

Financial Risks and Financial Performance of Deposit-Taking Saccos in Mt. Kenya Region, Kenya

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ABSTRACT: *This study investigated the relationship between financial risks and the financial performance of deposit-taking SACCOs in the Mt. Kenya region. Specifically, the research sought to determine the effect of liquidity risk, credit risk, and operational risk on the financial performance of DT-SACCOs in the Mt. Kenya region. The research was embedded on the liquidity preference theory, asymmetric information theory, and dynamic capabilities theory. The descriptive research approach and target population of 56 DT-SACCOs with head offices in the region were espoused. Primary data was collected using structured questionnaires administered to heads of risk management and secondary data from financial statements were considered. The findings revealed that liquidity risk has a negative and insignificant effect ($\beta=-0.093$, $p=0.317$), credit risk has a positive and significant effect ($\beta=0.159$, $p=0.023$), and operational risk has a negative and insignificant effect on the financial performance ($\beta=-0.140$, $p=0.463$) of DT-SACCOs in the Mt. Kenya region. DT-SACCOs should strive to maintain optimal liquidity and tighten their credit risk and operational risk management practices.*

KEYWORDS: financial risks, liquidity risk, credit risk, operational risk, financial performance

INTRODUCTION

Background

The cooperatives are significant players in the global economy. According to the World Cooperative Monitor Report 2020, as published by the International Co-operative Alliance (ICA), there are over 3 million cooperatives in the world. These cooperatives make a contribution to sustainable economic growth by generating an annual turnover of over 2,146 billion USD and

providing stable employment opportunities to over 280 million people globally (World Cooperative Monitor, 2020). The significance of this sector is emphasized by WOCCU's annual statistical report for the year 2020 released in 2021, which indicates that the total assets and savings held by the cooperatives stood at 3.21 trillion USD and 2.69 trillion USD respectively. On the other hand, the total amount of loans advanced was recorded as 2.06 trillion USD.

In Africa, total membership in cooperatives for the period ending 2020 was 40,413,389 with Kenya as the largest market with 9,237,484 members followed by Ethiopia and Rwanda with 4,767,963 and 4,106,000 members respectively. The cooperatives in Africa held total assets and members' savings of 16.105 billion USD and 17.578 billion USD respectively whereas 12.617 billion USD dollars had been advanced to members as loans (WOCCU, 2021)

In the Kenyan jurisdiction, all SACCOs are governed by the Cooperative Societies Act (CAP 490); nevertheless, the Deposit-Taking SACCOs are supplementary subject to the regulation and supervision by SASRA. SASRA reported in its annual report 2021 that the cooperatives segment had continued to post growth as far as assets, liabilities, loans, and membership were concerned. In the year 2021, total assets grew by 10.10% to stand at Kshs. 691.09 billion up from Kshs. 627.69 billion reported in 2020. Total members' deposits recorded an increase of 9.92% in 2021 to stand at Kshs 474.25 billion from Kshs 431.46 billion posted in 2020. The gross loan book in 2021 was Kshs 522.25 billion compared to Kshs 474.77 billion recorded in 2020, translating to an increase of 10%. The DT-SACCOs segment is composed of 175 DT-SACCOs as per the SACCOs annual supervision report for the year ending 2021 released by SASRA, where 39, 57, and 82 DT-SACCOs are under the large, medium and small tiers respectively. Membership grew by 1.25% in 2021 to 5.54 million from 5.47 million members reported in 2020 (SASRA, 2021).

Deposit-taking SACCOs in Kenya have made notable contributions to the country's GDP through the provision of affordable credit, poverty reduction, mobilization of savings, wealth creation, employment opportunities, and increased financial inclusion to vulnerable groups (SASRA, 2021). The services have aided in boosting the members' standards of living and human dignity which are parcel of Kenya's Vision 2030, African Agenda 2063, and the SDGs. For instance, the regulated SACCOs segment's contribution to national GDP in 2021 increased to 6.85% from 6.11% in 2020 and this affirms the significance of this sector. In terms of employment trends, the number of individuals employed by the DT-SACCOs rose to 9,599 in 2020 from 7,740 in 2017.

The Kenya Kwanza administration has acknowledged the role of SACCOs in transforming the economy as documented in the Government's Plan dubbed 'The Bottom Up Economic Transformation Agenda 2022-2027'. The agenda is pegged on five pillars, namely, agriculture, Micro, Small and Medium Enterprise (MSME) economy, housing and settlement, healthcare, and digital superhighway and creative economy. Under the MSME economy pillar, the government has pledged to provide access to affordable finance by committing KShs. 50 billion annually for MSME start-ups and growth. These funds, christened 'Hustler Fund' will be accessed through

SACCOs among other vehicles. The SACCOs will also avail credit facilities that can be used to boost agriculture and housing projects in the country.

In the Mt. Kenya region, out of 175 Deposit-Taking SACCOs in Kenya, the region has the highest number of Deposit-taking SACCOs in the country at 32% (SASRA, 2021). An analysis of SASRA reports from 2016 to 2021, shows that DT-SACCOs have posted mixed results during the period under review. This is evidenced by deteriorating and fluctuating ROA, and revenue growth as well as skyrocketing expenses, ballooning non-performing loans and liquidity challenges. In the Mt. Kenya region, over the period 2016 to 2021, Good Faith, Orient, and Nanyuki Equator SACCOs have been operating under restricted licenses for consistent failure to address pertinent regulatory and compliance issues. Similarly, Banana Hill and Nanyuki Equator SACCOs were deregistered in 2016 and 2021 respectively and barred from undertaking the deposit-taking businesses due to failure to maintain the minimum prudential standards to undertake deposit-taking business. Further in 2021, two SACCOs, namely, Ndosha and Orient were ranked as the lowest performers in the country.

Based on the above performance statistics and the fact that 32% of DT-SACCOs in the country are from the Mt. Kenya region. In this study, therefore, it is important to unravel whether financial risks influence the financial performance of DT-SACCOs in the Mount. Kenya region.

Problem Statement

In Kenya, the general performance of deposit-taking (DT) SACCOs has been deteriorating and fluctuating as gauged by the return on assets (ROA) and revenue growth for the period 2016 to 2021. In the year 2016, the ROA was 2.45%, which marginally rose to 2.69% in 2017 and declined to 2.40% in 2018. In 2019 and 2020, the ROA reported were at 2.60% and 2.65% respectively and significantly declined to 1.59% in 2021 (SASRA, 2021). On the other hand, revenue growth posted a declining trend over the same period. In 2017, revenue growth declined to 14.08% compared to 14.60% recorded in 2016. Revenue growth dropped to 2.54% in 2018, grew to 23.57% in 2019 and drastically declined in 2020 to 7.71%. In 2021, revenue grew to 11.47% (SASRA, 2021). Similarly, over the same period liquidity strain was witnessed as the demand for loans surpassed the total deposits held by the DT-SACCOs beyond the 70%-80% threshold recommended by WOCCU. The ratio of non-performing loans (NPL) rose from 5.23% in 2016 to 8.86% in 2021 above the minimum threshold of 5.0% and 3.0% set by SASRA and WOCCU respectively, as operating expenses absorbed over 60% of the DT-SACCOs income (SASRA, 2021). The persistent liquidity strain, skyrocketing non-performing loans and operating expenses signal exposure to liquidity, credit and operational risks. The risks will jeopardize the SACCOs' core mandate and contribution to the country's GDP and the government's economic transformation agenda.

Empirical studies on the influence of financial risks on firm financial performance have generated mixed outcomes. Onsongo, Muathe and Mwangi (2020), and Otworko and Maina (2021)

established that liquidity risk exhibited a significant impact on financial performance, whereas Njiru (2020) found an insignificant association. On credit risk, Kioko, Olweny and Ochieng (2019) ascertained that the association between a firm's financial performance and credit risk was significantly negative. Onsongo, Muathe and Mwangi (2020) established a positive and insignificant impact, whereas a study by Ali and Oudat (2020) discovered an insignificant association. Finally, a study by Tassew and Hailu (2019) established that financial performance was significantly impacted by operational risk while a study by Ali and Oudat (2020) found an insignificant effect.

From the empirical review, there was no consensus on how financial risks influenced the firms' financial performance. Secondly, the available studies majorly focused on commercial banks and used secondary data. This research sought to bridge the unaddressed conceptual, contextual and methodological gaps by answering the question: What is the effect of financial risks on the financial performance of DT-SACCOs in the Mt. Kenya region?

Research Objectives and Hypotheses

The general objective of this research was to investigate the effect of financial risks on the financial performance of Deposit-Taking (DT) SACCOs in the Mt. Kenya region, Kenya. The specific objectives were as follows;

- i. To determine the effect of liquidity risk on the financial performance of DT- SACCOs in the Mt. Kenya region.
- ii. To examine the effect of credit risk on the financial performance of DT-SACCOs in the Mt. Kenya region
- iii. To establish the effect of operational risk on the financial performance of DT- SACCOs in the Mt. Kenya region.

The following hypotheses were also tested;

H₀ 1: Liquidity risk had no statistically significant influence on the financial performance of DT-SACCOs in the Mt. Kenya region.

H₀ 2: Credit risk had no statistically significant influence on the financial performance of DT-SACCOs in the Mt. Kenya region.

H₀ 3: Operational risk had no statistically significant influence on the financial performance of DT-SACCOs in the Mt. Kenya region.

LITERATURE REVIEW

Theoretical Review

The research was guided by the liquidity preference theory, asymmetrical information theory and dynamic capabilities theory.

Liquidity Preference Theory

Economist Keynes (1936) was the proponent of the liquidity preference theory, which laid a foundation for the management of liquidity in entities. According to this proposition, *ceteris paribus*, investors prefer liquid investments over long-term investments and therefore will seek higher compensation in the form of returns from long-term investments. According to Bitrus (2011), the expediency of holding cash by firms or individuals is what is referred to as liquidity. The theory further adds that firms hold cash for transactional, precautionary, and speculative motives.

According to Bibow (2005), liquidity preference strikes a balance of assets and liabilities that can be held by an entity at a given period. The liquidity preference theory was relevant to this research given its emphasis on liquidity preferences and therefore helped to articulate in what manner the DT-SACCOs' financial performance was impacted by the liquidity risk.

Asymmetrical Information Theory

The proponents of the theory of asymmetrical information were economists, Joseph Stiglitz (1961), George Akerlof (1970), and Michael Spence (1972). Asymmetric information is an issue in financial markets caused by an information mismatch between two parties. Credit risk emerges when there are informational asymmetries between a lender and a borrower. The theory assumes that a perfect market is characterized by the availability of perfect and costless information and no uncertainties regarding future transactions.

In reality, the financial markets are imperfect with information asymmetries that can result in market failure. According to Stiglitz and Weiss (1981), adverse selection and moral hazard are the consequences of information asymmetry between borrowers and lenders. The adverse selection problem arises when the lender has incomplete information concerning the borrower's financial history. According to Bergh *et al.* (2019), moral hazard arises when the transaction has been completed and the lender has no control over the borrower's actions and intentions as they were not disclosed before the contract was agreed.

This study utilized the theory's concepts to articulate how Mt. Kenya region's DT-SACCOs financial performance was being impacted by credit risk. As financial intermediaries, DT-SACCOs face the risk of advancing credit to their members, which may end up being defaulted due to moral hazard and adverse selection problems.

Dynamic Capabilities Theory

In 1997, Teece, Pisano and Shuen formulated the theory of dynamic capabilities as an alternative approach to deal with some of the deficiencies attributed to the Resource-Based View theory (Bleady, Ali, & Ibrahim, 2018). The theory proposed path-dependent procedures for corporations to create, amalgamate, and reconstruct their resource and capabilities portfolio in order to go along

with the swiftly varying business environs and dynamics. The resource-based view theory considered a corporate to be a portfolio of physical and non-physical resources in addition to human capital and capabilities. Firm capabilities refer to the enterprise's aptitude to integrate its resources in an innovative and efficient manner (Helfat, et al., 2007).

Empirical studies have established a significant effect on the enterprises' performance by its dynamic capabilities (Adeniran & Johnston, 2012; Teece, 2007). This theory's proposition was employable in this study because it aided in comprehending the concept of operational risk and how it influenced the DT-SACCOs' performance.

Empirical Review

Liquidity Risk and Financial Performance

Kioko, Olweny, and Ochieng (2019) examined how operational, credit, market and liquidity risks impacted the financial performance appertaining to the NSE-quoted banks. For the targeted 11 listed commercial banks a descriptive research investigative technique was employed. Secondary data from 2014 up to 2018 were amassed from the banks' annually published financial accounts and analyzed with a multiple regression model. According to the research, liquidity risk exhibited a negative and insignificant impact on the listed financial institutions' financial performance.

Omondi (2019) studied the impact of credit, liquidity, foreign exchange as well as interest rate risks on Kenyan commercial banking institutions' financial performance. In this research, a target demographic of 42 banks and a causal research approach were considered. Secondary panel data from 2013 to 2017 were dissected employing descriptive and inferential statistical approaches. From the research, liquidity risk demonstrated a positive but insignificant association with the financial performance of surveyed Kenyan financial institutions.

Tassew and Hailu (2019) investigated the influence of risk management on 17 Ethiopian commercial banking institutions' financial performance. The research embraced a quantitative research technique. The analysis of panel secondary data from 2013 to 2017 was performed utilizing the panel random effect regression method. The findings attested to a negative as well as a significant connection between liquidity risk and the Ethiopian banking institutions' financial performance.

Njiru (2020) studied the impact of credit risk, interest risk, operating risk and liquidity risk on Kenyan commercial banking institutions' financial performance. The research was executed utilizing a descriptive cross-section blueprint and secondary data deduced out of the banks' yearly published financial records from 2015 to 2019. The scrutiny of the amassed data was performed utilizing descriptive, correlation, and multiple regression models. The results ascertained a statistically insignificant association between Kenyan commercial banks' financial performance and liquidity risk.

Onsongo, Muathe, and Mwangi (2020) conducted research that examined the financial risks' implications on the financial performance of 14 commercial and services NSE-quoted companies. In this research, an explanatory research investigative technique was adopted. Data for the period 2013 to 2017 were analyzed by applying the panel regression model. The findings manifested a negative as well as statistically significant interaction between liquidity risk and ROE of examined companies.

Otwoko and Maina (2021) investigated how liquidity risk impacted the financial performance of Kenyan DT-SACCOs. A target demographic of one hundred and seventy-six DT-SACCOs and a descriptive research approach were utilized in this research. The study exploited both longitudinal data covering the period 2013 to 2016 and primary data for the sampled 96 DT-SACCOs. The acquired data were analyzed via the regression method and the Kenyan DT-SACCOs' financial performance was attested to be significantly influenced by liquidity risk.

Credit Risk and Financial Performance

Gweyi (2018) examined whether the financial performance of Kenyan DT-SACCOs was being influenced by interest rate risk, credit risk, operational risk, as well as liquidity risk. The research embraced a descriptive research approach with a concentration on the targeted group of 164 DT-SACCOs undertaking business for the period ending December 2016. Secondary balanced panel data for 135 DT-SACCOs for the period 2010-2015 were compiled. The results of descriptive and inferential statistical analysis revealed a negative significant connection between financial performance attributed to the studied DT-SACCOs and credit risk.

Kioko, Olweny, and Ochieng (2019) explored how credit, market, operational and liquidity risks influenced the financial performance of NSE publicly traded commercial banking institutions. The research targeted a group of 11 quoted banks and utilized a descriptive research blueprint. A multiple regression approach was utilized to dissect secondary data derived out of the quoted bankers' published annual financial accounts and reports for the period 2014-2018. According to the study findings, credit risk's impact on the examined banks' financial performance was discovered to be statistically significant and negative.

Tassew and Hailu (2019) investigated the influence of risk management on 17 Ethiopian commercial banking institutions' financial performance. Quantitative research methodology was embraced in this research. The analysis of panel secondary data from 2013 to 2017 was performed utilizing the panel random effect regression method. The research ascertained a negative as well as significant interplay between the explored Ethiopian banking institutions' financial performance and credit risk.

Njiru (2020) studied the impact of credit, interest, liquidity, and operating risks on the financial performance attributable to Kenyan commercial banking institutions. The research utilized a descriptive cross-section approach and secondary data amassed out of the targeted banks' annually published financial accounts and reports for the period commencing 2015 to 2019. Data analysis

was executed via the descriptive, correlation and multiple regression models. The results exhibited a negative as well as a statistically significant interaction between the studied banks' financial performance and credit risk.

Onsongo, Muathe, and Mwangi (2020) conducted research that evaluated the ramifications of financial risks to the financial performance appertaining to 14 publicly traded commercial and services firms that were quoted at the NSE. In this investigation, an explanatory research methodology was adopted. Data for the period starting 2013 to 2017 were analysed harnessing the panel regression model. The results portrayed a positively insignificant interconnection between the ROE attributed to the examined NSE-listed commercial and services companies and credit risk.

Ali and Oudat (2020) explored the impact of financial risks on the financial performance of Bahrain Bourse-quoted commercial and investment banking institutions. This research targeted 18 banks in Bahrain and consumed secondary data compiled out of the Bahrain Stock Exchange repository with respect to the studied banks from 2014 to 2018. The results of a multiple regression review ascertained an insignificant impact of credit risk on financial performance.

Operational Risk and Financial Performance

Gweyi (2018) studied whether the financial performance of Kenyan DT-SACCOs was being influenced by interest rate risk, credit risk, liquidity risk, and operational risk. The research embraced a descriptive research approach with a concentration on the targeted group of 164 DT-SACCOs undertaking business for the period ending December 2016. Secondary balanced panel data for 135 DT-SACCOs for the period 2010-2015 were compiled. The results of descriptive and inferential statistical analysis portrayed a negative significant interaction between the financial performance attributed to the studied DT-SACCOs and operational risk.

Kioko, Olweny, and Ochieng (2019) explored the interaction between the financial performance of the publicly traded commercial banking institutions quoted on the NSE and credit risk, market risk, liquidity risk, and operational risk. In this research, a target population of 11 publicly traded banks and a descriptive research methodology were utilized. The secondary data for the period 2014-2018 derived from the banks' annually published financial statements and reports were analyzed with a multiple regression approach. Under the study conclusions, operational risk exhibited a negative as well as a statistically significant impact on the financial performance attributable to the studied banks.

Tassew and Hailu (2019) executed research that assessed the effect risk management had on 17 Ethiopian commercial banks' financial performance. The research embraced a quantitative research blueprint. The panel random effect regression method was applied to conduct data analysis of the panel secondary data from the years 2013 to 2017. The research found that the impact of operational risk on the targeted Ethiopian banking institutions' financial performance was negative and significant.

Mwaura and Njoka (2020) examined how the management of credit, liquidity, and operational risks influenced the performance of 41 SACCOs within Nairobi City County. A descriptive research approach and secondary panel data from 2014 to 2018 extracted out of SASRA's yearly supervisory reports were utilized in this research. Descriptive and inferential statistical techniques were exploited to execute analysis of the assembled data. Based on the research conclusions, operational risk management portrayed an enormous influence on the performance of the county's SACCOs.

Njiru (2020) studied the impact of credit risk, operating risk, interest risk and liquidity risk, on Kenyan bankers' financial performance. This research was performed utilizing a descriptive cross-section technique and secondary data derived from the banks' annually published financial statements from 2015 up to 2019. Data analysis was executed via descriptive, correlation, and multiple regression models. The research findings portrayed a statistically insignificant interaction between the financial performance of the studied Kenyan financial institutions and operational risk.

Onsongo, Muathe, and Mwangi (2020) conducted research that evaluated the ramifications of financial risks to the financial performance attributable to 14 publicly traded commercial and services firms that were quoted at the NSE. In this probe, an explanatory research methodology was adopted. Data for the period commencing 2013 to 2017 were analyzed by harnessing the panel regression model. The results portrayed a positively insignificant interconnection between the ROE attributed to the examined NSE-listed commercial and services companies and operational risk.

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Operational Framework

Financial risks; liquidity risk, credit risk and operational risk were the predictor variables and financial performance was the predicted variable as board characteristics moderate the relationship. The interaction is reflected in Figure 1.

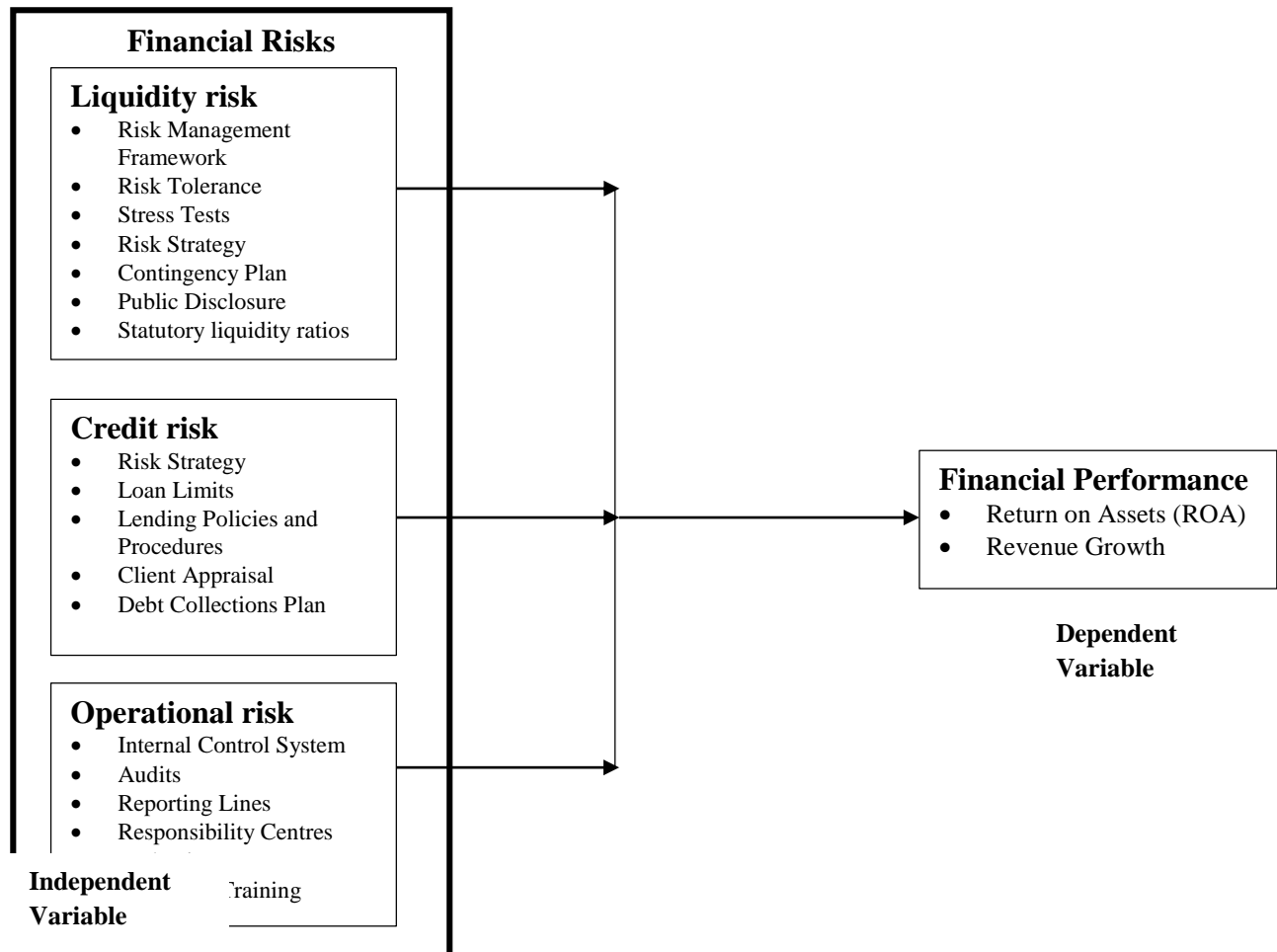


Figure 1: Operational Framework

Summary of the Research Gaps

An empirical review of the previous studies divulged conceptual, contextual and methodological gaps this research sought to address. First, from the past studies there was no consensus on the influence of financial risks on the financial performance of firms as these studies have generated mixed outcomes. Gweyi (2018); Onsongo, Muathe and Mwangi (2020), and Otwoko and Maina (2021) concluded that the impact of liquidity risk on the financial performance of firms was significant, whereas Kioko, Olweny and Ochieng (2019) and Njiru (2020) found an insignificant association. On credit risk, Kioko, Olweny and Ochieng (2019); Njiru (2020) and Omondi (2019) ascertained a negative and significant link between an organisation’s financial performance and credit risk while Onsongo, Muathe and Mwangi (2020) established a positive and insignificant impact, whereas a study by Ali and Oudat (2020) discovered an insignificant association. Finally,

studies by Kioko, Olweny and Ochieng (2019); and Tassew and Hailu (2019) established that financial performance was significantly impacted by operational risk while studies by Ali and Oudat (2020); Onsongo, Muathe and Mwangi (2020) and Njiru (2020) found an insignificant effect. This resulted in a conceptual gap that the current research intended to address.

Secondly, studies by Kioko, Olweny and Ochieng (2019); Njiru (2020) and Omondi (2019) were conducted on the commercial banks in Kenya. Similarly, Ali and Oudat (2020) and Tassew and Hailu (2019) were undertaken on the commercial banks in Bahrain and Ethiopia respectively. This yielded a contextual gap, as the present research was conducted on the DT-SACCOs in the Mt. Kenya region due to the limited available literature on the field. Thirdly, the mentioned studies have majorly banked on secondary data whereas the present research integrated both primary and secondary data responding to the above methodological gap.

METHODOLOGY

The research adopted the descriptive research design and all 56 SASRA-regulated DT-SACCOs with head offices in the Mt. Kenya region and undertaking business for the year ending 31st December 2021 were surveyed. Primary data and secondary data were used. A structured questionnaire administered via the drop and pick technique to the heads of risk management units was used to collate primary data. The questionnaire met the reliability and validity analysis tests. Secondary data for the period 2016-2021 was collated from SASRA reports and DT-SACCOs' audited financial statements. Descriptive and inferential analyses were undertaken using SPSS software. Normality, linearity, multicollinearity, autocorrelation, and homoscedasticity diagnostic tests were performed on the collected data prior to regression analysis. Simple regression, multiple regression, and hierarchical regression analysis were employed to depict the relationship between the research variables. Averages were computed and utilized in regression analysis.

RESULTS/FINDINGS

Response rate

The study generated a response rate of 76.79% from the respondents where 43 questionnaires were duly filled and it was considered acceptable for the research as recommended by Bell, Bryman and Harley (2019).

Deposit-Taking (DT) SACCOs Profiling

Demographic information on DT-SACCOs tier, cluster, and years of operation as well as the respondents' gender, working experience and highest academic credentials were collected. The results revealed that 51.2% of deposit-taking (DT) SACCOs in the Mt. Kenya region were small-tiered, followed by medium-tiered at 27.9% and large-tiered DT-SACCOs at 20.9%. The findings aligned with SASRA's position that over 46.59% of DT-SACCOs in Kenya were in the small-tiered category (SASRA, 2021). The majority of DT-SACCOs in the Mt. Kenya region were

agriculture-based at 48.8%, followed by government-based DT-SACCOs at 18.6%, and finally, private sector-based and community-based DT-SACCOs tied at 16.3%. All the respondents indicated that their DT-SACCOs had been operational for more than 10 years. 65.91% of the participants were male while the rest 34.09% were female. This signified that the DT-SACCOs in the Mt. Kenya region were compliant with the provisions of the Kenya Constitution, 2010 on a third gender rule. 43.18% of the participants had a work experience of between 5 and 10 years, followed by a period of more than 10 years at 34.09%, and then between 2 to 5 years at 15.91%, and lastly, 6.82% had a work experience of less than 2 years. This signified that the respondents were well-equipped to respond to the research questions. 86.05% and 2.32% of the heads of risk management were holders of Bachelor's and Master's degrees while 2.32% held higher diplomas. This implies that the respondents had the aptitude to respond to the study questions.

Descriptive Statistics for Financial Risks

This segment presents descriptive statistics on three forms of risks, notably, liquidity, credit, and operational risks. The participants were requested to respond to the Likert scale questions where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree.

Liquidity Risk

The study sought to determine the extent to which liquidity risk influences the financial performance of deposit-taking SACCOs in the Mt. Kenya region. The participants were requested to respond to a set of statements and results are depicted in Table 2.

Table 2: Descriptive Results for Liquidity Risk

Statement	N	Mini- mum	Maxi- mum	Mean	Std. Error	Std. Deviation
SACCO has established a robust liquidity risk management framework that ensures it maintains sufficient liquidity.	43	2	5	4.0930	.12808	.83990
SACCO's liquidity risk tolerance is well articulated in the business strategy.	43	1	5	3.8837	.13398	.87856
SACCO conducts stress tests on a regular basis to identify possible sources of liquidity strain.	43	2	5	3.8605	.12707	.83328
Regular stress tests ensure current exposures are within SACCO's specified liquidity risk tolerance.	43	2	5	3.5116	.11222	.73589
SACCO has a well-defined sound strategy for detecting, measuring, monitoring, and managing liquidity risk.	43	1	5	4.0698	.15029	.98550
SACCO has a formal contingency plan that lays out the strategies for dealing with liquidity deficiencies in the event of an emergency.	43	2	5	4.0233	.11279	.73964
SACCO publicly discloses information regularly on the SACCO's liquidity position.	43	1	5	4.1163	.11628	.76249
SACCO maintains the statutory liquidity ratios as required by the prudential guidelines.	43	2	5	4.1395	.10825	.70984
Overall				3.9622	.05137	.33689

The results show that the maintenance of statutory liquidity ratios had the highest effect (mean=4.1395), followed by public disclosure of liquidity position (mean=4.1163), the existence of a formal contingency fund (mean=4.0233), robust liquidity risk management framework (mean=4.09330), and sound strategy for detecting, measuring, monitoring and managing liquidity risk. The articulation of liquidity risk tolerance in business strategy (mean=3.8837), conducting regular stress tests (mean=3.8605), and regular stress tests ensure current exposures are within specified liquidity risk tolerance had the least impact on liquidity risk. Overall, liquidity risk yielded a mean score of 3.9622 which implies that the respondents agreed with the listed statements and that liquidity risk has a substantial influence on financial performance.

Credit Risk

The research strived to examine the extent to which credit risk influences the financial performance of deposit-taking SACCOs in the Mt. Kenya region.

Table 3: Descriptive Results for Credit Risk

Statement	N	Minimum	Maximum	Mean	Std. Error	Std. Deviation
The SACCO has a well-defined strategy for regulating, controlling, and handling delinquent lending instances.	43	1	5	3.8837	.13398	.87856
The SACCO applies and enforces loan limitations to the diverse categories of internal and external borrowers.	43	1	5	3.9535	.14100	.92462
The SACCO has a well-defined set of policies and procedures that govern lending decisions.	43	2	5	4.0698	.11234	.73664
The SACCO adheres to and implements a strict model for client appraisal before delivering the lending decision.	43	2	5	3.8605	.09748	.63925
The SACCO has an effective debt collections plan in place to ensure that funds are collected from the borrowers.	43	1	5	3.7674	.12818	.84056
Overall				3.9070	.06766	.44368

The responses show that well-defined policies and procedures governing lending decisions had the highest impact (mean=4.0698), followed by application and enforcement of loan limitations (mean=3.9535), a well-defined strategy for regulating, controlling and handling delinquent decisions (mean=3.8837), and adherence and implementation of client appraisal model (mean=3.8605). An effective debt collection plan had the lowest mean score of 3. Overall, credit risk yielded a mean score of 3.9070, a connotation that credit risk substantially influences financial performance.

Operational Risk

The research requested to establish the extent to which operational risk influences the financial performance of deposit-taking SACCOs in the Mt. Kenya region.

Table 3: Descriptive Results for Operational Risk

Statement	N	Minimum	Maximum	Mean	Std. Error	Std. Deviation
The SACCO possesses a strict internal control system that enhances efficiency.	43	1	5	3.7209	.15368	1.00772
The SACCO's internal control system promotes transparency.	43	2	5	3.8605	.12707	.83328
The SACCO'S internal control system eliminates wastage.	43	1	5	3.7209	.13028	.85428
The SACCO conducts regular audits and acts on the findings.	43	2	5	4.0233	.11279	.73964
There are clear communication and reporting lines in the SACCO.	43	2	5	3.9302	.09050	.59343
The centres of responsibility and authority are clearly stipulated to ensure everyone and each unit is held accountable.	43	2	5	3.8372	.11494	.75373
To ensure objective spending in the SACCO, all departmental operations are guided by budgets.	43	1	5	3.6977	.13532	.88734
The employees are regularly trained to ensure they adapt to the changing needs of the cooperative sector.	43	1	5	2.9767	.15426	1.01156
Overall				3.7209	.05609	.36783

The results show that the conduct of regular audits and acting on findings had the highest impact (mean=4.0233), followed by clear communication and reporting lines (mean=3.9302), internal control system promotes transparency (mean=3.8605), centres of responsibility and authority (mean=3.8372), possession of internal control system that enhances efficiency (mean=3.7209), internal control system eliminates wastage (mean=3.7209), and departmental operations and spending are guided by budgets for objective spending (mean=3.6977). Regular training of employees had the lowest mean score of 2.9767. Overall, operational risk yielded a mean score of 3.7209, implying that operational risk substantially influences financial performance.

The overall mean for liquidity risk, credit risk, and operational risk were 3.9622, 3.9070, and 3.7209 respectively. The means were closer to a value of 4 which on the Likert scale confirms that the majority of the heads of the risk management agreed that financial risks influenced the performance of their DT-SACCOs. This position was congruent with the study by Kinyua and

Warui (2020) who concluded that measures instituted by deposit-taking SACCOs to manage financial risks possessed significant influence on their operations and profitability.

Descriptive Statistics for Financial Performance

The research aimed to establish the financial performance of DT-SACCOs in the Mt. Kenya region in respect to Return on Assets (ROA) and revenue growth. Secondary data on financial performance were deduced out of the financial statements and SASRA's annual supervisory reports for the period 2016 to 2021. The outputs are depicted in Table 5.

Table 5: Descriptive Statistics for Financial Performance

	N	Minimum	Maximum	Mean	Std. Deviation
Return on Assets	43	-8.72	11.84	4.0647	3.29194
Revenue Growth	43	-3.39	30.56	13.6419	7.91366

From Table 5, the maximum ROA was 11.84% while the minimum ROA was -8.72%. The mean ROA was 4.0647% with a standard deviation of 3.29194. On revenue growth statistics, the largest and smallest scores were 30.56% and -3.39% respectively. The mean revenue growth was 13.6419% with a standard deviation of 7.91366. This means DT-SACCOs were financially performing well since the mean values for ROA and revenue growth were positive. This was in tandem with Kioko, Olweny, and Ochieng (2019) who opined that firms that record a positive mean metric even after incorporating a standard deviation were considered to be profitable.

Correlation Analysis

Correlation analysis was conducted to test for linearity of the study variables. The output is provided in Table 6.

Table 6: Correlation Analysis Results

		Liquidity Risk	Credit Risk	Operational Risk	Financial Performance
Liquidity Risk	Pearson Correlation	1	.296	-.111	-.156
	Sig. (2-tailed)		.054	.480	.317
Credit Risk	Pearson Correlation	.296	1	-.297	.346*
	Sig. (2-tailed)	.054		.053	.023
Operational Risk	Pearson Correlation	-.111	-.297	1	-.115
	Sig. (2-tailed)	.480	.053		.463

*. Correlation is significant at the 0.05 level (2-tailed).

As shown in Table 6, based on the $r=-0.156$ and $p\text{-value of } 0.317 > 0.005$, liquidity risk was

negatively and insignificantly related to the financial performance of DT-SACCOs in the Mt. Kenya region at a 0.05 significance level. Credit risk was positively and significantly associated with financial performance at a 0.05 significance level, with $r=0.346$ and $p\text{-value } 0.023 < 0.05$. At $r=-0.115$ and $p\text{ value } 0.463 > 0.05$, operational risk was negatively and insignificantly associated with financial performance.

Regression Analysis

Simple regression analysis was performed to examine how each predictor variable influenced the dependent variable. Multiple regression analysis was executed to establish the joint influence of the independent variables on the predicted variable.

Liquidity Risk and Financial Performance

A simple regression approach was used to determine the effect of liquidity risk on the financial performance of DT-SACCOs in the Mt. Kenya region. The outcomes are illustrated in Tables 7, 8 and 9.

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.156 ^a	.024	.001	5.02213

a. Predictors: (Constant), Liquidity Risk

The R score of 0.156 demonstrates the existence of a relationship between liquidity risk and the financial performance of DT-SACCOs in the Mt. Kenya region. The R squared value of 0.024 implied that ceteris paribus, liquidity risk explained 2.4% of the financial performance of DT-SACCOs in the Mt. Kenya region. The remaining 97.6% is attributable to variables not considered in the model.

Table 8: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25.879	1	25.879	1.026	.317 ^b
	Residual	1034.095	41	25.222		
	Total	1059.974	42			

a. Dependent Variable: Financial Performance

b. Predictors: (Constant), Liquidity Risk

The model was established to be insignificant with a $p\text{-value of } 0.317^b > 0.05$ and an F score of 1.026. This denotes that liquidity risk insignificantly influences financial performance.

Table 9: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	12.069	6.232		3.541	.001
Liquidity Risk	-.093	.092	-.156	-1.013	.317

a. Dependent Variable: Financial Performance

Liquidity risk exhibited a negative and insignificant effect on financial performance ($\beta=-0.093$, $p=0.317>0.05$) as illustrated in Table 9. This translates to a regression model of the form $Y=12.069-0.093X_1+ \epsilon$, where 12.069 is the constant, -0.093 is the regression coefficient for Liquidity risk and ϵ =error term. Given the $|t|\leq 1.96$, liquidity risk significantly influences financial performance, and therefore, the null hypothesis that liquidity risk has no statistically significant influence on the financial performance of DT-SACCOs in the Mt. Kenya region was accepted at a 5% significance level.

Credit Risk and Financial Performance

A simple regression approach was used to examine the effect of credit risk on the financial performance of DT-SACCOs in the Mt. Kenya region. The outcomes are illustrated in Tables 10, 11, and 12.

Table 10: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.346 ^a	.120	.098	4.76999

a. Predictors: (Constant), Credit Risk

The R score of 0.346 demonstrates the existence of a relationship between credit risk and the financial performance of DT-SACCOs in the Mt. Kenya region. The R squared value of 0.120 implied that credit risk explained 12.0% of the financial performance of DT-SACCOs in the Mt. Kenya region. The remaining 88.0% is attributable to variables not considered in the model.

Table 11: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	127.110	1	127.110	5.587	.023 ^b
	Residual	932.864	41	22.753		
	Total	1059.974	42			

a. Dependent Variable: Financial Performance

b. Predictors: (Constant), Credit Risk

The model was established to be significant with a p-value of $0.023^b < 0.05$ and an F score of 5.587 as shown in Table 11. This denotes that credit risk has a substantial influence on financial performance.

Table 12: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.442	4.862		.914	.366
	Credit Risk	.159	.067	.346	2.364	.023

a. Dependent Variable: Financial Performance

Credit risk exhibited a positive and significant effect on financial performance ($\beta=0.159$, $p=0.023 < 0.05$) as illustrated in Table 12. This translates to a regression model of the form $Y=4.442+0.159X_1+ \epsilon$, where 4.442 is the constant, 0.159 is the regression coefficient for credit risk and ϵ =error term. Given the $|t| \geq 1.96$, credit risk significantly influences financial performance and therefore, the null hypothesis that credit risk has no statistically significant influence on the financial performance of DT-SACCOs in the Mt. Kenya region was rejected at a 5% significance level.

Operational Risk and Financial Performance

A simple regression approach was used to establish the effect of operational risk on the financial performance of DT-SACCOs in the Mt. Kenya region. The outcomes are illustrated in Tables 13, 14 and 15.

Table 13: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.115 ^a	.013	-.011	5.05088

a. Predictors: (Constant), Operational Risk

The R score of 0.475 demonstrates the existence of a positive correlation between operational risk and the financial performance of DT-SACCOs in the Mt. Kenya region. The R squared value of 0.226 implied that credit risk explained 22.6% of the financial performance of DT-SACCOs in the Mt. Kenya region. The remaining 77.4% is attributable to variables not considered in the model.

Table 14: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.009	1	14.009	.549	.463 ^b
	Residual	1045.965	41	25.511		
	Total	1059.974	42			

a. Dependent Variable: Financial Performance

b. Predictors: (Constant), Operational Risk

The model was established to be insignificant with a p-value of $0.463^b > 0.05$ and an F score of 0.549. This denotes that operational risk insignificantly influences financial performance.

Table 15: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	12.099	1.910		8.952	.000
Operational Risk	-.140	.188	-.115	-.741	.463

a. Dependent Variable: Financial Performance

Operational risk exhibited a negative and insignificant effect on financial performance ($\beta = -0.140$, $p = 0.463 > 0.05$) as illustrated in Table 16. This translates to a regression model of the form $Y = 3.438 + 0.316X_1 + \epsilon$, where 3.438 is the constant, 0.316 is the regression coefficient for operational risk and ϵ = error term. Given the $|t| \leq 1.96$, operational risk significantly influences financial performance and therefore, the null hypothesis that operational risk has no statistically significant influence on the financial performance of DT-SACCOs in the Mt. Kenya region was accepted at a 5% significance level.

Financial Risks and Financial Performance

A multiple regression analysis was conducted to evaluate the joint predictive effect of liquidity risk, credit risk, and operational risk on the financial performance of DT-SACCOs in the Mt. Kenya region. The outputs are illustrated in Tables 16, 17, and 18.

Table 16: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.440 ^a	.194	.132	4.68106

a. Predictors: (Constant), Liquidity Risk, Credit Risk, Operational Risk

The R squared value of 0.194 signifies that ceteris paribus, liquidity risk, credit risk and operational risk jointly explained 19.4% of the variation in the financial performance of DT-SACCOs in the Mt. Kenya region. Conversely, the remaining 80.6% was attributable to factors outside the model.

Table 17: ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	205.393	3	68.464	3.124	.037 ^b
Residual	854.581	39	21.912		
Total	1059.974	42			

a. Dependent Variable: Financial Performance

b. Predictors: (Constant), Liquidity Risk, Credit Risk, Operational Risk

Based on the ANOVA results, the model was established to be significant with an F ratio of 3.124 and a p-value of 0.037^b. This denotes that financial risks significantly influence financial performance.

Table 18: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	13.501	7.377		1.830	.075
Liquidity Risk	-.169	.089	-.284	-1.888	.066
Credit Risk	.194	.072	.425	2.708	.010
Operational Risk	-.025	.183	-.020	-.134	.894

a. Dependent Variable: Financial Performance

From Table 18, liquidity risk, credit risk, and operational risk had regression coefficient scores of $\beta_1 = -0.169$, $\beta_2 = 0.194$, and $\beta_3 = -0.025$ respectively. This implies that at a 0.05 significance level, the effect of liquidity risk on financial performance was negative and statistically insignificant (p value= 0.066, $|t| \leq 1.96$). Credit risk exhibits a positive and statistically significant influence on financial performance (p value=0.010, $|t| \geq 1.96$), while operational risk had a negative and statistically insignificant effect (p value=0.894, $|t| \leq 1.96$) on the financial performance of deposit-taking SACCOs in the Mt. Kenya region. The multiple regression model with the unstandardized coefficients will take the form: $Y = 13.501 - 0.169X_1 + 0.194X_2 - 0.025X_3 + \epsilon$.

DISCUSSION

Liquidity risk affects the financial performance of DT-SACCOs in the Mt. Kenya region negatively and insignificantly. This was congruent with studies undertaken by Kioko, Olweny and Ochieng (2019) and Njiru (2020) where liquidity risk was determined to have a negative and insignificant impact on financial performance. However, the conclusion contradicts studies by Onsongo, Muathe and Mwangi (2020), and Tassew and Hailu (2019) who established that liquidity risk exhibited a negative and significant influence on financial performance. Further, the results also contradict the findings by Omondi (2019) who found a positive but insignificant impact of liquidity risk on financial performance. This denotes that a rise in liquidity risk shrinks the financial performance of DT-SACCOs.

The effect of credit risk on the financial performance of DT-SACCOs in the Mt. Kenya region was positive and significant. The result was in agreement with the findings by Onsongo, Muathe and Mwangi (2020) who found that credit risk exhibited a positive impact on financial performance. However, their results were insignificant. This conclusion, however, contradicts studies by Gweyi (2018), Kioko, Olweny and Ochieng (2019), Njiru (2020), and Tassew and Hailu (2019) who established credit risk to have a negative and significant influence on financial performance. This

denotes that a rise in credit risk increases the financial performance of DT-SACCOs.

The effect of operational risk on the financial performance of DT-SACCOs in the Mt. Kenya region was established to be negative and insignificant. The results aligned with studies by Gweyi (2018), Kioko, Olweny and Ochieng (2019), Muriirhi (2016), and Tassew and Hailu (2019). However, the findings on operational risk from this study were established to be insignificant. The conclusion contradicted with results from studies conducted by Mwaura and Njoka (2020), and Onsongo, Muathe and Mwangi (2020) who found a positive interaction between financial performance and operational risk. This implies that a rise in operational risk decreases the financial performance of DT-SACCOs.

CONCLUSION

The research investigated the effect of liquidity risk, credit risk and operational risk on the financial performance of DT-SACCOs in the Mt. Kenya region. From the findings, the study concluded that liquidity risk and operational risk have a negative and insignificant effect on the financial performance of DT-SACCOs in the Mt. Kenya region. On the other hand, credit risk has a positive and significant effect on the financial performance of DT-SACCOs in the Mt. Kenya region. Consequently, the null hypotheses that liquidity risk (H_{01}) and operational risk (H_{03}) had no statistically significant influence on the financial performance of DT-SACCOs in the Mt. Kenya region were accepted. On the other hand, the null hypothesis that credit risk (H_{02}) had no statistically significant influence on the financial performance of DT-SACCOs in the Mt. Kenya region was rejected.

IMPLICATION TO RESEARCH AND PRACTICE

The government, SASRA, policymakers, DT-SACCOs' boards of directors, and management need to closely monitor liquidity risk as it reduces the financial performance of DT-SACCOs. The operations of DT-SACCOs are strongly pegged on liquidity and it's paramount that DT-SACCOs maintain optimal liquidity for better performance. DT-SACCOs should implement a robust liquidity risk management framework, articulate risk tolerance on business strategy, conduct regular stress tests and conduct periodic reviews of liquidity levels.

Credit risk has a positive influence on financial performance and therefore, the management of DT-SACCOs should continue tightening the credit risk management practices since if the SACCOs fail to observe the practices the financial performance will be affected negatively. DT-SACCOs, therefore should ensure their credit risk strategy is clearly defined, loan limits are applied, lending policies and procedures are clearly defined and observed, client appraisal is conducted and an effective debt recovery plan is instituted.

The study imparts new insights to the body of literature on financial risks and financial performance and provides a basis for other researchers to explore the interplay between financial risks and financial performance.

FURTHER RESEARCH

This research investigated the effect of financial risks on the financial performance of DT-SACCOs in the Mt. Kenya region. Studies can be conducted in other regions for comparison purposes. Secondly, the study focused on liquidity risk, credit risk, and operational risk leaving out other emerging risks, and therefore future studies should incorporate more risks in the research. Lastly, this research purposively selected the Mt. Kenya region and recommends future research to consider a random sampling of DT-SACCOs in Kenya.

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