Relationship lending and financial performance of Savings and Credit Co-operative Societies in Tanzania

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Abstract

Purpose – This paper examines the influence of relationship lending on the financial performance of Savings and Credit Co-operative Societies (SACCOS) in Tanzania.

Design/methodology/approach – A panel data of 460 observations representing 115 SACCOS from Tanzania was used. Descriptive statistics and panel regression models were employed to analyse the data.

Findings – The results show that the duration of the relationship is negatively and significantly related to SACCOS financial performance, substantiating the relationship lending theories. The number of relationships has an insignificant effect on financial performance.

Research limitations/implications – The study focused on the duration and the number of relationships as aspects of relationship lending. The paper is limited in the sense that other aspects of relationship lending such as the concentration of relationships that could affect financial performance are not included in this study. The results apply to SACCOS and not to other microfinance institutions with strong bargaining power.

Originality/value – This study positions relationship lending in the SACCOS context where the market for the wholesale loan is less competitive.

Keywords Financial performance, Relationship lending, SACCOS, Duration of relationship,
Number of relationships

Paper type Research paper

1. Introduction

Savings and Credit Co-operative Societies (SACCOS) are indispensable in the provision of financial services to the segment of the population excluded from conventional banking services, both in developing and developed countries. SACCOS have the potential to support the provision of financial services to the unbanked population and are increasingly motivated to operate in a more sustainable way (Loubere and Zhang, 2015), which is possible if they have adequate funds. However, SACCOS lack sufficient funds for lending activities because their members' needs exceed the internally generated funds (Mwizarubi *et al.*, 2016; Piprek, 2008).

In search of a solution to overcome the challenge of limited funds, SACCOS established relationships with formal financial institutions (FFIs) to access wholesale loans for lending activities (Ishengoma, 2012). Although wholesale loans seem to be an alternative solution to low internally generated funds, SACCOS has a glaring lack of transparency and accountability (Mathuva, 2016a), which can lead to information asymmetries. Due to information asymmetries, the lender cannot observe *ex ante* the abilities of the borrower and the qualities of the project (adverse selection) and also risks that the borrower will not perform in a manner consistent with the contract (moral hazard) (Ennew and Binks, 1995). This, in turn, necessitates the lender to institute *ex-post* monitoring procedures.

The procedures and measures instituted by FFIs (lenders) to mitigate information asymmetries and the related effects such as adverse selection and moral hazard include repeated interactions (Berger and Udell, 1995; López-Espinosa *et al.*, 2017), accessing

information about the SACCOS (borrowers), their members/clients and, applying collateral and guarantee as requirements to access loans (Ishengoma and Towo, 2016). These mechanisms may enable FFIs (lenders) to accumulate private information about the SACCOS (borrowers) through repeated interaction throughout their relationship. Though the repeated relationship seems to benefit the FFI (lender), it may also be valuable to the SACCOS (borrower) depending on the extent to which the lender passes these benefits to the borrower (Garriga, 2006). While the extant literature suggested that there are costs and benefits associated with relationship lending, the evidence is mixed as to whether relationship lending improves or lowers the borrower's performance.

From a theoretical standpoint, the lender may require the borrowing firm to pledge a higher collateral and interest rate with a promise of pledging less collateral and a low-interest rate in the future (Boot and Thakor, 1994). By benefiting from loan contracts with low-interest rates and minimal or non-collateral requirements, the borrowing firm can become more efficient and improve financial performance in the future. On the other hand, several scholars have suggested that private information accumulated due to the lender-borrower relationship may motivate the lender to extract rent and possibly create a hold-up problem to the extent that financing and limited diversification of sources of finance are costly for the borrower (Greenbaum et al., 1989; Sharpe, 1990; Rajan, 1992). Also, relationship lending may bring about the soft-budget constraint problem whereby an exclusive lender may refinance an unprofitable project in cases of financial distress (Dewatripont and Maskin, 1995; Garriga, 2006; Fiordelisi et al., 2014). Consequentially, relationship lending may cause unfavourable loan terms to the borrowing firms, which leads to poor performance.

Empirical evidence on the effect of relationship lending on the performance of borrowing firms is also mixed. Hakimi and Hamdi (2014) and Thanh and Ha (2013), for instance, show that firms with long-standing relationships have improved firm financial performance in terms of Return on Assets (ROA) and Return on Equity (ROE). While focusing on Italian firms Fiordelisi et al. (2014) learned that a higher concentration of lenders and longer lending relationships lower the likelihood for firms to encounter financial distress. Contrary to findings related to the duration of a relationship, Ioannidou and Ongena (2010) showed that interest rates increase as the relationships get longer. Supporting the concentration of the relationship factor, Castelli et al. (2012) found that several relationships have a negative association with firms' ROA and ROE.

Thus, both theoretical and empirical gaps exist in the literature examining the association between relationship lending and the performance of borrowing firms. This leads this paper to answer the question as to what extent does relationship lending influence the financial performance of SACCOS? To address this question, the paper utilises four years (i.e. over the period 2011–2014) of balanced panel data from 115 SACCOS in Tanzania. The paper also looks at that relationship while determining whether the nature of the respective SACCOS is community-based or employee-based. This paper contributes to the relationship lending literature since most previous studies have focused on the effects of relationship lending on the performance of non-financial firms while almost none have discussed that relationship in financial institution setting who borrows to finance their loan portfolios. Unlike the relationship lending studies that focus on large, small, and medium non-financial firms (Thanh and Ha, 2013; Hakimi and Hamdi, 2014; Fanta, 2016; Kysucky and Norden, 2016; Bräuning and Fecht, 2017; Beck et al., 2018; Mori and Ng'urah, 2020), this study focuses on financial institutions in the context of SACCOS. Given the restriction on mobilizing equity from the public, SACCOS borrows from the wholesale loan market which is characterised by few lenders (FFIs) that are diverse (Ishengoma and Towo, 2016). Due to a lack of collateral and transparency (Mathuva, 2016a) and the need to maintain liquidity to meet members' demand for loans (Kaleshu and Temu, 2012), SACCOS are likely to be more dependent on relationship

lending with FFIs. Therefore, analysing the relationship lending in SACCOS helps to address aspects that have not been explored by public and non-financial firm studies.

The rest of the paper is organised as follows: Section two provides an overview of the SACCOS in Tanzania; section three presents both the theoretical and empirical literature; section four describes the research methodology; section five presents and discusses the findings, and section six contains conclusions and implications.

2. Savings and Credit Co-operative Societies (SACCOS) in Tanzania

SACCOS are established to serve members who must have a common bond, either associational, occupational, or residential (Kaleshu, 2013). SACCOS have emerged to encourage financial inclusion through the provision of small loans, low-balance share accounts, and financial advice and counselling to low-income individuals who cannot access mainstream financial institutions (McKillop and Wilson, 2015). Government and development institutions use them to reach small entrepreneurs and marginalized households (Said *et al.*, 2019). Their major role includes the mobilisation of funds in the form of equity and savings from their members. Their provision of loans to their members enables them to undertake economic and social development such as payment of school fees, constructing or acquiring good houses for living or renting, and investing in income-generating activities (Ishengoma, 2010). Consequently, the number of SACCOS in Tanzania has increased from 5,344 to 6,178 between 2010 and 2020 with a penetration rate of 5.5% (WOCCU, 2010, 2020). Given the increasing demand for SACCOS services, especially loans, SACCOS have tried to supplement their internal sources of funds (members' savings and equity) with external sources such as wholesale loans from FFIs.

According to Marwa and Aziakpono (2015), SACCOS in Tanzania can be categorised into two groups: employee-based SACCOS which are formed by salary and wage earners; and community-based, which are formed by members involved in any social or economic activity in a particular area. The effects of borrowing from FFIs could be felt differently by the two categories of SACCOS. The employee-based SACCOS are likely to have diversified sources of wholesale loans including pension funds, banks, and government programs as they are formed at the employer's establishment. Employee-based SACCOS are guaranteed by the employer and the loan collection is centrally done by the employers through deduction of employees' salary. On the other hand, given their nature, community-based SACCOS are likely to have limited sources of wholesale loans. In the absence of a guarantee, community-based SACCOS may be required to secure wholesale loans from FFIs with high-value collateral. However, while loan collection is through members paying to SACCOS offices or depositing to SACCOS' bank account, they are constrained by the availability of collateral. Consequently, community-based SACCOS are likely to lessen the collateral requirement by concentrating their borrowings from a single lender (Mckillop *et al.*, 2020).

3. Theoretical and empirical review

3.1 Theoretical views

According to the financial intermediation theories, the lender-borrower relationship is characterised by the information asymmetry problem such that borrowers typically know their collateral, diligence, and moral integrity better than do lenders (Leland and Pyle, 1977). The asymmetric information problem can be resolved by relationship lending (Boot, 2000). Petersen and Rajan (1994) defined "relationship lending" as a situation where there are close ties between the borrowing firm and the lender. Relationship lending provides the lender with a comparative cost advantage of collecting information about the borrowing firm, which is useful for screening the borrower and making risk assessments before the loan is approved,

and for monitoring the loan afterward (Elyasiani and Goldberg, 2004). Fama (1985) pointed out that the lender can accumulate substantial information when the borrower is initially screened for the loan and by monitoring the borrower's management in the course of the loan. Furthermore, the lender may obtain the borrower's information by providing other pertinent financial services which can increase the precision of the information obtained (Petersen and Rajan, 1994; Agarwal et al., 2018).

The intensity of the lender-borrower relationship has been widely interpreted in terms of the duration of the relationship and the number of lenders for the borrower. Nevertheless, the existing literature has provided different views on the effects of the duration of the relationship. Boot and Thakor (1994) argued that lenders may require the borrowing firm to pledge a high amount of collateral and to pay an above-cost interest rate in the first place, but also stipulate in the contract that the firm will pay a lower rate and will not pledge collateral in the future upon demonstrating some project success. Accordingly, relationships of long duration affect the interest rate and collateral requirement (Petersen and Rajan, 1994; Bharath et al., 2011; Gopalan et al., 2011). On the other hand, the lender may attract the borrowing firm by offering up-front interest rates that are below cost, envisaging charging higher rates to the same firm to subsequently recoup initial losses (Ongena and Smith, 2000a, b). Sharpe (1990) and Rajan (1992) demonstrated that private information about borrowers accumulated by lenders in the course of the lending relationship may give the latter an information monopoly. In such circumstances, the relational lender benefits more than potential competitors because it possesses private information about the borrower's probability of repayment as a consequence of past lending (Greenbaum et al., 1989). Similarly, Ongena and Smith (2001) argued that firms facing large information asymmetries benefit most from long-term relationships but are also particularly susceptible to the hold-up problem.

Ongena and Smith (2000b) recommended that the solution to the hold-up problem was for a firm to diversify its funding sources. Diversification of financing sources ensures a stable supply of credit and reduces the risk of premature liquidation of the investment project since unexpected liquidity problems may render relationship lenders unable to meet refinancing needs (Detragiache et al., 2000). Besides, multiple relationships can result in advantageous terms for the borrower of the financial contract by forcing lenders to compete to offer favourable credit terms (Ongena and Smith, 2000a, b). On the other hand, Degryse and Ongena (2001) argued that it was difficult to communicate with multiple lenders, and the result is a loss of flexibility for the borrowing firm, as its actions have to be coordinated with more than one lender. Still, Detragiache et al. (2000) asserted that multiple lenders cost more because transaction costs are increased, screening, and monitoring costs, and free riders from other lenders are all an expensive problem.

3.2 Previous empirical findings

A considerable amount of empirical literature has addressed the effects of relationship lending with respect to terms (e.g. interest rates, collateral, type of loan, and availability) on firm performance, but the results are contradictory. Globally and with respect to the duration of a relationship, Hussain et al. (2021) used a dataset of business loans from Pakistan banks, examined the collateral requirements and their effects on loans provided. The results showed that more collateral is required by the lender when the relationship is longer, the number of loans is higher, and when the borrower uses more kinds of financing products. In terms of interest rates, Bräuning and Fecht (2017) highlighted that in German interbank lending, opaque borrowers obtain credit at lower rates when borrowing from the lenders with whom they have had a long relationship. Kysucky and Norden (2016) in their meta-analysis study, discovered that a long duration of relationship lending with the lender increased the possibility of the borrower obtaining higher credit volume. On the other hand, Gambini and

Zazzaro (2013) using data from manufacturing firms in Italy revealed that the growth of small firms was negatively affected by the maintenance of long-lasting ties with the main lenders.

Beck et al. (2018) examined whether banks were either transactional or relationship lenders. They studied 397 banks across 21 countries worldwide. Their results showed that relationship lending benefited small and opaque firms with less collateral to pledge. Bharath et al. (2011) utilised a data set from a loan pricing corporation in the United States. The data set contained information on loans to large corporations in the USA. The authors wanted to find out the demarcation between transactional and relationship lending between banks and corporations. Their results showed that borrowers in long-duration relationships with the lender benefitted from lower interest rates.

As to the number of relationships, Brewer et al. (2014) used farm-level data from Kansas Farm Management in the USA, which revealed that a borrower increases the number of lending relationships as they become more leveraged, which could be due to the limited availability of the size of the loan from the same (few) lender(s). Their analyses also revealed that borrowers who engaged in multiple lending relationships experienced lower profitability. A study by Cenni et al. (2015) investigated factors influencing credit rationing within a bank based on the financial system in Italy. They found that while multiple lending relationships increases the possibility of credit rationing to the borrower, longer relationship decreases the probability of rationing.

From the perspective of the developing world and with regards to the duration of the relationship, Fanta (2016) used a sample of 102 manufacturing SMEs in Ethiopia and reported that the length of the relationship with the lender complemented the need for collateral and increased the possibility that the borrower had access to a loan from the relational lender. Using data from the Bolivian Credit Register, Ioannidou and Ongena (2010) showed that interest rates charged by relational lenders increased with the duration of the relationship. In addition, a study by Thanh and Ha (2013) using data of publicly-listed firms in Vietnam, discovered that a strong long-term credit financing relationship enhanced borrowing firms' performance, while a strong short-term credit financing relationship reduced borrowing firm performance. Using a panel data of 100 companies from different sectors in Tunisia for the period 2000–2007, Hakimi and Hamdi (2014) revealed that the duration of bank relationships increased companies' profitability. In terms of the number of relationships, a study by Antwi and Ohene-yankyira (2017) utilising data from 380 farmers in Ghana, discovered that multiple lenders lowered the possibility of a borrower being able to access loans.

In the MFIs context, Chakravarty and Shahriar (2010) examined the lender-borrower relationship in MFIs from 34 randomly selected villages in Bangladesh. They found that borrowers with a longer lending relationship were likely to apply and get approval for their loans, while multiple lenders increased the probability of applying for a loan but reduced the likelihood of loan approval. Behr et al. (2011) viewed 30,100 loan applications from one microlender in Mozambique from the years 2000–2006 to investigate the lender-borrower relationship in MFIs. They discovered that a strong lending relationship improved access to credit, reduced the time of loan approval, maintained stable interest rates, and lowered collateral requirements. Godfroid (2019) using 10 years of data from one microfinance institution in Ethiopia with 47,080 observations revealed that relationship lending increases the probability of the borrower obtaining loans.

Evidence from Tanzania was observed by Mori and Ng'urah (2020) who demonstrated that the longer duration of the lender-borrower relationship would likely determine borrowing firm performance. In the case of multiple lending relationships, Charles and Mori (2017) used data from 835 individual borrowers obtained from an informal lending institution in Tanzania, found that clients who borrowed from multiple lenders were faced with decreased repayment rates.

According to the reviewed empirical studies, relationship lending influences firm performance in terms of collateral requirements and interest rates (Ioannidou and Ongena, 2010; Bharath *et al.*, 2011; Gopalan *et al.*, 2011; Fanta, 2016; Kysucky and Norden, 2016; Bräuning and Fecht, 2017; Beck *et al.*, 2018; Hussain *et al.*, 2021). Studies also showed that the duration of relationship lending may have either a negative or positive effect on the performance of the borrowing firm (Thanh and Ha, 2013; Hakimi and Hamdi, 2014). In addition, some studies linked the number of relationships and firm performance (Castelli *et al.*, 2012; Brewer *et al.*, 2014). Other empirical studies have shown relationship lending is related to firm distress (Fiordelisi *et al.*, 2014) the possibility of credit rationing (Cenni *et al.*, 2015), and borrowers' repayment performance (Mori and Ng'urah, 2020).

Most of the above studies focus on the relationship lending in large, small, and medium non-financial firms from developed countries. They do not specifically examine the relationship lending between lenders and financial firms, particularly SACCOS. There is also a lack of knowledge on how the performance of the institutions which borrow for lending to their clients/members may be influenced by relationship lending. This present study fills this gap by examining how the duration of relationship lending and the number of relationships influence SACCOS financial performance in developing countries.

3.3 Hypotheses

3.3.1 Duration of relationship. The knowledge of the relationship between lenders and borrowing firms is devoid of empirical evidence about SACCOS. Unlike non-financial firms that have been used in previous empirical studies from developed economies, SACCOS have a high degree of information opacity because they disclose little information to the public (Kyazze *et al.*, 2020). Consequently, due to the lack of information disclosure, SACCOS may find it difficult to communicate their attributes to the lenders to access loans. However, the market for wholesale loans to SACCOS in Tanzania is less competitive than in other countries. SACCOS are therefore likely to concentrate their borrowing with the FFI with which they have long-term relationships. As already mentioned, these long-term relationships may provide the FFI an opportunity to gather private information from SACCOS by accessing their reports and through the provision of additional pertinent services. Indeed, it is reported that FFIs have demanded the SACCOS furnish their financial reports, inspection reports (Kaleshu, 2013), lists of members with their borrowing and savings/deposit capacities, and the maintenance of deposit accounts with the FFI (Ishengoma and Towo, 2016). Petersen and Rajan (1994) contend that if the information generated during the relationship is a private matter to the lender and the relationship is concentrated, the lender may extract rents by charging higher interest rates. The FFIs are inclined to charge SACCOS higher interest rates than the average rate offered by the market which, in turn, could lower the SACCOS' financial performance., It is therefore hypothesized that:

> *H1.* There is a negative relationship between a longer duration of the relationship and the financial performance of SACCOS.

3.3.2 Multiple relationships. From a theoretical perspective, a SACCOS with a single lender may be exposed to liquidity risks if their relational FFI cannot renew the initial loan. In this case, SACCOS may have insufficient funds to extend credit to its members. To avert this problem, SACCOS may decide to borrow from more than one FFI. However, multiple relationships may increase borrowing fees and transaction costs for each additional relationship (Brewer *et al.*, 2014) and the costs of coordinating the lenders (Gonzalez-Vega and Quirós, 2008). Again, supposing that the existence of multiple relationships is likely to enhance SACCOS default risk, FFIs may charge higher interest rates to compensate for the

risk. As a result, the engagement in multiple relationships could increase SACCOS operational costs. Accordingly, the following hypothesis is:

H2. There is a negative relationship between multiple relationships and the financial performance of SACCOS.

4. Methodology
4.1 Sample and data
This study used data from SACCOS' financial reports audited by the Co-operative Audit and Supervision Corporation (COASCO) operative in Tanzania. The panel data covered four years from 2011 to 2014. The SACCOS involved in this study were located in the Kilimanjaro, Arusha, Iringa, Mwanza, and Dar es Salaam regions. These five regions were selected because they had a higher concentration of SACCOS, accounting for 35% of the 5918 SACCOS which had already been set up in the country at the time of the data collection. Data from each region were collected at the district level and a total of 17 districts were selected. A sample of 352 SACCOS was selected from which 190 SACCOS borrowing from the FFIs were chosen. Moreover, 162 SACCOS, which were not borrowing, were dropped. Out of the 190 selected SACCOS, 145 were willing to participate in the study. However, 30 SACCOS were omitted because they did not have audited financial reports for the designated period (2011–2014). The final data set consisted of balanced panel data for 115 SACCOS and contained 460 observations.

4.2 Variable definitions and measurement
4.2.1 Dependent variables. Consistent with Ndiege *et al.* (2014), Marwa and Aziakpono (2015), and Nyamsogoro (2010), Operational Self-Sufficiency was used as a proxy for SACCOS financial performance. *Operational Self-Sufficiency (OSS)* is defined as the ratio of operating revenue to the sum of financial expenses, loan loss provision, and operating expenses (SEEP, 2005). A ratio of one and above indicates the ability of a SACCOS to cover its operational costs, whereas a ratio is below one signifies the inability of a SACCOS to cover its operational costs through operating revenue. Following Mathuva (2016b) and Mwizarubi *et al.* (2016) *Return on Assets (ROA)* is utilised as an alternative measure of financial performance to check the robustness of the analysis. ROA is calculated as net surplus divided by total assets.

4.2.2 Independent variables. To measure relationship lending, the two key indicators were the duration of the relationship and the number of relationships by each borrower (Geršl and Jakubík, 2011; Fiordelisi *et al.*, 2014; Gobbi and Sette, 2014). The *duration of relationship (DUR)* in this study is defined as the number of years the SACCOS has been borrowing from its main lender (FFI) at the end of the year 2014. Following Gobbi and Sette (2014), the *number of relationships (MULT)* is defined as the total number of FFIs lending to a SACCOS. The information on the number of relationships was based on the number of FFIs from which the SACCOS was borrowing to the end of each year between 2011 and 2014.

4.2.3 Control variables. In this study, the control variables that could influence the relationship between relationship lending and financial performance are included. *Financial leverage (LEV)* is measured as the ratio between the sum of SACCOS's long- and short-term loans from FFIs and the book value of assets (Ndiege *et al.*, 2014). The *loan to deposits ratio (LDR)* is defined as the proportion of SACCOS's gross loan portfolio to total deposits. It measures the ability of the SACCOS to provide loans using the deposits and meet members' withdrawal requirements at the same time. *The capital to asset ratio (CAR)* is computed as members' equity to total assets (Towo, 2022). In this study, members' equity included members' share capital, reserves, and retained earnings. *Age* is used as a control variable

which is defined as the natural logarithm of years since the start-up of a SACCOS. Age reflects the information of the SACCOS that is known to the lenders. *Size* is defined as the natural logarithm of total assets. The size of the SACCOS is used to control the effects associated with the different scales of operations technology, investment opportunities, and diversification. Table 1 shows the summary of the definitions of all the variables used.

4.3 Model and analysis techniques

A linear equation that relates SACCOS financial performance measures to relationship lending is specified as follows:

$$Fp_{it} = \alpha_0 + \beta' X_{it} + \beta' M_{it} + \delta d_t + \varepsilon_{it}$$

Fp_{it} is a measure of financial performance for SACCOS i at time t; β measures the effect of variation of independent variable X_{it} on the dependent variable for SACCOS i at time t, and M_{it} are the specific characteristics variables for SACCOS i at time t; d_t are the time dummy variables (0, 1) for each year t (except for the base year), and ε_{it} is the error term for SACCOS i at time t.

The empirical model was modified from previous relationship lending empirical studies. Specifically, the equation to estimate the association between relationship lending and financial performance is expressed as follows:

$$Fp_{it} = \alpha + \beta_1 DURA_{it} + \beta_2 MULT_{it} + \beta_3 LEV_{it} + \beta_4 LDR_{it} + \beta_5 CAR_{it} + \beta_6 Age_{it} + \beta_6 Size_{it} + \delta d_t + \varepsilon_{it}$$

Where: Fp_{it} is financial performance represented by OSS and ROA of SACCOS i ($i = 1,2,3,4$ …. 115) in year t, which takes the value of 2011–2014; DUR stands for the duration of the relationship of a SACCOS i in year t, MULT represent the number of relationships of a SACCOS i in year t, while LEV, LDR, CAR, age, and size represent the control variables of SACCOS i in year t, while d_t is the time dummy variables.

Since the study used panel data, it was necessary to decide whether to employ a fixed- or random-effect model. To choose between the fixed and random-effect models, the Hausman specification test was used to test the null hypothesis of no systematic differences in fixed effect and random effect coefficients.

Variable	Abbreviation	Explanation
Dependent variables		
Operational Self-Sufficiency	OSS	Operating revenue/financial expenses, loan loss provision, and operating expenses
Return on Assets	ROA	Net surplus/total assets
Independent variables		
Duration of relationship	DUR	Number of years the SACCOS had been borrowing from the main FFI
Number of relationships	MULT	Total number of FFIs lending to a SACCOS
Control variables		
Financial leverage	LEV	Total long and short-term loans from FFIs/book value of assets
Loan to deposits ratio	LDR	Gross loan portfolio/total deposits
Capital to Asset ratio	CAR	Members' equity/total assets
Age	Age	Natural logarithm of years since start-up of a SACCOS
Size	Size	Natural logarithm of total assets

Table 1.
Definition of variables

In accordance with Fiordelisi *et al.* (2014), this study examined whether SACCOS financial performance was also likely to influence the duration of the relationship. A firm experiencing lower performance due to financial distress or having a project which initially produced negative returns may require re-contracting with the lender. However, since lenders would anticipate that they might incur losses, they would require the firm to commit itself to a long-term lending relationship that would allow the lender to compensate for short-term losses in the long run (Harhoff and Körting, 1998). Also, Ishengoma and Towo (2016) showed that few FFIs lend to SACCOS, thus, the FFI may switch to other SACCOS if the current SACCOS becomes unsustainable. According to the Fiordelisi *et al.* (2014) study, the total number of SACCOS in the selected regions was used as an instrumental variable for the duration of the relationship, suggesting that lenders have a chance to substitute borrowers in the same flourishing, profitable industry. The duration of the relationship was, therefore, instrumented by the logarithm of the number of SACCOS in the districts.

5. Findings and discussions
5.1 Relationship lending in SACCOS
Table 2 details the FFIs providing loans to the SACCOS. The results show the presence of varied FFIs providing loans to the SACCOS which are dominated by banks. Although the majority of FFIs are banks, only 10 banks out of 45 banks operating in Tanzania were lending to the SACCOS. Still, the study revealed that banks have higher geographical coverage and lend to a higher number of SACCOS (76) than do other FFIs. However, among the banks, one bank which operates in the selected 5 regions with a network of 86 branches was lending to 47 out of 76 SACCOS. This indicates a predominance of FFIs lending to SACCOS, increasing the possibility of relationship lending.

Results in Figure 1 about the number of relationships depict that, single relationships are most common. Forty-six percent of all SACCOS had just one lender, 33% had two lenders, while 21% had three to four lenders. The dominance of single relationships suggests the intensity of the relationship between SACCOS and the FFIs. This is consistent with Mori and Ng'urah (2020), who found that in multiple lending relationships, a single main lender is usually available with which the borrower can access more services.

5.2 Summary statistics
Table 3 summarises statistics for dependent and explanatory variables. On average, the financial performance measured by OSS is 125%. The results are close to those reported by Ndiege *et al.* (2014), whose average OSS was 144%. Also, on average, employee-based SACCOS have a higher level of OSS than community-based SACCOS. Furthermore, the average duration of the relationship between SACCOS and FFIs is five years, implying that the FFIs may have enough longer duration to assess SACCOS borrowing characteristics. On

| Type of FFI | Number of FFI | Geographical coverage | | SACCOS served |
		Number of regions located	Number of districts located	
Banks	10	5	15	76
Social security funds	2	5	5	35
Government special program	1	3	3	30
Large MFIs	18	5	5	18
SACCOS network	3	2	3	5

Table 2.
Formal Financial Institution lending to SACCOS
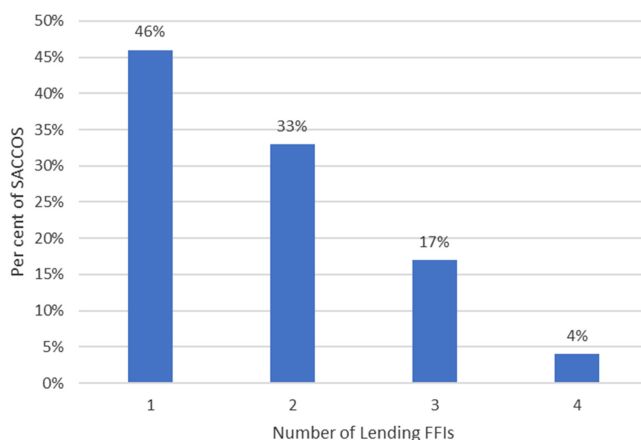
Variables	All SACCOS		Community SACCOS		Employee SACCOS	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
Operational-self-sufficiency (OSS)	1.254	0.899	1.141	0.767	1.419	1.041
Return on Assets (ROA)	0.027	0.053	0.027	0.062	0.027	0.036
Duration (Years) (DUR)	5.057	3.122	4.897	2.999	5.287	3.285
Number of relationships (MULT)	2	0.730	1.625	0.758	1.394	0.666
Financial Leverage ratio (LEV)	0.170	0.198	0.145	0.183	0.201	0.214
Loan to deposit ratio (LDR)	1.795	1.545	1.674	1.462	1.925	1.656
Capital to asset ratio (CAR)	0.091	0.078	0.110	0.085	0.063	0.057
Age (Years)	12.81	9.462	8.853	3.824	18.54	11.95
Size (TZS)	929.00	1880.00	523.00	694.00	1516.00	2727.00

average, the duration of relationships in employee-based and community-based SACCOS is similar. The average number of relationships is two, which indicates the intensity of the relationship between the SACCOS and the main FFI is a result of low involvement with other lenders (Mori and Ng'urah, 2020). The average age of SACCOS is 13 years, implying that most of the sampled SACCOS are young. The average age of SACCOS in Tanzania seems closer to that of SACCOS around the world which was 14 years (Bogan, 2012).

The financial leverage ratio in SACCOS averages 17%, which is lower than the 25% stipulated in section 48 of the Tanzania Savings and Credit Cooperative Societies Regulation of 2019. Table 3 shows that the average loan to deposit ratio is 179% whereas the mean capital to asset ratio of SACCOS is 9%. The value of the capital to asset ratio is lower than 30.4% as reported by Mathuva (2016b) for the SACCOS in Kenya. The results suggest that SACCOS in Tanzania have low members' equity financing. Further, the average asset value is TZS 929 million with a standard deviation that far exceeds the mean which signifies that dispersion is widespread.

5.3 Pearson correlation
A Pearson correlation analysis was performed to determine the correlation coefficients among variables. The findings in Table 4 show that OSS and ROA, which are proxies of

financial performance, are negatively correlated with duration. However, the correlation with OSS is not significant. OSS and ROA are negatively and significantly correlated with the number of relationships. Regarding control variables, financial leverage is negatively and significantly correlated with OSS and ROA. Loan to deposit ratio is positively related to OSS and ROA, whereas the capital to asset ratio is negatively and significantly correlated to OSS. Age is negatively and significantly related to ROA, as is size. The results in Table 4 also show that none of the explanatory variables was highly correlated with the other. Variance Inflation Factor (VIF) was also used as a diagnostic tool to test whether there was any sign of multicollinearity. The findings reported in Table 4 indicate a maximum VIF value of 1.52 suggesting that multicollinearity was not a problem.

5.4 Regression results

To control for bias in the presence of heteroscedasticity and serial correlation, the robust standard error estimate which relaxes the assumption that the errors are independent and identically distributed was used. In all models, year dummies were included to control for potential fixed-year effects, however, the coefficients were not reported. The variables were listed with their coefficients, and their corresponding standard errors were listed below the coefficient figures.

5.4.1 Estimation results for relationship lending and financial performance. The results from the fixed effect regression models estimating how the duration of the relationship is related to SACCOS' financial performance are shown in Table 5. The results indicate that the duration of the relationship is statistically negatively related to OSS (Models 1 and 3) and ROA (Models 4 and 6) at the 5% and 10% significant levels, respectively. The negative relationship is in line with the descriptive results.

Table 5 further shows that the coefficient estimates on the number of relationships are negatively associated with OSS and ROA, though the associations are insignificant. The fact that the results are statistically insignificant means that there is not enough evidence to confirm the negative relationship.

SACCOS control variables including financial leverage, capital to asset ratio and size have some effects on financial performance. The relationship between financial leverage and SACCOS financial performance is negative for all estimations at the 1% level. The findings show that SACCOS with a higher level of loans from FFIs have somewhat lower financial performance. This supports Jensen and Meckling's (1976) theory that leverage increases agency costs to the borrowing firm, leading to lower performance. However, size has a positive relationship with SACCOS' financial performance. In line with Bogan (2012) and Kipesha (2013), this study supports the positive relationship between size and the financial performance of SACCOS. The positive relationship indicates that larger SACCOS maintain transparency, reputation, and low information asymmetries, which attract lower loan costs, hence, increased financial performance. Table 5 shows that the coefficient estimates for capital to asset ratio are negative and significant in terms of OSS. The finding is consistent with Goddard *et al.* (2008) and Mathuva (2016b) who found that the increase in capital to assets ratio is associated with decreased returns in SACCOS. On the other hand, age has a negative and significant relationship with ROA at the 1% level, while the relationship is negative but insignificant in terms of OSS. Whereas the loan to deposit ratio has a positive but insignificant relationship with OSS, its coefficients estimate with respect to ROA are negative and insignificant.

The robustness of the results was checked by using sub-samples of community and employee-based SACCOS. Tables 6 and 7 show that the duration of the relationship is negatively and significantly related to financial performance for community and employee-based SACCOS. The coefficients of the number of relationships are still not statistically

	1	2	3	4	5	6	7	8	9	VIF
1 Operational-self-sufficiency (OSS)	1.000									
2 Return on Assets (ROA)	0.473***	1.000								
3 Duration (DUR)	−0.088	−0.150*	1.000							1.12
4 Number of relationships (MULT)	−0.174*	−0.143*	−0.212*	1.000						1.08
5 Financial Leverage (LEV)	−0.219*	−0.148*	−0.079*	−0.152*	1.000					1.35
6 Loan to deposit ratio (LDR)	0.083	0.170*	−0.014	−0.017	0.344*	1.000				1.24
7 Capital to asset ratio (CAR)	−0.231*	0.001	−0.039	0.008	0.231*	0.112*	1.000			1.17
8 Age	−0.008	−0.171*	0.186*	−0.015	−0.045	−0.113*	−0.223*	1.000		1.45
9 Size	0.013	−0.098*	0.221*	0.009	0.253*	0.162*	−0.207*	0.483*	1.000	1.52

Note(s): ***, **, and * denote the significant level of <0.01, <0.05, and <0.10 respectively

Table 4.
Pearson correlation

Variable	Operational Self Sufficiency (OSS)			Return on Asset (ROA)		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Duration	−0.077** (0.039)		−0.074** (0.038)	−0.006* (0.003)	−0.005 (0.002)	−0.058* (0.035)
Number of relationships		−0.016 (0.016)	−0.012 (0.016)			−0.085 (0.019)
Financial Leverage	−0.777*** (0.119)	−0.787*** (0.119)	−0.776*** (0.120)	−0.047*** (0.012)	−0.048*** (0.013)	−0.047*** (0.013)
Loan to deposit ratio	0.003 (0.090)	0.011 (0.093)	0.017 (0.092)	−0.001 (0.011)	−0.007 (0.011)	−0.014 (0.017)
Capital to asset ratio	−0.908* (0.504)	−0.994* (0.509)	−0.892* (0.508)	0.053 (0.054)	0.045 (0.053)	0.053 (0.054)
Age	−0.297 (0.239)	−0.494** (0.222)	−0.262 (0.247)	−0.072*** (0.023)	−0.089*** (0.026)	−0.071*** (0.024)
Size	0.337*** (0.090)	0.310*** (0.088)	0.335*** (0.090)	0.029*** (0.011)	0.027*** (0.011)	0.029*** (0.011)
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−5.396*** (1.551)	−4.562*** (1.408)	−5.408*** (1.542)	−0.360** (0.180)	−0.290* (0.164)	−0.360** (0.180)
R-squared	0.198	0.188	0.291	0.138	0.132	0.240
F-statistics	9.58***	9.62***	8.34***	2.97***	2.83**	7.55**
Hausman χ^2	22.91***	20.17***	22.47***	25.30***	28.66***	23.86***
Observation	460	460	460	460	460	460

Note(s): Robust standard errors in parentheses corrected for potential heteroscedasticity and serial correlation in the error term at ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$. Hausman tests for fixed effect and random effect models are given in χ^2 values. Period fixed effects have been used in all regressions

Table 5.
Relationship lending and SACCOS' financial performance

Variable	Operational Self Sufficiency (OSS)			Return on Asset (ROA)		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Duration	-0.096^{**} (0.044)		-0.097^{**} (0.047)	-0.007 (0.005)	0.000 (0.002)	-0.008 (0.006)
Number of relationships		-0.003 (0.019)	0.004 (0.019)			0.007 (0.010)
Financial Leverage	-0.552^{***} (0.116)	-0.587^{***} (0.123)	-0.553^{***} (0.116)	-0.064^{***} (0.018)	-0.067^{***} (0.020)	-0.065^{***} (0.019)
Loan to deposit ratio	-0.383 (0.275)	-0.407 (0.283)	-0.382 (0.273)	-0.048^{*} (0.027)	-0.051^{*} (0.027)	-0.049^{*} (0.027)
Capital to asset ratio	-0.989^{**} (0.494)	-1.047^{**} (0.483)	-0.989^{*} (0.496)	0.026 (0.094)	0.022 (0.090)	0.027 (0.096)
Age	-0.372 (0.272)	-0.694^{**} (0.272)	-0.382 (0.277)	-0.078^{***} (0.028)	-0.106^{***} (0.032)	-0.084^{***} (0.029)
Size	0.373^{***} (0.113)	0.365^{***} (0.114)	0.374^{***} (0.114)	0.032^{**} (0.013)	0.031^{**} (0.013)	0.032^{**} (0.014)
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-5.617^{***} (2.004)	-5.013^{***} (1.911)	-5.631^{***} (2.015)	-0.343 (0.230)	-0.298 (0.209)	-0.344 (0.233)
R-squared	0.237	0.219	0.273	0.183	0.176	0.235
F-statistics	8.41^{***}	7.83^{***}	7.24^{***}	3.46^{***}	3.28^{***}	2.98^{***}
Hausman χ^2	25.70^{***}	20.16^{***}	25.52^{***}	14.01^{**}	15.00^{**}	14.32^{***}
Observation	272	272	272	272	272	272

Note(s): Robust standard errors in parentheses corrected for potential heteroscedasticity and serial correlation in the error term at $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. Hausman tests for fixed effect and random effect models are given in χ^2 values. Period fixed effects have been used in all regressions

Table 6.
Estimation results for Community-based SACCOS

Variable	Operational Self Sufficiency (OSS)			Return on Asset (ROA)		
	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Duration	-0.161^{**} (0.067)		-0.143^{**} (0.069)	-0.009^{**} (0.004)	-0.001 (0.002)	-0.009^{*} (0.005)
Number of relationships		-0.047 (0.027)	-0.036 (0.027)			-0.005 (0.018)
Financial Leverage	-1.056^{***} (0.152)	-0.988^{****} (0.151)	-1.052^{***} (0.152)	-0.028^{****} (0.010)	-0.024^{**} (0.010)	-0.028^{****} (0.010)
Loan to deposit ratio	0.052 (0.068)	0.049 (0.069)	0.052 (0.068)	-0.002 (0.005)	-0.002 (0.005)	-0.002 (0.005)
Capital to asset ratio	0.824 (1.220)	0.312 (1.194)	-0.980^{*} (1.222)	0.129 (0.082)	0.089 (0.080)	0.130 (0.082)
Age	0.452 (0.357)	-0.013 (0.269)	0.484 (0.357)	-0.007 (0.024)	-0.037^{**} (0.018)	-0.007 (0.024)
Size	0.372^{***} (0.118)	0.264^{**} (0.108)	0.368^{***} (0.118)	0.013 (0.008)	0.007 (0.007)	0.0130^{*} (0.008)
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-7.924^{***} (2.447)	-4.761^{**} (1.936)	-7.908^{***} (2.440)	-0.194 (0.164)	-0.004 (0.130)	-0.193 (0.165)
R-squared	0.294	0.281	0.303	0.119	0.096	0.213
F-statistics	9.38^{***}	8.79^{***}	8.34^{***}	3.04^{***}	2.39^{*}	6.60^{***}
Hausman χ^2	13.24^{**}	9.16^{*}	13.77^{**}	16.27^{**}	13.53^{**}	16.24^{**}
Observation	188	188	188	188	188	188

Note(s): Robust standard errors in parentheses corrected for potential heteroscedasticity and serial correlation in the error term at $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. Hausman tests for fixed effect and random effect models are given in χ^2 values. Period fixed effects have been used in all regressions

Table 7.
Estimation results for
Employee-based
SACCOS

significant. The direction and significance of other control variables in Tables 6 and 7 are largely like those reported in Table 5.

The robustness of the results was further observed by checking for endogeneity by estimating the fixed effect two-stage least square (FE2SLS). The Davidson-MacKinnon test of exogeneity for a fixed-effect regression estimated by instrumental variables was used to check whether the variables were exogenous (Baum and Stillman, 2003). The null hypothesis states that the estimator of the same equation would yield consistent estimates. Thus, a rejection of the null indicates that endogenous regressors' effects on the estimates are meaningful, and instrumental variables techniques are required. The results in Table 8 show that the null hypothesis that the duration of the relationship was exogenous is not rejected ($p > 0.05$). The estimated results are therefore, free from the endogeneity problem.

5.5 Discussion

5.5.1 Duration of relationship and financial performance. The revealed negative association between the duration of the relationship and SACCOS financial performance captured by OSS and ROA confirms the presence of a hold-up problem (see Rajan, 1992; Sharpe, 1990) magnified by the presence of few FFIs in a market of wholesale loans to SACCOS (see Harhoff and Körting, 1998). Indeed, Kysucky and Norden (2016) also argued that borrowers do not benefit from relationship lending when there is little competition among lenders. The hold-up problem is also mirrored in collateral in the form of SACCOS fixed deposits, which SACCOS are supposed to maintain with banks during the loan period and even after the loan period (Kaleshu, 2013). Because of the hold-up problem, the majority of SACCOS in Tanzania fail to bargain for better terms of wholesale loans from FFIs (Temu and Ishengoma, 2010). Consequently, the enhanced FFIs' monopoly power provides them the opportunity to charge high lending costs, which in turn reduces SACCOS' OSS and ROA despite the increase in the duration of their lending relationship with FFIs. The finding conforms with theoretical predictions by Rajan (1992) and Sharpe (1990) that, the longer duration of the relationship allows the lender to accumulate the borrower's private information leading to the hold-up problem, such that the lender may extract rents by charging higher lending costs. The findings are, however, contrary to the studies by Thanh and Ha (2013) and Hakimi and Hamdi (2014) which showed a positive relationship between the duration of the relationship and the financial performance of non-financial firms.

5.5.2 Multiple relationships and financial performance of SACCOS. The revealed absence of a statistically significant relationship between the number of relationships and SACCOS' financial performance, which is contrary to findings in previous studies (Brewer *et al.*, 2014), can be explained by the presence of varied FFIs (Namely, banks, government programmes, large MFIs, pension funds, and SACCOS networks). The way the hold-up (e.g. collateral requirements) and information accumulation practices are applied by FFIs when relating to SACCOS are also diverse. Consequently, the effects (in terms of direction or magnitude) of the number of relationships involving a bank on SACCOS financial performance are likely to differ from those involving other types of FFIs. Therefore, when a SACCOS has multiple relationships involving a bank and other types of FFIs (e.g. a pension fund) the association between the number of relationships and the SACCOS' financial performance is likely to be neutral. Compared to this paper, the arguments on the number of relationships and borrowers' performance in the extant relationship lending literature (e.g. Brewer *et al.*, 2014; Cenni *et al.*, 2015) are centred on banks (i.e. one type of FFIs with common hold-up and information accumulation practices) as lenders.

Variable	All SACCOS		Community-based SACCOS		Employee-based SACCOS	
	OSS	ROA	OSS	ROA	OSS	ROA
Duration	−0.169* (0.149)	−0.006 (0.004)	−0.274* (0.209)	−0.058* (0.025)	−0.226** (0.122)	−0.022* (0.011)
Number of relationships	−0.012 (0.018)	−0.002 (0.001)	0.008 (0.036)	0.002 (0.004)	−0.041 (0.027)	−0.005 (0.002)
Financial Leverage	−0.796*** (0.101)	−0.047*** (0.010)	−0.525*** (0.199)	−0.058** (0.026)	−1.037*** (0.157)	−0.029** (0.012)
Loan to deposit ratio	−0.126 (0.158)	−0.001 (0.007)	−0.363* (0.219)	−0.044 (0.029)	0.037 (0.071)	−0.003 (0.005)
Capital to asset ratio	−0.914* (0.545)	0.053 (0.040)	−0.943* (0.601)	0.037 (0.079)	1.344 (1.400)	0.188* (0.104)
Age	−0.263 (0.495)	−0.071*** (0.019)	−0.134 (1.423)	−0.024 (0.189)	0.773 (0.594)	0.038 (0.044)
Size	0.318*** (0.084)	0.029*** (0.008)	0.381*** (0.093)	0.034*** (0.012)	0.423*** (0.153)	0.022* (0.011)
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−4.958*** (2.134)	−0.360*** (0.138)	−6.120* (3.151)	−0.458 (0.418)	−9.539** (3.765)	−0.458 (0.279)
Davidson-MacKinnon	0.024	2.598	0.031	0.096	1.020	4.966
(P-value)	0.988	0.108	0.859	0.757	0.314	0.275
Observation	460	460	272	272	188	188

Note(s): Robust standard errors in parentheses corrected for potential heteroscedasticity and serial correlation in the error term at $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. The Davidson-MacKinnon test indicated that in all models the null hypothesis was not rejected ($p > 0.05$) therefore the estimated results were free from the endogeneity problem. Period fixed effects were used in all regressions

Table 8.
Fixed effect 2SLS for
relationship lending
and financial
performance

6. Conclusions and implications

Using 2011–2014 panel data from 115 SACCOS in Tanzania, this paper has analysed the influence of relationship lending captured by duration and number of relationships on SACCOS financial performance (OSS and ROA). The study contributes to the debate on the influence of relationship lending on the performance of borrowing firms. This debate still exists because so far there has been no consensus on whether relationship lending improves or worsens the borrowing firms' performance. Different from previous studies (e.g. Brewer *et al.*, 2014; Fanta, 2016; Kysucky and Norden, 2016; Mori and Ng'urah, 2020), this paper has focused on relationship lending in SACCOS that borrow from a wholesale loan market characterised by few lenders (FFIs), which are diverse in nature. Given the nature of the market (see Kysucky and Norden, 2016), the revealed findings, i.e. the negative association between the duration of the relationship and SACCOS financial performance, are explained by the presence of the hold-up problem and SACCOS' inability to diversify the sources of loans and to bargain for better loan terms (see, Sharpe, 1990; Rajan, 1992; Temu and Ishengoma, 2010). The revealed insignificant association between the number of relationships and SACCOS financial performance could be linked to the possibility of having neutral multiple relationships effects due to the diverse nature of lenders (FFIs including banks and pension funds), on which the paper focused. This is different from previous studies (Brewer *et al.*, 2014; Cenni *et al.*, 2015) Thus, the paper calls for more empirical research with more observations of SACCOS borrowing from different categories of lenders to warrant the execution of a comparative analysis considering the varied nature of lenders.

The results have practical implications for practitioners and regulators. With regard to these results, SACCOS should use its long-term relationships with providers of wholesale loans to bargain for better terms. Moreover, in Tanzania where SACCOS do not disclose their information to the public and the market for wholesale loans is less competitive, the publication of pertinent reports should be enforced to highlight transparency and enhance the reputation of SACCOS to both private and public lenders.

It is anticipated that the duration of the relationship and number of relationships would be relevant aspects of relationship lending for SACCOS in Tanzania. However, we consider this a limitation in this study. The findings also did not provide fully understandable effects of relationship lending aspects such as the existence of lenders' competition. Therefore, to get more value from relationship lending, understanding the impact of the level of lenders' competition on SACCOS performance is important. We also acknowledge that other variables, such as the number of SACCOS members, the number of SACCOS branches, interest rates, cost per loan portfolio, portfolio at risk, and earnings ratio could have a substantial impact on financial performance but were not considered due to data limitation.

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