The Impact of Board Characteristics on the Financial Performance of Savings and Credit Co-operative Societies in Arusha and Dar es Salaam, Tanzania

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Abstract

This paper examines the impact of board characteristics—such as size, gender diversity, skills, and meeting frequency—on the financial performance of SACCOSs in Tanzania. The study focused on three financial performance indicators: net loan income, operating efficiency ratio, and deposit-to-asset ratio. Descriptive statistics and linear regression models were used to analyse panel data collected from financial reports of 198 SACCOSs for five years (2014–2018). The results show a positive and significant relationship between financially-skilled board member(s) and the deposit-to-asset ratio; conversely, they were negatively associated with the operating efficiency ratio. The results further show that board meetings are positively and significantly related to net loan income, whereas board size is positively associated with the operating efficiency ratio. Moreover, the paper found no evidence of a relationship between women's board members and financial performance. Impliedly, having financially-skilled directors on a board and regular board meetings facilitated financial performance in a SACCOS. Thus, the paper calls for board members to have financial skills, and boards to conduct regular meetings for constructive advice and effective monitoring to boost financial performance.

Keywords: board characteristics, financial performance, SACCOS, boards

JEL Classification: G2, G20, G3, G30, G39, M49

1. Introduction

Savings and credit co-operative societies (SACCOSs) play an essential socio-economic role in communities by providing financial services to individuals with limited financial access and unserved needs (McKillop & Wilson, 2015). These institutions are member-based, democratically-run, and controlled non-profit co-operative microfinance institutions (MFIs) (Magumula & Ndiege, 2019). The institutions provide financial services using members' savings deposits as a primary source of funds for issuing low-interest loans to members who usually share common bonds (Almehdawe et al., 2020; Unda et al., 2017). SACCOSs render services that facilitate their members' active participation in productive activities to improve their well-being and the general economy (Almehdawe et al., 2020). Also, SACCOSs serve social and financial purposes (Hakelius, 2018; McKillop & Wilson, 2015). The social objective seeks to improve members' socio-

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economic status, whereas the financial purpose focuses on enhancing the sustainability of a SACCOS (McKillop & Wilson, 2015). For a SACCOS to attain the intended objectives, it needs to be well-governed to be able to operate effectively and efficiently.

In this regard, boards are the main players in fostering the governance of SACCOSs (Jones, Money, & Swoboda, 2017). Boards constitute building blocks of success for SACCOSs, among other factors, due to their critical role in directing, monitoring and controlling the affairs of entities on behalf of members (Jones et al., 2017). Board members in a SACCOS have tripled set of rights as owners, users of services, and beneficiaries, unlike in investors' firms, thus are required to put in place well-thought-out and carefully-crafted strategies that support the organisations' long-term viability and overall effectiveness (Judge & Talaulicar, 2017). For board members to fulfil their roles as guided by the agency and resource dependency theories (Fama & Jensen, 1983; Hillman & Dalziel, 2003), they need sound board characteristics comprising of appropriate board size, gender, skills, tenure, remuneration and meetings (Iqbal et al., 2019; Mori & Towo, 2017). This situation equally applies to a SACCOS, whose board characteristics play a pivotal role in determining financial performance (Unda et al., 2017).

The performance of SACCOSs in Africa has reportedly been poor, the existence of their boards notwithstanding. Ssekiziyivu et al. (2018) report that most SACCOS have a short life span of less than a decade. The situation in Tanzania shows that more than 40 percent of SACCOSs had unsatisfactory financial performance (Marwa, 2015), which resulted in the failure and inability of some to deliver the expected services/results to their members (Magumula & Ndiege, 2019). Consequently, in a move to seek solutions to the problems facing SACCOSs, researchers have investigated the determinants of the financial performance of SACCOSs, such as financial leverage (Towo, 2019), financial innovation (Ngure et al., 2017), and loan repayment management (Ndiege et al., 2016). Yet, none have delved adequately into the effects of boards on the financial performance of SACCOSs.

There is a volume of studies concerning board characteristics and financial performance in banking and listed firms (Arora & Sharma, 2016; Ghosh & Ansari, 2018; Malik & Makhdoom, 2016; Mangena et al., 2012; Vishwakarma, 2017). However, even the few studies on SACCOSs have contradictory findings (Hakelius, 2018; Munene et al., 2020; Reddy & Locke, 2014; Unda et al., 2017). For instance, Hakelius (2018) and Munene et al. (2020) found that board size, as a board characteristic, has a positive relationship with financial performance. In contrast, Unda et al. (2017) found that an increase in board size lowers financial performance. Moreover, Hakelius (2018), Reddy and Locke (2014), and Unda et al. (2017) found board education raises financial performance; while Munene (2020) found board education to have a negative association with financial performance. These results were based on different country contexts, which cannot be universally generalised as each country had unique regulations, policies, and procedures on SACCOS boards (Unda et al., 2017). For example, in Tanzania,

SACCOS boards are guided by the Co-operative Act and SACCOS regulations that provide acceptable board characteristics standards. However, the impact of boards on the financial performance of SACCOSs has not yet been investigated.

Kleanthous (2017) remarks that board governance in SACCOSs is not much debated in emerging economies. Furthermore, previous studies on SACCOSs (e.g., Unda et al., 2017), have focused on financial performance using profitability indicators of return on asset (ROA) and return on equity (ROE), like in all profit-oriented entities, disregarding the uniqueness of SACCOSs as non-profit entities (Towo et al., 2019). Since SACCOSs are non-profit organisations, their core business centres on building members' savings culture and providing credit facilities amongst members that maximize the service of social benefits and financial sustainability (Goenner, 2021). Thus, such existing gaps in the available research motivated this study to explore and generate new insights into understanding SACCOSs in Tanzania.

Mwizarubi (2016) evidences that savings/deposits are the fundamental financial factor in making a SACCOS continue issuing affordable loans. This study used the deposit assets ratio (DAR), net loan income (NLI), and operating efficiency ratio (OER) as the financial performance indicators, which have not been commonly tested in previous studies. The indicators were used because SACCOSs do not aim to maximize members' benefits through profits; instead, they capitalize on deposits to generate income to cover operation costs, improve services to members, and ensure financial performance. Thus, this study intended to bring insights to the limited literature in emerging economies on how board characteristics of a SACCOS impact financial performance regarding deposit to assets, operating efficiency, and net loan income ratios.

The rest of the paper is structured into four sections. The second section presents existing literature and hypotheses development, followed by a third section describing the research methodology employed in the study. Subsequently, the fourth section presents the study's findings, and discusses the results. Finally, the paper concludes by summarising the main points of the study findings and the implications in the fifth section.

2. Literature
2.1 Theoretical Review
The agency and resource dependency theories formed the theoretical anchor for this study. The agency theory was developed to address the agency conflict between the principal and agent due to the separation of ownership and control (Jensen & Meckling, 1976). Principals, who are owners, delegate a firm's day-to-day operations to agents with conditions of the latter working as per their interests. However, agents give way to self-interests and opportunistic behaviours, which impair the goals and needs of principals (Fama & Jensen, 1983). In this regard, theorists assume that boards are an essential mechanism for monitoring and controlling agents from serving their interests at the expense of owners' wealth (ibid.).

The agency conflict is also evident in SACCOSs because these organisations employ managers to operate day-to-day activities and implement decisions under the supervision of boards. The boards are primarily responsible for monitoring and controlling the behaviour of managers, and ensuring they work as per the interests of members of a SACCOS (Bijman, Hanisch, & Van der Sangen, 2014; Towo, 2020). Guerrero et al. (2017) contend that boards are accountable for the failure or success of SACCOSs because they must monitor and control managers. As such, the agency theory provides the ground for examining the relationship between board characteristics and the financial performance of SACCOSs.

The agency theory recognises that small boards—with a recommended size of seven to eight—are more efficient in executing their monitoring roles of firms' performances. Moreover, the agency theory proposes having skilled board members because they can create an opportunity to improve a firm's performance since these can implement their monitoring roles effectively. Also, the theory argues that small boards and board members' skills are essential in enhancing a firm's performance depending on a firm's context (Mori & Towo, 2017). However, the agency theory deals with monitoring and other roles—such as strategic settings, advice, and resource provision—grounded in the resource dependency theory.

Based on the perspective of the resource dependence theory, a firm is not self-sustainable due to scarce resources (Pfeffer & Salancik, 2003). The theory acknowledges boards as resource providers for firms (Pfeffer & Salancik, 2003). Since the theory claims that there is a need for connections between an organisation and its stakeholders, board members serve as a linchpin in this scenario (Pfeffer & Salancik, 2003). In this regard, boards are responsible for tipping in resources such as financial and human capital, technology and relevant information to link an organization with its stakeholders and manage external interdependency (Kiel & Nicholson, 2003). These resources can improve an organisation's strategies and decision-making and provide advice towards enhancing legitimacy (Judge & Talaulicar, 2017). In tandem with the theory, the Tanzania SACCOS Regulations specify the qualities of board members, and impliedly call for members' contribution to the resources of SACCOSs (URT, 2016). Each member can contribute resources for board effectiveness, and hence raise the financial performance of a SACCOS (Guerrero et al., 2017).

2.2 Empirical Review and Hypothesis Development
2.2.1 SACCOS Board Size and Financial Performance
Board size is an essential element that mitigates agency conflicts and affects its ability to achieve influential monitoring roles due to its performance (Munene et al., 2020). The agency theory recognises how small boards are more efficient in monitoring management actions than large ones. Agency theorists propose that a board comprising seven to eight members is advantageous for an effective monitoring and controlling of a firm (Jensen, 1993). Previous studies—such as those by Arora and Sharma (2016) and Malik and Makhdoom (2016)—also established that smaller boards are more effective in fostering the financial

performance of listed firms. On the other hand, the resource dependency theory favours large boards on the constellation of enhancing members' ability to access resources from the environment. Thus, the theory contends that larger boards can potentially increase the pool of expertise for more opportunities in a firm, which could enrich its performance (Hakelius, 2018; Munene et al., 2020).

Conversely, Unda et al. (2017) and Ghosh and Ansari (2018) contend that a bloated board could turn some members into free riders who could raise the risk of impairing the execution of monitoring management actions and operations, thus adversely affecting the financial performance of a firm. Likewise, a bloated board is said to be costly and less effective in performing its roles, especially regarding decision-making. It is further advanced that such a board becomes increasingly challenging to process suggestions or solve problems due to the numerous members involved, thus affecting the financial performance of a firm (Mangena, Tauringana, & Chamisa, 2012). Furthermore, a larger SACCOS board can also pose a challenge in executing its roles due to the nature of board members from membership (internal members only). This can result into a lack of diverse perspectives and reduced effectiveness in addressing the needs and concerns of the members of a SACCOS on financial performance. Therefore, we hypothesise:

> *H1: There is a negative relationship between board size and the financial performance of SACCOSs in Tanzania.*

2.2.2 Women on the Board (WOB) and Financial Performance

Due to social pressures and an appreciation of the diversity value of boards, the presence of women directors has become an important attribute in the governance of modern firms (Perrault, 2015). Hakovirta et al. (2020) postulate that gender equality in boards brings new perspectives, skills, and experiences that can enhance competence and organisational performance. Based on the agency theory, the presence of women adds value to the monitoring of management activities, which deflates agency conflicts (Mori & Richard, 2019). As such, boards with women members can monitor and control management activities to achieve the required objectives. Moreover, Adams and Ferreira (2009) promulgate that women have better attendance records in board meetings than men. Furthermore, Ward and Forker (2017) contend that when firms include women in their boards, they concurrently bring in extra values such as social character, integrity, and commitment; hence making them stronger links with the community. However, evidence also shows that most firm boards in many developing countries have few women (Mori et al., 2015).

From a resource dependency perspective, women in a firm's board could bring in their integrity, skills and knowledge; and ultimately contribute to the heightened performance of a firm. Empirically, the debate on the influence of female board members' on a firm's financial performance seems inconclusive. Munene et al. (2020), Bennouri et al. (2018), and Vishwakarma (2017) report a positive relationship between women on boards and firms' financial performances. However, Yang et al. (2019) and Adusei, Akomea, and Poku (2017) found a negative

relationship between women in firm boards and financial performance. Moreover, Forte and Tavares (2019) found no association between women on boards and firms' performance. Overall, though, it is accepted that the presence of women on boards has become a vital characteristic of a board; thus, many developed countries have introduced women's representation in the governance codes (Davies, 2011) because women possess values and principles that make them suitable for performing social and financial functions, which differentiate them from men (Esteban, Gargallo & Pérez, 2019). However, as pointed out earlier, their representation in the boards of financial institutions, including SACCOSs, is insufficient (Chadwick & Dawson et al., 2018). Hence, the study hypothesises:

> *H2: There is a positive relationship between the presence of women on boards and a SACCOS' financial performance.*

2.2.3 Board's Financial Skills and Performance

Board members should possess relevant skills and knowledge to deal with the nature and complexity of the firms they oversee (Guerrero et al., 2017). Board members with specific and relevant skills and knowledge enhance critical thinking, leading to better judgments on firms' strategic quality decisions, improved financial performance, and eventually meeting firm owners' interests (Fernandes et al., 2017; Tricker & Tricker, 2012). From the agency theory perspective, board members need adequate knowledge and skills for overseeing and controlling firms' operations and management actions. In addition, the resource dependency theory assumes that relevant skills facilitate an organization's access to networks and information for managing uncertainties, and foster advices and strategies that bolster firms' financial performances.

As a microfinance institution, a SACCOS' requirement for financial expertise on its board is inescapable (Ssekiziyivu et al., 2018). Previous studies by Hakelius (2018), Reddy and Locke (2014), Unda et al. (2017), and Chaudhry et al. (2020) reveal that boards with financial expertise have a positive and significant effects on performance. In contrast, Kim and Rasheed (2014) found no evidence to support a positive relationship between financially-skilled board members and a firm's financial performance. Tanzania's SACCOS Regulations of 2019 (URT, 2019) require boards to have at least two members with accountancy or finance skills qualifications. However, the composition of a SACCOS might obstruct the enforcement of the regulations since board members of a SACCOS are elected within the membership. Thus the following non-directional hypothesis is proposed:

> *H3: There is a relationship between the presence of board member(s) with financial skills and the financial performance of a SACCOS.*

2.2.4 Frequency of Board Meetings and Financial Performance

To serve effectively in boards, members must invest adequate time to understand, discuss, and deliberate on pertinent and relevant issues pertaining to a firm's performance (Eluyela et al., 2018). Board meetings allow board members to discuss, guide and decide on crucial issues facing a firm's management in

discharging its roles to enhance performance (Paul, 2017). Board meetings also allow members to assess timely management reports, thus contributing to enhanced operational performance and improving a firm's financial performance (ibid.). The number of meetings reflects the frequency of information exchange between a board and the management during a certain period. It serves as a resourceful medium for harmonising effectively the opinions of board members and management aimed at achieving organisational goals (Eluyela et al., 2018).

Nkundabanyanga et al. (2015), and Zhu et al. (2016), identify the benefits of frequent meetings to include sufficient time for board members to advise, set strategies, assess implementation and monitor a management's impact on a firm's financial performance, whether positive or negative. On the other hand, conflicting views from Alsartawi (2019), Hakelius (2018), and Johl et al. (2015) question whether meetings and financial performance could have a negative relationship because they inflate administrative costs and, ultimately, adversely affect a firm's financial performance. As such, we propose the following non-directional hypothesis:

> *H4: There is a relationship between the frequency of board meetings and a SACCOS' financial performance.*

3. Methodology
3.1 Sample and Data
This study covers SACCOSs operating in two regions of Tanzania: Dar es Salaam and Arusha. The regions were selected based on the high concentration of active SACCOSs. The regions contain a total of 579 active SACCOSs, which were considered a sampling frame. The study applied the Yamane formula (1967) to calculate a sample size of 236 SACCOSs. Simple random sampling techniques were used to select SACCOSs as they had an equal chance of being selected due to similar characteristics. A sample size of 236 SACCOSs was included in the data collection process. However, only 198 (83.8 percent) SACCOSs had audited financial statements available. It was observed that not all SACCOSs underwent auditing every year. Moreover, Mugenda and Mugenda (1999) qualify a response rate above 70 percent of a sample size as adequate for generalisation.

Data for variables were quantitative secondary extracted mainly from audited financial reports conducted by the Co-operative Audit and Supervision Corporation (COASCO), minutes of board meetings, and co-operative officers' inspection reports. The variables used covered the period from 2014 to 2018, resulting in a four-year panel dataset. Panel data helped minimise the risk of endogeneity and bring up more information with a high degree of freedom and efficiency (Darko, Aribi & Uzonwanne, 2016).

Missing information was detected in certain SACCOSs, necessitating excluding those observations from the dataset. Consequently, the study used an unbalanced panel dataset comprising 198 SACCOSs, with observations ranging from 826 to 837 firms, similar to previous studies that used unbalanced panel data, such as

those conducted by Mwenda et al. (2021), and Swai (2016). The researcher directly approached the SACCOSs in Dar es Salaam and Arusha to collect the data. Assistance was sought from the assistant registrars of co-operatives in each region and research assistants to facilitate data collection.

3.3 Measurement of Variables
Dependent Variables
The study's dependent variables comprised net interest margin *(NLI)*, operating efficiency ratio (OER), and deposit to assets ratio (DAR), as defined in Table 1. The ratios were adopted from the PEARLS guide manual issued by the World Council of Credit Union in 2009. PEARLS ratios provide a broad collection of performance measures for adequate supervision of a SACCOS. These performance measures variables help to determine how SACCOSs use their respective member's savings and deposits to enhance effective yields to continue offering services to members (Richardson, 2002).

Table 1: Definition and Measurement of Variables

Variable	Acronym	Measurement	Expected sign
Independent Variables			
Board size	BSIZE	Number of board members within the board	-
Women on Board	WOB	Percentage of women on board members	+/-
Board Skills	BSKILL	Number of a board member(s) with financial skills (accounting and finance) from certificate level or above	+/-
Board Meeting	BMEET	Number of board meetings conducted per annum	+/-
Dependent Variables			
Net loan Income	NLI	Net loan Income divided by loan portfolio	
Operating Efficiency Ratio	OER	Operating expenses divided by total assets	
Deposit to Assets Ratio	DAR	Member's saving and deposits divided by total assets	
Control Variables			
SACCOS Age	SAGE	Number of years since its registration	+
SACCOS Size	Ln-SSize	Natural logarithm of total assets	-

Independent Variables
The independent variables were four board characteristics: board size, women on board, skills, and meetings, as already hypothesised and as defined in Table 1; and based on the co-operative empirical studies reviewed (Hakelius, 2018; Reddy & Locke, 2014; Unda et al., 2017). The board characteristics are essential in understanding the financial performance of a board and respective SACCOSs.

Control Variables
Since SACCOSs in Tanzania vary in size and age and need control for deviations, this study used SACCOS's size and age as control variables, similar to most of the previous SACCOS and other MFI studies reviewed (see, e.g., Almehdawe et al.,

2020; Favalli et al., 2020; Iqbal et al., 2019). As SACCOSs age, they obtain more experience in their operations in the respective business fields, thus increasing the likelihood of providing sustainable services due to enhanced financial performance (Almehdawe et al., 2020). Similarly, larger SACCOSs may benefit from economies of scale to utilise their resources efficiently, hence attaining better financial performances (Iqbal et al., 2019; Meyer, 2019).

3.4 Model Specification and Data Analysis

Data were subjected to descriptive analysis and linear regression models. The descriptive study examined the central tendencies of each variable through means, standard deviation, minimum and maximum values, kurtosis, and skewness. After that, given that the dataset structure was in a panel format, the linear regression with a random effects or fixed effects model was used to conclude the relationships between the studied variables. The linear regression model used is expressed in the equation:

$$FP_{it} = \propto + \beta_1 BSize_{it} + \beta_2 WOB_{it} + \beta_3 BSkill_{it} + \beta_4 Bmeet_{it} + \beta_5 SAge_{it} + \beta_6 lnSSize_{it} + a_i + \delta_t + \varepsilon_{it}$$

Where FP_{it} is a dependent variable of financial performance measured in net loan income (NLI), the operating efficiency ratio (OER), and the deposit to assets ratio (DAR) as proxy variables. The independent and control variables include board size ($BSize_{it}$) women on board (WOB_{it}), board skills ($BSkill_{it}$), board meetings ($Bmeet_{it}$), SACCOS age ($SAge_{it}$), and SACCOS size ($lnSSize_{it}$). Also, t is the years which take the value from 2014 to 2018; i stands for the respective firm; δ_t is a year dummy (time-fixed effects); a_i is a firm dummy; and ε_{it} is the error term. β_1 to β_6 are the respective coefficient parameters of independent variables to be estimated.

Before deciding which linear regression model specification to use, pre- and post-estimation linear regression assumptions such as normality, multicollinearity, heteroskedasticity, and autocorrelation were tested to adhere to regression requirements on the pooled ordinary least square (Pooled OLS) (Pallant, 2020). Normality tests were done by checking the value of skewness and kurtosis, as shown in Table 2. The test showed data were normally distributed except for SACCOS size. Therefore, SACCOS size was transformed into a natural logarithm to solve the normality problem and outliers (Field, 2013). Furthermore, the data were tested for multicollinearity using the Pearson correlation and variance inflation factor (VIF), as shown in Table 3.

Moreover, data were tested for heteroskedasticity because its existence inflates standard errors; however, the estimates can be unbiased but inefficient. If error terms do not have constant variance, the implication is that they are heteroskedastic. The Breusch-Pagan/Cook-Weisberg test was used for heteroscedasticity. Furthermore, panel data can suffer from autocorrelation, which is the relationship between observations of the same variable across specific time periods ($Cov(\varepsilon_{it}, \varepsilon_{i(t-1)}) \neq 0$).

The existence of autocorrelation may cause less efficient results (Drukker, 2003). Hence, the Wooldridge test was used to test autocorrelation. Given the problem of heteroskedasticity and autocorrelation, the study used a robust standard error to solve issues similar to previous studies (Towo et al., 2019). The diagnostic assumption test results (see Tables A1, A2 and A3 in the Appendix) provide evidence that the linear regression assumptions of the study were reasonably fulfilled.

After all the diagnostic assumption tests, a linear regression model examined the relationship between board characteristics and financial performance, including the control variables. Data were treated as cross-sectional data and subjected to the preliminary analysis of pooled ordinary least square (Pooled OLS) regression model to establish the relationship between the study variables by assuming no individual time-invariant effects in a firm and time-fixed effects. But relying on this point of view is not appropriate, especially in the existence of observed and unobserved firm heterogeneity factors, which do not change over time but are correlated with regressors or outcomes of interest. Given that the data were in panel structure, the most suggested appropriate model is either a fixed-effects (FE) or random-effects (RE), and the associated choice criteria among these models is based on whether the individual (firms in this case) time-invariant factors are correlated with regressors ($Cov(a_i, X_{it}) \neq 0$), or not correlated with regressors $Cov(a_i, X_{it}) = 0$ (Gujarati, 2004).

For the fixed effects (FE) test, the least square dummy variable (LSDV) regression was used by including individual firm dummies on the previous pooled OLS; therefore, the joint F-test for fixed effects among the respective coefficients of firm dummies followed. The null hypothesis for the test states that if all coefficients of a firm's dummy variables are equal to zero, the null hypothesis is rejected; and if the dummy variables are not equal to zero, FE exists. Furthermore, the random effect (RE) was tested using the Lagrange multiplier (LM) to decide whether to remain with a random-effects model or an alternative Pooled OLS regression (Torres-Reyna, 2007). The null hypothesis in the LM test states that variance across firms is zero, meaning there is no difference across firms or units. If the variance is not zero, there is a significant difference across firms; thus, the null hypothesis will be rejected. Therefore, the RE exists because it can better solve heterogeneity issues than the pooled OLS. When the tests for FE and RE both reject their respective null hypotheses, which indicate an indecisive scenario, then the Hausman test is suggested to choose among them.

The Hausman specification test was taken to determine which estimate to prefer, either fixed or random effects, as commonly used in previous studies (Wooldridge, 2013; see also Table A7). The Hausman null hypothesis states that the difference in coefficients is not systematic. Suppose the test fails to reject the null hypothesis, meaning that the p-value is greater than 0.05 (p>0.05), then the random-effect estimates are appropriate. If the test rejects the null hypothesis, saying that the p-value is less than 0.05 (p< 0.05), then the alternative fixed-effects model becomes valid (Gujarati, 2004; Wooldridge, 2013).

4. Results
4.1 Descriptive Statistics
Table 2 presents a summary of the descriptive statistics from the study variables. The average net loan income (NLI) is 13.7 percent, which is lower compared to the 14.5 percent reported by Meyer (2019). The lower rate may be because SACCOSs in Tanzania are not for profit making. The mean operating efficiency ratio (OER) is 8.7 percent, which is higher than the required SACCOS standard rate of 5 percent, which implies that the SACCOSs under review had failed to manage their operating expenses, resulting in higher operating costs (Richardson, 2002). The mean value of the deposit to asset ratio is 59 percent, which is less than recommended worldwide acceptable range of 70–80 percent (ibid.). Even though SACCOSs in Tanzania have not yet achieved sufficient saving deposits as recommended, the rate is higher than the 56 percent reported by Towo et al. (2019).

Table 2: Descriptive Statistics Summary of Dependent and Independent Variables

Variable	Obs.	Mean	Std. Dev	Min	Max	Skewness	Kurtosis
Dependent variables							
NLI (percent)	826	13.84	7.72	0.986	49.00	1.01	3.00
OER (percent)	829	8.791	6.08	0.020	34.69	1.19	2.61
Deposit Asset Ratio (percent)	837	59.51	19.03	8.000	99.00	-0.16	2.35
Independent variables							
Board Size (#)	847	6.629	1.29	4	10	0.46	2.58
Women on board (%)	847	34.61	17.72	0	87.50	0.48	2.83
Board Skills (#)	847	1.084	1.09	0	4	0.81	2.93
Board Meeting (#)	844	6.975	2.21	4	12	0.86	3.07
Control variables							
SACCO size (TZSm)	841	916	2,046	2,707	20,754	-0.94	3.06
SACCOS Age (#)	841	13.90	10.13	3	50	0.96	3.14

Source: Field Data (2020)

Table 2 further shows that the average number of board members is seven, with a minimum of 4 and a maximum of 10 members. This implies that the average board size is within the required range of 5–9 members. Still, some SACCOS boards maintain an unauthorized size as stipulated in the Tanzanian SACCOS Regulations of 2019 (URT, 2019). The mean value of the representation of women on the board is 34.6 percent, with a minimum of zero, indicating that Tanzania SACCOS boards are male-dominated. Thus, some boards missed out women's substantive contributions. The average board member with financial skills (accounting or finance) is one member, indicating that many SACCOS boards in Tanzania did not have enough members with financial skills. The finding is non-compliant with the country's SACCOS regulations that require having at least two members with financial skills. The average number of board meetings is seven, which indicates that boards tend to exceed the maximum requirement of four meetings per year, as stated in the SACCOS regulations. The mean value of

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assets is TZS916m; with a minimum of TZS2.7m, and a maximum of TZS20,754m. This indicates a considerable variation in the size of SACCOSs in Tanzania, with some being large enough to enjoy economies of scale, while others remain relatively small.

4.2 Correlation Analysis

Table 3 presents a Pairwise correlation matrix between the study variables. There is a correlation between the dependent variables: OER is positively related to NLI, whereas DAR positively correlates with NLI. The relationship between independent and dependent variables indicates that NLI has a statistically significant positive correlation with WOB and board meetings, but a significant negative correlation with board size. Moreover, OER has a negative and significant correlation with board skills. Measuring the correlation between explanatory variables is crucial in predicting the presence of multicollinearity. Field (2013) states that a correlation coefficient between independent variables of $\leq$ +0.9, or $\geq$ -0.9, signifies multicollinearity. The correlation between explanatory variables shows that none of the variables used was highly correlated. Another test for multicollinearity among the explanatory variables is the Variance Inflation Factor (VIF), with the rule of thumb that when the value is ten (10) or higher, there exists multicollinearity among variables (Alauddin & Nghiemb, 2010). The VIF results in Table 3 indicate that none of the variables falls above 10; thus there was no multicollinearity problem.

Table 3: Correlations Matrix

Variables	1	2	3	4	5	6	7	8	9	VIF
NLI (1)	1									
OER (2)	0.266***	1								
Deposit Asset Ratio (3)	0.146***	0.0264	1							
Board Size (4)	-0.0192	-0.000613	-0.0553	1						1.130
Women on Board (5)	0.0992**	0.110**	0.00544	-0.146***	1					1.061
Board financial skills (6)	0.0388	-0.0714**	0.0625	0.00345	0.0699	1				1.023
Board Meeting (7)	0.122***	0.0528	-0.0396	-0.0802*	-0.184***	0.0845*	1			1.108
SACCOS size (8)	-0.174***	-0.0957**	0.0313	0.217***	-0.111**	-0.0127	0.106**	1		2.408
SACCOS Age (9)	-0.0809*	-0.125***	0.0465	0.263***	-0.0994**	-0.0613	0.186***	0.570***	1	2.425

Notes: Significance levels *** $p<0.01$, ** $p<0.05$, * $p<0.1$

4.3 Regression Results

The results of the Hausman test in Table 4 showed that the Chi-square value is 10.06, p > 0.435 for NLI; whereas the Chi-square value is 11.35, p > 0.331 for OER; and the value for DAR is 21.14, p < 0.021. Therefore, the Hausman null hypothesis that firms' effects are not correlated was supported by the NLI and OER models, while it was rejected in the DAR model. Thus, the random effects model was used for NLI and OER, while the fixed effects model was preferred in the DAR model. We used the robust standard error estimates to control bias in the results due to heteroskedasticity and autocorrelation. Moreover, we included year dummy variables to control for the fixed year effects: their coefficients are presented in Tables 4 and 5.

The estimated coefficients in the regressions in Table 4 show that the board size is positive and significant with OER at a 5 percent level (β 0.4482, p< 0.05); but positive and insignificant with NLI (β 0.2541, p> 0.1), and negative and insignificant with DAR (β -0.0999, p> 0.1). The results indicate that when a board size increases by one member, the operating costs increase by 0.448 units. Moreover, the result discovered that board members' financial skills have a positive and significant relation with deposit asset ratio at 1 percent (β 4.5513, p< 0.01), and are significantly but negatively associated with the operating efficiency ratio by 1 percent (β -0.5316, p< 0.1); while having an insignificant association with net loan income (β 0.2437, p> 0.1).

Table 4: Board Characteristics and Financial Performance

Variables	NLI *Random-Effect*	OER *Random-Effect*	DAR *Fixed-Effect*
Board size	0.2541	0.4482**	-0.0999
	(0.2153)	(0.1934)	(0.8268)
Women on Board	0.0364	0.0008	-0.0507
	(0.0223)	(0.0185)	(0.0943)
Board skills	0.2437	-0.5316*	4.5513***
	(0.4513)	(0.3017)	(1.5242)
Board meetings	0.3864*	0.2618	0.5707
	(0.2286)	(0.1610)	(1.6994)
SACCOS size	-0.6705*	-1.4577***	-4.6631**
	(0.3880)	(0.2815)	(2.0339)
SACCOS age	0.0178	0.0600	-0.0865
	(0.0715)	(0.0437)	(0.8469)
2014b.Year	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)
2015.Year	0.9182	0.2212	2.4341*
	(0.5609)	(0.3998)	(1.4150)
2016.Year	0.6224	0.7024*	3.4150
	(0.6639)	(0.4175)	(2.1601)
2017.Year	0.6859	1.4678***	3.5387
	(0.6921)	(0.4666)	(2.9050)
2018.Year	0.4271	1.7313***	5.7968
	(0.7721)	(0.5238)	(3.5244)
Constant	20.0265***	31.0483***	159.6176***
	(7.5481)	(5.7018)	(43.3964)
Observations	826	829	837
R-squared	0.2629	0.3650	0.2489
Housman (P-value)	0.4453	0.3312	0.0201
F-statistic			2.17**
Wald chi^2	16.61*	50.20***	

Note: Robust standard errors reported in parentheses adjusted for possible heteroskedasticity in the error term at *** p < 0.01, ** p < 0.05, * p < 0.1.
Source: own computation from field data 2014–2018

4.4 Robustness Check

To verify the consistency of the results obtained from the baseline model used in Table 4, the study determined whether the relationship between board characteristics and financial performance varies across SACCOS' common bonds. The common bond permeates the local community, employees of a particular organisation, or other affiliations (Goddard et al., 2008). In Tanzania, most SACCOSs were in the community and employee-based categories (Kembo & Mwakujonga, 2013). The results presented in Table 5 were based on community and employee-based SACCOSs. These results are similar to the baseline model findings of the hypothesized relationships.

Table 5: Board Characteristics and Financial Performance

Variables	NLI		OER		DAR	
	Employed	Community	Employed	Community	Employed	Community
Board size	0.2540	0.2454	0.5463**	0.4131	0.2290	-0.8881
	(0.2785)	(0.3392)	(0.2233)	(0.3277)	(1.2387)	(0.8085)
WOB	0.0449	0.0187	-0.0189	0.0433	-0.0755	-0.0212
	(0.0317)	(0.0292)	(0.0235)	(0.0281)	(0.1037)	(0.1552)
Board skills	0.3816	0.1014	-0.3011	-0.7264*	5.0390***	
	(0.5161)	(0.6482)	(0.4699)	(0.3887)	(1.7473)	
Bmeetings	0.3468	0.3542	0.1509	0.3801	1.1144	0.9656
	(0.2353)	(0.3471)	(0.1753)	(0.2540)	(2.0933)	(1.7837)
SACCO size	-0.6237	-0.5121	-1.0281***	-2.1997***	-5.2724**	-3.7577
	(0.4502)	(0.6016)	(0.3173)	(0.4899)	(2.4202)	(3.7220)
SACCO age	-0.0615	0.1451	0.0059	0.1619**	-0.2323	1.6759
	(0.0747)	(0.1198)	(0.0542)	(0.0754)	(0.8124)	(5.7422)
2014b.Year	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
2015.Year	0.5980	1.1594	-0.4431	0.9722	4.1115**	-1.2183
	(0.8138)	(0.7502)	(0.4609)	(0.6973)	(1.8490)	(5.7629)
2016.Year	0.6600	0.4683	0.0398	1.4334**	5.4249**	-2.3364
	(0.9605)	(0.9000)	(0.5930)	(0.5942)	(2.4850)	(11.1924)
2017.Year	0.8040	0.4314	1.0610*	1.8417***	6.1536*	-4.6648
	(1.0358)	(0.8281)	(0.6088)	(0.7147)	(3.2217)	(16.9747)
2018.Year	1.2991	-0.8129	1.5356**	1.8037**	8.6439**	-4.2807
	(0.9951)	(1.1922)	(0.6788)	(0.8385)	(3.5672)	(22.4280)
Constant	18.7165**	18.2013	23.9117***	42.2334***	177.6172***	104.7847
	(8.8289)	(11.1316)	(6.0618)	(10.3922)	(50.4288)	(103.7410)
Observations	489	337	461	368	468	369
R-squared	0.1830	0.1438	0.1939	0.2821	0.1738	0.1326
Unique ID	112	86	112	86	112	86
F-statistic					2.47**	0.62
Wald *chi²*	20.05**	15.37	25.83***	60.17***		

Note: Robust standard errors in parentheses corrected for possible heteroskedasticity in the error term at *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: Own computation from field data, 2014–2018

Furthermore, the results showed that board meetings are positive and statistically significant at a 10 percent level in NLI (β 0.3864, p< 0.10); but there was no evidence from the OER (β 0.2618, p> 0.1) and DAR (β -0.5707, p> 0.1). The results also revealed that women on boards have an insignificant relationship with financial performance. Concerning the control variables, the estimated coefficients show that SACCOS size is negative and significant with NLI (β -0.6705, p> 0.1), OER (β -1.4577, p> 0.01), and DAR (β -4.6631, p> 0.05). At the same time, SACCOS age has an insignificant relationship with either NLI (β 0.0178, p> 0.1), OER (β 0.0600, p> 0.1), or DAR (β -0.0865, p> 0.1).

Moreover, as shown in Table 5, board size in employee-based SACCOSs was positively associated with OER (β 0.5463, p< 0.05); while board members' skills are positively related to DAR (β 5.0390, p< 0.01). Furthermore, SACCOS size has a negative and significant relationship with OER (β -1.0281, p< 0.01), and DAR (β -5.2724, p< 0.05). Regarding community-based SACCOSs, the findings show that board members' skills have a significant but negative relationship with OER (β -0.7264, p< 0.1). Finally, SACCOS size has a negative but meaningful connection with OER (β -2.1997, p< 0.01). The overall results signal a need to address the two board characteristics (financial skills of board members and frequency of board meetings) for better SACCOS financial performance; thus the models used were efficient.

4.5 Discussion of Results
4.5.1 Board Size and Financial Performance
The results in Table 4 show that the coefficient of board size is positive and significant with OER at a 5 percent level (β 0.4482, p< 0.05) but positive and insignificant with NLI and DAR; thus, *Hypothesis 1* is partly supported. The results indicate that larger boards raise operating expenses in Tanzania's SACCOSs. When a board size increases by one member, the operating costs increase by 0.448 units. The plausible explanation is likely due to the composition of SACCOS boards, whereby board members are elected from the membership (internal members only) (Jones et al., 2017). This board composition requirement may limit access to diverse skills and experienced professionals that can monitor and advise on operating costs.

Moreover, the operating costs for larger boards in SACCOS are also likely to raise sitting allowances, and communication and stationery costs, with no significant effect on effective monitoring, quality of decisions, and advice in cost management. These results are consistent with Reddy and Locke (2014), who found that increasing board size raised agency costs in New Zealand. However, they are contrary to the views of Hakelius (2018) and Unda et al. (2017), who contend that an assortment of skills in board members translates into improved financial performance. Yet, others have not found any association between board size and financial performance (Abubakar et al., 2011; Ghosh & Ansari, 2018). The results contradict the principles of the resource dependency theory as they indicate that having a larger board size does not benefit the operational context of Tanzania SACCOS boards.

4.5.2 Women on Board (WOB) and Financial Performance

The results in Table 4 reveal that women on board has a positive but insignificant relationship with net loan income (β 0.0364, p> 0.1), operating efficiency (β 0.0008, p> 0.1), in addition to having a negative but insignificant relationship with deposit asset ratio (β -0.0507, p> 0.1). In other words, WOB presents no added advantage on a SACCOS' financial performance. As such, this outcome does not support *Hypothesis 2*. Implicitly, the presence of women in SACCOS boards does not necessarily add value to net loan income, operating efficiency ratio, or deposit asset ratio resulting from the inability to monitor financial matters, thus impairing financial performance. This problem could be attributable to the few women on SACCOS boards, averaging only 34 percent from the dataset. The low number of WOB of SACCOS could create social capital differences because their voices and involvement in board activities may be marginalised, and thus be perceived as failing to affect financial performance. Boards with fewer women members miss the opportunity to harness the diverse and valuable contributions that female members can provide (Herbert, 2019).

These results are also consistent with previous gender studies, which argue that the presence of WOB has no relationship with financial performance in financial institutions (Ahern & Dittmar, 2012; Forte & Tavares, 2019). On the other hand, the findings are inconsistent with Song et al. (2020), Hernández et al. (2019) and Ward and Forker (2017): all who found a positive relationship between WOB and firm financial performance.

4.5.3 Board Skills and Financial Performance

The reported results in Table 4 indicate that the financial skills of board members have a positive but insignificant association with net loan income (β 0.2437, p> 0.1). Also, board members' financial skills have a positive and significant relation with deposit asset ratio at 1 percent (β 4.5513, p< 0.01), and are significantly but negatively associated with operating efficiency ratio by 1 percent (β -0.5316, p< 0.1). The results indicate that increasing the number of board members with financial skills tend to increase deposits and minimise operating costs, partly supporting *Hypothesis 3*. Due to their competence, members with financial skills can supervise, monitor, and control all financial issues, such as cost management and deposits.

Moreover, boards with members with competent financial skills are more likely to advise management on deposit mobilization strategies, which will generate sustainable savings to continue offering loans to member at a fair rate. Savings deposits from members constitute a cheaper source of funds for a SACCOS than borrowing from banks and other financial institutions. Thus, a deposit mobilisation strategy can effectively lower finance costs such as fees, interests, and insurance; thus reducing operating costs. Furthermore, a financially-skilled member on a SACCOS board could minimise agency costs because this will render seeking a professional advisor on lending and cost management tactics unnecessary.

Again, board members with financial skills are more likely to help monitor management performances, including financial controls, by comparing actual spending with budgets, and observing value for money activities, which will in turn lead to cost minimization. The findings are consistent with the results from Hakelius (2018) and Unda et al. (2017), who found a positive relationship between board members' financial skills and financial performance in European SACCOSs. However, the results contradict Munene et al. (2020), Minton et al. (2014) and Yang et al. (2019): who all found a negative association between the two aspects. However, they confirm the relevance agency theory standpoint that a board with financially-skilled members is the proper instrument for effectively monitoring management actions on operating costs, hence contributing to the betterment of a SACCOS' financial performance. Furthermore, the results validate the resource dependency perspective that board members with financial skills facilitate timely and productive strategies, and appropriate advice on deposits.

4.5.4 Frequency of Board Meetings and Financial Performance

The results in Table 4 show that the coefficient of board meetings is positive and statistically significant at a 10 percent level in NLI (β 0.3864, p< 0.10), but there was no evidence from the OER (β 0.2618, p> 0.1) and DAR (β -0.5707, p> 0.1). Thus, *Hypothesis 4* is only partially accepted. The findings also indicate that an increase in the number of boards meeting leads to an increase in net loan income in Tanzania's SACCOSs. Regular board meetings increase the monitoring of management in handling lending issues such as the loan process, loan recovery and loan portfolio, which are associated with net loan income. Furthermore, frequent board meetings provide timely advice and effective decisions on lending issues, and as a result, enhance NLI. This result supports the perception that regular board meetings are a suitable mechanism for increased monitoring of management operations (Paul, 2017).

The findings align with most board meetings literature. For example, Eluyela et al. (2018), and Ntim et al. (2015) reinforce the idea that having frequent board meetings can boost the financial performance of a financial institution. Conversely, Alsartawi (2019b, 2019a), and Johl et al. (2015) found a negative relationship between board meetings and financial performance. Moreover, Hakelius (2018) found no association between board meetings and financial performance in Sweden's co-operatives. However, the findings are consistent with the agency theory standpoint that a board meeting is an appropriate mechanism for monitoring management actions on net loan income. Furthermore, the results support the resource dependency perspective that regular board meetings allow timely and productive strategies and advice on net loan income, which account for financial performance in this study.

5. Conclusion and Policy Implications
5.1 Conclusion
This study examined the relationship between boards' characteristics and the financial performance of SACCOS in the Arusha and Dar es Salaam regions of Tanzania. The study findings reveal that the presence of financially-skilled members

within boards translates into increased SACCOS' net loan income, and reduced operating efficiency ratio. Similarly, board meetings raise the net loan income of a SACCOS. The results support the importance of having board members with financial skills and conducting regular meetings, since these are essential characteristics in monitoring the actions and operations of managements to boost the financial performance of SACCOSs in Tanzania. However, the study found that board size—particularly when bloated—increases operating costs. Also, the study found no evidence regarding the influence of women on boards on the financial performance of a SACCOS.

5.2 Policy Implications

The empirical evidence demonstrates that for SACCOSs in Tanzania, a board with members possessing financial skills and holding regular board meetings are crucial in improving net loan income, deposit-to-asset ratio, and operating efficiency ratio. Thus, the study recommends that SACCOS members elect board members equipped with financial skills stipulated in the regulations to facilitate effective monitoring, control, strategies and advice on deposits and cost management; and ultimately enhance financial performance. Furthermore, SACCOSs need to build the capacity of board members in essential financial management skills to discharge their core board roles effectively. Again, SACCOS members have to encourage board members to convene regular board meetings when decisions—especially those related to strategic matters such as loan issues, cost, deposits, and others that may impact a SACCOS' performance—need to be made.

On the policy front, the study urges the Tanzania Co-operative Development Commission (TCDC) regulators to strengthen the supervision of SACCOS boards so that they can effectively execute their roles in compliance with the stipulated laws and regulations. This may help reinforce board members skills in the performance of their functions of managing and advising the managements of SACCOSs as regards improving financial performance. Furthermore, the Co-operative Act and SACCOS' regulations need to be reviewed to allow SACCOSs to have (an) experienced independent board member(s) (external director(s)) with financial skills and experiences.

On the other hand, the study acknowledges a few limitations. For example, it did not consider board processes. Future studies can investigate how board processes influence financial performance in a SACCOS. Due to limited time and data accessibility, the study was based on only a few financial performance indicators; therefore, future studies could use different measurements to determine SACCOS' financial performance.

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Appendices

Table A1: Variance Inflation Factor

	VIF	1/VIF
SACCOS age	2.425	.412
SACCOS size	2.408	.415
Board size	1.13	.885
Board meetings	1.108	.903
WOB	1.061	.943
Board skills	1.023	.978
Mean VIF	1.526	.

**Table A2: Breusch-Pagan / Cook-Weisberg
Test for Heteroskedasticity**
Ho: Constant variance (homoscedastic)

NLI	chi2(1) = 23.60
	Prob > chi2 = 0.0000
OER	chi2(1) = 48.06
	Prob > chi2 = 0.0000
DAR	chi2(1) = 1.24
	Prob > chi2 = 0.02664

Table A3: Test for Autocorrelation (2)
Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation

NLI	F(1, 165) = 43.142
	Prob > F = 0.0000
OER	F(1, 167) = 5.724
	Prob > F = 0.0178
DAR	F(1, 168) = 92.678
	Prob > F = 0.0000

Test for FE and RE

   F-test for Each SACCOS's dummy Coefficient for the Existence of Fixed Effects

H_0: All coefficients of SACCOS dummies are equal to zero

Table A4: Least Square Dummy Variable (LSDV) Regression

	NLI	OER	DAR
F (194, 572)	7.37	9.46	14.01
Prob > F	0.0000	0.0000	0.0000

Reject null; there are Fixed Effects

Breusch-Pagan Lagrange Multiplier (LM) test for Random Effects

H_0: No random effects (i.e., Var(u) = 0)

Table A5: LM-test for Random Effects

	NLI	OER	DAR.
Chi-square test value	477.48	525.19	724.37
P-value	0.0000	0.0000	0.0000

Reject null; there are Random Effects

Hausman Specification test to choose between FE and RE

H_0: Difference in coefficients is not systematic (Individual fixed effects are not correlated with regressors)

Table A7: Hausman (1978) specification test

	NLI	OER	DAR
Chi-square test value	10.06	11.35	21.14
P-value	0.4353	0.3312	0.0201