



**EFFECT OF DIVERSIFICATION ON LOAN DEFAULT RATE IN NON DEPOSIT TAKING SAVINGS AND CREDIT COOPERATIVE SOCIETIES, KAKAMEGA COUNTY KENYA**

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**ABSTRACT**

*The objective of the study was to determine the effect of diversification on the loan default rate of non-deposit taking savings and credit cooperative societies in Kakamega County. The study adopted descriptive survey design. The study targeted 255 respondents from 46 non-deposit taking SACCOs in Kakamega County. The study sampled 144 respondents using stratified random sampling techniques. Primary data was collected using structured questionnaire. Validity was achieved through expert opinions of the supervisors while reliability was achieved through Cronbach alpha. Quantitative data was analyzed descriptively using frequencies, Mean, Standard deviation and percentage while Pearson's Product Moment Correlation Coefficient and Multiple linear regression analysis with aid of SPSS version 23 to generate inferential statistics. The data was presented in form of tables and regression models. The study established that diversification has a negative influence on loan default rate. The study concluded that diversification influence loan default rate of non-deposit taking savings and credit cooperative societies in Kakamega County. The study therefore recommended that SACCOS continue to diversify their lending activities and allocate more funds to the productive sectors of the economy. This is because a well-diversified portfolio has a tendency of reducing risk associated with lending.*

**Key Words:** *Diversification, Loan Default, SACCOs*

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## INTRODUCTION

Diversification is a credit risk hedging strategy that entails provision of different loan products to different classes of borrowers in different economic sectors. The rate of non-performing loans is determined by macro-economic factors like inflation, interest rates, exchange rates and GDP per capita, client specific factors like character and poor loan monitoring (Kibosia, 2012). By adopting the principle of diversification, financial institutions can reduce the default rate even when an entire sector has been struck by an economic catastrophe. This strategy is currently applied by Kenyan SACCOS' which previously targeted a specific sector. A good example is the Invest and Grow SACCOS which previously was KATECO that targeted teachers in Kakamega only. Currently, the SACCOS has open membership and it is recruiting members from all regions and sectors of the economy. Credit risk can be divided into transaction risk and portfolio risk (spuchlakova et al, 2015). Transaction risk is the individual risk of default while portfolio risk is the collective risk associated with a specific category of borrowers. Political instability causes economic slowdown which leads to an increase in non-performing loans (CBK, 2017) and having a diversified portfolio that includes borrowers whose income is not affected by political instability helps to reduce the overall default rate. For instance, in Uganda, agricultural and construction sectors have the highest rates of NPLs while trade and manufacturing sectors have low default instances (Busuulwa, 2016). The type of interest charged and the loan tenure also helps in classification of loans and portfolio diversification.

Different countries have adopted different credit hedging strategies to reduce the effect of loan defaults to financial institutions. In Malaysia, borrowers commitment of asset during loan advancement, use of guarantors, use of insurance to secure the loans in case of default, firms diversification of loans services, training and development of staff and guidelines for loan approval, asset quality, adequate provision of

default rate and disclosure are among important strategies used in Malaysia to caution financial institutions from effect of default risk. Haque et al (2011) found out that the use of guarantors, training and monitoring of borrowers and credit staff was reason for low credit risk in china, Bangladesh and Europe. Abdeirahim (2013), asserts that training of credit officers promotes the effective credit management for Saudi Arabia Banks.

African credit market is characterized by both formal and informal credit. Zollman (2016) observed that the information credit providers do not abide by regulations of consumer protection. They eliminate the default risk by use of cruel and unethical debt collection procedures. In Nigeria, Client appraisal is used and environmental, social and governance issues are considered while ascertaining credit risk ([www.unepfinet](http://www.unepfinet)). Ross et al (2010) claims that screening of the borrowers by use credit policy can help reduce loan default. Likewise social cohesion, group guarantors, use of loan portfolio limit and diversification of loan portfolio were applied as effective credit risk mitigation techniques in Nigeria, Moti et al (2012).

Unlike other Africa countries, the growth and acceptance of mobile service in Kenya has created different environment. There are more informal credit providers using the online platform in addition to the already flooded formal market. Lenders are compelled to come up with new strategies and ventures into new markets. This situation has led to increase of credit risk exposure in financial institutions. Zollmen (2016) noted that mobile loans like Mshwari experienced delays and default of payment. Company offering online credit, use credit reference bureau to obtain the information of the borrower before advancing further loan to him. Such companies are able to check credit worthiness of the borrower and perform background check to confirm if he/she has ever defaulted loan in the past. Credit appraisal, insurance, guarantors and information from credit bureau, are the most relied upon credit risk hedging

strategies by many financial institutions advancing loan to its customers in Kenya. Collateral is also relied upon by some organizations. Many financial institutions have resolved to use collateral substation measures such as use of guarantor when advancing loans to its customers. According to Latif (2014) organizations like one acre fund offer loans to agriculture using the expected products as collateral, He recommended such organizations to insure those assets used as collateral to loan advancement. Credit reminders and visiting premise/residential home have been used by many micro finance institutions in enforcing loan collection to reduce default rates. Zeze (2012) confirmed the effectiveness of this strategy and all the banks in her study used credit reminders and visiting the client premises in minimizing credit default risk hence enhancing profitability of those institutions. This study sought to evaluate the effect of diversification on loan default rate in non-deposit taking savings and credit cooperative societies (SACCOS') in Kakamega County.

### **Statement of the Problem**

Non Deposit Taking Savings and credit cooperatives societies play a very critical role in the Kenya financial sector. Their role in uplifting lives in the community through financial inclusion. According to Kurus & Kalio (2014), SACCOS have helped members to mobilize Savings and Borrow in turn for investment purposes. SACCOS provide an alternative to banks for low income earners, who need financial assistance. Their flexibility and favorable terms and conditions of borrowing have meant much easier access to credit from SACCOS compared to commercial banks (Kurui & Kalio 2014). The conditions of lending in SACCOS are most lenient as opposed to other financial institution like banks as eluded by (Kurui & Kalio 2014). Members don't need to give collateral (asset) to secure the loan as banks do; they only need a guarantor to access the loans. This has exposed SACCOS to considerable risk of default. Credit risk is that risk that can easily and will most likely prompt SACCO failure (Boateng 2011),

Contrary to the popular belief that default rate in SACCOS is negligible, the statistics from the Ministry of Industrialization and Enterprise Development indicate a considerable increase in the amount defaulted by Sacco Members each year (Kibui & Maroge, 2014). While a strict credit policy seems to protect an organization from credit defaulters, Kimondo (2013), discourages such a policy because it is not customer friendly. The management of SACCOS are therefore posed with the challenge of formulating credit risk hedging strategies that protect the organization while at the same time attract clients. Poor risk management practices leads to reduction of revenue and bankruptcy of organizations (Al-Mojahid, 2010). Unplanned lending, lack of portfolio diversification and inadequate monitoring are some of the causes of financial crisis (Gopal, 2010). Kenya Cooperative Creameries (KCC) is one of the firms that collapsed due to financial crisis (Maina & Sakwa 2012). "The annual increase of non-performing loans was a major concern to the commissioner of cooperatives" Geoffrey Jang'ombe Maingi deputy commissioner of cooperative Kenya, in this year's annual general meetings of Harambee Sacco. Judging from the above mentioned points it concluded that the main reason for this research project was to critically analyzing the effect of diversification on loan default rate of non-deposit taking SACCO's in Kakamega county Kenya.

### **Objectives of the Study**

The objective of the study was to ascertain whether diversification has an effect on loan default rate of non-deposit taking savings and credit cooperative societies in Kakamega County.

The study was guided by the following research hypothesis

- $H_{01}$ : Diversification does not affect the loan default rate of non-deposit taking SACCOS in Kakamega County.

## LITERATURE REVIEW

### Modern Portfolio Theory

The theory was mainly expounded by Harry Markowitz (1927) through chain of publications and articles and further extended and refined by William Sharpe (1934). Modern portfolio theory is therefore a theory of finance which endeavours in maximization of portfolio anticipated return within certain level of risk in a portfolio, or help in reducing risk within certain level of anticipated yield to minimal level, by creating a suitable choice of various assets proportionally.

The argument advanced by Markowitz (1952) was that by investing in assets whose returns with different levels of returns, investors are able to offset certain common risks in individual stocks and hence recommends that investors are required to choose certain financial assets in an investment portfolio determined by each individual asset portfolio contribution in the mean and variance of the entire portfolio (Lintner, 1975).

Indeed, according to Kaplan and Schoar (2005), portfolio theory is considered one of the influential economic theories and asserts that an "efficient frontier" asset portfolios at optimal levels if developed may offer possible optimal expected return for a specified risk level stated. This means

therefore that in addition to reviewing the expected risk and return of an individual asset there is need to make informed analysis on the combined portfolio risk and return trade off the importance of portfolio diversification, specifically the minimization of the riskiness of the portfolio.

The main assumption of the theory is that all investors are risk averse and are not considering risky assets portfolio unless with minimal risks and higher expected rate of return. It helps in assessing risk and return in a mix of securities and its association. In banks, the assets are represented by loans and thus it is relevant in explaining the need for banks to have a mix of portfolio from different economic sectors and industries that yields high returns with possible minimal risks (Lintner, 1975).

This theory is relevant in this study in regard to diversification and on loan default rate. Modern Portfolio Theory formulates the concept of diversification in investing with the aim of selecting investment having collectively lower risks than any individual product. With regards to portfolio diversifications, the Modern Portfolio Theory aids the non-deposit taking SACCOs in describing investment options in terms of the inherent risks and expected returns, determining the allocation of resources among classes of investments, reconciling risks and returns and measuring performance.



**Figure 1: Conceptual Framework**

Credit risk inherent in loan portfolio can be managed through a well-diversified loan product portfolio. Loans with high credit risk are combined with loans bearing a low credit risk. By offering a diverse loan products portfolio to its customers depending on their needs, a financial institution is able to reduce its unsystematic risk associated with lending (Ho and Yossuff, 2009). In designing the

loan product the financial institutions takes into consideration the client's changing needs and cash flow' patterns are taken in to consideration (USAID, 2008). Credit risk diversification is one of the highest practiced prudential guidelines by banks and other financial intermediaries. Diversification helps to spread risks so as minimize the impact of loss in the case of risk occurrence (Ahmed and

Malik, 2015). By applying this technique, firms invest various classes of portfolios to spread the risk if borrowers default on their loans. This may entail investment in securities and reinsurance of loan products.

Kimani (2018) investigated the relationship between credit risk diversification and loan performance among DT-SACCOs headquartered in Nairobi County. A descriptive study of Credit risk management techniques used by SACCOS was conducted. The study focused on 36 DT-SACCOs headquartered in Nairobi County. The study used both primary and secondary data. Primary data was collected using structured and semi-structured questions and open and close ended questions. Results from the study suggest that there was a significant positive correlation between credit diversification and loan performance.

Ndambiri, Munene & Wanjohi (2017) sought to determine the effect of loan portfolio characteristics on the level of Non-Performing Loans for Savings and Credit Co-operative Societies in Kirinyaga County. The study was conducted on Deposit Taking Savings and Credit Co-operative Societies in Kirinyaga County, Kenya. The researcher used both descriptive and causal research design. The Deposit Taking Savings and Credit Co-operative Societies registered by Savings and Credit Co-operative Societies Regulatory Authority for the period 2011-2014 in Kirinyaga County were six and hence a census was conducted. The findings of the study established that loan portfolio diversification affected the level of Non-Performing Loans for Savings and Credit Co-operative Societies in Kirinyaga County.

Onuko, Muganda & Musiega (2015) sought to determine the effect of credit risk management on loan portfolio Quality of Tier One commercial banks in Kenya. The study used loan diversification as the independent variable while loan portfolio quality as the dependent variable. The quality of the loan portfolio was measured by use of Non-performing Assets (NPA's). The study employed descriptive research design. A sample of 35 was obtained

through purposive sampling technique. The findings indicated loan portfolio diversification had significant positive effect on the level of NPA.

Wachilonga (2018) examined the effect of finance determinants on loan repayment performance of Youth Enterprise Development Fund Board beneficiaries in Trans-Nzoia County. Specific objective was to determine the effect of portfolio diversification on loan repayment performance. The study used a descriptive survey research design. The target population comprised of 1,077 individual loan beneficiaries. A total of 438 respondents participated in the study. A semi-structured questionnaire was used to collect data. There was no significant difference in means among three categories of the YEDFB loan beneficiaries regarding their portfolio diversification and their debt management practices.

Abid, Ouertani & Zouari-Ghorbel (2014) examined the effect of loan portfolio diversification on Tunisian banks profitability over the period 2000-2015. By using panel data method the study revealed that focusing on few sectors is more profitable than diversifying bank lending operations. In addition, we find that this negative impact is more pronounced in private banks. Adzobu, Agbloyor & Aboagye (2017) tests whether diversification of credit portfolios across economic sectors leads to improved profitability and reduced credit risks for Ghanaian banks that have been characterized by high non-performing loans in recent times. The study shows that loan portfolio diversification does not improve banks' profitability nor does it reduce banks' credit risks.

Maubi & Jagongo (2014) sought to establish the association between corporate loan portfolio diversification and credit risk management among commercial banks in Kenya. The study employed descriptive research design. The study targeted 86 respondents. Data was collected by use of a questionnaire. The study found out that there was no association between geographical diversification and credit risk management, an association between industry diversification and credit risk

management and an association between size diversification and credit risk management at the banks.

### **Empirical Review**

Odonkor (2018) critically examines the credit risk management practices of rural banks in Ghana making reference from Adansi Rural Bank Limited. The researcher used a purposive sampling technique to select a sample size of forty respondents which comprised of branch managers and credit officers from four branches of the rural bank. The researcher used a well-structured questionnaire and a face to face interview to collect primary data for this study. The researcher used primary and secondary data in the study and descriptive statistical tools were employed in analysing the data collected. The study is a descriptive researcher. It was evident in this study that Adansi Rural Bank depends on collateral security, strict enforcement of restrictive covenant, guarantees, legal actions and credit insurance in mitigating credit risk exposures.

Joshua and Oluoch (2018) strived to find out the effect of credit risk management on the loan repayment performance of money deposit banks in Nigeria. The dependent variable of this study being loan repayment performance and the independent variables being credit risk insurance and credit portfolio diversification. The entire population of 22 listed money deposit banks in Nigeria was considered for the study and secondary data was obtained from their financial statement (2009-2016) which statutorily were released to the public for consumption. The findings of the study shows there was significant and positive relationship between two of the independent variable (credit risk insurance, credit portfolio diversification) and the dependent variable, all these was substantiated with the p-value of less than 0.05 recorded by each construct of the independent variable and the researcher concluded that the credit risk insurance and credit portfolio diversification has an effect on the loan repayment performance of money deposit banks in Nigeria

Onuko, Muganda & Musiega (2015) sought to determine the effect of credit risk management on loan portfolio Quality of Tier One commercial banks in Kenya. The study used loan diversification and loan collateral as the independent variable while loan portfolio quality as the dependent variable. The quality of the loan portfolio was measured by use of Nonperforming Assets (NPA's).The study employed descriptive research design. A sample of 35 was obtained through purposive sampling technique. Data was collected through both primary and secondary methods. Data was analyzed by use of descriptive statistics and further by use of regression model run on Statistical Package for Social Sciences (SPSS) version 20. The findings indicated loan diversification and loan collateral had significant positive effect on the level of NPA.

### **METHODOLOGY**

This study adopted descriptive survey research design as the study attempted to determine the effect of diversification on the loan default rate of non-deposit taking savings and credit cooperative societies. The population of this study comprised of 255 respondents from 46 non deposit taking SACCOs in Kakamega County. The sample size was determined using the Yamane's formula for calculating sample size (Yamane, 1967) and the sample size used in the study was 144. Stratified random sampling was done across the stratified levels of employees cutting across the credit section and finance section. The study used primary data collection instruments. Primary data was obtained from respondents through the use of questionnaires. Data was summarized, edited and coded. Both descriptive and inferential statistics were used to analyze the data collected. This was done using SPSS software version 22. Pearson Correlation analysis enabled the researcher determine whether there is a relationship between variables while multiple linear regression enabled the researcher establish the extent to which the independent variables affect loan default rate of SACCOs. Multiple regression models was used to

find out the relationship between the independent variable and the dependent variable.

The first objective of the study was to ascertain whether diversification has an effect on loan default rate of non-deposit taking SACCOS. The respondents were expected to indicate their agreement in regard to five statements related to diversification and loan default rate. The pertinent descriptive results were presented in table 1.

## FINDINGS AND DISCUSSIONS

### Descriptive Statistics: Diversification and Loan Default Rate

**Table 1: Descriptive statistics; Diversification**

Statement	5	4	3	2	1	Mean	Std. Dev
1 Sacco gives loans to different sectors and individuals	10 (8.8)	52 (46)	35 (31)	10 (8.8)	6 (5.3)	3.44	0.96
2 The Sacco is prone to less concentration risk due to a large number of loan products.	23 (20.4)	46 (40.7)	30 (26.5)	10 (8.8)	4 (3.5)	3.65	1.02
3 Sacco with more loan products are prone to less credit risk than those with fewer loan products	24 (21.2)	53 (46.9)	23 (20.4)	9 (8)	4 (3.5)	3.74	1.00
4 There have been an increase in the number of new loan products in recent years	15 (13.3)	54 (47.8)	24 (21.2)	14 (12.4)	6 (5.3)	3.51	1.04
5 The number of defaulted loans have greatly gone down as result of tailored loan products	14 (12.4)	70 (61.9)	13 (11.5)	10 (8.8)	6 (5.3)	3.67	0.99
<b>Valid list wise=113</b>							
<b>Grand mean =3.61</b>							

Results in Table 1 indicated that slight majority of the respondents agreed (46.0%) that their Saccos give loans to different sectors and individuals while 8.8% of the respondents strongly agreed. However, 31.0% of the respondents were undecided indicating that some respondents were not sure whether their Saccos gave loan to different sectors and individual. The results further revealed that slight majority of respondents agreed (40.7%) that their Sacco is prone to less concentration risk due to a large number of loan products while 20.4% strongly agreed to the statement. However, 26.2% of the respondents were undecided implying that some Saccos are prone to more concentration risk due to a large number of loan products.

Further, 46.9% of the respondents agreed while 21.2% of respondents strongly agreed that Sacco with more loan products is prone to less credit risk than those with fewer loan products and additional 21.2% strongly agreed on the same. However, with

20.4% of the respondents remaining neutral, there is evident that some SACCOS with more loan products are prone to more credit risk than those with fewer loan products. Similarly, 47.8% of the respondents agreed that there have been an increase in the number of new loan products in recent years and 13.2% of the respondents strongly agreed on the same. However, 21.2% of the respondents were undecided whether there has been an increase in the number of new loan products in recent years

Finally, majority of respondents agreed (61.9%) and strongly agreed (12.4%) that the number of defaulted loans has greatly gone down as result of tailored loan products. A mean of 3.67 revealed that there is reduction of defaulted loans due to diversification of loan products. This is supported by Kimani (2018) who investigated the relationship between credit risk diversification and loan performance among DT-SACCOS headquartered in



Nairobi County. Results from the study suggest that there was a significant positive correlation between credit diversification and loan performance.

### Inferential Statistics

#### Direct linear influence of diversification on loan default rate

The objective of this study was to determine effect of diversification loan default rate of non-deposit taking SACCOs in Kakamega County. Direct linear regression was used to test the direct influence of diversification on loan default rate of non-deposit taking SACCOs in Kakamega County. The results were shown table 2.

**Table 2: Direct influence of agency bank on loan default rate**

Model Summary											
						Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change		
1	.537 <sup>a</sup>	.288	.282	.5108733	.288	44.902	1	111	.000		
ANOVA <sup>b</sup>											
Model	Sum of Squares			Df	Mean Square	F	Sig.				
1	Regression	11.719			1	11.719	44.902	.000 <sup>b</sup>			
	Residual	28.970			111	.261					
	Total	40.689			112						
Coefficients <sup>a</sup>											
		Unstandardized Coefficients		Standardized Coefficients							
Model		B	Std. Error	Beta	T	Sig.					
1	(Constant)	1.911	.246		7.770	.000					
	Diversification	-.457	.068	-.537	-6.701	.000					

a. Dependent Variable: Loan default rate

As in indicated in table 2, the model summary showed that  $R^2 = 0.288$ ; implying that 28.8% variations in the loan default rate of non-deposit taking Saccos in Kakamega County was accounted for by diversification while other factors not in the study model accounted for 71.2% of variation in loan default rate of non-deposit taking Saccos in Kakamega County. This variation was significant as indicated by  $F(1,112)=44.902$ ,  $P=0.000$  implying that diversification is significant predictor of loan default rate.

Further, coefficient analysis showed that diversification has positive significant influence on loan default rate of non-deposit taking SACCOs in Kakamega County ( $\beta = -0.457$ ,  $P=0.000$ ). This implied that a single increase in diversification would lead to 0.457 units decrease in the loan default rate of

non-deposit taking SACCOs in Kakamega County. Therefore, the linear regression equation was;

$$(i) y = 1.911 - 0.457X_1$$

Where;

y = loan default rate of non-deposit taking SACCOs in Kakamega County.

$X_1$  = diversification

#### Testing of study Hypothesis

The study hypothesis stated that diversification does not affect the loan default rate of non-deposit taking SACCOS in Kakamega County. Regression results indicated that diversification significantly influence loan default rate of non-deposit taking Saccos ( $\beta = -0.192$ ,  $P=0.009$ ). **Hypothesis one was therefore rejected.** The results indicated that that a unit increase in diversification will lead to 0.192

units decrease in the loan default rate of non-deposit taking SACCOs in Kakamega County.

These results are supported by Ndambiri, Munene & Wanjohi (2017) sought to determine the effect of loan portfolio characteristics on the level of Non-Performing Loans for Savings and Credit Co-operative Societies in Kirinyaga County. The findings of the study established that loan portfolio diversification affected the level of Non-Performing Loans for Savings and Credit Co-operative Societies in Kirinyaga County. Similar results were obtained by Onuko, Muganda & Musiega (2015) who sought to determine the effect of credit risk management on loan portfolio Quality of Tier One commercial banks in Kenya. The findings indicated loan portfolio diversification had significant positive effect on the level of NPA.

However, Abid, Ouertani & Zouari-Ghorbel (2014) examined the effect of loan portfolio diversification on Tunisian banks profitability over the period 2000-2015. By using panel data method the study revealed that focusing on few sectors is more profitable than diversifying bank lending operations. In addition, we find that this negative impact is more pronounced in private banks. This was also supported by Adzobu, Agbloyor & Aboagye (2017) who showed that loan portfolio diversification does not improve banks' profitability nor does it reduce banks' credit risks.

## CONCLUSIONS AND RECOMMENDATIONS

This tested whether diversification has an effect on loan default rate of non-deposit taking SACCOs. From descriptive statistics, majority of the respondents were in agreement that non-deposit

taking SACCOs were prone to less concentration risk due to a large number of loan products. Similarly, respondents further revealed that SACCOs with more loan products were prone to less credit risk than those with fewer loan products. Most of the respondents confirmed that the number of defaulted loans had greatly gone down as a result of tailored loan products. Inferential analysis revealed that there exist a negative and significant effect of diversification on the loan default rate of non-deposit taking SACCOs in Kakamega County.

The study concluded that there is significant negative effect of diversification on loan default rate of non-deposit taking SACCOs in Kakamega County. Thus, the first research hypothesis was not supported. An increase in diversification practices such as giving loans to different sectors and individuals as well as new loan products ensure SACCOs are prone to less concentration risk due to a large number of different loan products hence decrease in loan default rates.

From the results, diversification has an effect on the rate of loan default. The study therefore recommended that SACCOs are encouraged to diversify their lending activities in different sectors. This is because a well-diversified portfolio has a tendency of reducing risk associated with lending.

## Areas of Further Studies

The study was able to identify diversification determinant of loan default rate of commercial bank. However, there are other external/macroeconomic determinants which further studies should consider. These are taxation, prudential regulation such as interest rate capping, inflation rate and GDP growth rate.

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