Effect of Capital Adequacy and Financial Leverage on Profitability of Deposit Taking Saccos in Nairobi County, Kenya

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Abstract:
SASRA attributed poor profitability inadequate use of financial due diligence in Kenya's Deposit taking Sacco. Improvement of profitability can be attributed to methodological shortcomings employed by Saccos to show indicators of profitability. This study sought to establish the influence financial due diligence on profitability of Deposit taking Saccos in Nairobi. The specific objectives were: to determine the effect of liquidity level on profitability of deposit taking Saccos in Nairobi County, to examine the effect of financial leverage on profitability of deposit taking Saccos in Nairobi County, to find out the effect of capital adequacy on profitability of deposit taking Saccos in Nairobi County and to evaluate the effect of risk management on profitability of deposit taking Saccos in Nairobi County. The theoretical framework encompassed a review of the shift ability theory, risk management theory, capital buffer and trade off theory. This study used a longitudinal research design. The target population comprised of the 11 Deposit taking Saccos in Kenya at NSE. The sampling technique of this study was drawn from eleven Deposit taking Saccos in Kenya at NSE hence census sampling. Secondary data was collected from website of Central Bank of Kenya and published banks annual profitability between 2017 and 2021. The data was analyzed using descriptive statistics techniques: standard deviation, means, and minimum, maximum, multiple regression analysis, correlation analysis and t test value analysis. STATA 15 software was used in the analysis. The study found that capital adequacy had positive and statistically significant on profitability. However, the study found that financial leverage had negative and statistically significant on profitability. The study concluded that capital adequacy and financial leverage has statistically significant effect on profitability of deposit taking Saccos in Nairobi County. The study recommended that the regulators should introduce capital buffers above the minimum statutory requirement to shield the DT-Saccos from any unforeseen economic shocks likely to arise from their operating environment. Further, managers of DT-Saccos should maintain proper proportions of leverage in their capital structure.
Key Word: *Capital Adequacy, Financial Leverage, Profitability, Deposit Taking Saccos, Nairobi County.*

I.   Introduction

In the recent years there has been an increasing interest in the attributes that affect firm profitability. With increasing global competition, technological changes and changes in customer demands for products and services, firms cannot afford to retain all structures in order to make high returns and sufficiently meet customer demands (Brealey, Myers & Allen, 2013). The profitability of firms can be affected by internal and external factors. The internal factors are individual firm characteristics which affect the profitability. They can be further grouped into financial and non-financial factors. Financial factors include liquidity, capitalization, leverage, asset quality; asset tangibility among others factors (Farouk, Magaji&Egga, 2019).

The financial due diligence consists of detailed investigation and analysis of the microfinance banks situation, financial statements of the past and current years from all aspects before making a decision, with a special focus on the extraordinary earnings and expenses, significant changes and deviations as well as how internal system control of banks have been exercised (Saeedi, Daghani&Hajian, 2020). Financial due diligence has help the supervisors in the financial institutions are increasingly recognizing the importance of ensuring that their institutions have adequate controls and procedures in place so to enhance their profitability. Without this financial due diligence, financial institutions can become subject to reputational, operational, legal and concentration risks, which can result in significant financial cost (Dranus&Galenko, 2021).

A detailed review of these financial documents makes it possible for example, to fully understand the business entity's capital structure and character of its financial sources, which may result in easier identification of areas for future restructuring or streamlining (Vodova, 2011). Financial due diligence carried out based on the

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analysis of information made available also aims to determine both past and future, expected results and the bank's financial condition, as well as to assess its forecasts and plans, identifying its main future growth factors, furthermore, the analysis comprises the prices setting methodology and the structure of future revenues and expenditure (Drehmann& Nikolaou, 2009).

Kimani, Mugo, Njeje and Otieno (2015) asserted that the deposit taking Saccos sub sector is regulated by and supervised by the SASRA. According to the KGS (2018), for effective enforcement of the regulations, SASRA is granted specific powers in law to deal with SACCOs societies that fail to comply. This is imperative as compliance cannot be left to the discretion of the deposit taking SACCOs. The deposit taking SACCOs are required to file monthly returns of their core capital and liquidity ratio which have defined limits specified in the SASRA regulations. In addition, they are not supposed to invest a certain amount of their investment assets in illiquid assets and certain proportion of the assets must be held in liquid portfolios. SASRA recognizes that as a new law, the regulations are certain to bring challenges and impact on the SACCOs in different ways and extent. It is the responsibility of the SACCOs board of directors and the management to analyze their business reality against the operational regulations and prudential standards; and develop strategies through their business plans for consideration by the Authority as part of the licensing process.

Kamande (2017) sought to determine the effects of financial due diligence on the financial performance of commercial banks in Kenya for a period of 5 years, starting from the year 2011 to 2015. The study focused on capital adequacy, asset quality, earnings ability and liquidity. They show that there has been a significant decrease in capital adequacy during the five-year period. There was also a finding that asset quality affects profitability and the financial performance of banks. The study concludes that Asset quality of the bank have the highest influence on ROA of banks. Lwaminah (2017) determined the effect of financial due diligence on commercial banks' financial performance in Kenya. Published sources of data were obtained from CBK annual reports in a duration spanning for 5 years (2012-2016). The study found no correlation between liquidity, ROI, capital adequacy, asset quality and size of bank with ROA. Capital adequacy, ROI and size of bank were positively linked to commercial banks' financial performance while loan quality and liquidity exhibited a negative relationship with financial performance. Liquidity, size of bank and ROI were significant while loan quality and capital adequacy were insignificant.

Nyabaga and Wepukhulu (2020) examined the determinants of financial performance with a focus on listed banks in the Nairobi Securities Exchange for the period from 2010 to 2018. The bank characteristics examined were: capital adequacy, leverage, asset quality and bank size. The findings depicted asset quality had insignificant negative effect on ROA. On leverage, the findings indicated a significant positive effect on ROE and an insignificant positive effect on ROA. This study concluded that capital adequacy and bank size have a significant positive effect on performance. There were mixed findings on the effect of asset quality and leverage on performance. Ratemo (2021) found out that financial due diligence had significant effect on financial performance of listed insurance firms in Kenya. Specially, asset structure and leverage showed that a unit increase affects financial performance negatively by decreasing ROE.

StatementoftheProblem

SACCOs play an essential role in economic development as part of the financial system. In Kenya, 63% of the population is either directly or indirectly benefiting from SACCO activities (Republic of Kenya, 2017). Moreover, SACCOs are now a vital instrument embraced by the Government towards increasing financial inclusion especially now that financial transactions are tending towards a cashless economy. However, the profitability of SACCOs has registered stagnating and sometimes declining growth. According to SASRA (2021), poor asset quality has continued to lead to shrink the rate of growth on ROI (assets) of the societies. The ROA for the Deposit Taking SACCOs stood at 2.69 percent, 2.45 percent and 1.89 percent in 2020, 2019 and 2018 respectively. Notably, although the return on assets has registered an increase, the rate of increase in profitability has been slowing down. To be precise, the return on assets grew by 22.90 percent in 2020 compared to a growth of 9.80 percent in 2018. The diffused growth in profitability of SACCOs has been linked to financial due diligence. The interest margin to gross income ratio improved slightly from 42.15 percent in 2018 to 42.29 percent in 2020 although the figure remained lower than 2017 rate of 43.01 percent. The cost income ratio has also been worsening growing from 62.80 percent in 2019 to 66.10 percent in 2020.The same is reflected with regard to non-interest expenses to gross income which escalated from 41.35 percent in 2019 to 43.99 percent in 2020. Finally, the operating expense to total assets ratio moved upward from 5.13 percent in 2018 to 5.44 percent in 2019 and 5.29 percent in 2020 which reflected growing inefficiency in generating profit.

According to the Financial Sector Development Trust (2020), the Kenyan SACCO sub sector has continued to operate along a weak accounting and control structures, exposing billions of savers' funds at risk. The report highlights that SACCOs have continued operating high risk models that are prone to many risks; key among them credit, liquidity, and operational risk exposures. The risks have exposed sector players to systemic risk of financial distress and insolvency. The World Council of Credit Unions (WOCCU, 2018) highlights the

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key challenges facing cooperatives as relating to a variety of financial due diligence including liquidity, capital adequacy, risk and financial leverage. Furthermore, a study from Kiaritha (2015) reveals a high failure rate (51%) for SACCOs with 3 (3) in every seven (7) of the registered deposit-taking SACCOS that have revoked their deposit-taking licenses due both to the perpetual failed handling of nonconformity issues which are related to financial due diligence.

SASRA attributed poor profitability inadequate use of financial due diligence in Kenya's Deposit taking Sacco. Improvement of profitability can be attributed to methodological shortcomings employed by Saccos to show indicators of profitability. Angore and Roulet, (2020), said that, the past studies lacked a structural analysis of profitability mechanism and hence lack a proper assessment for financial due diligence. Furthermore, these studies fail from the observation of the financial due diligence and profitability. Vodova (2018), noted that there, was notable lack of research in developed as well as developing nations regarding the direct association of financial due diligence and Saccos performance.

Muteti, (2018) noted that, financial due diligence has improved the profitability of commercial banks but the research from other countries have failed to agree with it that the financial due diligence improve the profitability of banks. Mwangi (2017), said that, research shows that there was improved bank's profitability by seen in increasing the activities. While the employees had enjoyed positive long-term return and the investor may experience negative return from the profitability. Ayele (2020), opined that, the profitability of bank's employees may also experience poor financial due diligence as result of decline in profitability of commercial banks. This research seeks to reduce the gap problem by assessing the effect of financial due diligence on profitability of Deposit taking Saccos in Kenya.

ObjectivesoftheStudy
i) To find out the effect of capital adequacy on profitability of deposit taking Saccos in Nairobi County.
ii) To examine the effect of financial leverage on profitability of deposit taking Saccos in Nairobi County.

Research Hypotheses
H_{o1}: Capital adequacy does not statistically significantly affect profitability of deposit taking Saccos in Nairobi County.

H_{o2}: Financial leverage does not statistically significantly affect profitability of deposit taking Saccos in Nairobi County.

II. LiteratureReview

Theoretical Framework

A theory is a collection of concepts about the reality which facilitate explaining and predicting a situation. Theories explain why and how things occur as they do. It predicts outcomes assuming situations remain the same (Asher, 2013). The study was guided by the following theories; trade off theory (Financial leverage) and Capital Buffer Theory (Capital adequacy).

Capital Buffer Theory

The theory was put forward by Calem and Rob (1996). In capital buffer theory, firms aim at holding more capital than recommended. Regulations targeting the creation of adequate capital buffers are designed to reduce the procyclical nature of lending by promoting the creation of countercyclical buffers (Von Thadden, 2004). The capital buffer is the excess capital a firm holds above the minimum capital required (Jokipii&Milne, 2011). The capital buffer theory holds that firms with low capital buffers attempt to rebuild an appropriate capital buffer by raising capital and firms with high capital buffers attempt to maintain their capital buffer. More capital tends to absorb adverse shocks and thus reduces the likelihood of failure (Rime, 2001). Firms raise capital when the portfolio risk goes up in order to keep up their capital buffer as sighted by Laeven and Levine (2009) which appears to relate to capital adequacy and performance of the firms.

Firms may prefer to hold a `buffer' of excess capital to reduce the probability of falling under the legal capital requirements, especially if their capital adequacy ratio is very volatile. According to this theory, capital is more reliable, dependable and can be used for long term planning. Ability of firms to mobilize enough receivables obviates the capital base from being eroded. The buffer theory of Calem and Rob (1996) predicts that a firm approaching the regulatory minimum capital ratio may have an incentive to boost capital and reduce risk in order to avoid the regulatory costs triggered by a breach of the capital requirements. However, poorly capitalized firms may also be tempted to take more risk in the hope that higher expected returns will help them to increase their capital. This is one of the ways risks relating to lower capital adequacy affect firm operations in the event of bankruptcy (Calem& Rob, 1996).

This theory is significant in this study since it has implication in liquidity, capital adequacy and risk inherent in the market. This theory indicates that the firm will be in a stable condition in times of low liquidity since there will be some capital reserves that will ensure the firm meets its obligation when they fall due using the excess capital recognized as a buffer regardless of the performance thus reducing the effect of financial distress in a firm. This means that in the absence of a buffer of capital, firms are likely to fall into financial distress in the future. Capital enhances the performance of medium and large firms primarily during crises. This therefore makes capital adequacy a significant factor of financial performance.
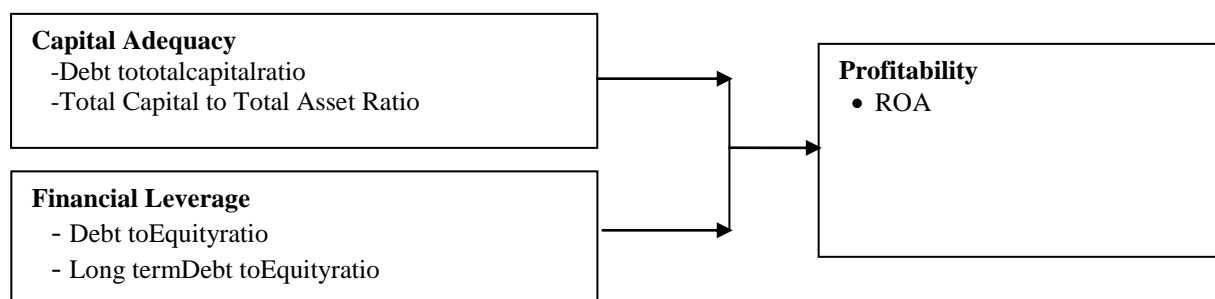
Trade-Off Theory

The theory was advanced by Kraus and Litzenberger (1973). According to trade-off theory firms usually choose how much debt finance or equity finance to use by looking at advantages and disadvantages of both debt and equity. According to Kraus and Litzenberger (1973) trade-off theory is applied in a situation where the firm works towards striking a balance between taking advantage of tax shield on interest expense arising from debt financing and the actual cost of the debt. Companies will use debt but will be cautious of any risks that could come due to bankruptcy. At this point, the tax saving from other additional debts equals to costs that will arise from an increase in the likelihood of financial distress arising (Wang & Sheikh, 2011). So long as a company uses debt effectively, shareholders benefit from more debt than equity (Baker & Martin, 2011).

According to Luigi and Sorin (2009), trade-off theory was postulated after the debate over the MM irrelevance theorem when corporate tax was added on the theory this created debt benefits in that it was a tax shield implying a 100% debt financing. Companies with high returns with tangible assets will use more debt than firms with low returns and consequently risky assets. In practice however, firms do not operate with a 100% debt financing due to distress, bankruptcy and agency costs hence the need to match the costs and benefits. In addition, the target capital structure is not determined directly and that taxes are more complex hence conflicting conclusions on the targets a company could reach depending on the taxes. This view has however may not hold in practice since firms will always incur transaction costs which were ignored in their theory.

The theory is applicable since the quoted firms that carefully select equity and debt levels for as a measure of financial leverage. Trade-off theory actually supports the leverage to construct capital structure by assuming leverage-benefits. Optimal level of leverage is achieved by balancing the benefits from interest payments and costs of issuing debt. Financially, debt is considered beneficial because of the debt-tax-shields that help to minimize expected tax bills and maximize the after-tax cash flows. Trade-off theory hence predicts the cost and benefit analysis of debt financing to achieve optimal capital structure as firm specific financial factors.

ConceptualReview

This is a diagram showing the linear relationships between independent factors (Capital Adequacy and Financial Leverage) and the dependent variable (Financial performance) as illustrated in figure 1.

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┌─────────────────────────────────────┐                  ┌─────────────────────────────────┐
│ Capital Adequacy                    │                  │ Profitability                   │
│   -Debt tototalcapitalratio         │────────────┐     │   • ROA                         │
│   -Total Capital to Total Asset Ratio│           │     │                                 │
│                                     │           ├────▶│                                 │
├─────────────────────────────────────┤           │     │                                 │
│ Financial Leverage                  │           │     │                                 │
│   - Debt toEquityratio              │────────────┘     │                                 │
│   - Long termDebt toEquityratio     │                  │                                 │
└─────────────────────────────────────┘                  └─────────────────────────────────┘
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    Independent variables   **Dependent variable**

Figure1.0:ConceptualFramework

Capital Adequacy

Olweny and Themba (2011) argued that capital adequacy refers to the sufficiency of the amount of equity to absorb any shocks that the firm may experience. For instance, capitalization which is regarded as the principal measure of capital adequacy is a measure ratio of shareholder's equity to total assets. The lower the capitalization or capital ratio is the risky the firm is and vice versa. Sporta (2018) argued that capital adequacy has been a vital issue for a firm and defined capital adequacy as the percentage ratio of firm's primary capital to its assets used as a measure of its financial strength and stability. Sporta (2018) further argued that capital would be used to absorb an unanticipated abnormal loss in cases where such losses cannot be absorbed by earnings in a

firm. Capital adequacy provides the customer, the public regulatory authority with confidence in the continued financial viability of a firm. Muigai (2016) suggested two accounting ratios to be used in capital adequacy; leverage ratio and risk weighted assets ratio, leverage ratio was determined by total capital over total assets and will be used as a measure of regulatory capital. Nasieku (2014) further noted that risk weighted assets ratio was the core capital divided by total risk weighted assets and is used as a measure of risk-based capital. Sangmi (2010) noted that capital adequacy is one of the reflections of the inner strength of a firm, which was in good stead when firms are experiencing a financial crisis. In addition, Sangmi (2010) noted that capital adequacy which can be measured by capital adequacy ratio and leverage ratio has a bearing on the overall performance of a firm like opening of new branches and diversification of business.

Financial Leverage

Financial leverage can be defined as the ratio of total liabilities to total assets (Céspedes, González & Molina, 2010). It can be seen as alternative for the residual claim of equity hoDARs. Leverage is a variable used to examine the effect of change in leverage on the firms' performance, and its defined as the use of various financial instruments or borrowed capital to increase the potential return of an investment. Zeitun and Saleh (2015) argued that changes in leverage also have a significant effect on firm's performance; financial firms should use their debt financing more efficiently in order to maximize their returns and performance. Financial leverage is the most important determinant of companies' performance. Kosikoh (2014) argued that highly leveraged firms are more likely to respond financially; through dividend cuts, debt restructuring, and bankruptcy thus there is high relationship between leverage and profitability. Cheluget (2014) further showed that highly levered firms respond faster to minimize implication of poor performance. According to Nyamboga, Ongesa, Omwario, Nyamweya, Muriuki and Murimi (2014) higher leverage ratio means a higher proportion of debt compared to equity in long-term financing. While higher leverage would boost return on investment in favorable business conditions, higher leverage would, on the other hand, adversely affect return on investment during unfavorable business conditions (Nyamboga et al., 2014).

Profitability

Maditinos (2011) argued that profitability of an organization can be measured by growth revenues that will also indicate the growth of an organization. ROE that measures an organization's profitability by revealing how much profit a company generates with the money shareholders have invested will also be used. ROA reflects the ability of a bank's management to generate profits from the bank's assets and it is calculated as profit after tax divided by total assets. Maditinos (2011) further noted that profitability can also be measured by ROA which is an indicator of how the company is in relation to its total assets and it gives an idea as to how efficient the management uses assets to generate earnings. Almazari (2011) studied the profitability of seven Jordanian commercial banks between 2005 and 2009. The study used ROA as a measure of banks' performance and the bank size, asset management and operational efficiency as three independent variables affecting ROA. Ongore (2013) indicated that ROE, ROA are the appropriate measures of profitability in banks. Olweny and Themba (2011) argued that profitability is measured by use of ROA as profitability ratio and that higher ROA indicates good performance and international comparisons of banks can easily be made.

EmpiricalReview
Capital Adequacy and Profitability

Otwani, Namusonge and Nambuswa (2017) investigated the impact of capital adequacy on the profitability of the companies listed on the Nairobi Securities Exchange in Kenya. The key finding is that capital adequacy contributes positively to the companies listed on the NSE in Kenya. A Nigerian study by Agbeja, Adelakun and Olufemi (2015) examined the relationship between capital adequacy and bank profitability through linearity approach. The study adopted panel research design, collected five secondary data from selected commercial banks financial statements. Results of the study revealed a positive and significant relationship between capital adequacy and bank profitability. Amahalu, Okoye, Nweze, Chinyere and Christian (2017) sought to ascertain the effect of Capital Adequacy on Profitability with a focus on selected quoted Deposit Money Banks in Nigeria from 2010-2015. The result of this study revealed that there is a positive and significant relationship between Capital Adequacy and Profitability. It was also empirically verified that Capital Adequacy has a statistically significant effect on Profitability on Deposit Money Banks at 5% level of significance

Olalekan and Adeyinka (2013) examined the effect of capital adequacy on profitability of deposit-taking banks in Nigeria. It seeks to assess the effect of capital adequacy of both foreign and domestic banks in Nigeria and their profitability. The findings for the primary data analysis revealed a non-significant relationship but the secondary data analysis showed a positive and significant relationship between capital adequacy and profitability of bank. Ifeacho and Ngalawa (2014) carried out a research study on the impact of bank-specific

variables and selected macroeconomic variables on the South African banking sector between 1994 and 2011. The researcher considered capital adequacy under the CAMEL model of bank performance evaluation in the study. The researcher investigated the banks using the return on assets (ROA) and return on equity (ROE) as measures of the bank performance. Findings indicated that capital adequacy exhibited a significant negative relationship with ROA, while its relationship with ROE is significant and positive as expected

Dore, (2013), analysed the effect of capital adequacy on profitability of non financial companies in Kenya. The study aimed to examine the effect of capital adequacy ratio and credit ratio on profitability, using a sample size of 518, the study was analysed using linear regression analysis and mean. The study found that capital adequacy has effect on non profitability, the study further recommended that non financial companies in Kenya should used credit ratio strategy in the management of capital adequacy to improve the performance of non financial companies in Kenya.A study on MFIs in Kenya was conducted by Kipkoech and Muturi (2014) to determine the factors that influence their performance. The study hypothesized that branch network, capital adequacy, capital structure, and number of borrowers' influences the earnings of MFIs. It sought to explore the relationship of MFIs' performance and these factors. Return on Assets was the main measure used to assess the profitability. They found that branch network, borrowers and capital adequacy greatly impacted MFIs' profitability.

Financial Leverage and profitability

Nyawira (2017) evaluated the relationship that exists between capital requirement set by the Central Bank of Kenya and the profitability for the Kenyan banking sector. The findings of the study was that there was a significant negative relationship between leverage and profitability as measured by ROA and ROE but the relationship was insignificant as measured by NIM. Xu and Banchuenvijit (2014) examined the impacts of leverage on profitability of firms listed on Shanghai Stock Exchange 50 SSE 50） (excluding financial firms). The study covers 28 companies listed on SSE 50 as a sample. Dependent variables of the study are return on assets (ROA) and return on equity (ROE), and independent variables were leverage as measured by debt ratio (DR), and a dummy variable is firm size. For both types of firm performance measurement (ROA and ROE), the results show a negative and significant relationship between leverage and firm performance.

Al-Shamalieh and Khanafar (2014) conducted a research about the impact of leverage on profitability of firms. They took Jordan as their subject matter, more specifically, they studied the tourism industry. The researchers collected data from the randomly selected 5 listed companies out of the 11 companies listed on the Amman Stock exchange. The results showed that leverage has a significant and negative impact on profitability.Goel, Chadha and Sharma (2015) analysed the impact of financial leverage on various measures of operating liquidity. Further, the study examined the effect of both operating liquidity and financial leverage on the firm's performance. It was found that financial leverage has significant impact on different measures of operating liquidity. Further operating liquidity and financial leverage have considerable impact on performance of the Indian machinery firms.

Data, (2020) aimed to evaluate the effect of bank size on profitability and to examine the effect of credit ratio on profitability. study using a sample of 8 insurance sectors out of 8 of insurance sectors in Kenya. The study found that the financial leverage affecting insurance sector performance. The study recommended that insurance sectors should apply strategy approach to improves insurance sector performance.Maritala, (2017), analysed the effect of financial leverage on profitability of insurance sectors in Kenya. The study found that financial leverage affects the profitability of insurance sectors in Kenya. the study further recommended that insurance sectors should improves customer's moral.Akorsu, and Anyapong (2018), analysed the effect of financial leverage on profitability of insurance sectors in Kenya. The study aimed to find out the credit ratio on profitability and to evaluate the effect of gross ratio on profitability, using a sample size of 9 of insurance sectors, the study was analysed using cross-section and panel data analysis. The study found that financial leverage has positive and significant effect on return on equity. The study further recommended that high financial leverage increase the profitability level in the insurance sectors.

III. MaterialAndMethods

The study assumed a longitudinal research design to collect and analyze data. Longitudinal research design involves repeated observations of the same variables such as people over short or long periods of time that is uses panel. The target population of this study was all registered deposit taking Saccos in Nairobi County; this formed the unit of analysis. According to SASRA (2021), Nairobi County has 11 tier one deposit taking Sacco's. The sampling frame for this study was entire list of 11 tier one deposit taking Saccos operating in Nairobi County sourced from the SASRA website for the financial year ending 31st December, 2021. A census of all the 11 Tier one Deposit Taking SACCOs in Nairobi County was studied. The research utilized secondary data. Secondary data was collected from the audited financial statement five years' period ending 31st Dec 2021. The panel data comprised cross-section and time-series data. The data was coded and then imported into

STATA software for analysis. The panel regression model was used in the present study to model the linear association between explanatory dependent (profitability) and independent variables (Capital Adequacy and foreign exchange rate risk). The Panel regression analysis was used in the present research for several reasons: to determine the relationship between each element under investigation and determine the relationship between dependent and independent variables (Russell, 2013).

IV. Result and Discussion

Descriptive Analysis

Descriptive statistics are a category of statistics that primarily describe the features and characteristics of a data set. Descriptive statistics in this study were computed to describe the overall distribution of the collected data. The study computed their mean, standard deviation, and minimum and maximum Values. Table 1 presents the findings obtained.

Table 1.0: Descriptive Statistics

Variable	Measures	Min	Max	Mean	Std Dev.
Financial Leverage	Debt to equity ratio	0.46	94.39	20.200	9.448
	Long term Debt to equity ratio	1.54	189.17	71.141	26.967
Capital Adequacy	Debt to asset ratio	0.02	52.42	3.6771	6.3287
	Debt to total capital ratio	1.32	45.23	11.005	4.8656

From Table 1, Debt to equity ratio which was used to measure financial leverage ranged from 0.46 to 94.39 with a mean of 20.2 and standard deviation of 9.44. Another measure of financial leverage was long term debt to equity ratio ranged from 1.54 to 189.17 with a mean of 71.81 and standard deviation 26.96. Capital adequacy was measured using Debt to asset ratio which ranged from 0.02 to 52.42 with a mean of 3.6774 and standard deviation of 6.3287. Debt to total capital ratio ranged from 1.32 to 45.23 with a mean of 11.000 and standard deviation of 4.865.

Table 2: Time series Analysis for Profitability (ROA)

Year	Maximum	Minimum	Mean	Std Dev
2017	0.048174	0.004263	0.02031	0.013578
2018	0.061192	0.00388	0.019474	0.015446
2019	0.058287	0.00678	0.022417	0.017049
2020	0.071627	0.009989	0.024691	0.017295
2021	0.049815	0.008714	0.025264	0.014412
Summary	0.071627	0.00388	0.022431	0.015211

Table 2 shows that between 2017 and 2021, return on asset of tier deposit taking Saccos in Nairobi County ranged from 0.00388 to 0.071627 with a mean of 0.022431. The distribution had a standard deviation 0.015211.

Inferential Analysis

Normality Test

The normality was tested using the Jarque-Bera (JB), Skewness and Kurtosis. The results are as shown in Table 3

Table 1: Normality Test

Stats	Profitability	Financial Leverage		Capital Adequacy	
	Return on Asset	Debt Equity Ratio	Debt Asset Ratio	Debt Capital Ratio	Capital Asset Ratio
Skewness	0.539	0.278	1.322	1.183	5.086
Kurtosis	2.147	3.192	5.934	12.23	32.60
JarqueBera	4.094	0.757	196.9	0.075	270.2
Probability	0.129	0.684	0.003	0.102	0.000

Normality was considered using Skewness, Kurtosis and Jargue-Bera. Skewness of value smaller than 2 and kurtosis value smaller than 6 should be considered normal (Tabor, 2011). From Table 3, profitability (ROA), financial leverage (DER, DAR) and capital adequacy (DCR) have Skewness less than 2. This implies that they are normally distributed and the data was adequate and met the assumption of linearity. Nonetheless,

log of capital adequacy were not normal as indicated by kurtosis value of 12.24. The study also used a more efficient and conclusive technique known as Jarque-Bera (JB) to further ascertain the normality. The study failed to reject the null hypothesis since the probability value for Jargue-Bera was greater than 5% for log of profitability, financial leverage, Liquidity Level and financial risk management however, log of capital adequacy was significant at 5%. However, capital asset ratio and debt asset ratio did not exhibit normal distribution and therefore, they were expunge at this stage.

Stationarity Test

This study applied the ADF test. ADF tests the null hypothesis that the data has a unit root. If the P-value is less than a 5% level of significance, then the null hypothesis was rejected, implying stationarity. However, if the P-value is higher than a 5% level of significance, then the null hypothesis is accepted, implying non-stationarity. The study tested for the stationarity of each variable.

Table 4.0: Augmented Dickey-Fuller Test for Unit Root

	Statistics	P-Value	Significant
LN_Profitabilty	65.0519	0.000	**
LN_CA	74.4370	0.000	**
LN_FL	61.6924	0.000	**

* sig at 5% level, ** sig at 1% level

Table 4 shows the summary results for Stationarity test. A p-value of more than 0.05 indicates the presence of unit roots (H0) while a p-value of less than 0.05 was an indication that there was no presence of unit roots for augmented Dickey-Fuller tests. The results indicated that there was absence of unit root for natural log of profitability, financial leverage and capital adequacy. This suggested that the autocorrelation of a variable and variance mean is not changing with time. Hence, the results can be used for further inferential statistics.

Hausman Test

A Hausman test was carried out to determine whether to use the fixed effect or Fixed Effect model to address objectives of this study. According to Bell and Kelvyn (2015), Hausman test basically tests whether the unique errors are correlated with the repressors and the null hypothesis is that unique error is not correlated (Greene, 2012), while the alternative hypothesis is that unique error is related. If null hypothesis is accepted then the preferred model is random effects otherwise use the fixed effects model (Lang, 2014). The results are as shown in Table 5.

Table 5.0: Hausman Specification Test

	Coefficients ----			
	(b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
CA(ln)	0.26	0.245	0.015	0.0325
FL(Ln)	-2.567	0.033	-2.600	0.1460

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
$chi2(11) = (b-B)'[(V\_b-V\_B)^{(-1)}](b-B)$
$= 14.29$
$Prob>chi2 = 0.02952$

If the p-value is small (less than 0.05), reject the null hypothesis. Results in the table 5 indicated a prob>chi2 value of 0.02952 which is less than critical P value at 0.05 level of significance which implies that the null hypothesis that a random effect model is the best was rejected. The study hence used a fixed effect regression model.

Correlation Analysis

The study further used correlation analysis to test the association between independent variables and dependent variable. The results are shown in Table 6.

Table 6: Correlation Analysis

	Capital Adequacy (ln)	Financial leverage (ln)
Profitability(ln)	0.3125	-0.5024
	0.0303	0.0063

The resultsindicatedthat there is significant relationship between profitability and financial leverage as indicated by R=-0.5024 (P<0.05). Thisimpliesthatincrease in financial leverage would result decreaseinprofitability. The study agreed with Maritala, (2012), said that financial leverage affect financial performance of insurance sectors in Kenya. The study agreed with Akorsu, and Anyapong, (2012), said that financial leverage affect financial performance of insurance sectors in Kenya. These findings in in agreement with Gharios (2016) who studied the economic impacts of leverage on the financial performance of MENA &GCC listed companies. The random effects regression analysis claimed that leverage has a significantly negative impact on profitability. However, it disagreed with Almajali, Alamro and Al-Soub (2012) who established that leverage have a positive statistical effect on the financial performance of Jordanian Insurance Companies

The results also indicatedthat there is significant relationship between profitability and capital adequacy as indicated by R=0.3125(P<0.05). Thisimpliesthatincrease in capital adequacy would result to significant increaseinprofitability.These findings agreed with Otwani, Namusonge and Nambuswa (2017) who examined the impact of capital adequacy on the financial performance of the companies listed on the Nairobi Securities Exchange in Kenya. The key finding is that capital adequacy contributes positively to the companies listed on the NSE in Kenya. These results are supported by Kivuvo and Olweny (2014) who examined the performance of financial institutions in Kenya using the Altiman Z Score Model of Corporate Bankruptcy. The study concluded that Central Bank of Kenya was right in advocating for additional capital base for commercial banks in Kenya. Further, Barus, Muturi and Kibati (2017) revealed a positive and significant relationship between capital adequacy and firm performance. These results are also supported by Kioko (2016) who found a significant correlation between capital adequacy regulations and financial performance of commercial banks.

Regression Analysis

The study sought to determine the effect of capital adequacy on profitability of deposit taking Saccos in Nairobi County. The first null hypothesis denoted, **H$_{o1}$:** Capital adequacy does not significantly influence profitability deposit taking Saccos in Nairobi County. The results of the fixed effect model are presented in Table 7.

Table 7: Regression Fixed Effect of Capital adequacy on Profitability

Fixed-effects (within) regression				Numberofobs =		55
Group variable: DTS				Numberofgroups =		11
R-sq:				Obs per group:		
within=	0.1317			min =		5
between=	0.0345			avg=		5
overall=	0.0976			max=		5
				F(1,43) =		5.76
corr(u_i, Xb)=0.0399				Prob> chi2 =		0.0214

Profitability	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]	
Capital Adequacy	0.267378	0.11139	2.4	0.021	0.0418807	0.492876
_cons	7.914584	0.025109	315.21	0.000	7.863753	7.965414
sigma_u	0.447947					
sigma_e	0.181064					
Rho	0.85956	(fraction of variance due to u_i)				

F test that all u_i=0: F(12, 38) = 24.44   Prob> F = 0.0000

The result obtained from fixed effect model revealed that capital adequacy accounted for 9.76% (Overall R square=0.0976) of the variation in profitabilityof deposit taking Saccos in Nairobi County. The ANOVA statistics measure the general significance of the model. The F-statistic to the model is 5.76 which is greater than 0 implying that the estimated parameters in the model are at least not equal to zero. This postulates that capital adequacy has an influence on profitability of deposit taking Saccos in Nairobi County. This influence is significant at P<0.05.The estimated coefficient of capital adequacy is significantly not equal to zero (β=0.267378, t= 2.4, p-value= 0.021). The P-value is less than 0.05 which implies that the estimated coefficient is significant at 5% significance level. The estimated coefficient of capital adequacy here implies that a unit

increase in capital adequacy would trigger the levels of profitability to increase by 0.267378 units. The p-value of the constant is less than 0.05 which shows a significant constant term. The regression model is as shown below

Profitability= 7.914584+0.267378CA (Capital Adequacy)

The study therefore rejected the third null hypothesis that capital adequacy does not influence profitability of deposit taking Saccos in Nairobi County and concluded that there is an influence of capital adequacy on profitability. Thisimpliesthatincrease in capital adequacy would results toincreasein profitabilityof deposit taking Saccos in Nairobi County. The findings agree with NazimUllah (2016) who found that Capital adequacy has insignificant contribution to financial performance of the banking industry in the GCC region. On the hand, the results disagree with Amahalu et al. (2017) sought to ascertain the effect of Capital Adequacy on Financial Performance with a focus on selected quoted Deposit Money Banks in Nigeria from 2010-2015. The result revealed that there is a significant relationship between Capital Adequacy and Financial Performance. These results are consistent with Kahuthu, Muturi and Kiweu (2015) examined the joint significant contribution of core capital and membership growth on financial performance of commercial banks in Kenya. Results of the study revealed that there was a positive and significant relationship between capital adequacy and financial performance.

The study sought to determine the effect of financial leverage on profitability of deposit taking Saccos in Nairobi County. The second null hypothesis denoted, H_{o2}: Financial leverage has no effect on profitability of deposit taking Saccos in Nairobi County. The results of the fixed effect model are presented in Table 8.

Table 8: Regression Fixed Effect of financial leverage on Profitability

Fixed-effects (within) regression				Numberofobs =		55
Group variable: DTS				Numberofgroups =		11
R-sq:				Obs per group:		
within=	0.3825			min =		5
between=	0.1154			avg=		5
overall=	0.2524			max=		5
				F(1,43) =		7.43
corr(u_i, Xb)=-0.1316				Prob> chi2 =		0.0031

Profitability	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]	
Financial Leverage	-0.13138	0.04705	-2.792	0.013	-0.3785086	0.641269
_cons	7.882514	0.082267	95.82	0,000	7.712724	8.052304
sigma_u	0.462898					
sigma_e	0.128141					
Rho	0.928823	(fraction of variance due to u_i)				

F test that all u_i=0: F(12, 24) = 38.02   Prob> F = 0.0000

The analysis shows that the panels were strongly balanced for this bivariate analysis as shown by the number of observations per group. There were a total of 55 observations used in this analysis considering 11 groups of entities implying strongly balance panels. The minimum, maximum and average numbers of observations per groups were all equal to 5. The result obtained from fixed effect model indicated that financial leverage accounted for 25.24% (Overall R square=0.2524) of the variation in profitabilityof deposit taking Saccos in Nairobi County. The F-statistic to the model shows is 7.43 which is greater than 0 implying that the estimated parameters in the model are at least not equal to zero. This implies that financial leverage has an influence on profitability of deposit taking Saccos in Nairobi County. However, the influence is significant (P=0.0031).The estimated coefficient of financial leverage is significantly not equal to zero (β=-0.13138, t= -2.792, p-value= 0.013). The P-value is less than 0.05 which implies that the estimated coefficient is not significant at 5% significance level. The estimated coefficient of financial leverage here implies that a unit increase in financial leverage would initiate the levels of profitability to decrease by 0.13138 units. The p-value of the constant is however less than 0.05 which shows a significant constant term. The regression model is as shown below

Profitability= 7.882514-0.13138FL (Financial leverage)

The study therefore rejected the null hypothesis that financial leverage does not significantly affect profitability of deposit taking Saccos in Nairobi County and concluded that there is an effect of financial

leverage on profitability. Thisimpliesthatincrease in financial leverage would results todecrease in profitabilityof deposit taking Saccos in Nairobi County. These findings agreed with Bui (2017) who found that there were strong negative impacts of financial leverage on performances of 18 British Gas and Oil companies from 2009 to 2014. However, the findings disagreed with Almajali, Alamro and Al-Soub (2012) who revealed that leverage have a positive statistical effect on the financial performance of Jordanian Insurance Companies. This finding is supported by Song (2005) assertion that firms finances their assets and operations through debt; short term or long term and through issue of equity and also through reserves such as retained earnings; thus, an unlevered firm is one which does not have debt in its capital structure whereas a levered firm has debt component in its capital structure.

V. Conclusion and Recommendation

The first hypothesis H_{01}: Capital adequacy does not significantly influence profitability of deposit taking Saccos in Nairobi County. When this hypothesis was tested the capital adequacy was found to have a significant statistical effect on the profitability of deposit taking Saccos in Nairobi County. This hypothesis was hence forth rejected; the study concluded that there is statistical evidence that, capital adequacy significantly explains the profitability of Deposit taking Saccos in Nairobi County. Capital adequacy protects a DTS against credit, market and operational risks so that it can absorb any losses that may arise and protects debtors. The second hypothesis H_{02}: financial leverage does not significantly influence profitability of deposit taking Saccos in Nairobi County. When this hypothesis was tested the financial leverage was found to have a significant effect on profitability, showing a positive correlation coefficient which denotes dependency. The study therefore concluded that there is statistical evidence that financial leverage determines the profitability of deposit taking Saccos in Nairobi County. This denotes that high debt to equity ratio relates to decreased profitability. As a result, it is not possible to resolve that all the deposit taking Saccos in Nairobi County with higher debt to equity ratio are more profitable.

From the findings, the capital adequacy positively and significantly influences profitability of deposit taking Saccos in Nairobi County. Recommendation from the study is that the deposit taking Saccos in Nairobi County financial regulator, SASRA, ensure that all deposit taking Saccos in Nairobi County are well capitalized and meet the minimum capital adequacy ratios. Further, the regulator can introduce capital buffers above the minimum statutory requirement to shield the deposit taking Saccos in Nairobi County from any unforeseen economic shocks likely to arise from their operating environment. This will make certain that deposit taking Saccos in Nairobi County maintain an absolute capital over and above the minimum required.The study also recommends that managers of deposit taking Saccos in Nairobi County should maintain proper proportions of leverage in their capital structure. The amount of debt finance in the financial mix of the firm should be at the optimal level to ensure adequate utilization of the firms' assets and reduce the effect of financial distress on financial performance. Therefore, managers should employ financial leverage in a way that enhances returns to equity in of microfinance, other than affecting profitability negatively.

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