Selected Pearls Indicators for Enhancing Financial Performance of Deposit Taking Savings and Credit Co-Operative Societies in Kenya

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Even though DT-SACCOs in Kenya work extremely hard, their financial performance is greatly impacted by deteriorating level of capital sufficiency, liquidity, and asset quality which adversely affects their financial performance significantly. To address these issues, WOCCU has recommended the PEARLS framework to assist DT-SACCOS in mitigating credit risk management problems that are harming financial performance. In spite of an abundance of research on PEALRS and financial performance, conclusive findings about PEARLS's effect on DT-SACCOs' financial performance in Kenya remain to be seen. This is because majority of empirical study have conceptual gaps while some have contextual gaps and methodological gaps in addition to inconsistent result. The current study assessed PEARLS indicators which were observed as affecting the financial performance of Kenyan DT-SACCOs in an effort to close the knowledge gap.

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The specific objective to guide the study has been to find out the effect of; protection, effective financial structures, asset quality, and liquidity affect financial performance of Kenyan Deposit Taking Savings and credit co-operative societies. The research used a quantitative approach, which led to the adoption of the positivist paradigm and a correlational research design. The 176 DT-SACCOs that operated in Kenya between 2018 and 2022 were the target population. The study concludes that; protection has a statistically significant positive effect, effective financial structure among Kenyan DT-SACCOs has a statistically positive effect, assets quality has a statistically significant positive effect and liquidity has a positive effect on financial performance of Kenyan DT-SACCOs.

1. INTRODUCTION

1.1 Background of the Study

Nowadays, the next frontier for empowering individuals within the Bottom of the Pyramid (BoP) society is Deposit Taking Savings and Credit Cooperatives (DT-SACCOs) [1]. The DT-SACCO is essential in providing the low- and middle-income segments in the economy with loan products at comparably reduced interest rates [2,3]. Given that lending organizations primarily generate revenue from interest-related activities, DT- SACCOs need to comprehend the manner in which governance impacts financial performance in order to maximize the value of their shareholders [4].

Globally, Saghi-Zedek [5] states that the majority of SACCOs worldwide reap additional earnings from non-core lending operations. SACCOS are not only essential development tools but also play other important roles in society. As an example, it is believed that co-ops employ more than one hundred million people worldwide, while their individual membership count is at 800 million. According to reports, the global turnover of the top 300 cooperatives in 2006 was $963 billion, or the GDP of Canada.

Regionally, in Africa, Landi [6]. examined the impact of investment choices on DT-SACCO profitability. They have a direct impact on revenue growth and profitability, Tangdialla and Sanda [7] discovered that financial institutions saw an increase in earnings as they began making diverse kinds of investments. Based on reports, about 7% of Africans are members of a cooperative affiliation. In addition, the findings indicate that despite the movements' enormous size, they are restricted by the lack of effective representation. Compared to average growth rates for savings during the previous years, it is anticipated that SACCOS savings in Sub-Saharan Africa increased by 32% in 2008. Compared to previous years, there was a 12% decrease in average loan growth. Compared to this, loans granted increased by 21% and 35% in 2006 and 2007, respectively.

In Kenya, DT-SACCOS invests in a range of strategies to enhance their financial performance, much like every other financial institution [8]. Given that they can impact the risks faced by the firms and have a long-term impact on growth, these investment decisions consequently require special consideration [3]. Additionally, they require a large financial commitment. However, significant number of Kenyan DT-SACCOs have suffered a decline in their financial performance due to unanticipated loan management problems [1,3]. DT-SACCO loan requirements have adversely affected their financial performance, causing members' unhappiness as a result of performance falling short of expectations [9,10]. This is happening in spite of the stringent prudential standards for credit management that the Sacco Societies Regulatory Authority [SASRA], the arm overseeing DT-SACCO, has established [11]. Due to this, their loan functionality has been a crucial tool for boosting their financial performance in terms of profitability [12,13].

However, the World Council of Credit Unions (WOCCU) recommends using the PEARLS (Protection, Effective Financial Structure, Asset Quality, Rates of Return and Costs, Liquidity, and Signs of Growth) approach whenever evaluating the financial health of credit unions and savings and credit cooperative societies (SACCOs) [14]. Yet There is disagreement among practitioners over which PEARLS ratios are essential and should be utilized for evaluating financial performance, despite the

PEARLS method's intention to solve the shortcomings of current methodologies [15,16].

PEARLS, is a financial performance instrument that is used for oversight and decision-making, as well as evaluating the advantages and disadvantages of SACCOs. PEARLS, which uses its indicators to oversee and monitor the financial well-being of credit unions globally [17]. The performance of a SACCO is ranked using established ratios and formulas, which also serve as a monitoring too [17]. While protection shield savings from potential loan losses. Protection is for determining whether there are enough risk reserve funds to handle bad loans that have maturities of one to twelve months and bad loans that have maturities of one to twelve months [18]. By evaluating the loan loss provisions' sufficiency in relation to the total amount of past-due loans, it is determined. Along with loan charge-offs and loan recovery rates, the protection category also contains.

Effective financial Structure is the framework through which a corporation can obtain and sustain the resources required for its operations [18]. The most crucial element in establishing a company's development potential, earning capability, and overall financial strength is its effective financial structure. This group of ratios measures assets, liabilities, and capital, and the accompanying targets make up the perfect framework for credit unions. Asset quality is the ability of an asset to provide income above paying its cost, represented as a percentage increase over the initial investment cost, when it is invested or given as a loan [19]. Its goal is to use institutional capital maintained by the SACCO or additional obligations without any apparent financial cost to the company for financing all non-productive assets up to 100%.

Rates of Return and Costs evaluates all operating expenses, including money spent on external loans, share savings, and deposit savings [20,21]. The PEARLS approach recommends aiming to keep operational costs between 3 and 10% of average total assets. Liquidity is the speed at which money can be withdrawn [22,21]. Simply put, liquidity refers to your ability to access your money whenever you need it or the degree to which a financial institution is prepared to hand over depositors' funds when withdrawal requests are made [15]. Liquidity will continue to be visible as long as the DT-SACCO keeps sufficient cash reserves to meet reserve requirements and deposit

withdrawal requests while reducing the amount of cash that is not being used. After paying all immediate obligations due within 30 days, the "ideal" goal is to keep at least 20% of deposit funds in liquid accounts. The idle liquid funds ratio ought to be as near to 0% as is practicable. In terms of an increase in membership, loans given, and total assets over time, signs of growth indicate the cooperative's financial health [18]. A major sign of a DT-SACCOs success is consistent institutional capital growth that outpaces the increase of total assets.

Despite the fact that this system includes a total of 6 indicators or financial ratios, only 4 key indicators; for; Protection, Effective Financial Structure, Asset Quality and Liquidity have been used in this study because they are crucial for evaluating the financial performance of SACCOs.

1.2 Statement of the Problem

Even though DT-SACCOs in Kenya work extremely hard, their financial performance is greatly impacted by the yearly spike in both the quantity and quality of loan defaults [23]. Most Kenyan DT-SACCOs struggle to keep their institutional capital to total assets to at least the recommended 8% [24]. Due to the difficulties these it is still difficult for each DT-SACCO to fully comply with capital adequacy regulations, negatively impacting their financial performance. Notably, from the years 2016 to 2020, the DT-SACCOS recorded an ongoing reduction in asset quality, which showed up as an increase in non-performing loans (NPLs). NPLs increased from 5.22% to 6.14% between 2016 and 2017 [25,26] and then by a further 6.30% in 2018 [24,23]. Nevertheless, a temporal increase from 6.30% in 2018 to 6.15% in 2019 was offset by an increase of 8.39% in 2020 [27]. As a result, in these five there was a considerable decline in NPLs, which steadily increased from 5.22% to 8.39%; this was a sign of deteriorating asset quality [27]. According to SASRA [25], this is making it difficult for the majority of these DT-SACCOs to satisfy their short-term obligations. In spite of an abundance of research on PEARLS and financial performance, conclusive findings about PEARLS's effect on DT-SACCOs' financial performance in Kenya remain to be seen. Majority of empirical study had conceptual gaps [20,19,7], some had contextual gaps [16]; and there were inconsistent results in all of them. This suggests that the empirical data on the use of PEARLS among Kenyan DT-SACCOs for assuring financial performance is negligible. In

order to fill the knowledge void, selected PEARLS were considered as affecting financial performance of Kenyan DT-SACCOs.

1.3 Purpose of the Study

In order to further knowledge on the adoption of PEARLS, the study aims to establish through academic research the connection between Key PEARLS and the financial performance of DT-SACCOs in Kenya.

2. LITERATURE REVIEW

2.1 Theoretical Framework

2.1.1 Modern Portfolio Theory (MPT)

The Modern Portfolio Theory (MPT) was originally released by Harry Markowitz in 1952 [28]. pursuant to the theory, credit risk should be included while determining the rate of return, Because MPT hasn't been used to adequately control it, credit risk continues to be the main risk that most firms face [29]. Pursuant to this theory, managers should use the lending review and lending risk assessment procedures to assess any modifications in individual credit or portfolio trends as soon as feasible. Investors can use the MPT to objectively assess potential risks and returns on their venture capital investments. Investors seek to optimize their total return on a single portfolio through fund management (Elton, Gruber, Brown & Goetzmann, 2009). The relationship between success and diversity has been examined variously when studying financial institution diversification. These investigations each showed how diversification lowers risk and boosts efficiency. Zagherd and Barghi [30] assert that whereas earning quality seems to have little effect on banks' ROA, factors like liquidity quality, capital sufficiency, and asset responsiveness to monetary risk indicators accomplish this. In the study, the new portfolio theory was used to establish the productive frontier and the portfolio's optimal portfolio (MPT). The MPT was quite beneficial to this study by presenting the capital adequacy stimulate performance of banks and, most significantly, the accounting performance. The theory also shows that this diversification of the loan portfolio is supported by the lending criterion for loans, or creditworthiness score. The effectiveness of both tasks, credit standards for loans and a credit risk ranking, resides with management, and it depends on the excellence of pay as well as the effectiveness of management. The financial

performance of the IDT-SACCOs is thus based on effective financial structures, which is based on appropriate effective financial structures as well as asset quality, according to the MPT. Using these as a foundation, the study then looked at the three variables as useful independent variables (IVs): effective financial structures, protection, and asset quality

2.1.2 Risk management theory

The Darwin and Bidek [31] founded the risk management theory which places more focus on credit identification, risk prioritization, resource coordination, and their practical use [32]. Regarding resources, the theory suggests minimizing the effects of terrible events, monitoring and managing the probability and/or effects of bad events for the goal of mitigating, and most crucially, maximizing the realization of opportunities. Therefore, financial resources should be protected against any anticipated and unforeseen hazards. Risks may originate from credit risk uncertainty, according to theory [33]. According to the argument, failing to manage risks would probably have a detrimental impact on shareholders' wealth. Therefore, DT-SACCOs' financial performance could be enhanced by implementing effective operational, credit, and liquidity risk management. Maina and Otwoko [11] assert that DT-SACCOs and all other lending institutions must evaluate and identify risks. Therefore, PEARLS indicators are important factors influencing growth. The study examined various factors that impact the financial performance of DT-SACCOs in Kenya, including protection, effective financial structure, asset quality, and liquidity. These factors are derived from the risk management theory

2.1.3 Empirical literature

In-depth reviews of several empirical research and related studies that were considered useful in connecting financial performance to the adopting PEARLS s.

Silva et al. [15] discovered in their research that the risk protection, demonstrated an unfavourable link with profitability (ROA and ROE). The research by Esoma and Titioka [16], shows that protection plays a substantial part when deciding how much of the assets of a credit union are safeguarded. In light of the progress made in achieving the objective, the study concluded that the Credit Union was in respectable standing. Taking into account the

findings of Maulana and Andrianingsih's [19] study, the PEARLS technique determined that the value is perpetually in the ideal category because it is greater than the required percentage, of 100%. Villalba et al. [34] analyzed the typical PEARLS System metrics to show that even with their low liquidity, these showed that credit unions provided a reasonable degree of protection against credit risks.

In accordance with Silva et al.'s research [15], there is a positive correlation between the indicators of the successful financial structure and WOCCU's advice. Credit unions are in a stronger financial position because of the favorable association between these variables and a decreased likelihood of insolvency. Research by Silva et al. [15] shows that the net loan result shows unit traded in the net loan portfolio contributes to increases in ROA and ROE of 2.4% and 13.7%, respectively, after discounting the risk provision. Since the loan portfolio is these institutions' most valuable asset, performance as determined by ROA and ROE, respectively, was significantly impacted by the institutional capital. The notable performance in terms of ROE can be attributed to a number of factors, including the recent incorporation process that these institutions have undergone or the rise in surplus (profit) or capital inputs by union members, as indicated by the performance index result. A very small sample of 82 respondents out of 925 were used in Silva et al.'s research [15], which may have led to bias. Research by Esoma and Titioka [16] indicates that growth, profitability, and efficiency are all significantly influenced by an effective financial structure. This result is further supported by Maulana and Andrianingsih's [19] study's findings, which show that values steadily decline. Accounts receivable, or the cooperative's generating assets, still make up a small portion of its total assets.

In the study of AL-Najjar and Assous [35], which employed a regression model to look at the CAMEL rating for Saudi banks, it was shown that asset quality ratios had little impact on banks' overall deposits. Thisaranga and Ariyasena [36] found that assets quality has a significant and positive impact on performance after examining the effect of CAMEL criteria on the performance of eight listed commercial banks in Sri Lanka. Boateng's research (2019), indicate that the success of Ghanaian banks was significantly influenced by asset quality. The performance of Ghana's banks was equally influenced by the

calibre of the assets, the management's efficacy, and the availability of liquidity. However, sensitivity had no impact on how well Ghana's banks performed. As per the findings of Maulana and Andrianingsih's research [19], improving rhe ability to manage their outstanding receivables and reducing the quantity of loans that default. In their study, Sile, Olweny, and Sakwa [37] show that the standard of reserves affects banks financial output in a statistically meaningful way.The Lawal, Oluoch, and Mutur [38] show that the operating efficiency ratio of banks is significantly influenced favorably by the quality of their capital assets, and that the performance of non-performing loans or bank insolvency is a major factor in the low quality of bank assets. The Nyabaga and Matanda [39] showed that while asset quality has a significant negative impact on ROE, it has little effect on ROA. The findings demonstrated that leverage significantly improved ROE while having a minor positive effect on ROA.

Al-Najjar and Assous [35] discovered that the liquidity-measuring loan-to-deposit ratio had a favourable effect on banks' overall deposits. The results of the Boateng (2019) research, which used CAMELS, show that liquidity has a major impact on how well Ghanaian banks perform. Thisaranga and Ariyasena's [36] study looked at how the CAMEL parameters affected the market-based performance. The results show that the performance is significantly improved by the liquidity status. In contrast, liquidity was found to have a strong negative impact on financial hardship by Masdupi, Tasman, and Davista [40]. These differences may have been observed because it appears that previous bank failures served as the impetus for the financial crisis attack, which in turn sparked a liquidity event that made conditions worse for the institutions that were impacted. Charmler et al. [41] study demonstrates that there is a positive correlation between return on assets and liquidity, as indicated by both bank liquidity measures. However, the correlation between the ratios of liquid assets to total assets is only slightly positive. There was found to be a small negative correlation between total interest-bearing obligations, liquid assets, and the return on equity (ROE). The net interest margin, bank size, capital adequacy ratio, foreign ownership, and bank profitability were found to have positive correlations with each other among the study's control variables. The research comes to the conclusion that banks need to keep their liquid assets at a certain, optimal level in order to

increase profitability. Hence, banks need to determine the point at which profitability truly declines.

3. METHODOLOGY

3.1 Research Methodology

The study employed the positivist paradigm, which upheld the idea that scientific knowledge was made up of facts and made sure to only consider what was being observed and measured. Positivists generated quantitative data from big samples that were extremely precise and particular and were interested in testing highly reliable hypotheses. As a result, it was supplemented by a quantitative method, typically used in a laboratory context, with a limited focus [42]. In particular, a quantitative technique was to be used to respond to the query regarding the relationships between variables. This approach was supported by the fact that quantitative data, along with the subsequent analysis, provided a broad understanding of the research topic.

3.2 Research Design

The present investigation employed the correlational research strategy, which looked for relationships between two or more variables to make predictions [43]. In the research design, Correlational research was selected based on this investigation. Boucaud [44] asserts that correlational study design is an effective way to look at the relationship between an independent variable (IV) and dependent variable (DV). Data used was for the period 22018 and 2022, where panel data regression analysis was employed in this study. Given that individual particular variables can be included in the panel data estimation technique, it was used. Additionally, cross-sectional observations are combined in time series. Panel data provides more accurate information, greater variety, decreased co-linearity between the variables, increased degree of freedom, and increased effectiveness.

3.3 Target Population

The study used the 181 DT-SACCOs that functioned in Kenya between 2018 and 2022 target population.

3.4 Sampling Procedures and Techniques

Sampling is a process that involves choosing an appropriate number of participants in order to establish the parameters of the entire population.

In determining the sample size, the study has been suggested by the formula suggested Yamane [45] which is

$$n = \frac{N}{1+N(e^2)}$$

Where n is the sample size, N is the target population size and is the level of precision (specifically ±5% precision at 95% confidence level).

$$\text{Thus } n = \frac{181}{1+[181.(0.05)^2]} = \frac{181}{1+1[81.(0.025)]} = \frac{181}{1+.453} = \frac{181}{1.453} = 124.615 \approx 125$$

So, the study has used 125 elements as its sample size.

3.5 Research instruments

Data was gathered juking collection sheet (an institutional instrument) The selection of secondary data was justified by the fact that the study variables were primarily historical data, being of a financial nature. Gathering, combining, as well as amassing information from either primary or secondary source. In this study, secondary data was compiled from reports on SASRA oversight, financial statements of commercial banks that have been made publicly available for the years 20178 through 2022. Because the time series approach provides more accurate and dependable data, it was used in this investigation. The five-year time series will run from 2018 to 2022.

3.6 Data Analysis

The study has employed quantitative methods to produce descriptive statistics, such as mean, minimum, maximum, and standard deviation, in accordance with the research objectives.

4. RESULTS

4.1 Descriptive Analysis

In this portion, the investigation's descriptive analysis was captured which included the findings from the quantitative approach taken for both IVs and the DV, resulting in descriptive statistics. Remarkably, the descriptive statistics in form of; Mean (M), standard deviation (SD), minimum (Min), maximum (Max), percentage (%) and frequency (N) were used to summarize the findings. The research obtained results on the key descriptive statistics of the study variables; both IVs and DV, which were then captured in Table 1.

Table 1. Descriptive Statistics

Statistics	No	M	SD	Min	Max
Protection	851	9.9%	6.43%	-0.041%	78.58%
Effective financial structure	851	9.85%	8.36%	0.10%	266.47%
Asset quality	851	78.42%	54.77%	-33.91%	141.67%
Liquidity	851	19.344%	16.32%	6.67%	884.11%
Financial Performance	851	2.37%	2.56%	-0.05%	10.83%

Source: Research Data (2024)

The financial performance of the SACCOs throughout this time, as determined by ROA, has been determined to vary from -0.05% to 10.3%. (Min = -0.05% and Max = 10.83%). The results showed that the average financial performance (ROA) was 2.37% (M = 2.37%; SD = 2.56%). The DT-SACCOs calculated that, on average, every Kshs. 1 invested in asset generated a loss of 2 shillings and 37 cents by using ROA to quantify profitability. Accordingly, the financial performance mean value had a minimum variance of 0.29% and a maximum deviation of 4.93%. Over the course of the time, ROA as a percentage varied from a minimum of -0.05% to a maximum of 10.83%. In terms of the financial performance, a standard deviation of 10.93% suggested a low variance from M lowest, which is -0.05%. The negative ROA score indicated unfavorable financial performance when managing the DT-SACCOs' available assets. This implies that the returns on their own assets that Kenyan DT-SACCOs obtained were virtually nonexistent. The financial performance of these SACCOs indicated considerable financial fragility and indicated that they might not immediately become exceptionally strong, pursuant to the PEARLS assessment [46]. According to Rohmawati & Shenurti [47], any return on assets (ROA) below 0.25% is deemed poor by the PEARLS assessment method, signifying an elevated probability of failure.

Outcomes (M = '9.90%, SD = 6.43%) show an average of 9.9% and SD of 6.43%, with protection's lowest divergence from M observed at 9.73%. Because of this, the DT-SACCOs have allocated aside Ksh 9 and 90 cents (Khs. 9.90) to compensate each Ksh that is lost due to risk and other responsibilities. The results, however, show that the range of protection values is 44.741%, with the lowest possible value being -0.041% and the largest value being 44.70%. (Min= -0.041%; Min= 44.70%). As stated by WOCCU, lower protection levels are better since they give members a safe place to put their money [15]. Because of the mean of 9.9%, members can deposit their money in a secure setting. In order

to manage problematic loans with maturities ranging from one to twelve months, protection involves assessing if there are sufficient risk reserve funds [18]. It is ascertained by comparing the amount of loan loss provisions to the total amount of past-due loans. The protection category also includes loan charge-offs and loan recovery rates.

Concerning the effective financial structure, the findings (Min = 0.10%. Max = 266.47%; M = 9.85%; SD = 8.36%) indicate that the effective financial structure had a minimum level of 0.10% and a maximum level of 266.47%. With a standard deviation of 8.36% and an average effective financial structure of 9.85%, the biggest deviation M is 18.21%, while the lowest is 1.851%. This suggests that the amount of resources provided by DT-SACCOS has an impact and facilitates the growth of their equity. Consequently, as net loan volume rises, financial performance rises as well. A significant correlation between the index and net institutional capital was also found in the findings, indicating that every unit financed with institutional capital leads to a 9.85% improvement in financial performance. The financial performance of the net loan portfolio increases by 9.85% as a result of each asset unit sold. institutional capital may have been utilized to cover unanticipated events, which implies that any potential losses may have had a negative impact on financial performance. The Silva group [15].

Based on the available data (N = 851), the research discovered asset quality (loan loss cover to NPLs), was greater than zero but less than 100% (Min = -33.91%; Max = 141.67%). The PEARLS rating's 100% recommendation level was not met by the average asset quality (M=78.42%). With an average of 78.42%, the Kenyan DT-SACCOs provided Ksh 78 and 42 cents for every Ksh 1 on cost of NPLs. Therefore, Ksh 78 and 43 cents were set aside for loan loss for every Ksh 1. The lowest standard deviation from the mean, as indicated

by the standard deviation of 54.77%, was 23.66%. Because it was higher than 5%, PEARLS would have deemed the asset quality of these DT-SACCOs to be inadequate. Furthermore, the study found that the related value ranged from -33.91% to 141.67% with SD = 123.40%, with an average of 78.42%. These were exceptionally dismal data. This type of thing happens when DT-SACCOs have a lot of NPLs. This reveals DT-SACCOs in Kenya are dealing with a severe and catastrophic NPL problem. The results show that there is a growing build-up of high-level non-performing loans. That is frequently linked to collapses of lending institutions. As evidenced by Table 1's findings on bank performance, Kenyan DT-SACCOs have appalling financial results.

The average liquidity, as indicated by the liquidity data (M=19.34%; SD=16.32%; Min=6.67%; Max=884.11%), was 19.34%. This suggests the amount of cash availability was at an average of 19.34% annually for cash equivalent assets. Hence, the DT-SACCOs were liable for paying back short-term debt. From the liquid asset, the DT-SACCOs might have paid Kshs 19.34 toward the Ksh.1 short-term liability. There was a maximum variation of 884.11% and a minimum of 6.67% from the mean.

4.2 Inferential Analysis

4.2.1 Correlation analysis

In this research, Table 2 displays the findings of this study, which used correlation to assess the IVs for any association with DV.

In accordance with Table 3, the associations between the DV and each IV—protection (p<0.01), effective financial structure (p<0.01), asset quality (p<0.01), and liquidity (p<0.01)—showed a p-value of less than 0.05. Protection had the strongest association (r = 0.675), larger than 0.5, with the effective financial structure having a smaller correlation (r = 0.387) as well as liquidity (r=0.335) was between 0.3 and 0.6 to imply moderate effect. Meanwhile asse quality (r=0.248), it less than 0.3 and more than 0 to imply low effect.

4.3 Regression Analysis

ANOVA results are in Table 3.

Table 2. Analysis by correlation analysis

		Financial Performance	Protection	Effective financial structure	Asset quality	Liquidity
Financial Performance	Pearson Correlation	1				
	Sig. (1-tailed)					
	N	675				
Protection	Pearson Correlation	.618**	1			
	Sig. (1-tailed)	.000				
	N	675	675			
Effective financial structure	Pearson Correlation	.387**	.394**	1		
	Sig. (1-tailed)	.000	.000			
	N	675	675	675		
Asset quality	Pearson Correlation	.218**	.215**	.071	1	
	Sig. (1-tailed)	.000	.000	.064		
	N	675	675	675	675	
Liquidity	Pearson Correlation	.335**	.301**	.180**	.168**	1
	Sig. (1-tailed)	.000	.000	.000	.000	
	N	675	675	675	675	675

**. Correlation is significant at the 0.01 level (1-tailed).
Source: Research Data (2024)

Table 3. ANOVA for Kenya DT-SACCOs' Financial Performance

ANOVAᵃ					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Regression	1.176	4	.294	128.022	.000ᵇ
Residual	1.539	670	.002		
Total	2.715	674			
a. Dependent Variable: Financial Performance					
b. Predictors: (Constant), Liquidity, Effective financial structure, Protection, Earnings ability, Asset quality					

Source: Research Data (2024)

The research was directed by the beta values of model (i) in order to examine fitness. This resulted in the alternative hypothesis, Hα: β1=0; β2=0; β3=0; and β4 =0, which suggests that the beta for each coefficient of X1, X2, X3, and X4. Thus, at least: βi ≠ 0.

The results in Table 3 are significant at the 5% level. H0 is accepted whenever the p-value is greater than 0.05, and it is disregarded otherwise. Whenever the p-value is less than 0.05, Hα is either accepted or rejected. On the basis of the findings (p<0.01, F = 28.367), it can be inferred that at least one or all of the betas is not zero because the p-value does not approach 0.05. As a result of H0's rejection, Hα was accepted because the P-value was less than 0.05. In light of this, the study contains enough data to state that, at α < 0.05, at least one of the IVs—protection, effective financial structure, asset quality, profits potential, and liquidity are useful in assessing the financial success of Kenyan debit-to-credit organizations. Table 3 indicates that the regression model is significant, indicating that the scatter diagram points are reasonably close to the line of best fit (F statistics of 24.012 and P< 0.01). As a result, the model makes sense in terms of explaining how variations in PEARLS variables account for variations in the financial efficiency of Kenyan DT-SACCOs.

The outcomes of regressing IVs and DV for model estimate were recorded in Table 4.

The interpretation of the results in Table 5 were founded on the hypotheses captured in chapter one;

Regression result was used to test Hypothesis One;

H₀₁: Protection did not have significant effect on financial performance of DT-SACOs in Kenya.

Given the information provided in the results (p-value <0.01 and T = 14.898), the p-value is below 0.05, which means that the H0 hypothesis was rejected and Hα was accepted because the p-value is below 0.05. Therefore, the research concludes that, at the α = 0.05 level of significance, there is adequate and justified evidence demonstrating that the protection was not zero, and that, as a result, protection is critical for measuring Kenyan DT-SACCOs' financial performance. Kenyan DT-SACCOs set aside Kshs 9 and 90 cents in order to cover every Ksh lost as a result of risk and other obligations. This was a strong protective adequacy according to the PEARLS grade because it was higher than 15%. Protection has been demonstrated to significantly improve the

Table 4. Analysis by regression against predictor variables

Coefficients'					
	Unstandardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	.000327	.002		.176	.860
Protection	.487	.033	.495	14.898	.000
Effective financial structure	.159	.031	.161	5.075	.000
Asset quality	.076	.030	.076	2.536	.011
Liquidity	.140	.030	.144	4.687	.000
a. Dependent Variable: Financial Performance					

Source: Research Data (2024)

Table 5. Financial performance model summary

Model Summary			
R	R Square	Adjusted R Square	Std. Error of the Estimate
.658[a]	.4332	.4298	.0479269

a. Predictors: (Constant), Liquidity, Effective financial structure, Protection, Earnings ability, Asset quality

b. Dependent Variable: Financial Performance

Source: Research Data (2024)

financial performance of Kenyan DT-SACCOs. The present findings are consistent with the research conducted by Silva et al. [15] which indicates a significant favorable influence of protection on financial performance as assessed by ROA. The outcomes of the Kenyan DT-SACCOs were therefore significantly influenced by protection. To ensure that losses from risk and other liabilities may be sufficiently absorbed, the DT-SACCOs maintain a high level of protection. Also, Esoma and Titioka [16] found that protection is an important factor in determining how much of a credit union's assets are protected.

Based on the findings of Maulana and Andrianingsih's [19] investigation into protection, it can be deduced that because the value is higher than the required percentage, or 100%, the value is always in the ideal category as per the PEARLS technique. Every year, the value of protection also always translates into better cooperation and performance when it comes to paying off bad loans within a year. The value has consistently increased, as shown by the results of the protection computations, but it has also consistently fallen into a group that is not optimal by the PEARLS technique since it exceeds the 35% threshold. If the reserve fund were only used to cover loan defaults, value protection above the norm indicates that the reserve fund risk would be excessive. More so, Villalba et al. [34] showed that despite their low levels of liquidity, rural credit unions offered a good level of protection against credit risks and the majority of them financed their investments with their own funds.

Next, hypotheses two was tested for effect of asset quality by stating that;

H$_{02}$: Effective financial structures do not have significant effect on financial performance of DT-SACOs in Kenya

Founded on the results (p-value <0.01; T= 5.075), it is evident that the p-value was a value that could exceed or equal 0.05 confirming the rejection of H$_0$ and to alternatively provided for acceptance of H$_\alpha$ on approving that p-value was too small to surpass 0.05. It was on the premise that research settled on claiming that at α = 0.05, there is proven adequate and firm evidence of suggesting that the asset quality was not zero and consequently asset quality is important for estimating financial performance of Kenyan DT-SACCOs. Effective financial structure, according to the study, varied from 0.10% to 266.47%, or 9.85%. This degree of effective financial structure, as determined by the ratio of net income (net profit before tax) to total advances, was deemed inadequate by PEARLS ratings since it was less than 10%. These support Silva et al. [15] in that there is a favorable correlation between the effective financial structure indicators and WOCCU advice. A lesser likelihood of insolvency and, thus, a better financial position for DT-SACCO are indicated by the positive association for these metrics. Potential losses may have had a negative impact on performance because of the association between this index and the equity capital of DT-SACCOs. This implies that institutional money may have been utilized to cover unanticipated eventualities. This circumstance has a significant impact and impedes the expansion of the unions under examination, which may indicate a potential for insolvency.

Furthermore, research by Esoma and Titioka [16] shows that an efficient financial structure has a major impact on growth, profitability, and efficiency. When member contributions support the credit union's assets, its income suffices to pay for those savings, its operating costs are covered, and its capital adequacy is maintained, the credit union's financial structure is sound. Delinquent loans and receivables make up what percentage of total asset. The effective financial structure ratio should fall between 70 and 80% of its ideal range. Its placement is not ideal for this ratio. This result is further supported by Maulana and Andrianingsih's [19] study's findings, which show that values steadily decline. Because it is

less than 70%–80%, the PEARLS technique also regularly classifies it as non-ideal. The poor value of E5. This implies that a very minor amount of the cooperative's overall assets are made up of savings held by non-stock members. Asset quality's effect of financial performance was tested on hypotheses three;

H03: Asset quality does not have significant effect on financial performance of DT-SACOs in Kenya.

In light of the results (p-value = 0.011; T = 2.536), the analysis provides sufficient evidence that the p-value is below 0.05, leading to the rejection of H0 and acceptance of Hα. This is because the p-value was not allowed to be greater than or equal to 0.05. Thus, the investigation concludes that, at α = 0.05, there exists adequate evidence indicating that asset quality was not zero, and as such, asset quality plays a crucial role in assessing the financial success of Kenyan DT-SACCOs. In evaluating how asset quality affected the financial performance of Kenyan DT-SACCOs, the study discovered that the asset quality that is, the ratio of earning assets to total assets—could not be entirely achieved. More significantly, the asset quality was 78.42% in terms of NPLs to equity. These support the findings of the study by AL-Najjar and Assous [35] demonstrated that asset quality ratios had no effect on banks' total deposits. The study used a regression model to examine the CAMEL rating for Saudi banks. Thisaranga and Ariyasena [36] demonstrated that asset quality has a major impact on the performance of Ghanaian banks. The standard of the assets, the effectiveness of the management, and the availability of liquidity all had an equal impact on the performance of Ghana's banks. Sensitivity, however, has no effect on the performance of Ghana's banks. In the meantime, Esoma and Titioka [16] discovered a decline in the total default loan to total receivables ratio. The ratio of credit negligence tends to decline as financial performance increases. As per the findings of Maulana and Andrianingsih's research [19] loan default rate remains high relative to the total amount of outstanding debt. The cooperative is classified as being in the non-ideal category if it possesses an excessive number of non-productive assets. The Nyabaga and Matanda [39] showed that leverage had a small positive impact on ROA and a significant positive influence on ROE. There were mixed results about how leverage and asset quality affected performance. On the other hand, Mananda's

2017 research found that asset quality was unimportant and inversely connected with ROA. Since asset quality is largely used to evaluate the entire risk connected with a bank's loans, it may not have a substantial impact on the performance

The effect of liquidity was confirmed by testing hypotheses four;

H04: Liquidity does not have significant effect on financial performance of DT-SACOs in Kenya.

On the basis of the findings (p-value <0.01; T = 4.687), the study confirms that the p-value was something that could be greater than or equal to 0.05, indicating the rejection of H0. Alternatively, it allowed for the acceptance of Hα if it was determined that the p-value was too tiny to be greater than 0.05. Based on the premise that liquidity was not zero on analysis, research agreed on stating that at α = 0.05, there is demonstrated adequate and firm evidence suggesting that liquidity is vital for assessing financial performance of Kenyan DT-SACCOs. The impact of liquidity on the financial performance of DT-SACCOs in Kenya is illustrate that the DT-SACCOs might have paid Kshs 19.34 toward the Ksh.1 short-term liability. There were significant variances in the values; the maximum was 884.11%, the lowest was 6.67%, the SD was 16.32%, and the highest deviation from M was 15.18%. In order to pay down debts, Ksh. 19 and 34 cents worth of cash and cash equivalent assets were available. As it was less than 550%, Ksh. 19 and 34 cents' liquidity was considered extremely strong by PEARLS assessment. In the meantime, Al-Najjar and Assous [35] found that the loan-to-deposit ratio, which measures liquidity, had a positive impact on banks' total deposits while Boateng (2019) demonstrate that liquidity significantly affects an performance. The liquidity state has a considerable positive impact on performance, as demonstrated by Thisaranga and Ariyasena's [36]. Onyango and Olando's [48] found a weakly significant negative correlation between the liquidity ratio and non-performing loans at the 5% level of significance. This suggests that the institution's liquidity controls have improved. In contrast, liquidity was found to have a strong negative impact on financial hardship by Masdupi et al. [40]. These differences may have been observed because it appears that recent bank failures set off the financial crisis attack, which in turn sparked a liquidity event that made things

worse for the institutions that were impacted. However, Charmler et al. [41] research shows that both bank liquidity measures point to a positive association between return on assets and liquidity. In accordance with Musyoka [49], there is a little but favorable relationship between the liquidity levels and financial performance. The study's conclusions lend credence to the assertion that liquidity and financial performance have no discernible relationship. The monetary performance and liquidity are highly connected, finds Mburu's [50] research. Liquidity management and ' profitability are significantly positively correlated, according to Cheruiyot's [51] research.

The result show that he model for predicting financial performance of Kenyan DT-SACCOs is fitted as

Financial performance of Kenyan DT-SACCOS = 0.000327 + 0. .513(protection) + 0.159(effective financial structure) + 0.076(asset quality) + 0.140(liquidity).

Since protection, asset quality, effective financial structure and liquidity had positive coefficients [52,53], they are directly proportional to the Kenyan DT-SACCOs financial performance of. Therefore, an increase in any of these variables; protection, asset quality, effective financial structure and liquidity would lead to an increase in Kenyan DT-SACCOs' financial performance of and a decrease in any of them causes an increase on Kenyan DT-SACCOs financial performance.

Built upon Table 5, the coefficient of determination was .4332, meaning that variations in protection, asset quality, effective financial structure, and liquidity account for 43.32% of the variance in the financial performance of Kenyan DT-SACCOs. The financial performance of Kenyan DT-SACCOs is thus strongly determined by all or any of the following variables: protection, asset quality, effective financial structure, and liquidity [54,55].

5. CONCLUSIONS AND RECOMMENDA-TIONS

5.1 Conclusions

Based on the study, the financial performance of Kenyan DT-SACCOs demonstrates that, for every Ksh.1 in short-term liabilities, these DT-SACCOs have liquid assets of Ksh. 19 and 34

cents for repayment, with the lowest standard deviation at 16.32%. As a result, Ksh. 19 and 34 cents in cash and cash equivalent assets were available to pay off obligations. Strong liquidity is present at Ksh. 19 and 34 cents, and Kenyan DT-SACCOS generally maintain a higher liquidity position than the legally required amount. A unit change in liquidity has a directly proportionate impact on the financial performance of Kenyan DT-SACCOs.The financial performance of Kenyan DT-SACCOs changed at a rate of 140 units. Consequently, the inadequate effective financial structure of Kenyan DT-SACCOs contributes to their weak and mediocre financial performance. this is so because there is a clear correlation between financial performance and effective financial structure. It was found that, accounting for a 15.90% shift in financial performance, an effective financial structure had a statistically significant positive impact on Kenyan DT-SACCOs' financial performance.

As a result of earning assets and total assets, the study finds that the quality of assets has a statistically significant positive impact on the financial performance of Kenyan DT-SACCOs. A large portion of funds are allocated to cushioning non-performing loans (NPLs) when provision loan losses are significant. This severely impairs the DT-SACCOs' financial performance, leading to subpar results. In this case, the cost of shareholders' equity has been substantially harmed by the NPL difficulties. Asset quality contributes positively to the financial success of Kenyan DT-SACCOs, explaining 7.6% of the variance in their financial performance.

The study concludes that there is a substantial positive correlation between the liquidity ratio and the financial success of Kenyan DT-SACCOS. The financial success of Kenyan DT-SACCOs is closely correlated with their liquidity ratio, and this relationship is positively significant. Therefore, a higher liquidity ratio is associated with better financial performance for Kenyan DT-SACCOs, whereas a lower liquidity ratio is associated with worse financial performance.

This research demonstrates that there are serious difficulties with the Kenyan DT-SACCOs based on the PEARLS assessment methodology. The PEARLS rating methodology makes it clear that the companies need to take immediate action to improve their protection, asset quality, cash flow and financial structure, and tight supervision of their lending function. Because of this, the composite PEARLS rating

model can be used to assess Kenyan DT-SACCOs' financial performance and help them comply with SASRA rules.

5.2 Policy Recommendations

Pursuant to this research, t the study suggests using the best investment approach for managing protection for Kenyan DT-SACCOs. As a result, the asset portfolio value needs to be increased while keeping protection at the optimal minimum value and at a level that is already beyond the required threshold. It should be highlighted that poor financial performance needs to be improved by utilizing an ideal investing plan. This is the point at which the Kenyan DT-SACCOs would put into practice the best investment strategy in order to diversify their asset base from unstable and hazardous assets to safe treasury assets. Therefore, in an attempt to lower risk, institutions should diversify the assets they hold.

Furthermore, the investigation demonstrated that the DT-SACCOs' asset quality was exposing them to compliance weaknesses, which are purportedly among the variables negatively impacting their future potential to improve their financial performance. In order to make the best decisions about compliance with WOCCU laws and regulations, it is necessary to make sure that the supervisory function enhances effective Financial Structure. Based on rigorous adherence to relevant rules, the study suggests that the executives of these DT-SACCOs should improve the effective Financial Structure capabilities with the goal of achieving safety, soundness, and operational efficiency through risk identification, measurement, and control activities.

Thirdly, the investigation showed that the asset quality of the DT-SACCOs was probably not enough sustaining their operations, as evidenced by the Kenyan DT-SACCOs' inadequate ability to generate profits. Therefore, this study suggests that Kenyan DT-SACCOs should work to increase the quality of their assets by generating enough revenue to cover their annual overheads, keeping these costs to a minimum, and launching new, appealing products.

Fourthly, this research suggests that Kenyan DT-SACCOs continue to maintain the suggested levels of liquidity. In order to ensure the efficacy of their lending strategies, they should give special consideration to their liquidity management, loan monitoring, and loan recovery. In accordance to the research, interest gap analysis should be used by Kenyan DT-SACCOs specifically to help them estimate the profitability of their investments by maintaining a balance between rate-sensitive assets and rate-sensitive liabilities (interest-sensitive assets). The DT-SACCOs might evaluate their liquidity risk with the aid of gap analysis while simultaneously planning their cash flows and ensuring that they have assets available to pay off debts.

In a nutshell this research suggests that Kenyan DT-SACCOs should use the PEARLS rating model annually in order to identify components that need extra care. This would help managers comply with related laws and banking regulations.

Recommendations for Further Study

1. This study highlighted several questions about Kenyan DT-SACCOs' robust asset quality and protection against their subpar financial performance. This is an unforeseen event. The present study proposes an extensive investigation utilising a descriptive survey and diagnostic research design to clarify and demystify the concepts of Islamic banking and their influence on the financial performance of DT-SACCOs in Kenya. Significantly, this study found that changes in protection, effective financial structure, asset quality, earnings capacity, and liquidity account for 43.32% of the variation in the financial performance of Kenyan DT-SACCOs. In order to determine the additional factors causing the 59.36% variance in the financial performance of Kenyan DT-SACCOs, more research was required. It is best to focus on the structure or guiding principles of Islamic banking.

2. The investigation discovered that regardless of their performance seeming questionable, the DT-SACCOs had kept stable liquidity. The reason behind this unexpected event is unknown. Therefore, more research is required to determine the unusual liquidity and financial performance patterns of Kenyan DT-SACCOs, which could be related to SASRA principles.

3. During the research period, a few institutions were brought into the Kenyan

DT-SACCO space, which may have influenced certain behaviours. PEARLSs should be further investigated on each bank's own.

6. IMPLICATIONS OF THE STUDY

The DT-SACCOs' declining financial performance each year calls for immediate action to prevent their eventual collapse, which is why this study was conducted. The outcomes of the study would be helpful to policy makers of DT-SACCOs in formulating sensible financial risk management regulations. Therefore, both government and the general public would benefit from the study's conclusions throughout the country. Researchers would findings the documentation valuable as a reference manual while academicians will gain mor information PEARLS as viable for enhancing financial performance of ST-SACCOs.

COMPETING INTERESTS

Authors have declared that they have no known competing financial interests or non-financial interests or personal relationships that could have appeared to influence the work reported in this paper.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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