on the financial performance of Deposit-taking Savings and Credit Co-operative Societies in Nairobi City County, Kenya. The study was guided by agency and stakeholder theories. The questionnaire was administered to the company secretaries and other two executive top management members of the 30 DT-SACCOS. Secondary data was collected from the published annual reports of the 30 DT-SACCOs and were used to collect secondary data. Multiple Regression Analysis and the Spearman Correlation Coefficient were employed to assess the magnitude and relationship of the independent and dependent variables.

In 2023, Vikiru *et al*. examined the influence of financial governance on performance of DT-SACCOs in Kenya. Financial governance was operationalized by financial reporting, transparency and disclosure and audit reports, while performance of Deposit Taking SACCOs was operationalized by market share, profitability, and customer retention. The study was guided by the Stewardship theory and positivist paradigm, while descriptive-correlational-cross-sectional research designs were adopted. The unit of observation were the managers and chairpersons of the board of the deposit taking SACCOs. The study adopted a census method. Vikiru *et al*. (2023) found that financial governance had a positive and significant relationship with performance of deposit taking SACCOs in Kenya. The current study sought to determine the relationship between independent variables (board diversity, audit committee and TMT) on performance (financial and non-financial indicators) as moderated by innovation.

RESEARCH METHODOLOGY

The study was guided by pragmatic paradigm and a descriptive cross-sectional survey was considered the most suitable for achieving the research objectives. Further, correlational research design was adopted to guide in testing the study hypothesis. The target population was 175 Deposit Taking SACCOS (DT-SACCOs) in Kenya that are licensed to undertake deposit-taking Sacco business (SASRA, 2019). 25 DT-SACCOs did not meet the selection criteria considering several non-compliance issues they were facing (SASRA, 2014, 2015, 2018). Hence, the sampling frame of the study was 150 DT-SACCOs from which a sample

size of 108 was drawn through the Hyper-geometric distribution in accordance with Krejcie and Morgan (1970) formula for determining sample size. Kotrlik and Higgins (2001) alluded that this formula is one of the most popular as compared to others. Individual DT-SACCOs were identified through a stratified random sampling method was chosen because it has a sophisticated statistical efficacy and is stress-free to conduct (Cooper & Schindler, 2008). A semi structured questionnaire was administered through several ways to boost the high return rate. R software (R programming language) was used to undertake Descriptive and Inferential Analysis.

RESULTS AND DISCUSSIONS

Reliability Analysis

Table 1: Reliability Analysis

Variable	Cronbach's Alpha	Internal Consistency
Board diversity	0.813	Good reliability
Innovation efforts	0.784	Acceptable
Performance	0.859	Good reliability
Overall Alpha	0.819	Good reliability

Table 1 shows the result of Reliability Analysis in which the overall α (raw alpha) is 0.819. Board diversity had a reliability coefficient of 0.813, while Innovation efforts and performance had reliability coefficients of 0.784 and 0.859 respectively. This implies that alpha coefficients of board diversity and performance have good reliability with the reliability of innovation efforts considered acceptable. Hence, it can be concluded that all the study variables are adequate to accept presence of internal consistency. Hence, no need to drop any item(s).

EXPLORATORY FACTOR ANALYSIS

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Bartlett's Test of Sphericity to test of the sampling adequacy of the instrument were used to establish if the data is suitable for factor analysis. Table 2 reveals that the overall measure of sampling adequacy is 0.84 which can be interpreted as meritorious. The results from Bartlett's Test shows that the correlation matrix is not an identity matrix since p-value < 0.05. Hence, it is concluded that the data was fit for factor analysis.

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.84
Bartlett's Test of Sphericity	Approx. Chi-Square	1958.298
	df	496
	Sig.	.000

Eigenvalue Extraction

The eigenvalues, scree plot and parallel analysis were used to determine how many factors to retain. The eigenvalues, scree plot and parallel analysis were adopted as they provide good results. Further analysis of the eigenvalues revealed that the first eight factors explained a variance of 10.666, 3.034, 2.417, 1.691, 1.300, 1.107, 1.088 and 1.051. This represents the number of factors to be retained because the eigenvalues are greater than 1.0. Further analysis results as shown by Scree Plot on Figure 1 suggests that 4 factors need to be retained considering eigenvalue of 1.0 and the point where the eigenvalue levels off. Further, Figure 1 of the parallel analysis suggested 4 factors to be retained. According to the eigenvalue, scree plot and parallel analysis, we are to retain 8 and 4 factors respectively. Hence, the study explored all these factors and to look out for best factor structure with good model data fit.

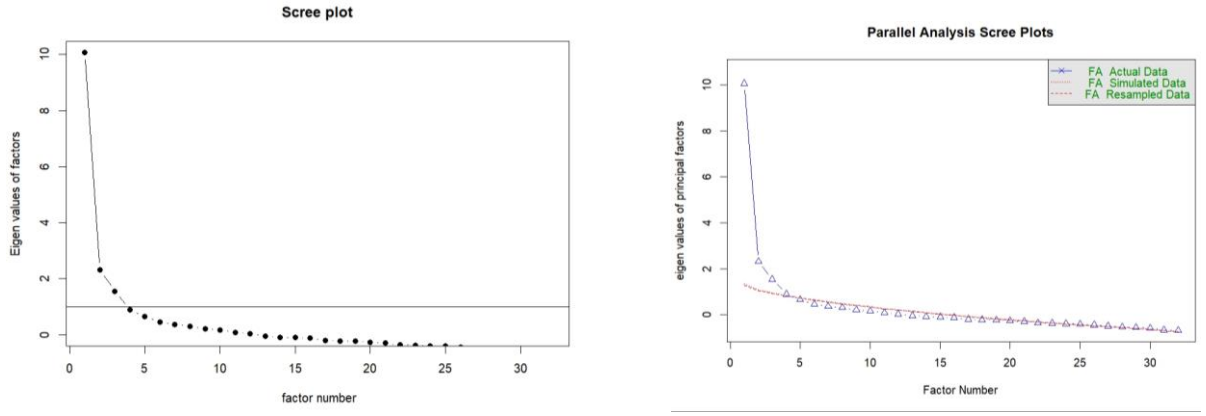

Figure 1: Scree Plot and Parallel Analysis

CORRELATION ANALYSIS

Correlation analysis was carried out to establish the relationship between the independent variables and the dependent variable. Table 3 revealed that there is a positive correlation between Board diversity and performance of the Saccos ($r=0.29$, $n=103$, $p < 0.002$, $t = 3.126$). Further, there is a positive correlation between Innovation efforts and performance of the Saccos ($r=0.55$, $n=103$, $p < 0.00$, $t = 6.6972$). Result from Table 3 imply that board diversity has a weak and significant correlation with the performance of SACCOs in Kenya. Further, innovation efforts was found to have a moderate and significant correlation with the performance of SACCOs in Kenya.

Table 3: Correlation Matrix

		Performance
Board diversity	Pearson Correlation	0.29*
	Sig. (2-tailed)	0.00
	n	105
Innovation efforts	Pearson Correlation	0.55*
	Sig. (2-tailed)	0.00
	n	105

*Correlation is significant at the 0.05 level (2-tailed)

Assumptions and Diagnostics for Regression Analysis

Violation of an assumption for regression analysis threatens the validity of the estimates and inferences made from them, so it's important to assess the plausibility of these assumptions with regression diagnostics. Hence, Tests on Linearity, Equal variance assumption or Homoscedasticity, Independence of the residuals, Measurement scale, and Normality were carried out and Figure 2 presents the results of Diagnostic Tests for regression. On Linearity assumption, Figure 2 reveals that no systematic trend among the residuals suggesting that linearity is met as shown by the plot of Residuals vs Fitted. Further, diagnostic plot of Residuals vs Fitted show a random scatter about the zero line with equal spread across the range of fitted values. This suggests that homoscedasticity was met. Diagnostic boxplot suggests that the independence of the residuals is met. Diagnostic plots of histogram and q-q plot of residuals were used to assess on the normality assumption. The histogram and q-q plot of residuals in Figure 2 suggests that normality assumption was met.

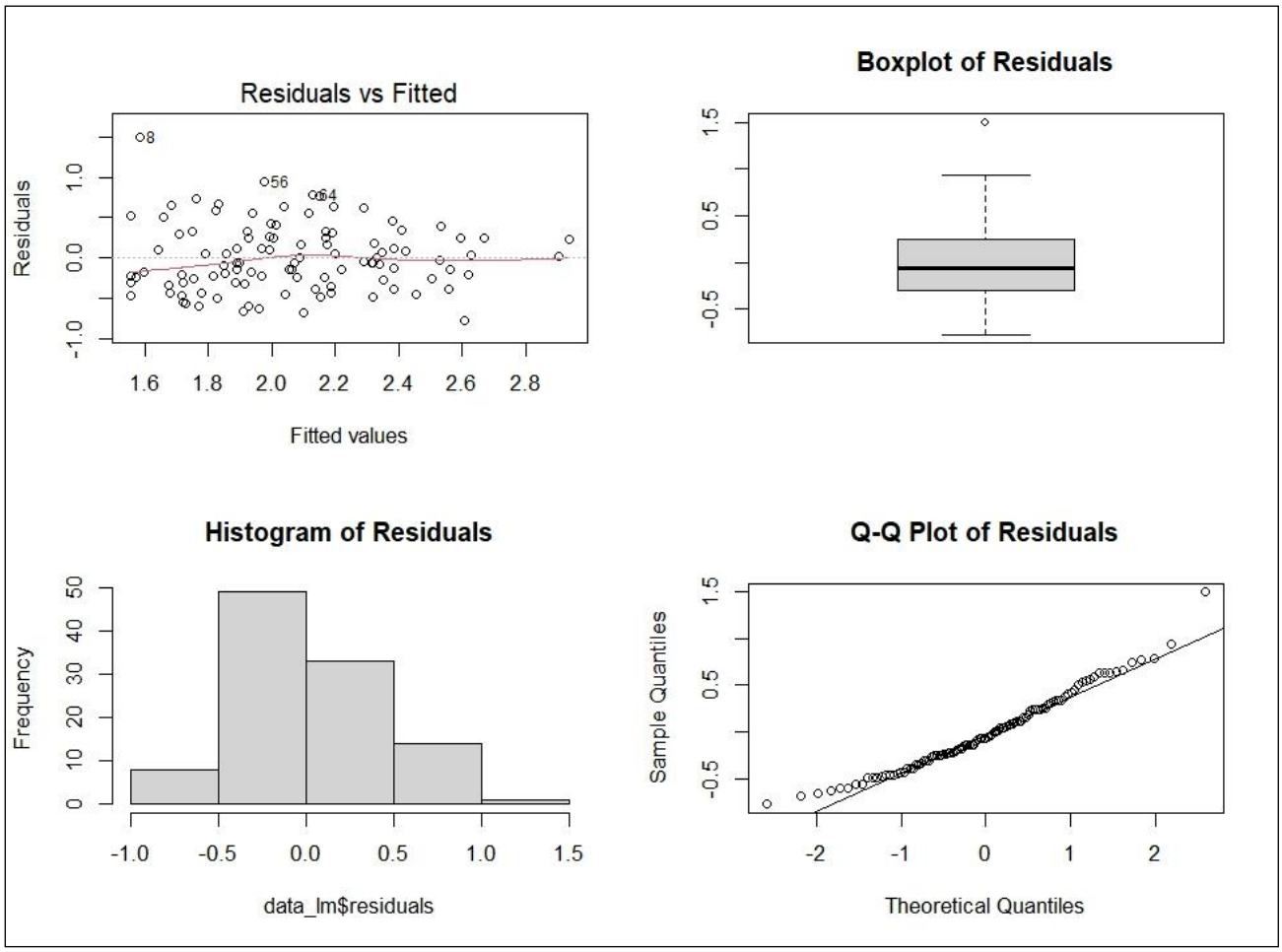

Figure 2: Diagnostic Tests

Hypotheses Testing

H_{01}: There is no significant relationship between board diversity and performance of SACCOs.

The first objective of this study sought to establish the relationship between Board diversity and performance of SACCOs. The linear regression model was carried out to reveal the relationship between the two variables and the findings are as herein presented.

Table 4: Model Fitness of Board diversity and Performance

Indicator	Coefficient
R Square	*0.087*
Adjusted R Square	*0.078*
Std. Error of the Estimate	*0.498*

Table 4 reveals that the adjusted R-square was 0.078 indicating that the board diversity accounted for 7.8% of variance in performance of SACCOs, while the remaining 92.2% is explained by other factors outside this model.

Table 5: ANOVA Tests of Board diversity and Performance

Model	Sum of Squares	df	Mean Square	F	Sig.
Board	2.423	1	2.423	9.771	0.0023**
Residuals	25.539	103	0.248		
Total	27.962	104			

*Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1*

Table 5 shows the ANOVA results that revealed a statistically significant and positive relationship between Board diversity and Performance of SACCOs. Thus, board diversity aids in explaining performance of the SACCOs. The ANOVA results shows that regression fit the model for the data with a *P value* = 0.0023 (*P value* 0.05 > 0.0023). Hence, reject the null hypothesis that there is no relationship between Board diversity and Performance of SACCOs.

Table 6: Regression coefficients of Board diversity and Performance

Model	Estimate	Std. Error	t value	pr(>|t|)	2.5%	97.5%
(Intercept)	1.5886	0.1598	9.944	<2e-16 ***	1.27173	1.905
Board	0.2513	0.0804	3.126	0.0023 **	0.09186	0.411

*Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1*
Residual standard error: 0.4979 on 103 degrees of freedom
Multiple R-squared: 0.08664,Adjusted R-squared: 0.07777
F-statistic: 9.771 on 1 and 103 DF, p-value: 0.002304

Table 6 shows that both the coefficients of intercept (β = 1.5886; p-value = 0.000 < 0.05) and board diversity (β=0.2513; p-value = 0.0023 < 0.05) were statistically significant at 95% confidence interval that the data is consistent with a coefficient range from 0.09186 to 0.411 for the board diversity parameter estimate and from 1.27173 to 1.905 for the intercept parameter estimate. Hence, the linear regression equation for the study is as follows: *Performance = 1.5886 + 0.2513 * Board diversity.* The positive sign in the equation indicates

that performance of SACCOs increases with sound and efficient board diversity. The finding gives credence to the theoretical foundation of the Resource Dependency Theory that boards are a critical resource to the success, performance and growth of the organizations.

Regression Model Prediction of Board diversity and Performance

The study further sought to examine the coefficients through graphical visualization as presented by Figure 3. Which shows that board diversity relates with the performance.

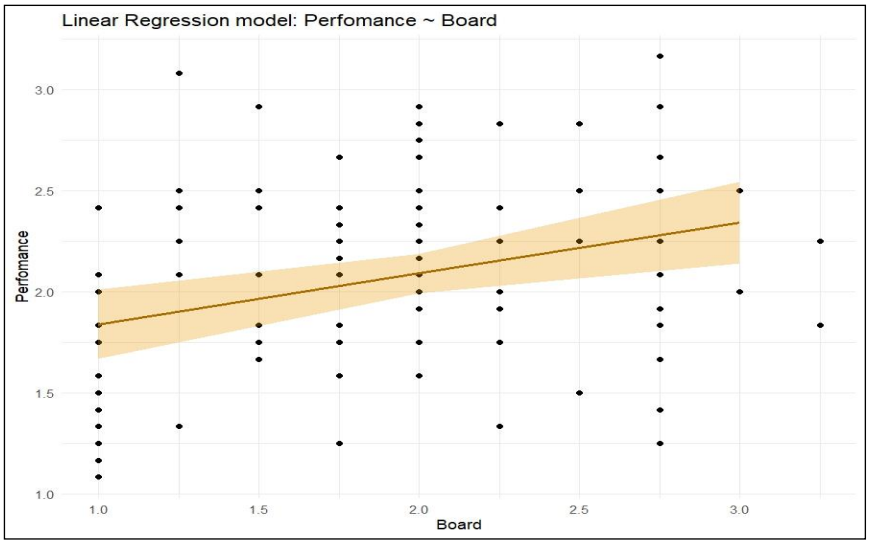

Figure 3: Regression model prediction of Board diversity and Performance

Moderating Effect of Innovation efforts on Board diversity and Performance

H_{02}: There is no significant moderating influence of innovation efforts on the relationship between board diversity and performance of SACCOs.

The second objective of this study sought to establish the moderating influence of innovation efforts on the relationship between board diversity and performance of SACCOs. The multiple regression model was carried out to reveal the interaction effects on the relationship between the two variables and the findings are as herein presented.

Table 7: Model Fitness of Board diversity, Innovation efforts and Performance

Indicator	Coefficient
R Square	*0.3215*
Adjusted R Square	*0.3014*
Std. Error of the Estimate	*0.4334*

Table 7 reveals that the adjusted R-square was 0.3014 indicating that the interacting effect of innovation accounted for 30.14% of variance in the performance of SACCOs, while the remaining 69.86% is explained by other factors outside this model.

ANOVA tests results from Table 8 revealed that board diversity and innovation efforts have a statistically significant and positive relationship with the performance of SACCOs, with the p-values of 0.000 (0.000 <0.05). Thus, the independent variables (including interacting variable) can explain the performance of the SACCOs. However, moderated effect of innovation efforts on board diversity was found to be not statistically significant (p-value = 0.5273>0.05) but positive in explaining the performance of SACCOs. According to Baron and Kenny (1986), this suggested a lack of moderation effect. Consequently, the results confirmed the study's hypothesis that there is no significant moderating influence of innovation efforts on the relationship between board diversity and performance of SACCOs.

Table 8: ANOVA Tests of Board diversity, Innovation efforts and Performance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Board	1	2.423	2.423	12.898	0.000***
Innovation	1	6.492	6.492	34.565	0.000***
Board: Innovation	1	0.076	0.076	0.402	0.5273
Residuals	101	18.971	0.188		

*Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1*

Table 9: Regression coefficients: Board diversity, Innovation efforts and Performance

Model	Estimate	Std. Error	t value	pr(>|t|)	2.5%	97.5%
(Intercept)	1.2234	0.4825	2.5355	0.0128*	0.2662	2.1806
Board	-0.0432	0.2557	-0.1689	0.8662	-0.5505	0.4641
Innovation	0.3152	0.2619	1.2035	0.2316	-0.2044	0.8348
Board: Innovation	0.0836	0.1319	0.6343	0.5273	-0.1779	0.3452

*Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1*
Residual standard error: 0.4334 on 101 degrees of freedom
Multiple R-squared: 0.3215, Adjusted R-squared: 0.3014
F-statistic: 15.96 on 3 and 101 DF, p-value: 1.451e-08

Table 9 reveals that the interpretation of the intercept is that SACCO performance is 1.2234, when the Board diversity and innovation efforts is zero. For a unit increase in the board diversity, the SACCO performance is expected to decrease by -0.0432 when the Innovation effort is Zero, although the sign of this effect is not clear from the data (95% CI = [-0.5505, 0.4641]). For each unit increase in the innovation efforts, performance increases by 0.3152, when board diversity is at zero, (95% CI = -0.2044, 0.8348]). The interaction coefficients express the change in board diversity's effect when Innovation efforts (interacting variable) is increased by one-unit. Further, for every unit increase in board diversity, the interacting effect of innovation efforts increases by 0.0836, (95% CI = [-0.1779, 0.3452]). While a unit increase in innovation efforts, the interacting effect of board diversity is expected to increase by 0.0836. Hence, the interacting effect of board diversity at any innovation effort can be calculated by adding the coefficient for Board diversity, to the interaction coefficient, multiplied by innovation efforts. Hence, the optimal equation for this study is as follows: *Performance = 1.2234 - 0.0432 * Board + 0.3152 * Innovation + 0.0836 * Board * Innovation*

Regression Model Predictions of the moderating effect of innovation efforts

The study further sought to examine the coefficients through graphical visualization as presented by Figure 6. Figure 6 revealed that the impact of board diversity depends on

innovative efforts that the SACCOs are putting in place. Low level innovative efforts have no effect of board diversity on the SACCO's performance. However, with high level innovative efforts, SACCOs are expected to perform better for a unit increase in board diversity. Figure 6 revealed that the interacting effect of innovative effect on SACCO performance depends on the board diversity. SACCO boards with little or no diversity will perform poorly even with good innovative efforts in place.

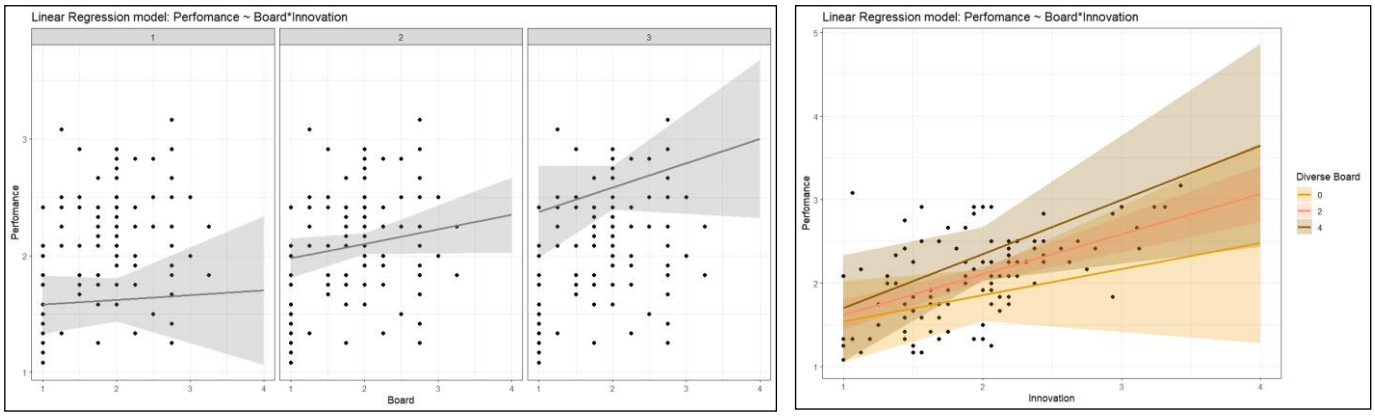

Figure 4: Regression model prediction of the moderating effect of innovation efforts

Summary of Hypotheses Tested Results

Table 10: Summary of Hypotheses Tested Results

OBJECTIVE	HYPOTHESES	MODEL	RESULTS	DECISION
TO ESTABLISH THE EXTENT TO WHICH BOARD diversity RELATES TO PERFORMANCE OF SACCOS	H_{01}: THERE IS NO SIGNIFICANT RELATIONSHIP BETWEEN BOARD diversity AND PERFORMANCE OF SACCOS.	$Y = \beta_{01} + \beta_1 X_{1it} + e_{it1}$ Where β_{01}- Population's regression constant, X_{1it} – Board diversity, β_i the regression coefficient of Board diversity and ε -is the Model error variable	*P-value* = 0.002 (P value < 0.05), H_0 was rejected, and H_A accepted. r value = 0.29 (+0.10<r<0.29), illustrates a weak correlation	REJECT
TO DETERMINE THE MODERATING ROLE OF INNOVATION EFFORTS ON THE RELATIONSHIP BETWEEN BOARD diversity AND PERFORMANCE OF SACCOS	H_{02}: THERE IS NO SIGNIFICANT MODERATING INFLUENCE OF INNOVATION EFFORTS ON THE RELATIONSHIP BETWEEN BOARD diversity AND PERFORMANCE OF SACCOS	$Y = \beta_{02} + \beta_1 X_{1it} + \beta_3 X_{2it} + \beta_4 (X_1.X_2.) + e_{it2}$ *Y* is Performance; X_{1it} *is Board diversity* moderated with Innovation efforts; X_{2it} *is* moderator (Innovation efforts)	*P -value* 0.53>0.05, Fail to reject H_0 and H_A rejected. r value = 0.55 (+0.5r<r<1.0), illustrates a strong correlation	FAIL TO REJECT

CONCLUSIONS

The purpose of this study was to examine the moderating effects of innovative efforts on the relationship between board diversity and performance. The study's first objective was to establish the extent to which board diversity relates to performance of SACCOs. The results revealed that board diversity had a statistically significant and positive relationship with Performance of SACCOs. It signifies the important role of diverse boards in improving organizational performance. The second study objective was to determine the moderating role of innovation efforts on the relationship between board diversity and performance of SACCOs. Results showed that board diversity and innovation efforts have a statistically significant and positive relationship with the performance of SACCOs. However, moderated effect of innovation efforts on board diversity was found to be not statistically significant but positive in explaining the performance of SACCOs.

RECOMMENDATIONS

The study recommends the need to ensure that boards are diverse based on competency, qualifications and experiences. Tokenism should not be a factor for consideration during the appointment and recruitment process.

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