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Analyzing the Effect of Liquidity on Financial Stability: Evidence from Kenyan Deposit-Taking Savings and Credit Cooperative Societies

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Abstract

Non-performing loans have been on the rise among DT SACCOs in Kenya over the past five years as evidenced by the increase in percentage of NPLs to gross loans in SACCO regulatory authority report of 2020. Consequently, if this trend is allowed to continue then this sector's contribution to financial intermediation through provision of financial services will be negatively affected. In view of the above this study sought to investigate the effect of firm characteristics and financial stability of deposit taking savings and credit cooperative societies in Kenya. In view of the above this study sought to assess the effect of liquidity on financial stability of deposit taking savings and credit and cooperative societies in Kenya. The study was anchored on agency theory. Positivist research philosophy was adopted in this study. The study adopted explanatory research design. The target population for the study comprised 160 DT SACCOs which were fully operational in the period. A census approach was used for the study. This study utilized quantitative secondary data which was obtained from the society's financial statements and supervision reports from the savings and credit cooperatives regulatory authority. The study utilized annual panel data for the period of 2017 to 2021. Multicollinearity test, normality tests, autocorrelation test, homoscedasticity, stationarity test and model specification test were carried out prior to panel data analysis. Data was analyzed using descriptive statistics, Pearson's correlation analysis and panel regression analysis. STATA software was used for the analysis. The findings showed that liquidity had a strong, positive effect on NPLs ratio ($\beta = 0.410056$, $p=0.003<0.05$). In view of the findings, the study recommends that DT SACCOs with high liquidity levels should consider implementing rigorous lending practices to ensure that loans are extended to creditworthy borrowers. Additionally, effective credit risk assessment and continuous monitoring of borrower

repayment behavior are essential to minimize NPLs. DT SACCOs should focus on improving management efficiency by implementing cost-effective operational processes.

Keywords: *Liquidity, Liquidity Ratio, Financial stability, Deposit-taking, Savings and Credit Cooperative Societies (SACCOs), Kenya.*

1.0 Introduction

Deposit Taking SACCOs have been playing a significant role in the economic development of Kenya (Kenya Economic Survey, 2023). DT SACCOs have helped in promoting financial inclusion by providing access to financial services to individuals and communities who may not have had access to traditional banking (Fundi & Wamugo, 2023). This has empowered many Kenyans to save, invest, and access credit. In addition, DT SACCOs encourage a savings culture among their members (Akuku, Nyang'au & Maobe, 2023). By providing a safe and convenient place for people to save money, they contribute to increased savings rates in Kenya. Moreover, DT SACCOs provide affordable and accessible credit to their members (Millan, Kamau & Ibua, 2023). This has enabled small businesses, farmers, and individuals to access funds for various purposes, such as expanding businesses, education, and home improvements. This access to credit has been crucial for economic growth. Therefore, the importance of DT SACCOs revolves around their role as main channels of savings and allocators of credit in an economy. This is the intermediation process which they must achieve efficiently (Arora, 2014; Ndung'u, 2010).

The primary aim of cooperative societies is to empower their members by promoting savings and offering credit facilities (Khalayi, Ondiek, & Musiega, 2014). Digital transformation SACCOs facilitate intermediation by connecting savers and investors, directing funds towards investments that ensure a favourable return on investment. A stable and efficient financial system consolidates, transmits, and mitigates risks while simultaneously enhancing liquidity and information dissemination through the utilisation of advanced financial products and technology (ROK, 2012). Efficiency, as stated by Ndung'u (2010), is attained when there exist robust institutions that possess the necessary capability to meet market demands while adhering to legal and regulatory obligations such as maintaining sufficient capital, minimum liquid assets, and efficient management. The development of the SACCO Societies Regulatory Authority (SASRA) may have been influenced by the need to provide legal and financial rules for deposit-taking SACCOs, similar to the laws provided by the Central Bank of Kenya for commercial banks (Otwoko, 2023).

According to World Council of Credit Unions (2020), financial stability in SACCOs is linked to more robust community growth and higher rates of local investment. Kinyenze (2022) however argues that achieving financial stability is not a one-time effort but requires continuous monitoring and regulatory compliance. Regulations like capital adequacy, liquidity requirements, and operational risk management are designed to safeguard the financial health of these institutions. Ensuring that they are followed diligently adds another layer of confidence for the stakeholders involved. As noted by Cheang, Li and Allen (2020), a robust regulatory framework that prioritizes financial stability is integral in sustaining the trust and confidence of both customers and investors. Therefore, maintaining financial stability is not only beneficial but also essential for the long-term health of deposit-taking savings and credit co-operative societies.

Credit unions in the United States have faced various stability issues including regulatory challenges, cybersecurity threats, and competition from larger financial institutions. Evolving compliance requirements from the National Credit Union Administration (NCUA) strains

smaller credit unions in US, impacting their stability (NCUA, 2020). In Canada, regulatory constraints are also a concern, with the Office of the Superintendent of Financial Institutions (OSFI) setting stringent standards (OSFI, 2020). Canada just like the United States has seen an increase in cybersecurity risks, necessitating more robust information security measures (CUNA, 2020; CCUA, 2020). Moreover, credit unions in Canada also face competitive pressures from larger banks and fintech companies offering similar services but with more advanced technology and broader reach (Filene Research Institute, 2020; Canadian Credit Union Association, 2020).

In Nigeria, SACCOs face challenges related to governance, regulatory compliance, and economic instability. According to research by Adebayo and Okeke (2022), these issues often compromise the financial stability of SACCOs in Nigeria. Moreover, in Ghana SACCOs have shown growth and are instrumental in fostering financial inclusion, but they too grapple with challenges such as limited access to capital and high operational costs. Although many SACCOs in Ghana are financially stable, some still struggle with issues like undercapitalization and poor management, affecting their long-term viability (Boateng & Mensah, 2022). In Uganda, the SACCO system is often touted as a tool for poverty alleviation (Uganda Microfinance Regulatory Authority, 2019). While various government reports claim that these institutions have contributed to improving poverty levels by providing financial services to underserved communities, the effectiveness of these SACCOS in achieving this goal has been questionable (Eton, Basheka & Mwosi, 2020).

In Kenya, the fluctuation in number of deposits taking SACCOs as occasioned by increase in non-performing loans between the year 2017 and 2021 (SASRA, 2020), clearly shows an element of instability in this subsector. This issue of non-performing loans (NPL) is the major source of financial instability risk that threatens the survival of DTS in Kenya. Statistics indicate that Non-performing Loans have been on the rise as evidenced by the increase in percentage of Non-Performing Loans (NPLs) to Gross Loans (GLs) from 5.23% in 2016 to 6.14% in 2017, 6.3% in 2018, 6.15% in 2019 and 8.39% in 2020 (SASRA, 2020). If this trend is allowed to continue, then this sector's contribution to financial intermediation will be adversely affected. It is on this basis that the study seeks to establish the effects of firm characteristics and financial stability of deposit taking SACCOS in Kenya. This study used Non-Performing Loans to measure financial stability of SACCOs.

Financial stability is a state where an institution is able to meet its financial obligations, such as paying back deposits or loans, even when unexpected things happen, implying that the institution has enough assets on hand to cover its responsibilities (Elsayed, Naifar & Nasreen, 2023). This is important because if people believe a bank or other financial institution is stable, they are more likely to keep their money there, which helps the institution continue to operate smoothly. The financial crisis of 2007 to 2009 significantly tested the financial stability of financial institutions including SACCOs (Moreno, Parrado-Martínez & Trujillo- Ponce, 2019). As a result of these erratic nature of the global financial system, numerous countries have placed greater importance on ensuring financial stability rather than pursuing financial growth. This is due to the fact that if instability continues, growth may not be able to be sustained over extended periods of time. Financial stability of a financial institution enables it to carry out its financial intermediation process seamlessly, hence fostering trust among its users (Mostak and Sushanta 2015).

In Kenya, the issue of non-performing loans (NPL) has become an increasing problem that threatens the financial stability of SACCOs. Non-performing Loans have been on the rise as evidenced by the increase in percentage of Non-Performing Loans (NPLs) to Gross Loans (GLs) from 5.23% in 2016 to 6.14% in 2017, 6.3% in 2018, 6.15% in 2019 and 8.39% in 2020

(SASRA, 2020). This trend threatens the ability of this sector's contribution to financial intermediary adversely. This informs this study which seeks to investigate the effects of firm characteristics and financial stability of deposit taking savings and credit co-operatives societies in Kenya. NPLs analyzes a firm's income as well as the values on its balance sheet to determine the overall financial health. Moreover, existing statistics shows that financial stability of DT SACCOs in Kenya has not been stable as it has been erratic.

Liquidity is a crucial factor in determining the financial health of SACCOs, as it indicates their capacity to fulfil their obligations promptly. In the absence of liquidity, funds can become trapped in systems that are challenging to convert into cash and evaluate for their genuine monetary worth (Hao & Wong, 2021). In times of catastrophe, significant financial institutions cease operations, posing challenges for individuals to obtain the necessary funds for purchasing basic items such as food, petrol, and other emergency supplies (Flögel & Gärtner, 2020). Liquidity is also utilised to assess the financial well-being of a firm or personal investment portfolio. Liquidity has the dual purpose of providing a consistent source of readily available cash and serving as a valuable metric for assessing the financial viability of prospective investments (Ward, 2021).

1.1 Statement of the Problem

The Kenyan economy is heavily dependent on the Co-operative sector and over 80% of the population derive their livelihood directly or indirectly from the Co-operative sector (Kagiri, 2023). These financial institutions offer a trusted, community-based platform for individuals to save, often at higher interest rates than traditional banks, which helps build a pool of available funds (SASRA, 2017). They collect and organize deposits from micro-savers and channel them to investors. This is the intermediation process which they must achieve efficiently (Arora, 2014; Ndung'u, 2010). However, most of these SACCOs are struggling with financial stability issues and one of the key issues has been inadequate capital to meet operational costs and loan demands (SASRA, 2021). According to SASRA (2021), a considerable number of SACCOs in Kenya fail to meet the minimum capital requirements. Moreover, poor governance, such as lack of risk management practices and insufficient financial oversight, has added to their instability (Wangechi & Irungu, 2023).

Between 2013 and 2017, the rate of nonperforming loans (NPLs) in Kenya's Savings and Credit Cooperative Organizations (SACCOs) saw an increase from 4.72% to 6.14%, impacting various types of SACCOs including community-based, private-sector, and government-based ones. This rise continued into 2019, with the SACCO sector's NPLs reaching approximately 6.3%, as reported by the Sacco Societies Regulatory Authority (SASRA). This upward trend in NPLs suggests a pattern of risky lending behaviors that threaten the financial health of SACCOs. Furthermore, in 2017, the number of Deposit Taking SACCOs (DT-SACCOs) with temporary licenses rose from five to twelve, including notable names such as Comoco, Jitegemee, and Moi University, among others, indicating ongoing compliance issues that hint at underlying financial instability. The SASRA annual report from the same year highlighted a concerning scenario where no new SACCOs were approved for registration due to the majority failing to meet the minimum legal requirements. Moreover, the financial year ended with 174 active DT-SACCOs, down from 176, following the revocation of licenses for two SACCOs that failed to meet their financial obligations. This situation was exacerbated by the inability of six SACCOs to provide satisfactory financial accounts, pointing to widespread non-compliance with accounting standards and insufficient disclosure, which poses significant risks to the DT-SACCO industry's stability (SASRA, 2017).

The financial challenges facing SACCOs were further compounded in 2019, as highlighted by a SASRA report which revealed that SACCOs were collectively owed approximately Kshs

3.86 billion by various organizations, affecting their ability to offer timely loans and credit services to their members due to liquidity and core capital constraints. This issue was aggravated by financial mismanagement and dishonest practices within the SACCOs' leadership, undermining the sector's financial stability. The continuous rise in the percentage of NPLs to Gross Loans, reaching 8.39% in 2020, underscores the growing financial instability within the sector (SASRA, 2020). While substantial research has been dedicated to understanding the financial stability of commercial banks in Kenya, with studies identifying factors like liquidity, operational costs, and bank size as key determinants, the examination of similar aspects within DT-SACCOs has been limited and inconclusive. The existing literature primarily focuses on financial performance rather than stability, leaving a gap in understanding how firm characteristics, such as liquidity, impact the financial stability of SACCOs. This gap highlights the need for further research to better understand and address the financial stability challenges facing SACCOs in Kenya, thereby ensuring their continued contribution to financial intermediation.

1.2 Research Objective

To determine the effect of liquidity on financial stability of deposit taking Savings and Credit Co-operative societies in Kenya.

1.3 Research Hypothesis

H_0: Liquidity has no significant effect on financial stability of deposit taking Savings and Credit Co-operative Societies in Kenya.

1.4 Scope of the Study

The conceptual focus of the study was on liquidity and how it affect financial stability which was measured using Non-Performing Loans. The study was anchored on agency theory and relied largely on the data from the SACCOs published financial statements (secondary data) collected with the help of a data review guide. This study took into consideration a population of 160-deposit taking SACCOs in Kenya (SASRA, 2021). The (2021) SASRA Supervision Report indicates that as of December 2021 a total of 175 Deposit taking SACCOs were in operation and 15 of the SACCOs were unable to meet their financial obligations forcing the regulator to revoke their full licenses for the year 2022. A census approach was used for the study. The study time scope was from the year 2017 to 2021 as it coincided with implementation and post implementation period of the SASRA prudential guidelines. The study adopted panel data and utilized panel regression analysis. The selection of panel data was motivated by its capability to enable a researcher to examine the actions of each individual entity across several locations and across a period of time.

1.5 Value of the Study

This study holds immense importance for diverse stakeholders in the business. The findings of this study may offer the essential information to the SACCOs and other stakeholders, enabling them to meet their immediate and future regulatory requirements. Managers and stakeholders in this sector should be made aware of the impact of business characteristics and financial stability of DTS in Kenya. This would greatly aid in the development of policies to improve the financial stability of deposit-taking SACCOs in Kenya. The results of this study may also have significant implications for the policy formulation process. The findings of this study can be utilized by stakeholders such as SASRA, National Treasury, and other relevant entities to develop policies that will bolster the economic impact of deposit taking SACCOs. The study may contribute to the existing literature by addressing the information gap and expanding the understanding of the impact of business characteristics and financial stability on DTS in Kenya.

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This study may establish a fundamental framework for future scholars and researchers, offering a base and suggestions for further investigation in related fields worldwide.

2.0 Literature Review

2.1 Theoretical Review

This part provides major models which anchored the study. The study was informed by Liquidity Preference Theory.

2.1.1 Liquidity Preference Theory

Propounded by Keynes (1936), the model recognizes that there exist two categories of securities: long-term and short-term securities. This theory further postulates that investors will always demand a higher premium on long-term securities but will be willing to settle for a lower interest rate when it comes to short-term securities (Keynes, 1936). While showing a preference for the latter due to their convertibility into liquid cash, as noted by Akims (2020). This theory underscores the significance of developing effective monetary policies to manage interest rates, as suggested by Maubi (2018), though Keynes also highlighted the limitations of monetary policy alone in achieving optimal investment levels and maintaining full employment, given the influence of additional variables on the investment demand schedule. The theory connects investment demand to the adjustments in lending rates by commercial banks, which are sensitive to changes, as discussed by Walsh (2010), and posits that interest rates are determined by the equilibrium between money's demand and supply, influenced by deferred claims, an insight further elaborated by Taylor & Taylor (2009). Schindler (2011) and Walsh (2010) observed that risk-averse savers adjust their financial wealth's form in response to exogenous shocks and volatility in asset prices, often increasing their portfolios' average liquidity. The early 20th century saw a surge in consumer credit, leading to a broader use of loanable funds beyond mere investment purposes, challenging Keynes' oversight of loan rates' role in allocating cash for consumption as well as investments, a critique raised by Panico & Carlo (2008). The relevance of Keynes' theory to the study lies in its propositions that link liquidity variations to the financial stability of financial institutions, emphasizing the need to consider both the investment and consumption aspects of loan rates in understanding and managing economic dynamics.

2.1.2 Market Power Theory

As postulated by Bhagwati, (1965), the market power theory was later advanced by Berger and Hannan (1998); Shepherd (1986) and Schmalensee (1987). The theory rests on the assertion that market concentration is the most efficient proxy for assessing market power. Companies in such markets can influence prices by controlling both demand and supply, driven by the imperfect competition paradigm where entities possess varying degrees of market influence. This theory underscores the link between competitiveness, efficiency, and profitability, with greater competitiveness fostering efficiency and ultimately enhancing profitability. The theory's premises, including the relative market power and structure-conduct-performance (SCP) premises, highlight the influence of market concentration on pricing strategies and profitability, with more competitive environments favoring efficient firms. In the context of Kenya's deposit-taking SACCOs, intense market competition drives individual SACCOs to differentiate their products and strive for profitability, underscoring the importance of market competitiveness in shaping the relationship between firm characteristics and financial stability.

2.2 Empirical Review

Several studies have been carried out in this area. This section therefore tried to look at the different past studies that have been undertaken in this field to bring out the various study gaps this study sought to fill.

2.2.1 Liquidity and Financial Stability

In a study by Nathan (2020) examined the business characteristics and financial soundness of commercial banks in Kenya. The study employed a Causal research design. The study aimed to assess the impact of operational efficiency, capital sufficiency, bank liquidity, profitability, and asset quality on the financial stability of commercial banks in Kenya. The exchange rate was used to determine the moderating impact of firm characteristics on the financial stability of commercial banks in Kenya. The research was conducted in 17 vulnerable financial institutions in Kenya, spanning from 2011 to 2018. The capital adequacy of commercial banks in Kenya had a statistically significant adverse impact on their financial stability. The study also discovered that the liquidity of banks had a statistically insignificant adverse impact on the financial stability of commercial banks in Kenya. The study found a substantial correlation between firm characteristics, such as operating efficiency, capital sufficiency, profitability, and asset quality, and the financial stability of commercial banks in Kenya.

In a study by Sanghani (2014) study, the impact of liquidity on the financial performance of non-financial companies listed on the Nairobi Securities Exchange was evaluated. The study aimed to determine the impact of liquidity on the financial performance of non-financial companies listed on the NSE. The data analysis involved the collection of secondary data from NSE and the utilization of multiple regression analysis. The study revealed a positive correlation between liquidity and the financial performance of non-financial companies listed at the NSE. The study found a positive correlation between the current ratio and the financial performance of non-financial companies listed on the NSE.

Azhar (2015) aimed to examine the influence of liquidity and managerial efficiency on profitability through an empirical analysis of certain electricity distribution utilities in India. The study comprised a sample of 23 power distribution utilities that were operational in India from 2006 to 2013. The return on capital employed was utilized as a metric to assess profitability, serving as the dependent variable. Meanwhile, the independent variables included the current ratio, quick ratio, absolute cash ratio, debtor turnover ratio, creditor turnover ratio, collection efficiency, and interest coverage ratio. The statistical techniques of correlation and Generalized Least Squares (GLS) regression were utilised. The profitability of selected sample utilities is significantly influenced by the debtor's turnover ratio, collection efficiency, and interest coverage ratio. However, the quick ratio, absolute liquid ratio, and creditor's turnover ratio have an insignificant impact on profitability. The research was conducted in India with a specific emphasis on power distribution utilities.

2.3 Conceptual Framework

The conceptual framework is the researcher’s conceptualization of the relationship between the variables under study. The conceptual framework in figure 1 below shows the relationship between liquidity and stability of DTS in Kenya.

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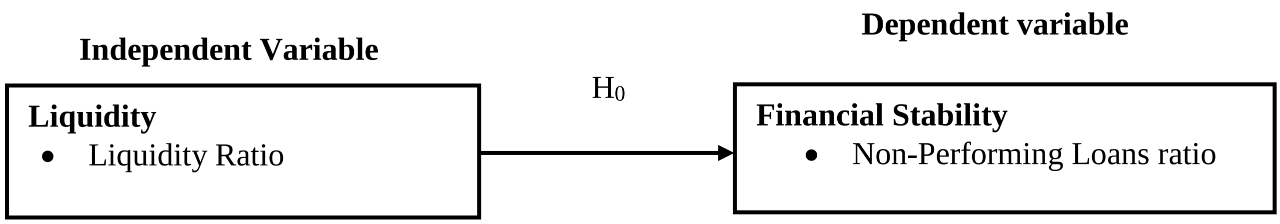

Figure 1: Conceptual Framework

Source: Researcher, 2023

3.0 Methodology

The section highlights various methodology adopted for the study

3.1 Research Philosophy

The phenomenological and positivist approaches to study are the two sorts of research paradigms. Instead of focusing on testing theories, phenomenology encourages the development of new theories. This research philosophy operates under the assumption that the environment and events being studied are highly objective, external, and largely unaffected by the research and the researcher. In contrast, the philosophy of social constructivism posits that knowledge about the environment and events is socially produced and completely subjective to the researcher's perspective (Bell & Bryman, 2007). The positivist research perspective is commonly used for studying visible social reality (Cohen & Crabtree, 2006; Saunders et al., 2009). Below are few instances of positivist research. The researcher gathered quantitative data and conducted statistical analysis to test hypotheses. The hypotheses were either rejected or not rejected based on the results (Nickerson, 2022). This was done in accordance with the research methodology employed by the study.

3.2 Research Design

A well-structured research design is important for ensuring the reliability and validity of research findings. An explanatory research design was therefore employed by the researcher in this study. The choice of explanatory research design was supported by Kerlinger and Lee (2000) who anchored that the design can be adopted mainly when e study variables were not be manipulated throughout the study. Therefore, the choice of the design was justifiable since the study sought to establish the effect of capital adequacy and financial stability of DTSs in Kenya.

3.3 Empirical Model

The study used panel data that encompassed both cross-sectional and time series aspects. Therefore, panel regression analysis was used to analyse the data. Panel data analysis offers greater advantages compared to both time series and cross-sectional analysis due to its ability to incorporate unobservable variation in a panel dataset. The general model of the study is adopted from Al-Khouri (2012) as follows:

$$Y_{it}=\beta_0+\beta X'_{it}+\varepsilon_{it} \quad \text{..} 1$$

Where;

Y_{it} = Financial Stability of SACCO i at time t (Non-performing Loans)

X' = Vector of independent variable at time $_t$ (Liquidity)
β_0= Constant term

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β = Coefficients
ε = Error term

Equation 1 was decomposed into 2 which was utilized for estimation.

$$NPL_{it}=\beta_0+\beta L_{it}+\varepsilon \quad \text{.....2}$$

Where;
NPL_{it} = Non-Performing Loans for DTS $_i$ at time $_t$
L_{it} = Liquidity of DTS $_i$ at time $_t$
β= Coefficients
e = the error term assumed to be normal in distribution with zero mean and variance

3.4 Target Population

SASRA (2020) indicates that as at the year 2020 Kenya's DT-SACCOs sector comprised of 175 registered DT- SACCOs. However, out of these, only 160 had full licenses renewed for the period. The inclusion criteria for this study was based on fully registered SACCOs whose licenses have no restrictions for the ensuing year. Registered DT - SACCOs outside this category were thus excluded from the study. The study applied census approach for the sampling design. A census involves the study of all the firms within the population (Cooper & Schindler, 2014). The sampling frame for this study consisted of all the 160 Deposit Taking SACCOs that were fully licensed in Kenya (SASRA, 2020). The data was acquired from DTS financial statements and DTS oversight reports provided by SASRA. The study was conducted from 2017 to 2021, and the document review guidelines.

3.5 Data Analysis

Data analysis was conducted to facilitate the presentation of data and draw conclusions. The data analysis used descriptive analysis as well as inferential analysis, specifically correlation and panel regression analysis. The descriptive analysis relied on statistical measures such as standard deviation, mean, number of observations, maximum and lowest values, as well as trend analysis of the study variables. Panel regression analysis-related diagnostic tests were administered. The study hypotheses were tested using the panel regression model once all the diagnostic test requirements were met. The study also used a significance level of 0.05 to test its hypotheses. In order to test hypotheses, the p-value approach was employed. Data for the study came from an Excel spreadsheet, which was imported into the STATA software version for analysis.

4.0 Results and Findings

This section presents descriptive statistics in the form of tables and figures; together with their respective interpretations and discussion. The second subsection presents inferential statistics comprising correlation analysis and panel regression analysis results.

4.1 Descriptive Statistics

This study conducted descriptive analysis on the study variables which included capital adequacy and financial stability which was measured using non-performing loans over the study period of between 2017 and 2021. The descriptive statistics results are presented in Table 1.

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
NPLs	800	5.65000	21.7000	13.87186	4.62744400
Liquidity	800	2.45760	16.58468	9.593869	3.378096474

Where: NPLs is Non-performing Loan Ratio

Source: Research data, 2023

Descriptive results in Table 1 shows variation in NPLs ratio across the DT SACCOs studied. The NPLs ranged between a minimum of 5.6500 and maximum of 21.700 NPL, indicating that different SAC COs had significantly different levels of non-performing loans within the study period. Some DTS were clearly more successful in managing their loan portfolios than others. The results revealed a mean NPL value of 13.87186. This implies that DTS with NPLs higher than this mean may need to consider implementing measures to reduce their non-performing loans. In addition, the results revealed a standard deviation of 4.627444 indicating the extent of variability in NPLs around the mean. This variability is attributed to a range of factors, including differences in lending practices, economic conditions, or the effectiveness of loan recovery mechanisms in different regions. These results are in support of the assertions past researchers that, financial stability is important for financial institutions, including SACCOs, to fulfill their obligations and maintain public confidence, particularly during unexpected events like the 2007-2009 financial crisis. This concept, emphasized by Elsayed, Naifar and Nasreen (2023) highlights the importance of stability over growth, with institutions needing to manage both internal factors, as per Kalani and Wareru (2009), and external influences beyond their control, as noted by Ongore and Kusa (2013).

Based on the findings, these DT SACCOs recorded a minimum liquidity ratio of 2.4576 and a maximum of 16.58468, with a mean of 9.593869 and a standard deviation of 3.378096474. The average liquidity ratio stood at 9.593869 with a standard deviation of 3.378096474. Since liquidity is essential for daily operations and for meeting short-term obligations, the results imply that these DT SACCOs were generally at 58% of the maximum liquidity value of 16.58, suggesting a moderate level of liquidity. The mean suggests that DT SACCOs, on average, maintain a moderate level of liquidity ratio. Yet, the standard deviation explains that there was a moderate variation in liquidity levels among these societies, possibly reflecting different management practices or market conditions. Moreover, the SACCOs recorded an average liquidity ratio of 10.25%. This means that, on average, these financial institutions had sufficient liquid assets to cover their short-term financial obligations. A liquidity ratio of 10.25% is indicative of a healthy financial position and suggests that SACCOs were well-prepared to meet member withdrawals and operational expenses. The findings suggests that DT SACCOs in Kenya, on average, enhanced their financial stability by strengthening their liquidity positions in 2017. The year 2018 saw a slight increase in the average liquidity ratio to 11.22%. This indicates that SACCOs continued to maintain their liquidity positions, which is a positive sign for financial stability.

In addition, in 2019, the average liquidity ratio rose further to 12.27%. This significant increase suggests that SACCOs continued to improve their liquidity positions. A higher liquidity ratio is generally considered a safety buffer, indicating a more robust ability to handle unexpected financial challenges. Moreover, the year 2020 witnessed another increase in the average liquidity ratio to 13.13%. This indicates that SACCOs were strengthening their liquidity positions even amidst economic uncertainties, possibly enhancing their resilience to external shocks. Finally, in 2021 the SACCOs recorded the highest liquidity ratio of 14.19%. This

increase suggests that DT SACCOs in Kenya continued to prioritize liquidity management, further bolstering their ability to meet short-term obligations and maintain financial stability.

4.3 Correlation Analysis

The study sought to evaluate the nature and the strength of the association between liquidity measured using liquidity ratio, and financial stability. Stata software aided the analysis and the correlation coefficients are indicated with an asteric (*) while the respective P-Values were compared to the 0.05 significance level. Table 2 shows the correlation matrix.

Table 2: Correlation Matrix

	NPLs	Capital Adequacy
NPLs	1.0000	
Liquidity	0.6435*	1.0000

Source: Research data, 2023

Correlation results in Table 2 shows that liquidity has a strong positive and significant association with NPLs (r=0.6435*) suggesting that higher levels of liquidity are linked to increased NPLs, implying that excessive liquidity may not necessarily contribute to greater financial stability within these institutions. These results imply that DTS with excess liquidity are potentially taking on more risk in their lending activities, leading to higher non-performing loans. Consequently, these results indicates the need for DTS in Kenya to strike a balance between liquidity management and prudent lending practices to maintain financial stability effectively. The results align with a study conducted by Sanghani (2014) that examined the impact of liquidity on the financial performance of non-financial companies listed on the Nairobi Securities Exchange. The study concluded that liquidity had a positive effect on the financial performance of these companies. The study concluded that there is a favourable correlation between the current ratio and the financial success of non-financial companies listed at the NSE.

4.5 Panel Regression Analysis

The study employed a panel regression analysis to ascertain the impact of liquidity on financial stability of deposit taking Savings and Credit Co-operative societies in Kenya. Table 3 show the panel regression analysis results.

Table 3: Panel Regression Analysis

Dep Var: NPLs	Coef. (β)	Std. Err.	z	P>|z|
Liquidity	0.410056	0.0310633	13.20	0.001
Constant	1.547451	0.2870911	5.39	0.000

Source: Research data, 2023

FS=1.547451+0.410056X

Each of these coefficients shows how much the dependent variable financial stability is expected to change with a one-unit change in the respective independent variables, assuming all other variables in the model are held constant.

Where:

FS = Dependent variable (Financial Stability measured by Non-Performing Loans Ratio)

X = Liquidity

The analysis revealed that liquidity had a strong, positive effect on NPLs (β = 0.410056, p=0.003<0.05). This implies that, an increase in liquidity level leads to a 0.410-unit increase in NPLs indicating reduced financial stability among DTS in Kenya. The results further mean that, SACCOs with high liquidity levels are more inclined to extend loans, potentially increasing the volume of loans disbursed. However, a significant portion of these loans may not be repaid on time or in full, leading to a higher incidence of non-performing loans. Using an empirical study of selected power distribution utilities in India, Azhar (2015) sought to investigate the impact of liquidity and management efficiency on profitability. His findings showed that there was a significant impact, while the quick ratio, absolute liquid ratio, and creditor's turnover ratio showed that there was an insignificant impact on the profitability of selected sample utilities. The findings of this study are in agreement with the findings of Azhar (2015). In contrast to the conclusions of a study conducted by Nathan (2020), which investigated the firm characteristics and financial stability of commercial banks in Kenya, these results were discovered to be in direct opposition to the findings of the study. The study utilized a causal research approach and came to the conclusion that the availability of bank liquidity had a detrimental impact on the financial stability of commercial banks in Kenya, but this effect was statistically negligible. Based on the findings of the study, it was determined that the financial stability of commercial banks in Kenya is strongly connected to the features of the firms, specifically their operational efficiency, capital sufficiency, profitability, and asset quality.

4.6 Hypothesis Testing

Panel regression analysis was followed by hypothesis testing at 0.05 significance level. The following null hypothesis was tested:

H_0: Liquidity has no significant effect on financial stability of deposit taking Savings and Credit Co-operative Societies in Kenya

The hypothesis test results revealed that liquidity had a coefficient of 0.410056 with a p-value of 0.001 which is less than the significance level of 0.05 resulting into the rejection of the null hypothesis. The study therefore found that liquidity had a statistically significant effect on financial stability of deposit taking Savings and Credit Co-operative Societies in Kenya. The results align with those of Azhar (2015), indicating a substantial influence of certain factors on the profitability of the utilities in the sample. However, the fast ratio, absolute liquid ratio, and creditor's turnover ratio demonstrate a little effect on profitability. However, these results were found to be inconsistent with the findings of a study conducted by Nathan (2020), which examined the relationship between business characteristics and financial stability of commercial banks in Kenya. The study utilised a Causal research methodology and determined that bank liquidity had a statistically insignificant adverse impact on the financial stability of commercial banks in Kenya.

5.0 Conclusion

In light of the findings, the study concludes that liquidity significantly influences the financial stability of DT SACCOs in Kenya, but not always in a positive way. Higher levels of liquidity were associated with increased NPL ratios, indicating that while liquidity is essential for daily operations, excessive liquidity may lead to increased lending risks. This finding suggests that a balance must be struck in liquidity management to ensure financial stability. The study results consistent with previous research in different contexts but contrast with Nathan (2020)'s findings on commercial banks in Kenya. This highlights the unique challenges SACCOs face in managing liquidity effectively to maintain financial stability.

6.0 Recommendations of the Study

In view of the findings and the conclusions, this study recommends that DT SACCOs with high liquidity levels must implement rigorous lending practices to ensure that loans are extended to creditworthy borrowers. Effective credit risk assessment and continuous monitoring of borrower repayment behavior are essential to minimize NPLs. DT SACCOs should focus on improving management efficiency by implementing cost-effective operational processes. Efficient management can lead to reduced NPLs and enhanced financial stability. Continuous training and capacity-building programs for staff and management can contribute to improved efficiency. Given the impact of inflation on financial stability, management of DT SACCOs in Kenya should develop adaptive strategies to manage risks associated with inflationary pressures. These strategies should include diversifying investments, revising loan terms, and implementing inflation-linked pricing mechanisms.

The findings highlight the need for DT SACCOs to maintain an optimal level of liquidity. Excess liquidity, as indicated by its positive association with NPLs, can lead to riskier lending practices. Therefore, policies should focus on guiding SACCOs towards balanced liquidity management, preventing both excessive liquidity and liquidity shortages. Moreover, policy directives should emphasize the improvement of management practices within DT SACCOs. This should include training programs for managers, adoption of efficient operational practices, and the implementation of robust internal controls and performance monitoring systems.

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