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Abstract

Compliance with the prudential standards as prescribed in the saving and Credit Cooperatives Societies Act 2008 and the subsequent regulation of 2010 has continued to be a problem. The study sought to establish the effect of financial risk on profit persistence of deposit taking savings and credit co-operatives. To achieve this, the study was directed by specific objectives that included: establishing the effect of credit risk, risk of liquidity, market risk and risk of investment on profit persistence of deposit taking savings and credit co-operatives. The study also sought to establish the moderating effect of operational efficiency on the relationship between financial risk and profit persistence of deposit taking savings and credit co-operatives. The study targeted 174 deposit-taking saving and Credit Cooperatives as per the records at Sacco Societies Regulatory Authority 2022. This study was anchored on the agency theory, stakeholders' theory, and the enterprise risk management theory. This study used a descriptive study approach. The sample population of the study included 174 deposit-taking savings and credit cooperatives, this was a census study. The study used secondary data from audited financial statements. The study findings revealed that credit risk was negatively and significantly related with profit persistence of deposit taking savings and credit co-operatives in Kenya ($\beta = -0.0224311$, $p = 0.000$); liquidity risk was negatively and significantly related to the profit persistence of deposit taking savings and credit co-operatives in Kenya ($\beta = -0.0522383$, $p = 0.001$); market risk positively and significantly related to the profit persistence of deposit taking savings and credit co-operatives in Kenya ($\beta = 0.0305016$, $p = 0.025$) and investment risk was negatively and significantly related to the profit persistence of deposit taking savings and credit co-operatives in Kenya ($\beta = -0.0811061$, $p = 0.040$). Moreover, the study established that operational efficiency had significant moderating effect on the relationship between financial risk and profit persistence of deposit taking savings and credit co-operatives in Kenya. The study concludes that financial risks exposure for deposit taking savings and credit co-

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operatives in Kenya influences their profit persistence significantly because of their nature of operation. The study thus recommends that the managements of deposit taking savings and credit co-operatives in Kenya should consider employing portfolio-level controls to mitigate financial risks in their establishments.

Keywords: *Financial risk, credit risk, risk of liquidity, market risk, risk of investment operational efficiency, profit Persistence*

1.0 Background of the Study

The savings and credit union sector has undergone great transformation since the early 1980 is to date (Aykut, 2016). Notable change within this important financial subsector has included the enactment of legislations introducing regulatory and management frameworks of savings and credit unions. In the United States, the SACCOs had developed robust and efficient systems which enabled them perform just as good as commercial banks (Cohen, Krishnamoorthy & Wright, 2017). The enactment of the legislation saw the savings banking industry maintain its competitive profitability.

Profit persistence determines how well deposit taking Savings and Credit Cooperatives (SACCOs) are generating value for their member's deposits and share capital (Yitayaw, 2021). Financial performance of Sacco's can be determined using various financial mixes such as ROA, ROE, earnings per share and profit after tax (Alam *et al.* 2021). Okpamen and Ogbeide (2020) contend that high financial performance reflects management effectiveness and efficiency in making use of company's resources and is often expressed in terms of growth of sales, turnover, employment, or stock prices. Good financial performance rewards the shareholders for their investment, this in turn encourages additional investment and brings about economic growth (Bowen & Makokha, 2021).

Deposit taking SACCOs provide savings and credit and investment opportunities to individuals, institutions, and group members, and as envisioned in Kenya's development blueprint, Vision 2030, deposit taking Sacco's are already playing their critical role of savings mobilization for investments (Charles & Zipporah, 2021). SACCOs comprise more than a half of all cooperatives in Kenya and as financial institutions, they play a critical role of financial intermediation in Kenya's financial landscape focusing mostly on personal development (Mursoi, Muturi & Ndegwa, 2021). Aduda and Obondy (2021) explains that SACCOs provide financial services, especially to the unbanked. SACCOs in Kenya have stepped in to fill this credit gap by offering loans at more favourable terms (Mohamed, Njuguna, & Maende, 2022).

The importance of deposit taking SACCOs over the recent decades have been realized throughout the world. Globally, it is estimated that around 780 million people are members of SACCOs which create two hundred million jobs (World Bank, 2020). For example, in the USA, SACCOs were serving five million people with gross businesses worthy \$103 billion. Credit Mutual in France and Rabobank in the Netherlands are among the leading banks in their countries (Bounie *et al.*, 2020). In South America for example, deposit taking SACCOs are well developed in most countries which include Argentina, Brazil, Chile, and Uruguay (Ngondi, 2019).

In Ghana, there are subsidiary legislations namely the Co-operative Credit Union Regulations of 2015 which regulate the operations of credit unions in Ghana and bye-laws of respective cooperative societies (Saeed, McDermott & Boyd, 2018). In Tanzania, by December 2016 there

were over 5,500 registered SACCOS in the country with approximately 620,000 members (Shkeily & Abdullah, 2021). The government of Ethiopia provided a legal framework that allowed for voluntary membership (Proclamation No. 147/1998 and amendment 402/2004). The unions as well as primary cooperatives made dividend payments. The country came up with sets of rules and legislations through which the activities of the SACCOS would be regulated and guided (Proc. Nos. 147/1998 and 402/2004). Through this, the SACCOS were encouraged and incentivised to open up more branches. The SACCOS were created to encourage members' savings. Through these, the latter would be engaged in economic activities that would uplift their lives. There was a surge in membership numbers and general profitability of the SACCOS.

In Kenya, SACCOS promote the wellbeing of their members, SACCO's are part of Kenya's financial sector due to their nature of business, i.e. provision of savings and credit facilities. Growth in SACCO's is attributed to the adoption of the prudential regulations through the enactment of the SACCO Societies act 2008 (Osoro & Muturi, 2015). This standardised the sector, resulting in increased membership, asset holdings and profitability. The fact that SACCO's offered alternative services to what banks offer but on "favourable terms", meant that competition within the SACCO sector was high, leading to the division of the sector into two segments.

The increased operations of DT Sacco's across the country, especially in areas that remained untapped, means that they had gained a significant market share and earning above normal profits. The growth has resulted in their exposure to higher financial risks, which have increased over time as the DT Sacco's try to survive in this competitive sector while at the same time trying to maintain market share, members and profitability (Muriithi, Waweru & Muturi, 2016). The financial risks predominately at play in this competitive and yet profitable subsector include credit risks, market risk, investment risk and liquidity risks. This study introduces a moderating variable to the study.

According to Cuaresma and Gschwandtner (2008) literature on profit persistence is important as it shows the levels of returns to a firm with increasing competition. The latter causes the profitability persistence of firms to decline over time. Management of such firms must ensure that they remain afloat by being efficient in their operations and gaining a competitive advantage over other firms. Competitive advantage could be realised by being a low-cost leader in the market (thereby offering products and services at a lower price than competition), market segmentation (which allows for the different pricing models for different customer bases) or superior product (that is easily identifiable with the consumers) being offered in the market. Product innovation and creativity will also help in gaining competitive advantage. SACCOS must thereby innovate and create products while employing the best financial risk management practices, to remain profitable and to realise profit persistence. This study, therefore, establishes the effect of financial risk on profit persistence of Deposit Taking Sacco's in Kenya. Profit persistence will be measured by the rate of return on investment for the years 2014-2019 for the sampled SACCOS.

Risk is the probability of an unfavourable outcome occurring in the near future due to both known and unknown variables. In the financial sector risk can be defined as, the loss of income due to certain prevailing variables within the sector (Cohen, Krishnamoorthy & Wright, 2017). Numerous studies conducted in Kenya and the world on risks facing Sacco's, have resulted in lengthy list of potential risks that could have negative outcome on the performance of Sacco's. Financial risk is the possibility of a firm not being in a position to meet its obligations when they arise.

Predominantly, financial risk has multivariate causes at any particular point in, a factor that is facing Sacco's owing to their increased operation within the financial sector (Gweyi, Olweny &

Oloko, 2016). Financial risk exposure for Sacco's is higher than other financial institutions because of their nature of operation. The performance of SACCOs depends on how well its management is able to identify, evaluate its impact and fully mitigate it, within an appropriate period.

There has been continued growth on loans and advances as assets. Unfortunately, there is also an increase in the non-performing loan portfolio. The industry best practice sets the non-performing loan portfolio at 5%; however, this has proved to be unattainable, with the ratio growing over the years. In 2014, the ratio stood at 5.74%, in 2015 it stood at 5.12%; in 2016, it was at 5.22% while in 2017, it rose to 6.14% (SASRA, 2017). The trend clearly indicates an elevated credit risk over the years; hence, the focus of the study on credit risk as a financial risk variable that affects performance of DT Sacco's.

Also noted, is increased cost of borrowing (external) over the years by DT Sacco's, for the purposes of financing its operations. The Sacco's can borrow from the commercial banks, at prevailing market rates, since there is currently no central liquidity facility for Sacco's, exposing them to the market risk. The cost of external borrowing was Kshs 2.087 billion in 2014, rising to Kshs 2.996 Billion in 2017. The DT Sacco's are forced to borrow from the commercial banks due to their inability to meet their short-term obligations occasioned by high demand for loans and credit advances from its members during certain periods of the year. This puts to question the liquidity of the DT Sacco's as this an indicator of its financial performance.

Regulation 15 of the regulation 2010 require DT Sacco's to maintain liquidity ratio of 15%. While the industry wide liquidity ratio shows an impressive picture, i.e.in 2014, the ratio stood at 47.32% rising to 54.1% in 2017, closer scrutiny into the DT Sacco's reveal that most of them are unable to attain the minimum threshold of 15%. In 2014, 37 DT Sacco's did not meet the required minimum, with an improvement recorded in the year 2015 and 2016 as only 14 and 10 DT Sacco's failed to meet the requirements respectively. However, in the year 2017 the situation deteriorated, with 27 DT Sacco's failing to meet the minimum requirement of 15% liquidity ratio.

Maina (2007) describes financial risk as the likely impact of a loss on the value of member's savings and subsequent effect on assets and its earning capacity. Maina (2007) further identifies the most prevalent financial risks facing Sacco's to be liquidity risk, credit risk and market risk. According to Saunders and Cornett (2007), Sacco's were exposed to risk. To mitigate these risks facing credit unions, The World Credit Union (WOCCU) proposed prudential standards for credit union, which aimed at monitoring financial soundness and performance. In Kenya, the enactment of the Sacco Societies act of 2008 saw the adoption of the prudential standards to better manage them.

DT Sacco's were not regulated prudentially, posing risks to members deposits (FSD, 2009). Prudential standards with impact on financial performance are liquidity, capital and credit management (Kahuthu, 2016). Many studies have continually ignored the moderating effect of operational efficiency brought about by the adoption of the prudential standards. This study seeks to fill this knowledge gap.

1.1 Problem Statement

Profit persistence of Deposit taking SACCOs is key to survival and growth of the SACCOs sub-sector, Financial Sector Stability reports (2015, 2016, 2018, and 2020) indicate return on equity, a high of 2.69 and a low of 1.86 in the year 2020. The financial situation is further compounded in a SASRA report (2019) which indicate that by December 2019, only 88 DT Sacco's complied out

of the 172 DT Sacco's, in maintaining the minimum institutional capital adequacy (ICA) ratio of eight percent licensed to operate, meaning that more than half of the DT Sacco's were not retaining sufficient funds to build on capital.

Savings and credit cooperative societies in Kenya continued to offer complementary financial services to what commercial banks offer, leaving them exposed to a higher degree of financial risks. This high degree of risk exposure saw the government of Kenya introduce radical and drastic measure on how the DT Sacco's operate within the country and came up with rules and regulations guiding the industry. Studies conducted have majorly based their focus on general risk management practices employed by Sacco's, with a few considering financial risk; a knowledge gap which this study seeks to fill. Mohamed (2015) focused on improving credit unions strength and reducing their risks. Brown (2017) examined the various strategies used by managers in Grenada to consistently maintain their institutions' profitability levels.

Mwandau (2014) focused on risks that Sacco's are exposed to and their contributors, while trying to prescribe effective measures to manage the risks. Ochogo (2015) analysed credit risk the profitability of DT Sacco's. Onuga (2011), in the study of determinants of financial risks faced by Sacco's in Kenya, focused on financial risk and mitigating strategies for the front office services activities (FOSA) Sacco's. Karuga (2017) focused on the impact that the size of a Sacco has on its performance. In the study, Mbogo (2016) paid particular interest on return on investment as a function of financial risk.

This study established the effect of financial risk on profit persistence of Deposit Taking Sacco's in Kenya. Specifically, the study focused on the effect of credit risk, liquidity risk, market risk and investment risks on profit persistence of Deposit Taking Sacco's in Kenya. Additionally, the study established the moderating effect of operational efficiency on the relationship between financial risk and profit persistence of deposit taking SACCOs in Kenya.

1.2 Research Objectives

- i. To establish the extent to which credit risk affects the profit persistence of deposit taking Sacco's in Kenya.
- ii. To determine the effect of liquidity risk on the profit persistence of deposit taking Saccos in Kenya.
- iii. To determine the extent to which market risk affects profit persistence of deposit taking
- iv. Saccos in Kenya.
- v. To establish the extent to which investment risk affects the profit persistence of deposit taking Saccos in Kenya.
- vi. To establish the moderating effect of operational efficiency on the relation between financial risk and profit persistence of deposit taking Saccos in Kenya.

1.3 Research Hypothesis

The research hypotheses for the study were:

H₀₁: The credit risk has no significant effect on profit persistence of deposit taking Saccos

H₀₂: Liquidity risk has no significant effect on the profit persistence of deposit taking Saccos

H₀₃: Market risk has no significant effect on the profit persistence of deposit taking Saccos

H04: Investment risk has no significant effect on the profit persistence of deposit taking Saccos.

H05: Operational efficiency has no moderating effect on the relationship between financial risk and profit persistence of deposit taking Saccos in Kenya.

2.1 Theoretical Framework

2.1.1 Agency Theory

Developed by Jensen and Meckling in 1976, the agency principal explains the interaction between the company owners and its stakeholders. The theory defines the contractual relationship that exists between the organisation and its managers (Bosse & Phillips, 2016). Company's stakeholders include its owners, the government or the local authorities, suppliers, employees and its customers, all of whom have vested interests in it. The vested interests by the various company stakeholders may clash from time to time and this may greatly affect the company's ability to remain as a going concern. According to the agency theory, the identification and management of the different stakeholder's interests averts conflict (Panda & Leepsa, 2017).

Management is hired by shareholders to look after their interests within the company, which is in most times is contrary to the interests of the owners, resulting in conflict (Shi, Connelly & Hoskisson, 2017). This conflict of interest leads to deteriorating relationship between the managers and owners of the company, leading to agency costs which are detrimental to the company. To achieve a higher return on investment, riskier ventures must be pursued, something the management would rather avoid. To achieve optimal financial performance, the theory recommends adoption of prudent financial risk management practices by the company management (Reim, Sjödin & Parida, 2018). Hedging of risks may be an important and effective strategy for purposes of improving the market value of the company.

Relevance of the agency theory to this study was explained by the actions of the management of DTS which directly impact on their profit persistence. The management has to deal with increase competition from their peers and other financial institutions; in a bid to increase shareholders wealth through persistent profits realisation. How the management determines credit, liquidity, investment and market risk, determines the profit persistence and consequently shareholders wealth. Additionally, operational efficiency is key in profit persistence endeavour.

2.1.2 Stakeholder Theory

According to Freeman (1984), the theory describes survival of a firm as a consequence of the value proposition it provides to its stakeholders. Stakeholder theory has been seen as a strong way of understanding the business in its environment. Stakeholder theory offers a systemic structure of relationships in organisational environment (Jones, Harrison & Felps, 2018). In the management of multi-related firms, such as insurance companies with a community of special stakeholders, these pillars are assumed to play key roles. According to this theory, shareholders are regarded as the involved parties whose interests require a balancing in establishing of a synergy thus depicting moral obligation.

Stakeholder theory assists in incorporating techniques related to the success of an organization and intervention assessment (Miles, 2017), however in various entities, corporate governance practises vary, hence for enhancement of organizational performance, stakeholder participation should be considered. If the stakeholders are to avoid conflict of interest amongst themselves, they ought to evaluate the company prospects and advise on the direction to take. The stakeholders form the direct interaction points with the organisation. The latter derives its inputs from the external

environment. It then processes the raw inputs and offers the finished product or service to the external environment. In order to help function and succeed in the competitive market environment, organizations need a comprehensive review of the interrelationship by introducing and implementing the best strategies to enhance their overall performance (Liu, Chen & Tong, 2018).

This theory acknowledges effect of operational efficiency on financial risk and profit persistence of DTS, with the latter ensuring stakeholder's needs are taken care. Sacco's management ensures that due diligence and best financial management practices are employed in financial risk management. Through the latter, the value of the financial institutions increases. They would be able to generate profits and remain in profit persistence positions over a period of time. Through operational efficiency, the SACCOs must involve and have the interests of stakeholders to the business.

2.1.3 Enterprise Risk Management Theory

Proposed by Kaplan and Mike in 2014, the theory suggests that an organization that wishes to handle one risk after the other or all of its risks simultaneously. Enterprise risk management (ERM) concerns itself with the adoption of a systematic and consistent approach in the management of company risks (Yang, Ishtiaq & Anwar, 2018). It is the process of managing the exposure of an organization to uncertainty. ERM extends to all organizational levels (Yang, Ishtiaq & Anwar, 2018).

Enterprise risk management recognises the risks that an organisation may encounter and how to mitigate them (Florio & Leoni, 2017). ERM concerns itself with assessment of various elements for example staff, knowledge, regulations. This will help companies balance obligation of delivering results to customers and the (Cohen, Krishnamoorthy & Wright, 2017). The manager must be aware and devise innovative ways of mitigating risks. DTS must manage risk in order for persistent profitability. The latter is as a result of competitive advantage through strategic management of risk in SACCO business. Organisations must assess their prevailing conditions and mitigate risks accordingly (Kaplan & Norton, 1996).

2.2 Empirical Literature Review

2.2.1 Credit Risk and Profit Persistence of Deposit Taking SACCOs

Shrestha (2014) investigated credit risk and bank profitability persistence of Nepalese banks. The findings of the study proved the existence of significant relationship between returns on asset and non-performing loans. His study did not consider the operational efficiency element, which affects the relationship between financial risk and profit persistence. His study did not consider liquidity risk, investment risk and market risk, which are the other factors that influence profitability persistence.

Additionally, Bhattarai (2014) proved that the non-performing loans ratio had a significant negative impact on bank profitability persistence. It is worth noting that the study did not consider the operational efficiency element, which affects the relationship between financial risk and profit persistence. His study did not consider liquidity risk, investment risk and market risk, which are the other factors that influence profitability persistence.

Noman et al. (2015) also studied on the effects of credit risk on the profit persistence of banks. The study found out that capital adequacy has an influence on profitability. Their study did not consider liquidity risk, investment risk and market risk, which are the other factors that influence

profitability persistence. Additionally, their study did not consider loan loss provision measure against return on assets, which this study seeks to analyse.

2.2.2 Liquidity Risk and Profit Persistence of Deposit Taking SACCOs

Bordeleau, Crawford and Graham (2009) researched on liquidity risk on bank profit persistence for banks in Canada and the United States for the period 1997 to 2009. Their study was quantitative. Their study measured liquidity with liquidity ratios. Their study did not consider other risks, which are the other factors that influence profitability persistence.

Shen *et al.* (2001) studied on liquidity risk and profit persistence of banks of 12 countries. Their study suggested that liquidity risk determines bank profit. Their study was cross sectional and did not consider the efficiency of operations aspect of management of the banks. Their study did not consider other risks, which are the other factors that influence profitability persistence.

Lartey *et al.* (2013) carried out a study on liquidity and the profit persistence of banks listed in Ghana. Their study did not consider credit, investment and market risk, which are the other factors that influence profitability persistence. Additionally, their study did not also highlight on the efficiency of banks on the relationship between financial risk and profit persistence-a gap which the present study seeks to fill.

Arif and Anees (2012) carried out a study whose purpose was to examine liquidity risk in Pakistani banks. The results showed that liquidity risk affects bank profit persistence significantly. Their study measured profit persistence using profitability ratios. Their study did not consider other risks, which are the other factors that influence profitability persistence. Operational efficiencies' contribution to profit persistence was not examined.

2.2.3 Market Risk and Profit Persistence of Deposit Taking SACCOs

Gatsi *et al.* (2013) evaluated the effect of financial and operating leverage on profit persistence of insurance Firms in Ghana in the period between 2002 and 2011. Their study did not consider interest rate risk in measurement of market risk. Interest rate risk is a critical measure of market risk as it causes a ripple effect on all of the financial sector of an economy. Their study did not consider other risks, which are the other factors that influence profitability persistence.

Abid and Mseddi (2004) examined operating and financial leverage for firms in USA. They results showed a relationship between leverage and company value. The study did not consider liquidity risk, credit risk in its analysis hence a scope gap, which this study seeks to fill. They did not also consider other risks, which are the other factors that influence profitability persistence. Their study concentrated more of leverage and not risk, these are measured differently.

Odeke and Odongo (2014) evaluated interest rate risk exposure and profit persistence of commercial banks in Uganda from 2009 to 2011. The study's approach was quantitative and showed a positive relation between interest rate risk exposure and bank profit persistence. Their study did not consider other risks, which are the other factors that influence profitability persistence. Additionally, operational efficiency of the banks to contribute to profit persistence was not considered-a gap which the present study seeks to fill.

2.2.4 Investment Risk and Profit Persistence of Deposit Taking SACCOs

Tafri *et al.* (2009) investigated if there exists any relationship between financial risk and profit persistence of banks. The findings proved the existence of significant effect of Interest rate risk on ROA. The study did not consider inflation rate as a component of investment. Operational

efficiency was also not considered in their analysis. Their study did not consider other risks, which are the other factors that influence profitability persistence.

Lake (2013) evaluated financial risk and profit persistence of banks. It was a quantitative study. The findings showed investment and liquidity risk do not have an effect on banks' profit persistence. His study used net profit ratio to measure investment risk and did not consider investment ratios in the analysis. Banks' operational efficiencies on the relationship between financial risk and profit persistence was also not examined. Their study did not consider other risks, which are the other factors that influence profitability persistence.

Amin *et al.* (2014) investigated investment risk and profit persistence of banks. They measured profit persistence by ROA and ROE. ROA was employed in calculating profit persistence, it did not narrow in on operational efficiency on profit persistence on the commercial banks. Their study did not consider other risks, which are the other factors that influence profitability persistence. This study will fill the contextual gap and scope gap.

2.2.5 Operational efficiency and Profit Persistence of Deposit Taking SACCOs

Wang and Lin (2014) investigated the operational efficiency of banks in Taiwan. The results suggested the need for diversification as a way of maintaining profit persistence. Additionally, Kijambi (2014), established the factors affecting financial performance of banks in Uganda - core capital and management efficiency were found to be determinants of operational efficiency in the banks.

2.2.6 Profit Persistence of Deposit Taking SACCOs

Pervan, Pelivan and Arnerić (2015) carried out a study on profit persistence and bank profitability in Croatia for the 2002–2010 period. Abel, Hlalefang, Roux and Mutandwa (2018) researched on banking sector profit persistence in Zimbabwe. The result revealed that the lagged profitability variable is not statistically significant.

2.3 Conceptual Framework

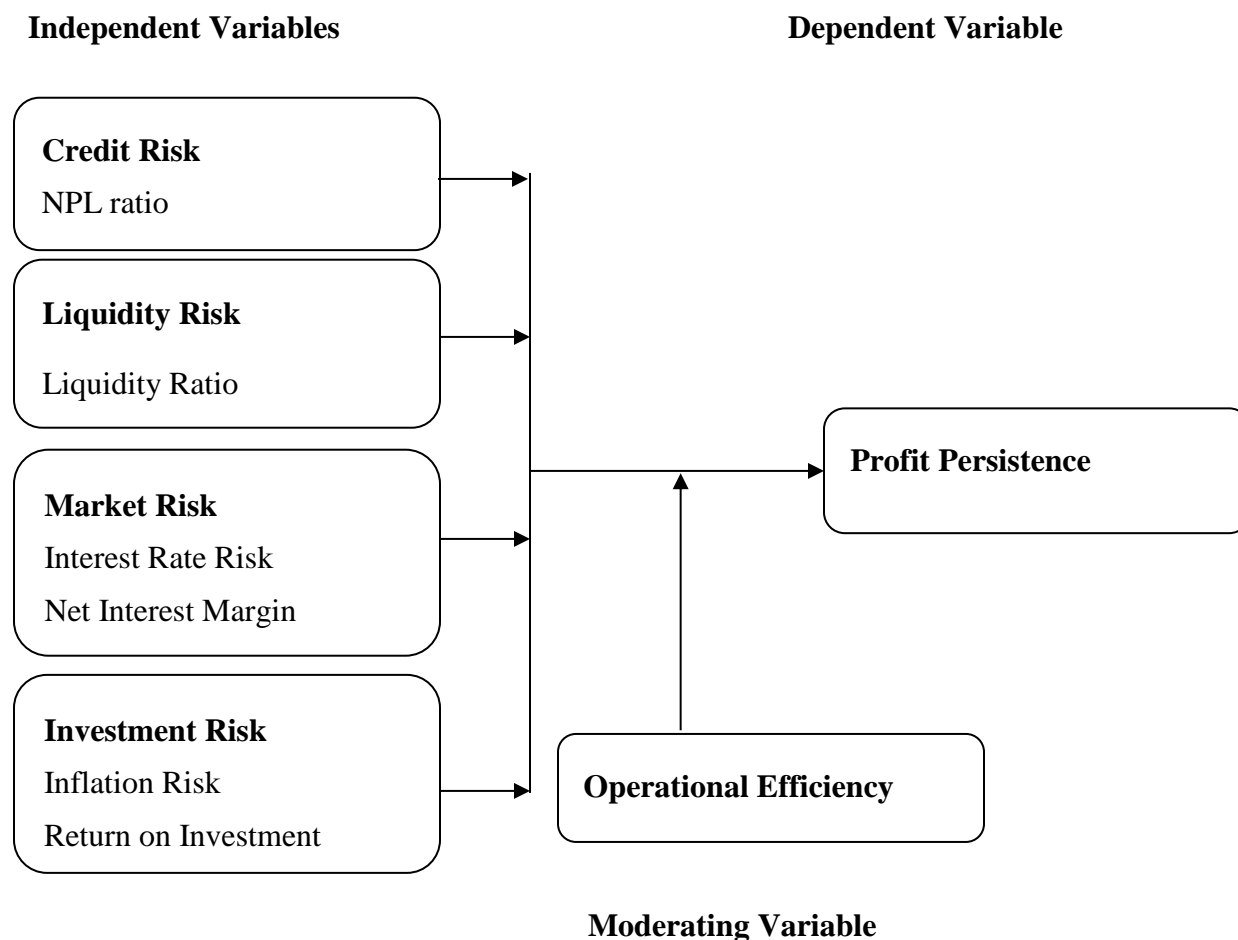


Figure 1: Conceptual Framework

3.0 Research Methodology

This study employed an exploratory research design. The model of the effect of financial risk on profit persistence was formulated as follows:

$$ROA_t = C + \delta ROA_{t-1} + \sum_{j=1}^J \beta_j X_{it}^j + \varepsilon_{it}$$

Where $\varepsilon_{it} = v_i + u_i$

Expanded as follows to reflect reduced model i.e. effect of independent variables (financial risks) on dependent variable (profit persistence)

$$ROA_{it} = C + \delta ROA_{t-1} + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \varepsilon_{it}$$

$ROA = f(CR, LR, MR, IR)$

Where ROA = Return on Asset

CR = Credit risk

LR = Liquidity risk

MR = Market risk

IR = Investment risk

The Regression Model followed this format

$$ROA_t = C + \delta ROA_{t-1} + \sum_{j=1}^J \beta_j X_{jt} + \varepsilon_{it}$$

Expanded as follows to reflect reduced model i.e. effect of independent variables (financial risks) and moderating effect (operational efficiency) interaction on dependent variable (profit persistence)

$$ROA_{it} = C + \delta ROA_{it-1} + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_1 X_{1it} * M + \beta_2 X_{2it} * M + \beta_3 X_{3it} * M + \beta_4 X_{4it} * M + \varepsilon_{it}$$

Where ROA_{it} is the profitability of Sacco i at time t , with $i = 1, \dots, N$, $t = 1, \dots, T$

$ROA_{i,t-1}$ is the one-period lagged profitability, δ is the speed of adjustment to equilibrium

Where ROA_t = Profit persistence

B_0 = Constant

β_1, β_2 , and β_3 are Coefficients

E = error term

X_1 = Credit Risk

X_2 = Liquidity Risk

X_3 = Market Risk

X_4 = Investment risk

i is the number of deposit taking Saccos (174)

t is the time period years (2017, 2018, 2019, 2020 and 2021) denotes the profitability of deposit taking Sacco i at time t with $i = 1, \dots, N$ and $t = 1, \dots, T$.

C is the constant term.

It summarizes the indicators, measures and scale of dependent (Profit persistence) and independent variables, namely Credit risk, Liquidity risk, Market risk and Investment risk.

The study population was 174 deposit taking SACCOs as per the records at Sacco Societies Regulatory Authority 2019. Few items of the population are selected that are then used to

generalise findings about a population (Wadoux, Brus & Heuvelink, 2019). This was purely a census study since the population was small (Ruggles *et al.*, 2019). Secondary data was collected from financial statements of the deposit taking Saccos's. The financial sector stability report by the CBK and the annual Sacco supervision report by SASRA formed part of data sources for this study.

Data was checked for completeness and consistency. This was then entered into the Stata Software for analysis. Measures of central tendency was calculated and analysed. In order to determine the connection between firm characteristics and financial stability of insurance firm, this study will use the Generalized Method of Moment dynamic panel data model suggested by Arellano and Bover (1995). Because the estimation method follows first differentiating the data to get rid of fixed effects, the study particularly employed a difference GMM. In contrast to Probit, Tobit, and logistic models, which call for the left-side indicator to be binary or multinomial, the advantage of the dynamic panel data approach is that it uses a single indicator (Roodman, 2009). The primary step to depict how previous behavior directly impacts current behavior is likewise presented by the dynamic panel data model, in accordance with the advice of (Adenutsi, 2014). As a result, the GMM model is thought to be a good fit for this study since it can handle concerns with endogeneity and unobserved heterogeneity (Trujillo, 2013). Equation 1 displays the GMM model in this manner.

$$y_{it} = \beta_0 + \beta_i x_{it} + \varepsilon_{it} \dots \dots \dots (1)$$

The dependent variable in this instance, y_{it} , = proxy for the profit persistence; x = explanatory variable firm characteristics μ_i , = un-observed subject, and ε_{it} = disturbance term. The empirical strategy will be based on GMM estimators from the endogeneity bias-correcting system generalized technique of moments (Blundell & Bond, 1998). Findings were be presented in tables. This study was ethical. The researcher obtained a letter from the University to carry out the study. A research permit was obtained from NACOSTI. The study ensured utmost confidentiality with the data collected.

4.0 Findings and Discussion

4.1 Descriptive Statistics

This part displays the clear outcomes for the factors. Clear measurements utilized were mean, minimum, maximum and standard deviation. The outcomes are displayed in Table 1.

Table 1: Descriptive Statistics

Variable	Obs.	Minimum	Maximum	Mean	Std. Deviation
ROA	870	.0251000	.1228630	.067696	.0233169
Credit Risk	870	0.000000	1.335914	.0754575	.0870054
Liquidity Risk	870	.0367434	.4694121	.1590801	.0460310
Market Risk	870	.0371120	.3171000	.2059939	.0572300
Investment Risk	870	.0000000	.3349966	.0414807	.0201977
Operational Efficiency	870	.0000432	.1424817	.0446161	.0306959

Based on the descriptive analysis results in Table 1, the mean return on assets (ROA) for the DTS in Kenya between the year 2017 and 2021 0.067696 and standard deviation of 0.0233169. The

minimum ROA recorded within the same period was 0.0251000, whereas the maximum ROA was found to be 0.1228630. Since both the minimum and maximum values of return on asset were positive, it implies that DT SACCOs in Kenya were generally profitable between the year 2017 and 2021.

The study also found that the minimum credit risk recorded by the DTS was 0.000000, whereas the maximum credit risk was 1.335914. The results yielded 0.0754575 as the mean credit risk registered by the DTS in Kenya between 2017 and 2021, with a standard deviation of .0870054. Moreover, the minimum liquidity risk was 0.0367434, while the maximum liquidity risk registered by the SACCOs between 2017 and 2021 was .4694121. The study also found that the average liquidity risk was 0.1590801 with a standard deviation of 0.0460310.

Additionally, the results show that the minimum market risk experienced by the DTS in Kenya between 2017 and 2021 was 0.0371120, whereas the maximum market risk was 0.3171000. The average market risk was found to be 0.2059939 with standard deviation of 0.0572300. Regarding investment risk, the study established that DTS in Kenya registered a minimum investment risk of 0.0000000 and a maximum of 0.3349966 between the year 2017 and 2021. The mean investment risk was found to be 0.0414807 and standard deviation of 0.0201977. Finally, the study established that the minimum operational efficiency recorded by the SACCOs was 0.0000432 with a maximum of 0.1424817. The mean operational efficiency was found to be 0.0446161 and standard deviation of 0.0306959.

4.2 Correlation Analysis

Correlation analysis is a statistical method used to evaluate the strength of relationship between two quantitative variables. A high correlation means that two or more variables have a strong relationship with each other, while a weak correlation means that the variables are hardly related. This analysis is fundamentally based on the assumption of linear relationship between the quantitative variables and it measures the strength or the extent of an association between the variables and also its direction. This study conducted correlation analysis for the DT SACCOs in Kenya to show how financial risks (credit, liquidity, market and investment risks) are associated with profit persistence of DTS in Kenya which was measured using ROA. Table 2 shows the correlation matrix of all the variables and how they are influencing profit persistence of DTS in Kenya.

Table 2: Multiple Correlation Matrix

		ROA	Credit Risk	Liquidity Risk	Market Risk	Investment Risk	Operational Efficiency
ROA	Pearson Correlation	1.0000					
Credit Risk	Pearson Correlation	-0.1076*	1.0000				
Liquidity Risk	Pearson Correlation	-0.1320*	0.1358*	1.0000			
Market Risk	Pearson Correlation	0.1780*	-0.1862*	0.1516	1.0000		
Investment Risk	Pearson Correlation	-0.1070*	0.0492	0.3039*	-0.0176	1.0000	
Operational Efficiency	Pearson Correlation	0.4706*	0.2103*	0.3469*	-0.0391	0.1395*	1.0000

Based on the correlation analysis results in Table 2, there was significant negative association between credit risk and profit persistence of DTS in Kenya between 2017 and 2021 (-0.1076*). This is in agreement with the findings of a study by Bhattarai (2014) who indicated that the non-performing loans ratio had a significant negative impact on bank profitability persistence. The results also show that liquidity risk had significant negative influence on profit persistence among DTS in Kenya (-0.1320*). This concurs with the outcome of a study conducted by Arif & Anees (2012) which revealed that liquidity risk affected bank profit persistence significantly.

Moreover, the study established that there was a positive and significant association between market risk and profit persistence among deposit taking SACCOs in Kenya between 2017 and the year 2021 (0.1780*). This is in agreement with the conclusion made by Odeke and Odongo (2014) that there is a positive relation between market risk exposure and bank profit persistence.

Regarding investment risk, the study found out that there was significant negative association between investment risk and profit persistence of deposit taking SACCOs in Kenya between the year 2017 and 2021 (-0.1070*). This result is contrary to the findings of a study by Lake (2013) which evaluated the effect of financial risk on profit persistence of banks and found that investment and liquidity risk did not have an effect on banks' profit persistence. Finally, the study findings show that there existed a positive and significant association between operational efficiency and profit persistence of deposit taking SACCOs in Kenya between 2017 and the year 2021 (0.4706*). The study by Mogusu, Nkari and Wabwire (2022) established the factors affecting financial performance of banks in Uganda - core capital and management efficiency were found to be determinants of operational efficiency in the banks.

4.3 Model Regression Analysis

The study sought to carry out panel regression analysis to establish the statistical significance relationship between the independent variables and the dependent variable profit persistence. The study used Generalized Method of Moment (GMM) dynamic panel data model suggested by Arellano and Bover (1995) to establish the joint statistical relationship between the independent variables which included credit risk, liquidity risk, market risk, investment risk, lag of ROA and the dependent variable which was profit persistence measured using return on assets. The GMM model was thought to be a good fit for this study since it can handle concerns with endogeneity and unobserved heterogeneity (Trujillo, 2013). Table 4.9 show the multiple panel regression analysis results.

Table 3: Panel Regression Analysis

GMM estimation				
Number of parameters = 6				
Number of moments = 7				
Initial weight matrix: Unadjusted			Number of obs =	870
	Coef.	Robust Std. Err.	z	P> z
Lag_ROA	.0149391	.0333806	0.45	0.654
Credit Risk	-.0224311	.0061573	-3.64	0.000
Liquidity Risk	-.0522383	.0159485	-3.28	0.001
Market Risk	.0305016	.0135725	2.25	0.025
Investment Risk	-.0811061	.0394206	-2.06	0.040
Con	.0747798	.0038859	19.24	0.000
Instruments for equation 1: ROA Credit Risk Liquidity Risk Market Risk Investment Risk _cons				

According to the outcome from table 3, the predicted equation is:

$$ROA = 0.0747798 + 0.0149391Lag_ROA_{t-1} - 0.0224311X_1 - 0.0522383X_2 + 0.0305016X_3 - 0.0811061X_4$$

Where:

ROA= the profitability of Sacco

X_1 = Credit risk

X_2 = Liquidity Risk

X_3 = Market Risk

X_4 = Investment Risk

As presented in the table 3, the GMM panel regression model results revealed that the independent variables used credit risk, liquidity risk, market risk and investment risk were satisfactory in predicting profit persistence of deposit taking SACCOs in Kenya. The results are in agreement with the assertions by Gweyi, Olweny and Oloko (2016) that, financial risk has multivariate causes at any particular point in, a factor that is facing Sacco's owing to their increased operation within the financial sector. They alluded to the fact that financial risk exposure for Sacco's is higher than other financial institutions because of their nature of the operation, and the performance of SACCOs depends on how well its management is able to identify, evaluate its impact and fully mitigate it, within an appropriate period.

Regression of coefficients findings in Table 4.9 also showed that the lagged dependent variable had a positive but insignificant relationship with profitability ($\beta=0.0149391$, $p=0.654$). The study found that credit risk was negatively and significantly related with profit persistence of DTS in Kenya ($\beta=-0.0224311$, $p=0.000$). This means that an increase credit risk by one unit leads to a drop in profit persistence by 0.0224311 units holding other factors constant. The results concur with the

findings of Bhattarai (2014) which revealed that the non-performing loans ratio had a significant negative impact on bank profitability persistence.

Moreover, the results shows that liquidity risk was negatively and significantly related to the profit persistence of DTS in Kenya ($\beta = -0.0522383$, $p=0.001$). This implies that an increase in liquidity risk by one unit will lead to a decrease in profits persistence by 0.0522383 units holding other factors constant. The results relate with the findings of Arif and Anees (2012) which indicated that liquidity risk affects bank profit persistence significantly. Their study measured profit persistence using profitability ratios.

Additionally, the study established that market risk positively and significantly related to the profit persistence of deposit taking SACCOs in Kenya ($\beta=0.0305016$, $p=0.025$). The results obtained implied that when the level of the market risk is increased by a single unit, the profit persistence increases by 0.0305016 units holding other factors constant. The results agreed with the findings of Odeke and Odongo (2014) who evaluated interest rate risk exposure and profit persistence of commercial banks in Uganda from 2009 to 2011 and found a positive relation between interest rate risk exposure and bank profit persistence.

Finally, the results shows that investment risk was negatively and significantly related to the profit persistence of deposit taking SACCOs in Kenya ($\beta=-0.0811061$, $p=0.040$). This implies that an increase in investment risk by one unit will lead to a decrease in profits persistence by -0.0811061 units holding other factors constant. The results are contrary to the findings of a study by Lake (2013) which evaluated financial risk and profit persistence of banks and found that investment and liquidity risk did not have an effect on banks' profit persistence. His study used net profit ratio to measure investment risk and did not consider investment ratios in the analysis.

4.4 Moderation Effect of Operation efficiency on ROA

The objective was to establish the moderating effect of operational efficiency on the relation between financial risk and profit persistence of DTS's in Kenya. Each of the independent variables was moderated by the variable operational efficiency. Results after the moderation were presented in Table 4.

Table 4: Moderation Effect of Operational Efficiency

GMM estimation					
Number of parameters = 10					
Number of moments = 11					
Initial weight matrix: Unadjusted				Number of obs =	870
	Coef.	Std.	Err.	z	P> z
Lag_ROA	-0.0288653		0.0167239	-1.73	0.084
Credit Risk	-.0173143		.0128158	-1.35	0.177
Liquidity Risk	-.0833026		.0306255	-2.72	0.007
Market Risk	.0478483		.0205695	2.33	0.020
Investment Risk	-.0615067		.0637214	-0.97	0.334
Credit Risk*Operational efficiency	-.0839002		.1594145	-0.53	0.599
Liquidity Risk*Operational efficiency	.5739865		.3454339	1.66	0.097
Market Risk*Operational efficiency	-.4595482		.3877392	-1.19	0.236
Investment Risk*Operational efficiency	-.2984736		1.017024	-0.29	0.769
Con	.0756939		.0042101	17.98	0.000

Instruments for equation 1: ROA Credit Risk Liquidity Risk Market Risk Investment Risk Credit Risk*Operational efficiency Liquidity Risk*Operational efficiency Market Risk*Operational efficiency Investment Risk*Operational efficiency cons

The model after moderation

$$ROA = 0.0756939 + 0.0149391Lag_ROA_{t-1} - 0.0173143X_1 - 0.0833026X_2 + 0.0478483X_3 - 0.0615067X_4 + 0.0839002X_1 * M + 0.5739865X_2 * M - 0.4595482X_3 * M - 0.2984736X_4 * M$$

Where: ROA= the profitability of Sacco

X_1 = Credit risk

X_2 = Liquidity Risk

X_3 = Market Risk

X_4 = Investment Risk

M = Operational Efficiency (Moderator)

The results revealed that the interaction term between credit risk and operational efficiency is negatively and insignificantly related to profit persistence ($\beta = -0.0839002$, $p = 0.599$). The moderation results revealed that the interaction term between liquidity risk and operational efficiency is positively and insignificantly related to ROA ($\beta = .5739865$, $p = 0.097$). Moreover, the outcome revealed that the interaction term between market risk and operational efficiency is negatively and insignificantly related to ROA ($\beta = -0.4595482$, $p = 0.236$). Finally, the study established that the interaction term between investment risk and operational efficiency is

negatively and insignificantly related to ROA ($\beta = -0.2984736$, $p = 0.769$). Since all the variables were insignificant against profit persistence when interacted by the moderating variable operational efficiency, the conclusion is that operational efficiency has no moderating effect on the relationship between financial risk and profit persistence of deposit taking SACCOs in Kenya.

The results corroborate with the results of Wang and Lin (2014) who investigated the operational efficiency of banks in Taiwan and suggested the need for diversification as a way of maintaining profit persistence. Additionally, Kijambi (2014), established the factors affecting financial performance of banks in Uganda - core capital and management efficiency were found to be determinants of operational efficiency in the banks.

4.5 Hypothesis Testing

The research hypothesis was tested using the p -value approach at 95% confidence level based on panel regression analysis results produced by Stata software. The decision criterion was that the null hypothesis should be rejected if the calculated p -value is less than the significant level (0.05); and fails to reject if the calculated p -value is greater than the significance level (0.05).

The first hypothesis was that, **H₀₁**: The credit risk has no significant effect on profit persistence of deposit taking SACCOs. Based on the results in Table 3, p -value for credit risk was $0.015 < 0.05$. The null hypothesis **H₀₁** was thus rejected and alternative hypothesis adopted that, credit risk has significant effect on profit persistence of deposit taking SACCOs in Kenya.

The second hypothesis was that, **H₀₂**: Liquidity risk has no significant effect on the profit persistence of deposit taking SACCOs. Based on the results in Table 3, p -value for liquidity risk was $0.003 < 0.05$. The null hypothesis **H₀₂** was thus rejected and alternative hypothesis adopted that, liquidity risk has significant effect on the profit persistence of deposit taking SACCOs in Kenya.

The third hypothesis was that, **H₀₃**: Market risk has no significant effect on the profit persistence of deposit taking SACCOs. Based on the results in Table 3, p -value for market risk was $0.021 < 0.05$. The null hypothesis **H₀₃** was thus rejected and alternative hypothesis adopted that, market risk has significant effect on the profit persistence of deposit taking SACCOs in Kenya.

The fourth hypothesis was that, **H₀₄**: Investment risk has no significant effect on the profit persistence of deposit taking SACCOs. Based on the results in Table 3, p -value for investment risk was $0.048 < 0.05$. The null hypothesis **H₀₄** was thus rejected and alternative hypothesis adopted that, investment risk has significant effect on the profit persistence of deposit taking SACCOs in Kenya.

Finally, the fifth hypothesis was that, **H₀₅**: Operational efficiency has no moderating effect on the relationship between financial risk and profit persistence of deposit taking SACCOs in Kenya. Based on the results in Table 4, all the interacted variables were insignificant against the dependent variable (p -value > 0.05). The null hypothesis **H₀₅** was thus not rejected and the conclusion was that, operational efficiency has no moderating effect on the relationship between financial risk and profit persistence of deposit taking SACCOs in Kenya.

5.0 Conclusions

Based on the findings the study concludes that credit risk negatively and significantly influences profit persistence of DTS in Kenya. Therefore, it means that a change in the credit risk does result into a significant change in the SACCOs profit persistence. However, effective credit risk management practices such as credit assessments, information gathering and aggressive debt

collection practices many be used as part of the management of the quality of assets and the minimization of exposures from liabilities.

It can be concluded that credit risk influences the portfolio of loans, and a decrease in the quality of lending causes and increase in the non-performing loans and profitability of SACCOs. Poor quality of lending increases the loan loss provision, which leads to non-performing loans and actual losses increasing the level of credit risk. Based on the study result, it is important for the DST in Kenya to manage their credit risks by designing measurement tools to quantify the risk of default, then by employing mitigation strategies to minimize loan loss in the event a default does occur. This study concludes that credit risk, if not mitigated appropriately, can result in loan losses for the SACCOs; the losses adversely affect the profitability of financial services of the SACCO.

The study also concludes that, liquidity risk negatively and significantly influences profit persistence of deposit taking SACCOs in Kenya, meaning that an increase in interest risk in these SACCOs leads to decline in profit persistence (ROA) of the DTS. The study also concludes that the effect of liquidity risk on SACCO profit persistence is negative, and this means that during crisis, these SACCOs will seek to increase liquidity assets, to improve profitability, which will increase financial costs and reduce SACCO efficiency. Moreover, liquidity risks if unchecked can adversely affect DST SACCOs', capital and under extreme circumstances, it may cause the collapse of an otherwise solvent SACCO. In addition, a DTS having liquidity problems may experience difficulties in meeting the demands of depositors.

In addition, the study concludes that, market risk positively and significantly influences profit persistence of deposit taking SACCOs in Kenya. This implies that, an increase in the rate of market risk results into a corresponding increase in profit persistence among DTS in Kenya. The study concludes based on the findings that investment risk negatively and significant influences profit persistence of deposit taking SACCOs in Kenya. The finding implying that a rise in the level of investment risk results into a corresponding in significant drop in profit persistence of deposit taking SACCOs in Kenya. Finally, the study concludes that operational efficiency has moderating effect on the relationship between financial risk and profit persistence of deposit taking SACCOs in Kenya in Kenya.

6.0 Recommendations

Based on the findings and conclusions, it is recommended that the managements of deposit taking SACCOs in Kenya should consider employing portfolio-level controls to mitigate credit risks in their establishments. Strategies include monitoring and understanding what proportion of the total loan book is a particular type of credit or what proportion of total borrowers are a certain risk score. This study established that improper credit risk management reduce the SACCO's profit persistence, affects the quality of its assets and increase loan losses and non-performing loan which may eventually lead to financial distress. This study therefore recommends that the DTS in Kenya should focus on managing their credit risks properly to improve and ensure persistence in their profits.

With regards to liquidity risk, the study recommends to DTS in Kenya that this liquidity risk may be mitigated by maintaining sufficient cash reserves, raising deposit base, decreasing the liquidity gap and non-performing loans. The SACCOs should also manage their liquidity risk through effective asset liability management. The study found that market liquidity risk significantly affecting profit persistence of SACCOs in Kenya, because of inadequate market depth or market disruptions. The study therefore recommends that SACCOs should embrace diversification of

funding sources and maturities to enable them avoid vulnerability associated with the concentration of funding from a single source.

The study also recommends that in order for the DT SACCOs in Kenya to establish the extent to which they are exposed to risk it is necessary to identify these risks and then develop mitigation measures. The managements of these SACCOs should find techniques to assist in finding out the risk they are exposed to. It is important to identify the risk, for one to be able to counter the exposure to the risk and this calls for the management to have a thorough knowledge of their SACCOs, and the operations in those SACCOs. This could be realized through training of the leaders on the operations especially when the management committee members. The management should also ensure that risk identification is a continuous process in the life of the SACCO.

REFERENCES

- Abid, F., & Mseddi, S. (2004). The impact of operating and financial leverages and intrinsic business risk on firm value. Available at SSRN 942029
- Aduda, J., & Obondy, S. (2021). Credit Risk Management and Efficiency of Savings and Credit Cooperative Societies: A Review of Literature. *Journal of Applied Finance and Banking*, 11(1), 99-120.
- Amin, M. A. M., Sanusi, N. A., Kusairi, S., & Abdallah, Z. M. (2014). Inverse relationship of financial risk and profit persistence in commercial banks in Tanzania. *Investment Management and Financial Innovation*, 11(4), 279- 291.
- Arif, A. and Nauman Anees, A. (2012) Liquidity risk and profit Persistence of banking system, *Journal of Financial Regulation and Compliance*, 20(2), pp: 182-195. DOI: <https://doi.org/10.1108/13581981211218342>
- Bhattarai, Y. R. (2014). Effect of credit risk on the profit persistence of Nepalese commercial banks. *Journal of Management and Finance*, 1(1), 41-64.
- Bounie, D., Camara, Y., Fize, E., Galbraith, J., Landais, C., Lavest, C., ... & Savatier, B. (2020). Consumption dynamics in the covid crisis: real time insights from French transaction bank data. *Covid Economics*, 59, 1-39.
- Bowen, N. J., & Makokha, E. N. (2021). Effects of Credit Information Sharing on Performance of Savings and Credit Cooperative Societies in Kenya. *International Journal of Recent Research in Commerce Economics and Management (IJRRCEM)*, 8(1), 109-120.
- Charles, K., & Zipporah, O. (2021). Financial Engineering and Financial Performance of Deposit Taking Savings and Credit Co-operative Societies in Kenya. *Journal of Finance and Investment Analysis*, 10(1), 1-2.
- Gatsi, J. G., Gadzo, S. G., & Akoto, R. K. (2013). Degree of Financial and Operating Leverage and Profitability of Insurance Firms in Ghana. *International Business and Management*, 7(2), 57-65. *Health Environments Research & Design Journal*, 9(4), 16-25.
- Gweyi, M., Olweny, T., & Oloko, M. (2018). Effect of liquidity risk on financial performance of deposit taking savings and credit societies in Kenya. *International Journal of economics, commerce and management*, 6(1), 1-6.

- Lake, E. (2013). Financial risks and profitability Persistence of commercial banks in Ethiopia (Unpublished Doctoral dissertation, Addis Ababa University Addis Ababa, Ethiopia).
- Lartey, V., Antwi, S. and Boadi, E. (2013) The Relationship between Liquidity and Profitability Persistence of Listed Banks in Ghana, *International Journal of Business and Social Science*, 4(3), pp: 48-56 [Online] Available from: http://ijbssnet.com/journals/Vol_4_No_3_March_2013/5.pdf [Accessed: 20th September 2018].
- Liu, H., Wilson, J.O.S. (2013). Competition and risk in Japan banking. *European Journal of Finance* 19 (1), 1-8.
- Maina, L.(2007). Capital structure and financial performance in Kenya: Evidence from firms listed at the Nairobi Securities Exchange. *International Journal of Social Sciences and Entrepreneurship*, 1(11), 209-223.
- Mogusu, M. W., Nkari, I. M., & Wabwire, J. M. (2022). Effect Of Liquidity Risk On Shareholders'wealth In Commercial Banks Listed At The Nairobi Securities Exchange.
- Mohamed, H. A., Njuguna, J. W., & Maende, C. (2022). Relationship marketing and customer retention among deposits taking savings and credit cooperative societies in Embakasi, Nairobi City County, Kenya. *International Academic Journal of Human Resource and Business Administration*, 3(11), 20-68.
- Mursoi, S. J., Muturi, W., & Ndegwa, J. (2021). Related party transactions and financial distress of Savings and Credit Cooperative Organizations (SACCOs) in Kenya. *International Journal of Research in Business and Social Science* (2147-4478), 10(1), 131-138.
- Noman, A., Pervin, S., Chowdhury, M. (2015). The Effect of Credit Risk in Banking Profitability: A Case on Bangladesh, *Global Journals Inc. (USA)*, vol. 15, no. 3
- Odeke, S. & Odongo, J. (2014). Interest rate risk exposure and profitability persistence of commercial banks in Uganda. *Research Journal of Finance and Accounting*, 5(2).
- Okpamen, P. E., & Ogbeide, S. O. (2020). Board director reputation capital and financial performance of listed firms in Nigeria.
- Ruggles, S., Fitch, C., Magnuson, D., & Schroeder, J. (2019). Differential privacy and census data: Implications for social and economic research. In *AEA papers and proceedings* (Vol. 109, pp. 403-08).
- Shen, C., Kuo, C. and Chen, H. (2001) Determinants of Net Interest Margins In Taiwan Banking Industry, *Journal of Financial Studies*, 9(1), p.47
- Shkeily, H. M., & Abdullah, N. (2021). Examining the nexus between Riba and Gharar and Islamic banking products among Zanzibar People. *Sumerianz Journal of Business and Marketing*, 4(1), 27-34.
- Shrestha, D. (2014). The relationship between risk and capital in commercial banks. *Journal of Banking & Finance*, 16(2), 439-457.
- Tafri, F. H., Hamid, Z., Meera, A. K. M., & Omar, M. A. (2009). The impact of financial risks on profitability Persistence of Malaysian commercial banks: 1996-2005. *International Journal of Social, Human Science and Engineering*, 3(6), 268- 282.

- Wadoux, A. M. C., Brus, D. J., &Heuvelink, G. B. (2019). Sampling design optimization for soil mapping with random forest. *Geoderma*, 355, 113913.
- Yitayaw, M. K. (2021). Determinants of Profitability and Financial Sustainability of Saving and Credit Cooperatives in Eastern Ethiopia. *International Journal of Rural Management*, 17(2), 239-261.