



Effect of Debt Finance on Financial Performance of Savings and Credit Cooperative Societies in Maara Sub-county, Tharaka Nithi County, Kenya

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Abstract: Debt financing is the acquisition of funds through borrowing. Most Sacco's results into borrowing to finance their increased customer's demands thus increasing the leverage if not controlled. This study determined the effects of debt finance on financial performance measured ROE. The study investigated the effect of interest rate, loan tenure, debt/equity ratio, and interest coverage ratio on financial performance of savings and credit cooperative societies in Maara Sub-County, Tharaka Nithi County, Kenya. Causal research design and a target population of 10 Sacco's and census survey were used. Secondary data from the Saccos financial statements for the last eight years used. Descriptive and inferential statistics were used with help of Statistical Package for Social Sciences (SPSS) and results presented in tables. A strong positive relationship of 0.984 between debt and ROE was revealed. A negative relationship existed between interest rate, loan tenure and ROE while a positive relationship was revealed between debt equity ratio and interest coverage ratio on ROE respectively. Interest rate, loan tenure and debt equity ratio had significant effect on ROE at t-statistics of 3.474, -2.938, 9.217 and 8.728 respectively with their P-values 0.018, 0.032, 0.000 and 0.000 less than 0.05 respectively.

Keywords: Debt Finance, Financial Performance, Interest Rate, Loan Tenure, Interest Coverage Ratio, Debt Equity Ratio

1. Introduction

1.1. Background of Study

Firm's assets are typically financed with a combination of debt and equity, referred to as firm's capital structure. Capital structure decision is one of the most important financial decisions taken by a firm because it has an impact on the firm's financial performance. HeYuan (2006) defines debt financing as the act of a business raising capital through borrowing from external sources through the issuance of a bond, debenture, or through loans. According to Burrasca-et-al (2015), *debt financing is a means of financing a business through borrowing money and not giving up ownership*. Financing a firm through debt provides it with an opportunity for growth through expansion when used appropriately without affecting the firm's ownership. Debt financing often comes with strict conditions thus *it's a method of financing in which a company receives a loan and gives its promise to repay the loan*. Factors such as interest rate charged on loan,

duration of loan repayment leverage ratio and interest coverage ratio often are known to influence equity returns of a levered firm. Debt financing according to this study is the act of a business entity raising capital through external borrowing.

Savings and Credit Cooperative societies are legal organizations established and regulated by the respective laws of a given country. It is an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise (Dana, 2010). Sacco's are vital as they marshal member's savings together and in return used to extend credit to Sacco members who repays at an interest.

Study by University of Wisconsin Center for Cooperatives (2012) in the United States shows that up to 50% of a healthy co-op's capital needs may be financed through external borrowing. In USA, study by Keri (2015) also found that cooperative firms, on average, rely more heavily on equity

financing than debt financing, but further, improvements in profitability are associated with increased use of debt. Keri further argues that adequate financial resources are fundamental to operate and grow any cooperative business to a successful venture. He notes that extra capital that comes from external lenders used appropriately can boost up the profitability of the cooperative. Study by Jarka (2014) conducted in Holland noted that for decades, co-operatives in Central and Eastern Europe relied on a unique ownership model to gain access to member capital, however, he concludes by saying that many co-operatives in the last decade turned to alternative funding sources and debt instruments to expand member investment. However according to the Reserve Central Bank of India report (2013), primary agricultural credit societies reported losses and continued to show weak financial performance even after financing their operation through debt.

Study by Ikpefan (2006) in Nigeria found that even though there was support from the government through low interest loans to boost their members operations, there was a high loan default rate among cooperative societies due to poor financial performance. However, Alexandra, (2006) in his study 'the effects of wholesale lending to Saccos in Uganda, found out that with the borrowed capital, Saccos were able to increase their loan portfolios thus increasing their income to cover up the interest expense. However, Kaloi (2004) notes that increasing leverage has a negative effect on long term Sacco's growth where debt financing benefits does not outweigh the cost. This study cautioned that increasing the leverage factor hurts the liquidity of the cooperative if profits are unable to cover the increasing interest paid on loan.

According to Kenya Financial Regulators Report (2011), where cooperatives are over leveraged, debt issuers becomes nervous that the cooperative society will not be able to cover its financial responsibilities with respect to the debt they are issuing. On the other hand, stockholders who are members of the cooperative society become nervous since they forecast loosing on their returns and investment. Cooperative movement's financial stability in developing economies such as in Kenya face vulnerabilities associated with global risks such as the decline in global economic growth rate to 3.9 percent according to the Central Bank of Kenya Financial Stability Report (CBK, 2011). This weaker global economic growth rate and rise in funding costs has weakened cooperative societies ability to service the loans due to low income that is unable to cover up for the increasing cost of debt hence bringing up rise in severe liquidity problems. Owing to the increased demand for credit by customers and members, Sacco's in Kenya have turned to external borrowing to meet the increasing demand since this cannot be sustained by retained internal funds. KUSCCO report (2009) however indicated that long period of loan repayment brings up liquidity problems when profits are unable to service the loan. This has affected working capital of Saccos hence limiting the ability of the Saccos to expand.

According to Sasra (2014), return on equity of savings and credit cooperative societies with lower interest coverage ratio

is overburdened by debt expenses because its ability to meet interest expenses may be questionable. An interest coverage ratio below optimum indicates the Sacco is not generating sufficient revenues to satisfy its interest expenses hence likely to spend some of its cash reserves in order to meet the difference or borrow more which risks the Sacco to becoming bankrupt or slow down its expansion plan.

In Kenya, 88% of cooperative societies are financing their operation through external borrowing (Ondiek, 2011). Tobias and Richard (2015) has noted that financial performance of the cooperative sector especially the SACCO's financing through debt in Kenya is extremely weak since the long term gains brought up by debt does not outweigh the cost of debt and thus affecting expansion and operations. This is because debt comes up with strict conditions that borrowers need to meet such as placing collaterals for secured loans and payment of both interest and principal without fail.

A recent study by Gikono (2015) in Eldama Ravine Sub-County, Kenya, noted that SACCOs are facing severe liquidity problems and majorities are unable to meet the demands of their clients for loans and withdrawal of savings. Given this situation, clients are getting anxious about the future of the SACCOs hence this study attempts to bridge this gap through studying the effects of predictors such as interest rate, interest coverage ratio, loan tenure and leverage ratio has on financial performance of Saccos.

1.2. Statement of the Problem

Savings and Credit Cooperative Societies play a major role in economic development across the globe through resources mobilization, agro-processing and marketing of agricultural produce. Gachara (1990) noted that cooperatives are seen as vehicles for resource mobilization and gateways to economic prosperity for families, communities and nations hence cooperatives play an important role in member's wealth creation and employment creation thus facilitating in poverty alleviation. Financial performance of cooperatives across the globe therefore has an effect to its members and individual country's economic development. Use of debt in Cooperative societies provides capital that is used to fund operation and expansion. This result to increased profits due to efficiency in operations and interest savings since interest paid is tax deductible thus increasing ROE. In Kenya, cooperatives are an important part of the economy and are responsible for 45% of Kenya's GDP with about 20% of the population registered as members (Cooperative Development Program [CDP] Report, 2012). This has been attributed to effective regulatory and supervisory policy that is put into place by regulation agencies. Cooperatives have also strategically positioned themselves to increase productivity and ease competition from other sectors of the economy, where extra financing has been sought through borrowing externally by 88% of cooperative societies in Kenya (Ondieki, 2011). Despite of this sector facilitating in economic development, statistics from the sector indicates that 2% of cooperative movements collapse every year due to liquidity problems (Simeyo, 2013) and 6% of registered members withdraw

their membership annually as a result of low returns on their investment (James, Alala & Douglas, 2014) due to heavy debts that raises serious questions on the financial performance of the sector. At the same time, 35% of registered cooperatives are currently inactive where these have been associated to decline in profitability of cooperatives due to increased cost of debt usage. Owing to the increased cost of debt usage leading to liquidity problems and low returns on investment by savings and credit cooperative societies in Kenya, this study sought to determine the effect of debt usage on return on equity of savings and credit cooperative societies.

1.3. Objective of the Study

The main objective of the study was to determine the effects of debt finance on financial performance of Savings and Credit Cooperative Societies in Maara Sub-County in Kenya.

2. Literature Review

2.1. Overview of Debt Finance

Effective debt administration in every firm is vital since optimal use of debt in the capital structure of a firm leads to increase in return on equity (Jay, 2015). *Debt financing is a means of financing a business through borrowing money and not giving up ownership* (He Yuan, 2006). Debt financing often comes with strict conditions or covenants in addition to having to pay interest and principal at specified dates. *It is a method of financing in which a company receives a loan and gives its promise to repay the loan* (Burrasca, Susan, Anne & Jason, 2015). Debt therefore is a financing strategy designed to increase the rate of return on owners' investment by generating a greater return on borrowed funds than the cost of using the funds (Damodaran, 1999). Savings and credit cooperative society's uses short-term loans and long term loans to finance their operations (USDA, 2015). Short term loans are obtained to finance day-to-day operating expenses and lenders expect the amount to be repaid within one year. Long-term debt is obtained to finance the purchase of fixed assets such as property, plant, and equipment or granting credit to customers and members to meet the increasing demand for credit.

Organizations often use debt when constructing their capital structure, which helps lower total financing cost. In addition to the relatively lower cost of debt financing, using debt has other advantages compared to equity financing, despite potential issues that using debt may cause, such as ongoing financial liabilities and potential bankruptcy risk. In general, using debt helps keep profits within an organization and increases returns on equity for current owners and helps secure tax savings (Majumdar & Sen, 2010).

Debt financing provides capital in form of a loan, which the business then repays, along with an extra amount of interest, over a set period of time. In fact, in today's ever-changing and fluxing global economic climate, business

loans are a quick option that business have for obtaining cash to further their companies. With an efficient business loan, enterprise realizes immediate growth by using the additional capital wisely. According to Dempsy, Kumar and Merkel (2008), a firm secures debt to maintain business operations, invest in equipment, start a new branch, or any number of other motivations. Not only are these loans beneficial for burgeoning businesses, but they are normally easy to obtain as there are a multitude of lenders who are willing to partner with business organizations with a stable income, and a decent business plan. However the biggest advantage of taking out a business loan during tough economic times is that companies can use it to increase their working capital. While companies that are looking to expand often already have enough money to become larger, taking out a loan allows them to maintain their operating cash flow, making it easier for them to cover any unexpected expenses. Thus, they are able to make payments on their loan by using the new income gained from expanding their business.

According to Jay (2015), organizations often mix debt into their capital structure to bring down the average financing cost. While using debt may add pressure to an organization's ongoing operations as a result of having to meet interest-payment obligations, it helps retain more profits within the organization compared to using equity, which requires the sharing of organization profits with equity holders. By using debt, organizations need to pay only the amount of interest out of their profits, while using equity, on the other hand, the more profits an organization makes, the more it has to share with equity investors. To take advantage of such a debt-financing feature, organizations often use debt to finance stable business operations in which they can more easily make ongoing interest payments and, meanwhile, retain the rest of the profits to themselves.

Using debt is also advantageous to existing owners because of the effect of financial leverage (Damodaran, 1999). When companies use debt to provide addition capital for their business operations, equity owners get to keep any extra profits generated by the debt capital, after any interest payments. Given the same amount of equity investments, equity investors have a higher return on equity because of the additional profits provided by the debt capital. As long as using debt doesn't threaten the financial soundness of a firm in times of difficulties, equity owners welcome certain debt uses to help enhance their investment returns.

Cheng (2009) found that using debt helps lower a company's taxes because of allowable interest deductions. Tax rules permit interest payments as expense deductions against revenues to arrive at taxable income. The lower the taxable income, the less the tax an organization pays. This is in agreement with Jay (2015) that dividends paid to equity holders are not tax-deductible and must come from after-tax income. Therefore, tax savings help further reduce an organizations debt financing cost, which is an advantage that equity financing lacks. By using debt instead of equity, owners retain more control which eventually gives them more ability to make decisions on corporate objectives and

strategies (Cheng, 2009). Leverage/debt is a financing strategy designed to increase the rate of return on owners' investment by generating a greater return on borrowed funds than the cost of using the funds (Damodaran, 1999). The use of debt in the capital structure may either lead to an increase or decrease in the return on shareholders' capital. Debt is always desirable if a firm achieves relatively high profits as it results in higher returns to shareholders. The use of debt is expected to enhance a firms' return on equity which is the ultimate measure of profitability.

In the united states, cooperative societies obtain debt finance from various sources such as community Development Financial Institutions (CDFIs) which is a community development mission and provide financial services in low and moderate income communities, Credit Unions (CU) which are banks that are owned by their Members (depositors); The Small Business Administration (SBA) a federal government agency whose goal is to support and strengthen small businesses in the U. S through guaranteeing loans (Burrasca-et-al, 2015).

In Kenya savings and credit cooperative societies acquire debt finance from various sources, such as commercial banks, cooperative insurance and other state corporations. The main benefit of cooperatives using debt is the increased benefit from the interest expense as it reduces taxable income in addition to financing their operations and expanding their business. Increased debt load has a negative effect on financial performance of Sacco's since rising interest expense leads to rising needs for cash flow to cover the interest expense. This leads to debt issuers becoming nervous that the society will not be able to cover its financial responsibilities with respect to the debt they are issuing. On the other hand, stockholders who are members of the cooperative movement become nervous since they forecast loosing on their returns. Increased debt therefore leads to increase in interest paid and a decrease in EPS. Increased debt increases the leverage factor and has the potential to lower revenues as more money is spent servicing the debt hence return on assets (ROE) is affected. During normal or boom times, cooperatives leverage results in exponential profit returns while during recessions, leverage result in exponential losses. A large debt burden carries risk because of the reaction of leverage to the prevailing economic conditions. Increased debt favours ROE during boom times but hurts ROE during recessions (Woolridge & Gray, 2006).

2.2. Key Variables of Debt Finance

Organizations while funding their expansion and operation strategy often reassess their capital structure by making decisions on whether to issue new shares or get an external loan from other financial institution (Jim, 2015). However firms find it worthy while to borrow since external loans do not erode the ownership of the firm. Efficient management of external loans is therefore necessary as debt affect financial performance of firms. The rate of interest charged on the loan presents a cost to the organization due to interest payments. The amount of interest paid is determined by the duration of

repayment (loan tenure). Long tenure calls for high overall interest paid while short tenure call for low overall interest paid. Alex and Allan (2004) noted that the debt equity ratio in a given firm also influence the amount of interest paid cumulatively. They also emphasised on optimal leverage level to ensure that the firm benefits from debt by ensuring that WACC is minimum. Bergen (2015) also describes that interest coverage ratio in a firm should be maintained high enough to cater for the interest payments obligations otherwise the firm ends up using capital to pay for the principal sum and interest. Bergen (2015) also argued that interest rate, and debt equity ratio significantly affect the performance of organizations hence a need for firms to make wise decisions on debts and investment.

2.3. Concept of Financial Performance

Financial performance is a measure of the change in financial state of an organization or the financial outcomes that results from management decisions and the execution of those decisions by members of the organization (Woolridge & Gray, 2006). Its outcomes are not universal in nature but largely depend on the organizational context hence selection of the measures that represent performance of a particular organization is done based upon the circumstances of the organization being rated. Financial performance is commonly measured by ratios such as return on equity, return on assets, return on capital, return on sales and operating margin (Gilchris, 2013). However in this study, financial performance of Sacco's will be measured by ROE.

2.4. Debt Finance and Financial Performance in Saccos

The objective of Savings and credit cooperative societies is member empowerment through savings mobilization, disbursement of credit and ensuring cooperatives long-term sustainability through prudent financial practice (James, Alala & Douglas, 2014). They further cites that there are a number of challenges in promoting quality financial management such as limited capital funding sources, loan delinquency, and assessment and management of risks in addition to negative cash (liquidity), poor governance and poor investment decisions. That wealth generation is hampered by poor financial stewardship, under-capitalization of co-operative enterprises, high cost of funds, and delayed member's payment.

Saccos need to be aware of their optimal use of debt in their capital structure to ensure maximum returns on shareholder's equity since financial performance of organization that uses debt in its capital structure usually is determined by factors that either increases or decreases the cost of debt. Such factors include loan interest rate, loan tenure, debt to equity ratio as well as the interest coverage ratio.

Interest is money paid to the lender in exchange for borrowing money which is calculated as a percentage of the unpaid principal amount. Interest is therefore the reward for lending and the cost of borrowing. The interest rate is the

percentage rate charged on a loan or paid on savings (Dempsy-et-al, 2008). Interest rates are an everyday part of business as organizations pay interest on money they borrow, and they receive interest for every extra coin they place in a safe investment. Companies also charge interest when their customers buy goods and services on credit and therefore a rise or fall in interest rates affects business activities as well as the buying habits of the company's customers.

In their study Sana, Heman and Sara (2015) concurs with studies by Majumdar and Chhibber (1999) and Mahakud and Misra (2009) conducted in India, which found that corporate debt has a negative impact on the firm's financial performance because of high interest burden and agency costs. They also noted that financial performance of the leveraged firms may decrease due to conflicts between shareholders and debt holders. However this is not always the truth as debt usage up to an optimal limit increases the value of the organization as interest paid on debt is tax deductible.

Study by Cecchetti and Schoenholtz (2011) shows that high interest rates make it more expensive for organizations operating under borrowed money to finance their operations and also discourage consumers from buying because of the expense involved. This end up affecting the overall financial performance of the company by lowering its profitability. On the other hand, Caballero and Gourinchas (2008) established that low interest rates represent the presence of plenty of money in the system leading to low cost of borrowed funds. Corporations are able to acquire debt at low cost translating to less interest payments allowing the firm to use greater amount for funding growth that results to high profitability and higher returns to equity.

The IMF report (2011) noted that company's watch the cycles in interest rates just like consumers watch for sales in stores. This report explains that companies plan for expansion during periods of low interest rates, because the expense of that expansion is lower than during high-interest rate periods. Lower expense therefore translates that the company returns and profitability are high and therefore shareholders can reap more from their investments.

An increase in interest rates affect business operating with debts at far heights since customers with debts have less income to spend because they are paying more interest to lenders which results to fall in sales (Checherita & Rother, 2010). Firms with overdrafts will have higher costs because they must pay more interest which lowers down their working capital leading to higher costs associated with lack of enough liquidity. The impact of a change in interest rates varies from business to business. Profitability of firms that make luxury goods are hit hardest when interest rates rise because most customers cut back on non-essentials when their incomes fall as a result of rising interest rate. This is because increasing interest rate reduces demand and the rate of economic growth (IMF 2011).

Higher interest rates have various economic effects as they increase the cost of borrowing hence interest payments on loans are more expensive (Rehema, 2013). Rising interest rates therefore affect both consumers and firms and the

economy is likely to experience falls in consumption and investment. Rehema (2013) further argues that this limits the ability of a firm to venture in new areas as it hits the bottom line in terms of profitability. She also argue that to those firms operating without debts, higher interest rates make it more attractive to save in a deposit account because of the interest gained hence there is an increased incentive to save rather than spend. Study by Kim (2015) also agrees that an increase in interest rates has an impact on a business growth since when interest rates rise, banks charge more for business loans and firms with loans that have fluctuating interest rates may find their loans more difficult to repay. Higher loan payments therefore lead to a reduction in profitability, which make securing future funding more difficult. This means that there is low profit that negatively impact on return on equity. Kim (2015) therefore concludes that without these loans, businesses may be forced to rededicate their resources away from innovation and reinvestment.

According to Jim (2015) the effect of a change in interest rates will depend on several factors, such as the amount that a business has borrowed and on what terms, the cash balances that a business holds and whether the business operates in markets where demand is sensitive to changes in interest rates. He further agrees with study of Thordsen and Nathan (1999) that an increase in interest rates leads to a higher cost of borrowing and that the level of interest rates has a direct effect on a business ability to repay a loan. However Thordsen and Nathan (1999) also noted that when interest rates are low, businesses are willing to borrow because they find it relatively easy to repay their debt. James (2014) concludes that interest rate is the amount of interest paid per unit of time expressed as a percentage of the amount borrowed. High interest charged on loans increases the cost of loan to the borrower hence discouraging borrowing while low interest charged on loans increases the cooperative society's profits and therefore for the interests of both the lender and the borrower interest rates should be fixed appropriately to steer a balance in economic growth. James (2014) further argues that most of cooperatives in Kenya are currently charging between 1–1.5% pm interest to all their products as compared to 1.5–2.5% charged by other finance institutions.

Interest rate charged on loans advanced is one of main determinant of financial performance of institutions (Rasheed, 2012) and is seen as the price lenders expect for exchanging current claims for greater future claims to goods and services. Isaac (2014) also noted that interest rates instability generally has been associated with poor financial performance of financial institutions. Without interest rates stability, domestic and foreign investors will stay away and resources will be diverted elsewhere. This study therefore ascertained that interest rates instability does affect financial performance of cooperative sector as well and other sectors across the globe.

The objective of cooperative societies is member empowerment through savings mobilization, disbursement of credit and ensuring cooperatives long-term sustainability

through prudent financial practice (James, Alala & Douglas, 2014). There are a number of challenges in promoting quality financial management such as limited capital funding sources, assessment and management of risks in addition to negative cash (liquidity) and poor investment decisions. High cost of funds due to rising interest rate hamper wealth generation thus affecting the cooperative's profitability that results to low returns on investment. The level of interest rates charged by Commercial Banks and other financial institutions in Kenya was high despite the efforts by the Government to bring it down thus facing a lot of criticism from time to time. These high interest rates were against the regulation in the Central Bank of Kenya base lending rate which proposed that the maximum interest rates charged should be pegged against them (CBK, 2016). This however may not be applicable since they can be justified by high transaction costs and risks associated with micro lending that have not either spared cooperative societies making their operations costly and affecting their ability to make higher returns.

Loan Tenure decision is one of the most crucial decision organization considers during loan Process. Loan Tenure has a direct impact on an organizations cost of borrowing. Borrowers need to arrive at the optimal value which should be a comfortable balance between their current financial condition and their loan requirement. According to Nitin (2015), debt providers such as banks push for longer loan tenure as it is financially beneficial for them. Nitin (2015) advocates that even though longer loan tenure leads to low EMI it leads to high cost of borrowing and a high burden to the borrower in long run.

Factors such as loan amount, loan interest rate, size of the organization and Equated Monthly Instalment (EMI) influence loan tenure (Tiffany, 2015). Large loan amount call for longer periods to repay back the loan and low EMI increases the loan tenure. Chatterjee & Rose (2012) cites that it is a wrong strategy for organizations and borrowers to keep EMI as low as possible in need of not compromising on the existing lifestyle or culture hence a balance between the two should be struck through proper planning.

Longer loan tenure is bad for an organizations growth and development since it leads to an increase in the cost of borrowing which affects the returns to investors due to increase in accumulated interest to be paid. The higher cost means lower returns from the investment. An ideal loan tenure is derived from EMI calculated as a percentage of the after tax profits through proper analysis. This will ensure that normal operations of the enterprise are not affected as an optimal position is arrived at. Organizations also should not stretch their finances to shorten loan tenure else they will end up in a financial mess (Fitch et-al, 2011). Neha (2015) notes that it doesn't make sense to borrow if an organization doesn't need the money or take a long-term loan only to enjoy the tax benefits available on the interest paid. Organizations should not borrow more than they can pay or take a loan just because it is available. Organization should ensure that their loan-to-income ratio is within acceptable limits.

Study by Tiffany (2015) found that loan tenure need to be kept as short as possible. Borrowers should aim at taking a loan for the shortest tenure they can afford to avoid being affected by fluctuation of interest rate in future. In a long-term loan, the interest paid is too high hence according to Nitin (2015) taking a loan is negative compounding. The longer the tenure, the higher is the compound interest the bank earns from a borrower. This concurs with the study by Poornima (2011) which found that change in rate of interest during the tenure of the loan has an impact to the organizations financial performance either positively or negatively. Increase or decrease in general interest rates can impact EMI paid to service the debt. A loan taken under the floating rate of interest makes EMI to change according to the change in the rate of interest. In this regard, Poornima (2011) found that extra payments or prepayment of principal amount helps bring down the outstanding principal amount and reduce interest burden. Most banks allow repayment of the loan ahead of schedule by making lump sum payments. Any extra payments over and above the monthly EMI will reduce principal amount and reduce interest burden. Andrew (2015) argues that whether to prepay the loan or not, depend on the benefits an organization obtains from the loan. If the interest that is paid on the loan is higher than the returns being earned from the investment, then it is better to pre-close the loan.

Some loan borrowers opt for short tenures hence are typically risk-averse and intend to be debt-free sooner. The borrower is minimally impacted by long-term interest rate fluctuations and market volatility. The benefits of a short tenure loan are heavily tilted in favour of the borrower. However, not all borrowers can afford high EMI repayments every month. Setting aside hefty loan repayments month after month may not be possible for all borrowers since there are other monthly expenses and financial commitments that borrowers must not overlook apart from loan repayments (Dubois & Anderson, 2010). Short-term financing is a method of raising funds involving financial obligations that need to be repaid within a year or less. It is a fast and flexible way for companies to obtain working capital for their daily operations when their cash flow is insufficient. Overdrafts, short-term bank loans, and trade credit are types of short-term financing that can cover payroll, utility charges and the purchase of raw materials by the business. Since lenders do not make as thorough an examination of a company's accounts for short-term lending as they do in the case of long-term loans, the main disadvantage is that a company may become too reliant on short-term funds and vulnerable to high interest rates and banking fees that adversely affect profit margins. This is because small and medium size companies often do not have large cash reserves and are vulnerable to sudden financial shocks such as bankruptcy or of non-payment by a key debtor (Maria, 2015). Tiffany (2015) in his study also found that small companies often have seasonal variations in cash flow and need access to capital over that period. However he found that whether to borrow in long-term or in short term depends with the

organization policy, purpose of the loan and the prevailing interest rates. Tiffany (2015) however concludes that the costs of long-term debt may be greater than those for such a short-term facility. Lenders who extend short-term financing do not involve themselves in company management or in the business' decisions about capital investment.

Market circumstances, such as a recession, may push small businesses into borrowing too heavily on a short-term basis (Maria, 2015). Short-term finance can be a serious risk for the borrower. A short-term loan may be renewed by the lender on much less favourable terms than the original contract. Not only is the business faced with the high cost of the capital, it may not be able to service the accumulated debt. This leaves the company in a weak position where it could face bankruptcy.

The debt to equity ratio measures the riskiness of a company's financial structure which is calculated by dividing the total debt (which includes of long term debt, short term debt and leases) by total equity. The ratio reveals the relative proportions of debt and equity financing that a business employs. It is closely monitored by lenders and creditors, since it can provide early warning that an organization is so overwhelmed by debt that it is unable to meet its payment obligations. A company may use debt to buy back shares, thereby increasing the return on investment to the remaining shareholders. Whatever the reason for debt usage, the outcome can be catastrophic, if corporate cash flows are not sufficient to make ongoing debt payments (Asher, 2007). This is a concern to lenders, whose loans may not be paid back. Suppliers are concerned about the ratio for the same reason. A lender can protect its interests by imposing collateral requirements or restrictive covenants; suppliers usually offer credit with less restrictive terms, and so can suffer more if a company is unable to meet its payment obligations to them.

A high debt to equity ratio generally means that a company has been aggressive in financing its growth with debt. This can result to volatile earnings as a result of the additional interest expenses as well as volatile cash flow as principal payments on debt come due (Nwude, 2003). If a lot of debt is used to finance increased operations (high debt to equity), the company could potentially generate more earning per share than it would have without this outside financing. If this were to increase earning by a greater amount than the interest on debt, then the shareholders benefit as more earning are being spread among the same amount of stock. However Pandey (2010), argues that increased interest and the need to repay the principal on borrowed fund can outweigh the benefit.

Study by Ahmed (2014) "The effect of financial leverage on firm financial performance in Saudi Arabia's noted that a study in India by Majumdar and Chhibber (1999) found a negative relationship between capital structure (debt level) and firm performance. Ahmed further found that there is a relationship between capital structure and capital performance in Saudi Arabian firms as the financial performance tended to increase with respect to a decrease in leverage level. Lower leverage levels were found to be linked

with higher gross profit margins and higher ROE. Also in their study about the relationship between capital structure and firm performance, Bistrova, Lace and Peleckiene (2011) found evidence that supports the pecking order theory. Their study showed a negative relationship between the level of debt and capital profitability. Hence, firms should avoid using external funds if they can use internal funds.

Investors should not look at a company's return on equity in isolation. A high, or low, ROE needs to be interpreted in the context of a company's debt-equity relationship. Richard (2015) argues that ROE ratio indicates how profitable a company is by comparing its net income to its average shareholders' equity. However, it is worth to note that the amount of debt an organization uses in its capital structure has an effect to ROE. In general, financial analysts consider return on equity ratios in the 15-20% range as representing attractive levels of investment quality. Beyond this optimal, financial performance is affected as it means more debt is being used to finance the organization which calls for high interest payment.

Study by Rehman (2013) on the relationship between financial leverage and financial performance in Pakistan show positive relationship of debt equity ratio with return on asset and sales growth, and negative relationship of debt equity ratio with earning per share, net profit margin and return on equity. This negative relationship between debt equity ratio and earnings per share (EPS) support the fact that as debt increases, the interest payment will also rises, so EPS will decrease.

Kyereboah-Coleman, A (2007), investigated the impact of capital structure on the performance of microfinance institutions in sub-Saharan Africa showing that most of the Microfinance institutes usually employ high leverage. The result shows that High leverage firms perform better to deal with risk and they enjoy economies of scale. In the same year however Madan (2007) examined the role of financing decision in the overall performance of the leading hotels in India showing that Leverage seems to be working only for a few companies, while they affect most of the firms negatively. The research further reveals that those firms which are moderately geared have been able to generate a good return on equity.

Moderate debt level improves welfare and enhances growth but high levels can lead to a decline in growth of any enterprise (Stephen-et-al, 2011). Rainhart and Rogoff (2009) argued that debt can only impact positively to the growth of a firm when it is within certain levels. When the ratio goes beyond certain levels financial crisis is very likely. The argument is also supported by Stern Stewart and Company which argues that a high level of debt increases the probability of a firm facing financial distress. Over borrowing can lead to bankruptcy and financial ruin (Stephen-et-al, 2011). Victoria (2015) argues that increased debt in the capital structure increases the leverage factor in a company that hurts the company's operations. He further found that during normal or boom times, leverage results in exponential profit returns as organization can benefit from

increased business activities that results to high profitability, while during recessions, leverage can result in exponential losses, as well. However Richard (2015) argues that whether in boom or in recession, a large debt burden carries risk because of the reaction of leverage to the prevailing economic conditions.

Taking on debt, as an individual or a company, will always bring about a heightened level of risk due to the fact that income must be used to pay back the debt even if earnings or cash flows go down. From a company's perspective, the use of financial leverage can positively or sometimes negatively impact its return on equity as a consequence of the increased level of risk. At an ideal level of financial leverage, a company's return on equity increases because the use of leverage increases stock volatility, increasing its level of risk which in turn increases returns. If earnings before interest and taxes are greater than the cost of financial leverage then the increased risk of leverage will be worthwhile. Study by Jean (2015) shows that at an ideal level of financial leverage, a company's return on equity increases because the use of leverage increases stock volatility, increasing its level of risk which in turn increases returns. However Jean (2015) in his study found that if a company is financially over-leveraged a decrease in return on equity could occur. Financial over-leveraging means incurring a huge debt by borrowing funds at a lower rate of interest and using the excess funds in high risk investments. If the risk of the investment outweighs the expected return, the value of a company's equity could decrease as stockholders believe it to be too risky.

Boundless (2015) in his study concludes that due to financial leverage effect on solvency, a company that borrows too much money might face bankruptcy during a business downturn, while a less-levered company may avoid bankruptcy due to higher liquidity. He further notes that a company that borrows money to modernize, add to its product line, or expand internationally, the additional diversification offset the additional risk from leverage. When evaluating the riskiness of leverage it is also important to factor in the value of the company itself and its activities. The upshot is, if value is expected to be added from the use of financial leverage, the added risk should not have a negative effect on a company or its investments.

Jean (2015) has noted that what is considered a high debt-to-equity ratio differs depending upon the industry, because some industries tend to utilize more debt financing than other even though there is no single value above which would be deemed a high debt-to-equity ratio. The financial industry, for example, typically has a higher debt-to-equity ratio. In his study Jean (2015) found that banks and other financial institutions borrow money to lend money, which results in a higher debt-to-equity ratio, however he did not come out clearly in the Sacco sector as Jared (2015) argue that use of debt may show financial stability. As a result, investors must look at a company's historical debt-to-equity ratio figures to determine if there have been significant changes that could indicate a red flag. A higher debt-to-equity ratio typically shows that a firm has been aggressive in financing its growth

with debt, and there may be a greater potential for financial distress if earnings do not exceed the cost of borrowed funds. Jared (2015) in his study also found that investors and lenders generally consider a business debt ratio as an indication of financial stability of the business. He further concurs with study by Jean (2015), that there is no hard and fast rule about what is considered a good debt ratio or a bad debt ratio, investors should always seek professional consultation whenever possible before making any investment decisions and lenders should study the debt equity ratio of the company seeking debt funding to see if its financial performance is at stake since debt ratios tend to differ from one industry to the next.

A study by Bryan (2015), found that debt ratios can be used to describe the financial health of individuals, businesses or governments. He found that debt ratio for a given company reveals whether or not a business has loans and, if so, how its credit financing compares to its assets. From a pure risk perspective, Bryan (2015) found that debt equity ratio of less than 0.4 are considered better debt ratios since the interest on a debt must be paid regardless of business profitability while higher debt equity ratio of more than 0.6 makes it more difficult to borrow money since lenders often have debt ratio limits and do not extend further credit to firms that are over-leveraged. In the Iowa State University newsletter for Agriculture, Keri (2015) argues that Cooperatives in the Midwest have engaged in unprecedented investments in technologies and assets to increase financial efficiency and services they can provide, hence cooperatives that achieve higher operating efficiency, better asset utilization and more current assets as inventory tend to be more leveraged than other cooperatives.

Cooperatives like other business enterprises use debt in their capital structure to finance expansion strategy and enable them compete with other financial institutions by coming up with new products. However, Jaramillo and Schiantarelli (1996) stated that high levels of debt constrain businesses from undertaking projects that are likely to be profitable due to working capital problems thus the business becomes un-attractive. Depletion of working capital negatively affect the cooperatives' operations hence it is crucial that the primary source of loan repayments should be cash flows from the project.

The interest coverage ratio is a debt ratio and profitability ratio used to determine how easily a company can pay interest on outstanding debt. The interest coverage ratio is calculated by dividing a company's earnings before interest and taxes (EBIT) during a given period by the amount of interest on its debts paid during the same period.

According to Bodie, Alex and Alan (2004), interest coverage ratio measures how many times over a company could pay its current interest payment with its available earnings. In other words, Ghosh and Robert (1993) argues that Interest Coverage ratio measures the margin of safety a company has for paying interest during a given period, which a company needs in order to survive future financial hardship should it arise. A company's ability to meet its interest

obligations is an aspect of a company's solvency, and is thus a very important factor in the return for shareholders.

According to Secord (2015), the lower a firm's interest coverage ratio is, the more its debt expenses burden the company and it may result into further borrowing or utilise its cash which is much better used to invest in capital assets or held as reserves for emergencies. Ong (2003) noted that when interest coverage ratio is 1.5 or lower, the firm's ability to meet interest expenses may be questionable. He further argued that interest coverage ratio of 1.5 is generally considered to be a bare minimum acceptable ratio for a firm and a tipping point below which lenders will likely refuse to lend the company more money, as the company's risk for default is too high. Moreover, Secord (2015) argued that an interest coverage ratio below 1 indicates the company is not generating sufficient revenues to satisfy its interest expenses that it will likely need to spend some of its cash reserves in order to meet the difference or borrow more which risks the firm falling into bankruptcy. He further argues that an interest coverage ratio of 2.5 is often considered to be a warning sign, indicating that the firm should be careful not to dip further.

Bergen (2015) noted that borrowing has the potential to positively affect a company's profitability through the development of capital assets according to the cost-benefit analysis if the interest covers ratio remains above 2.5 as an indication that the firm is profitable. But further he argues that a firm must also be smart in its borrowing because interest affects a company's profitability as well, a company should only take a loan if it knows it will have a good handle on its interest payments for years to come. A good interest coverage ratio would serve as a good indicator of this circumstance, and potentially as an indicator of the company's ability to pay off the debt itself as well. Bergen (2015) also notes that large corporations, however, may often have both high interest coverage ratios and very large borrowings. With the ability to pay off large interest payments on a regular basis, large companies may continue to borrow without much worry.

Generally, stability in interest coverage ratios is one of the most important things to look for when analyzing the interest coverage ratio. A declining interest coverage ratio is often something for investors to be wary of, as it indicates that a company may be unable to pay its debts in the future (Houston & Brigham, 2009).

2.5. Theoretical Review

The study was guided by three theories such as Modigliani-Miller theorem, The Trade-Off Theory of Leverage and Pecking order theory.

Net Income Approach was presented by David Durand and suggests increasing value of the firm by decreasing the overall cost of capital measured in terms of Weighted Average Cost of Capital. This can be done by having a higher proportion of debt, which is a cheaper source of finance compared to equity finance. According to Net Income Approach, change in the financial leverage of a firm will lead to a corresponding change in the Weighted Average Cost of

Capital (WACC) and also the value of the company. The Net Income Approach suggests that with the increase in leverage (proportion of debt), the WACC decreases and the value of firm increases. On the other hand, if there is a decrease in the leverage, the WACC increases and thereby the value of the firm decreases. The Net Income approach assumes that an optimum capital structure exists and will be attained when the value of the firm is maximised. This occurs when the weighted average cost of capital is at its minimum.

Management of Savings and credit cooperative societies ought to know the optimal capital structure when the WACC is at its minimum to take advantage of the gains associated with the increase in value. This means that there are advantages for cooperatives to embrace this theory and be levered to ensure shareholders returns is maximised (Welch, 2004).

The Modigliani and Miller Approach assumes that there are no taxes. But in real world, this is far from truth. Most countries, if not all, levy taxes on a company's profits. This theory recognizes the tax benefits accrued by interest payments. The interest paid on borrowed funds is tax deductible. However, the same is not the case with dividends paid on equity. To put it in other words, the actual cost of debt is less than the nominal cost of debt because of tax benefits. The trade-off theory advocates that a company can capitalize its requirements with debts as long as the cost of distress i.e. the cost of bankruptcy exceeds the value of tax benefits. Thus, the increased debts, until a given threshold value will add value to a company. This approach with corporate taxes does acknowledge tax savings and thus infers that a change in debt equity ratio has an effect on WACC (Weighted Average Cost of Capital). This means the higher the debt, lower is the WACC.

The trade-off theory of capital structure refers to the idea that a company chooses how much debt finance and how much equity finance to use by balancing the costs and benefits. The classical version of the hypothesis goes back to Kraus and Litzenberger who considered a balance between the dead-weight costs of bankruptcy and the tax saving benefits of debt. The purpose of the theory is to explain the fact that corporations usually are financed partly with debt and partly with equity. It states that there is an advantage to financing with debt, that is, the tax benefits as interest on debt is tax deductible and there is a cost of financing with debt, that is, the costs of financial distress including bankruptcy costs of debt and non-bankruptcy costs such as staff leaving, suppliers demanding disadvantageous payment terms, bondholder or stockholder infighting. The marginal benefit of further increases in debt declines as debt increases, while the marginal cost increases, so that a firm that is optimizing its overall value will focus on this trade-off when choosing how much debt and equity to use for financing (Frank & Goyal, 2011).

Savings and credit cooperatives makes use of this theory in determining the optimal use of debt in their capital structure to take advantage of tax benefits accrued from interest payments on debt. Cooperatives will make a decision based

on this theory to finance using debt where the cost of debt can be quantified and known based on the interest rate charged on a given loan and the period of loan repayment. Any interest paid will reduce the taxable income of the Sacco hence more is retained increasing the value of the society. This enables a higher ROE to be realized by the Sacco which is an evidence of sound and strong financial performance.

According to Brealey and Myers (2008), Pecking Order Theory was first suggested by Donaldson in 1961 and was modified by Stewart C. Myers and Nicolas Majluf in 1984. In corporate finance, pecking order theory postulates that the cost of financing increases with asymmetric information. Pecking order theory starts with asymmetric information as managers know more about their company's prospects, risks and value than outside investors. Asymmetric information affects the choice between internal and external financing and between the issue of debt or equity. There therefore exists a pecking order for the financing of new projects. Asymmetric information favours the issue of debt over equity as the issue of debt signals the board's confidence that an investment is profitable and that the current stock price is undervalued. The issue of equity would signal a lack of confidence in the board and that they feel the share price is over-valued. An issue of equity would therefore lead to a drop in share price (Matemilola & Bany-Ariffin, 2011).

Financing comes from three sources, internal funds, debt and new equity. Companies prioritize their sources of financing, first preferring internal financing, and then debt, lastly raising equity as a "last resort". Hence, internal financing is used first; when that is depleted, then debt is issued; and when it is no longer sensible to issue any more debt, equity is issued. Matemilola and Bany-Ariffin, (2011) argues that this theory maintains that businesses adhere to a hierarchy of financing sources and prefer internal financing when available, and debt is preferred over equity if external financing is required. Cooperatives therefore use this theory to determine how financing of its operations is done. Cooperatives utilises their retained earnings first as internal funds to finance its overall operations and later seek external finances to meet the increasing demand for credit by its customers.

3. Methodology

3.1. Research Design

The study used causal research design to analyse the effect of debt finance on financial performance of savings and credit cooperative societies. Causal research is the investigation of cause-and-effect relationships (Brains, Willnat & Rich, 2011). Causal research is used when enough information is available for testing cause and effect relationship in a phenomenon. Causal effect occurs when variation in one phenomenon, an independent variable, leads to or results, on average, in variation in another phenomenon, the dependent variable (Bachman, 2007). In this study causal research design was appropriate in determining if a change in any of the independent variables interest rate, loan tenure,

debt/equity ratio or interest coverage ratio leads to a change in the dependent variable financial performance.

3.2. Location of the Study

The study was carried out in Maara Sub-County, Tharaka Nithi County in Kenya due to the fact that the area has been noted having experienced low cooperatives growth associated to liquidity problems (MCD, 2011) in the last decade.

3.3. Population of the Study

A population is defined as an entire group of individual or objects having common observable characteristic. It refers to the entire group of people, items or things of interest that the researcher wishes to investigate and from which the sample is drawn and studied (Bowerman, 2012). The study targeted 10 Savings and Credit Cooperative Societies operating in Maara Sub-County. This population consisted of 4 deposit taking Saccos and 6 Non-deposit taking Saccos operating in Maara Sub- County in Tharaka Nithi County, Kenya.

3.4. Sampling Procedure and Sample Size

The study used a census of the 10 Saccos operating in Maara Sub-County, Tharaka Nithi County. Census was useful in this study since the population was small thus aimed at reducing the sampling error.

3.5. Research Instruments

Data for this study was collected from secondary data from the Saccos financial statement such as the income statement and balance sheets as well as other important statements within the Sacco. Data collection schedule was used to record secondary data extracted from secondary sources. The content validity was assessed by the supervisors.

3.6. Data Collection Procedure

Data collection refers to the means by which information is obtained from the selected subjects of an investigation or a study. Data collection procedures provide guidelines for the collection of research data and are intended to improve the usefulness and reliability of data to be collected (Nikolelseas, 2014). Collection of data was done after an introductory letter was obtained from Chuka University and a research permit from National Commission for Science, Technology and Innovation (NACOSTI). In the process of data collection, the researcher presented a copy of the permit and an introductory letter to the management of cooperative societies under study to build confidence that the information given was to be used only for the sole purpose of this study. The required data was recorded in the data collection schedules which were used by the researcher for analysis.

3.7. Data Analysis

Data collected was analyzed using descriptive statistics to enable the researcher meaningfully describe distributions of

scores or measures using statistics. Analysis of data was also done using inferential statistics which drew conclusions from data that are subject to random variation (David, 2005). Regression analysis was used to analyze the relationship between debt finance and financial performance.

Multiple Regression analysis was used to analyze the degree to which the determinants of financial performance affected the return on equity of savings and credit cooperative societies. The multiple regression model used was as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Where

Y = Financial performance measured by ROE.

X₁ = Interest Rate

X₂ = Loan Tenure

X₃ = Debt/Equity Ratio

X₄ = Interest Coverage Ratio

β₀ = Intercept which indicates financial performance of Saccos independent of debt finance.

β₁, β₂, β₃ & β₄ = coefficients of interest rate, loan tenure, debt/equity ratio and interest coverage ratio respectively.

e = error term which is normally distributed with a mean of zero and a variance of 1.

Diagnostic tests on were carried out to ascertain whether

the assumptions of the ordinary least square holds. The diagnostic tests conducted include normality, multicollinearity, auto correlation and heteroskedasticity. Data for the model was tested for normality using skewness. Multicollinearity test was done by Variance Inflation Factor (VIF) and test for autocorrelation was done using Durbin Watson test. Data analysis was facilitated by use of computer software such as statistical package for social sciences (SPSS). F-test was used to test for the overall significance of the model while T-test was used to test hypothesis at 5% level of significance.

4. Results and Discussion

4.1. Descriptive Analysis

Table 1 shows that Saccos in Maara Sub County experienced an average increase in interest rate on their loans of 1.45%. Saccos experienced an average interest rate change ranging from -5% to 4% implying that Saccos experienced a decline in interest rate by 5% or an increase in interest rate by 4%. On average the Saccos experienced an increase in interest rate of 1.45%. This implies that there was a slight variation in interest on loans acquired by Saccos.

Table 1. Descriptive statistics.

	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error of mean
Interest rate	10	-.05	.04	.0145	.009
Loan tenure	10	-36	24	-4	6.266
Debt equity ratio	10	.04	1.08	.4730	.09660
Interest coverage ratio	10	-3.47	2.90	.3990	.56176

The analysis also indicates a decline in loan tenure of up to 36 months or an increase in repayment duration of up to 24 months from the two recent loans considered. On average the Saccos experienced a decline in repayment duration of up to 4 months.

Further the statistics indicate an increase in debt equity ratio in a range of between 0.04 to 1.08. On average, debt equity ratio increased by 0.473 within the period under consideration. This implies there is an increased need for extra finances by Saccos in Maara Sub County to cater for the expansion and operations to meet the demand for credit by their increasing customers.

Saccos also experienced a decline in interest coverage ratio of up to 3.47 times or an increase of up to 2.90 times. On average interest coverage ratio increased by 0.399 times. The slight average increase in coverage ratio implies that the Saccos ability to borrow more funds was limited.

4.2. Normality Test

The study used regression model and T-Test which are non-parametric and require the data to be normal. Data for the model was tested for normality using skewness. Skewness is used to determine whether the curve of the distribution is or not symmetric bell shaped. Data is normal

and unbiased when skewness statistic is within the range of ±3. The results of normality test are shown in table 2.

Table 2. Skewness Statistics.

	N Statistic	Skewness Statistic	Std. Error
Interest rate	10	-1.427	0.687
Loan tenure	10	-0.306	0.687
Debt equity ratio	10	0.718	0.687
Interest coverage ratio	10	-0.994	0.687

Table 2 shows that the results of skewness statistics of the variables are within the range of ±3. This implies that the data was normal and suitable for further analysis.

4.3. Multicollinearity Test

Multicollinearity is the correlation between independent variables. Multicollinearity was measured by employing the Variance Inflation Factor (VIF) and the Tolerance Factor (TF). VIF indicates the situation where two or more of the independent variables are highly correlated. TF values indicate the percentage of variance in the predictor variable that can be accounted for by other predictors. TF of more than 0.1 and a VIF of less than 10 indicate the absence of

multicollinearity. A summary of the multicollinearity tests is shown in table 3.

Table 3. Collinearity Statistics.

	Tolerance	VIF
Interest rate	0.803	1.245
Loan tenure	0.803	1.245
Debt equity ratio	0.903	1.107
Interest coverage ratio	0.903	1.107

As indicated in table 3 the VIF for the models were 1.245, 1.245, 1.107 and 1.107 respectively for change in interest rate, loan tenure, debt-equity ratio and interest coverage ratio respectively. All the values are less than 10 indicating the

absence of multicollinearity. All the values for TF were more than 0.1 also indicating absence of multicollinearity. Therefore the data was suitable for further analysis.

4.4. Test for Heteroskedasticity

Heteroskedasticity occurs when the variance of the error term in the regression model is not constant across observations. In such a case the regression residue appears to increase in size as the value of the independent variable increases. A scatter plot with errors variance is used to test heteroskedasticity of the data. The results of the test are presented in figure 1.

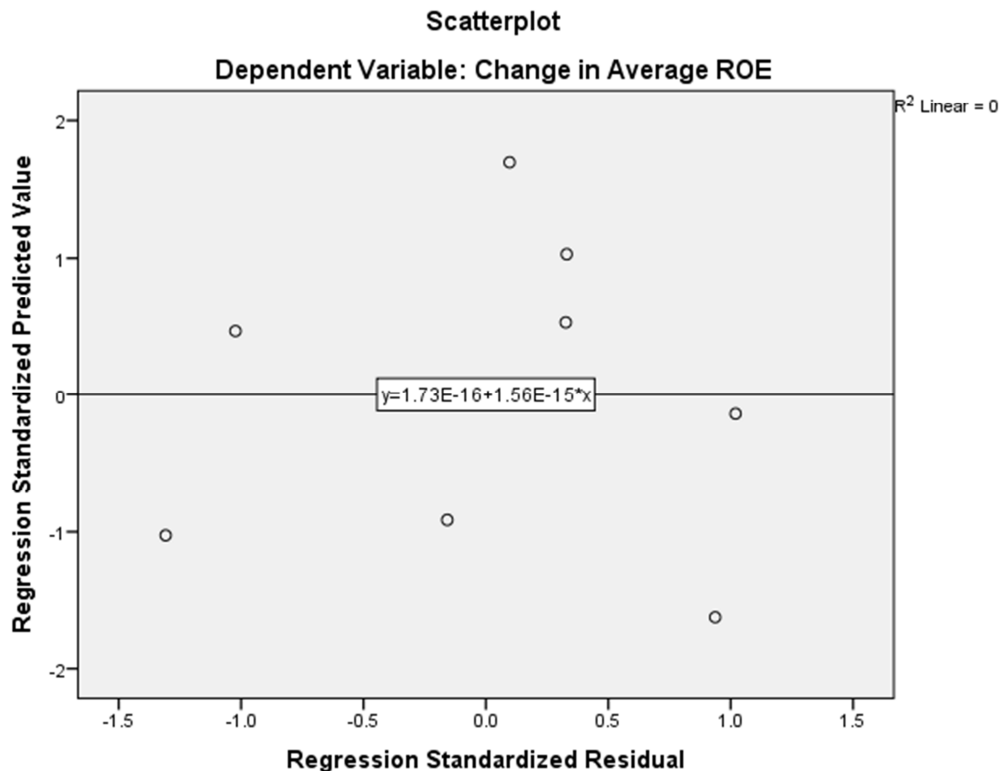


Figure 1. Distribution of Variance Errors.

Figure 1 shows that the residuals were relatively evenly scattered around the mean implying that the variance was approximately homogeneous. Therefore the data point was distributed along the regression line with almost equal vertical distance. This implies that the data was homoskedastic and could be used for further regression analysis.

4.5. Test for Auto Correlation

Autocorrelation occurs when the values of the error term are serially interdependent. This arises when the values of the error term in one season or period are related to values in another season or period. Auto correlation was tested using Durbin-Watson (DW) Test. A DW between 0 and 4 indicates absence of autocorrelation. Values less than 0 means there is positive autocorrelation while values greater than 4 shows a negative autocorrelation.

Table 4. Durbin-Watson Statistics.

Variable	Durbin-Watson Value
Interest rate	2.291
Loan tenure	2.116
Debt/equity ratio	2.222
Interest coverage ratio	0.890

Table 4 shows DW Values for interest rate, loan tenure, debt/equity ratio and interest coverage ratio as 2.292, 2.116, 2.222, and 0.890 respectively indicating absence of autocorrelation since all the DW values were within the stipulated range of 0-4. This implies that the data was suitable for use in estimation of the model.

4.6. Correlation Analysis

Pearson correlation coefficient (r) was used to determine

the degree of strength and direction of linear relationship among the variables. Linearity increases the predictive power of the model and the validity of the estimated coefficients. A correlation of $r > \pm 0.7$ implies that the variables are strongly related either positively or negatively. The study sought to

determine correlation between the variables in order to determine the strength and direction of the relationship. A summary of the correlation coefficients for all the variables is shown in Table 5.

Table 5. *Correlation Analysis Results.*

Control Variables		ROE	Interest rate	Loan Tenure	Debt Equity Ratio	ICR
ROE	Correlation	1.000				
	Significance	.				
	df	0				
Interest rate	Correlation	-.779	1.000			
	Significance	.004	.			
	df	7	0			
Loan tenure	Correlation	-.545	.478	1.000		
	Significance	.019	.033	.		
	df	7	7	0		
Debt equity ratio	Correlation	.778	-.3780	-.723	1.000	
	Significance	.032	.005	.051	.	
	df	7	7	7	0	
ICR	Correlation	.533	-.634	.0652	-.564	1.000
	Significance	.038	.028	.039	.010	.
	df	7	7	7	7	0

Results in Table 5 indicate a negative relationship between interest rate and ROE of Saccos with a Pearson correlation coefficient of 0.779. This implies that the higher the interest rate on a loan the lower the ROE realized by Saccos.

The relationship between loan tenure and ROE is average negative correlation with a Pearson coefficient of -0.545. This implies that when loan tenures is increased ROE decreases in Saccos.

Table 5 also indicate a strong positive relationship between debt equity ratio and ROE of Saccos with a Pearson correlation coefficient of 0.778. This implies that when debt equity ratio is increased ROE increases in Saccos.

Finally the results show an average positive relationship between interest coverage ratio and ROE of Saccos with a Pearson correlation coefficient of 0.533. This implies that

increasing the interest coverage ratio leads to an increase in ROE of Saccos.

4.7. Regression Analysis Model

The study sought to determine the effect of debt on financial performance of savings and credit cooperative societies in Maara Sub County. Debt variables accessed were Interest rate, Loan tenure, debt equity ratio and interest coverage ratio while the dependent variable was financial performance measured by ROE. To analyse this, a multiple linear regression model was developed and adopted in the study. The results of the strength of the relationship between predictor variables and ROE and the significance of the relationship are presented in table 6, 7 and 8.

Table 6. *The Goodness of Fit of the Regression Model.*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Sig. F Change
1	.984 ^a	.968	.943	.04353	.968	38.244	.001

Table 6 shows the correlation coefficient (R) was 0.984. This indicates a strong positive relationship between predictor variables (interest rate, Loan tenure, debt equity ratio, ICR) and ROE. The R^2 was 0.968. This implies that 96.8% of the variation in the model is accounted for by the changes in predictor variables interest rate, loan tenure, debt-equity ratio and interest coverage ratio while 3.2% was explained by other factors outside the model.

Table 7. *The Overall Significance for the Model.*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.290	4	.072	38.244	.001 ^b
	Residual	.009	5	.002		
	Total	.299	9			

a. Dependent Variable: ROE

b. Predictors: (Constant), Interest rate Interest, Loan Tenure, Debt equity ratio, Interest Coverage Ratio

From table 7, it was found that the overall model was statistically significant at F statistic 38.244 at 5% significance level with P-value $0.001 < 0.05$. This implied that the model fitted the study well and the results of the study were reliable.

Table 8. *The Individual Significance Level of the Variables.*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.255	.044		-5.826	.002
Interest rate	-2.786	.802	.430	3.474	.018
Loan Tenure	-.002	.001	-.268	-2.938	.032
Debt equity ratio	.644	.070	1.078	9.217	.000
Interest Coverage Ratio	.079	.009	.770	8.728	.000

From table 8, the value of the intercept was 0.255. This indicates the performance of the Saccos in terms of ROE in absence of other factors included in the model. The coefficients of interest rate, loan tenure, debt equity ratio and interest coverage ratio were -2.786, -0.002, -0.644 and 0.079 respectively. The model is therefore presented as follows: $Y = 0.255 - 2.786X_1 - 0.002X_2 + 0.644X_3 + 0.079X_4$

Where Y is Financial Performance measured by ROE and X_1 , X_2 , X_3 and X_4 are the value of interest rate, loan tenure, debt-equity ratio and interest coverage ratio respectively.

4.8. Effect of Interest Rate on Financial Performance of Savings and Credit Cooperative Societies in Maara Sub-county

From table 8, the coefficients of interest rate is -2.786 with a P-Value of $0.018 < 0.05$. This implies that a unit increase in interest rates will result into 2.786 units decrease in ROE of Saccos in Maara Sub-County. The result also imply that interest rate have a significant effect on ROE of Saccos in Maara Sub-County, hence the null hypothesis that interest rate have no significant effect on ROE of Saccos in Maara Sub-County was rejected at 5% level of significance. These findings imply that increase in bank interest rates negatively affects performance of Saccos due to high financing costs of debts taken by Saccos. These findings supports the findings of Cecchetti and Schoenholtz (2011) who found that interest rate charged on a loan had a significant effect of ROE due to increased cost brought by increased interest payments. The findings also concur with findings by Rehema (2013) who established that high interest rates are not good for organizations funding their projects with debt. This is because high interest rates call for high interest payments that are paid from the firm's profits thus weakening returns to shareholders equity.

4.9. Effect of Loan Tenure on Financial Performance of Savings and Credit Cooperative Societies in Maara Sub-county

From table 8, the coefficients of loan tenure is -0.002 with a P-Value of $0.032 < 0.05$. This implies that a unit increase in interest rates will result into 0.002 units decrease in ROE of Saccos in Maara Sub-County. The result also imply that loan tenure have a significant effect on ROE of Saccos in Maara Sub-County, hence the null hypothesis that loan tenure has no significant effect on ROE of Saccos in Maara Sub-County was rejected at 5% level of significance. These findings imply that increase in loan repayment duration by banks negatively affects performance of Saccos due to high

financing costs of debt brought by increase in interest payments. These findings therefore supports the study by Fitch-et-al (2011), Tiffany (2015) that found that loan tenure has a significant effect on financial performance of manufacturing firms since it determines the amount of interest to be paid annually.

4.10. Effect of Debt Equity Ratio on Financial Performance of Savings and Credit Cooperative Societies in Maara Sub-county, Kenya

From table 8, the coefficients of debt equity ratio is 0.644 with a P-Value of $0.000 < 0.05$. This implies that a unit increase in debt equity ratio will result into 0.644 units increase in ROE of Saccos in Maara Sub-County. The result also imply that debt equity ratio have a significant effect on ROE of Saccos in Maara Sub-County, hence the null hypothesis that debt equity ratio has no significant effect on ROE of Saccos in Maara Sub-County was rejected at 5% level of significance. These findings imply that increase in debt equity ratio positively affects performance of Saccos due to reduced cost of financing since use of debt lowers the weighted average cost of capital. These findings agrees with findings by Rainhart and Rogoff (2009) who found significant effect of debt equity ratio on ROE of small and medium enterprises and that an increase of debt in the capital structure leads to an increase in ROE. The study findings are also in agreement with the theory of net income approach which advocates the use of external debt to increase the value of the firm since it has been established that by increasing the leverage level in the capital structure of Saccos ROE increases.

4.11. Effect of Interest Coverage Ratio on Financial Performance of Savings and Credit Cooperative Societies in Maara Sub-county

From table 8, the coefficients of interest coverage ratio is 0.079 with a P-Value of $0.000 < 0.05$. This implies that a unit increase in ICR will result into 0.079 units increase in ROE of Saccos in Maara Sub-County. The result also imply that interest coverage ratio have a significant effect on ROE of Saccos in Maara Sub-County, hence the null hypothesis that interest coverage ratio has no significant effect on ROE of Saccos in Maara Sub-County was rejected at 5% level of significance. These findings imply that an increase in interest coverage ratio positively affects performance of Saccos since the profits are able to cover the interest payments obligations without putting the Sacco at risk. These findings agrees with findings

This finding agrees with Houston & Brigham (2009) who established a significant effect between ICR and organizations financial performance.

5. Conclusion and Recommendations

5.1. Summary of the Findings

The study aimed at determining the effect of debt finance on financial performance of Saccos in Maara Sub-county, since debt is considered as a good tool to reduce financing costs by lowering the average cost of capital, thus maximising the value of the firm. However with more debt surpassing the optimum level, a point where the average cost of capital is at its minimum, the firm risk using most of its earnings to service the loan which may lead to the risk of bankruptcy if the firm is unable to pay its debt.

On the relationship between loan interest rate and ROE, the study established a negative relationship. Interest rate charged on a loan was found to have a significant effect ROE of Saccos in Maara Sub-County at 5% level of significance. The findings noted that an increase in interest rate, leads to a decrease in ROE implying that as interest rate increases, Saccos financial performance is affected as it becomes more expensive to operate under borrowed money as more interest is paid to service the debt. This is because firm's debts will have higher costs because they must pay more interest which lowers down their working capital leading to higher costs associated with lack of enough liquidity.

On the effect of loan tenure on ROE, the study found an average negative relationship. Loan tenure was found to have a significant effected on ROE of Saccos in Maara Sub-County at 5% level of significance. It was established that increasing the loan tenure lead to a decrease in ROE. Repaying the loan with longer period attracts a high interest payment which hurts the financial performance. Firms can lower interest payments by adopting short loans repayment periods that does not attract high amount of interest payments thus retaining more profits that allows the Saccos to put into investment more funds that increases investment returns.

The study also sought to establish the effect of debt/equity ratio on ROE of Saccos. The results established a strong positive relationship. Debt equity ratio was found to have a significant effect on ROE of savings and credit cooperative societies in Maara Sub-County at 5% level of significance. The study findings established that increasing leverage level in the capital structure of Saccos in Saccos in Maara sub-county lead to an increase in ROE.

On the effect of ICR on ROE, the study also established an average positive relationship. It was also found that ICR significantly affected ROE of savings and credit cooperative societies in Maara Sub-County at 5% significance level. It was established that by increasing ICR, ROE increases. The study revealed that ICR of savings and credit cooperative societies in Maara Sub- County adequately covers the interest payments on debt acquired to finance expansion and operation of the Saccos without putting them their operations at a risk.

5.2. Conclusion

From the findings of the study, a conclusion is drawn that interest rate charged on a loan, the duration of loan repayment (Loan tenure), leverage ratio and loan tenure are vital in determining the financial performance of savings and credit cooperative societies. Efficient evaluation of interest rate done before borrowing an external debt and monitoring of interest rate after, if properly done can improve the financial performance of Saccos, otherwise it may hurt the financial performance of organizations due to increased interest payments that increases the overall cost of capital when financing is done through high interest rate loans. While making debt decisions optimal loan repayment period should be factored as a firm may risks associated with too long period or too short period of loan repayment. Loans should be paid within the right period Saccos suffering from the risk of long tenure associated with increased interest payments or risk of increased principal payments due to relatively short tenure leading to liquidity problems. Saccos can their value by being levered. However leverage level needs effective monitoring, so as not to surpass the optimum level, as the associated cost may outweigh the benefits thus eroding the shareholders wealth. Saccos earnings can be increased by aiming at increasing the interest coverage ratio sufficiently enough to cover interest payment obligations. ICR therefore if maximised would facilitate growth in financial performance of firms. However if mechanism are not put into place ICR may decrease sharply leading to inability of the firms to meet the interest payment obligations thus hurting the performance of the firms financially.

5.3. Recommendations

From the study findings the following recommendations were made:

- 1) Management of Saccos should strive to finance the Sacco operations and expansion with a less costly debt to take advantage of benefits associated with debt finance.
- 2) Management of Saccos should aim at financing a Sacco with short term loans to reduce the cost.
- 3) Management of Saccos striving to implement their expansion strategy, maintain their market share and meet their customer demand for credit should ensure that Saccos are levered and the leverage ratio kept at its optimum a point where the weighted average cost of capital is minimum.
- 4) Sacco's management should strive to ensure that interest coverage ratio is maintained high enough to cater for the interest payments obligations.

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