Journal of Information Systems Engineering and Management
2025, 10(51s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Effect of Operational Efficiency on Loan Performance: Evidence from Saving and Credit Cooperative Organisations in an Emerging Market

Edwin Mwenda Muriuki[1*], Dr. Samuel Nduati Kariuki[2], Dr. Duncan Mugambi Njeru[3]
[1*]University of Embu, School of Business and Economics P. O. Box 6 – 60100, Embu, Kenya, Email: edwinmwenda84@gmail.com
[2]University of Embu, School of Business and Economics, P. O. Box 6 – 60100, Embu, Kenya, Email: kariuki.samuel@embuni.ac.ke
ORCID: https://orcid.org/0000-0001-6104-2800
[3]University of Embu, School of Business and Economics, P. O. Box 6 – 60100, Embu, Kenya, Email: njeru.duncan@embuni.ac.ke
***Corresponding Author:** Edwin Mwenda Muriuki
*University of Embu, School of Business and Economics, P. O. Box 6 – 60100, Embu, Kenya, Email: edwinmwenda84@gmail.com

ARTICLE INFO

Submission 29 Jan 2025

Accepted 21 May 2025

Published 30 May 2025

ABSTRACT

The study determined the effect of operational efficiency on the loan performance of saving and credit cooperative organizations in Kenya. The study was anchored on the efficient structure theory. The study was a census of all the 180 deposits taking SACCOs in Kenya licensed by the Sacco Society Regulatory Authority-SASRA from 2016 to 2022. The study employed a causal research design using panel data and analyzed using ordinary least square regression analysis. Results established that the operation efficiency was fit to estimate loan performance in SACCOs. Operational Efficiency was negatively related to the loan performance of SACCOs. The study is expected to form the basis for policy and theory formulation, contribute to existing empirical literature in finance, and enhance loan performance and service delivery among SACCOs and other financial institutions. Therefore, the study recommends that SACCOs keep their operational efficiency toned in by reducing their total expenses to total revenue since these aspects predict the proportion of non-performing loans to total loans.

Key Words: Operational efficiency; non-performing loans, total loan performance, expenses and Revenues,SACCOs.

1. INTRODUCTION

Operational efficiency is the ratio between the output gained from the business and the input to run operations (Ofori-Abebrese et al., (2016); Chen et al., (2022). The operational efficiency in a SACCO is the ratio of total expenses used to generate business and efficiency compared to the total revenue generated (Dia et al.,2022). While recent studies identify unique opportunities with operational efficiency (Alemu & Worku, 2025); Arnoby & Rahmayanti, 2025), numerous other studies Li and Luo, 2025; Arthur-Sam, (2025) and Rana et al., (2025) among others, identify negative implications on organizational outcomes from the increased costs associated with operational efficiency. Alemu and Worku (2025) observe that it is connected with diverse aspects of operations, such as its financial soundness, profitability and quality of customer service. Chen et al. (2022) add that operationally efficient SACCOs are better able to compete because of their lower operational costs and can steal business away from less efficient financial institutions. Contrarily, Arthur-Sam (2025) and Rana et al. (2025) observe that defective operational efficiency may lead to poor

Journal of Information Systems Engineering and Management
2025, 10(51s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

resource utilization, increased costs, misfit with organizational structure, and increased resource requirements. The varying views show a lack of consensus on the effect of operational efficiency on organizational outcomes. Since operational efficiency is about the output-to-input ratio, it may influence the nature of credit management and loan performance in SACCOs. Previous studies have not adequately evaluated the effect of SACCO operation efficiency on loan performance.

The current study departs from extant literature in four ways. First, empirical evidence needs to be more conclusive on the effect of operational efficiency on loan performance in SACCOs, with previous studies having contradicting findings. Secondly, prior studies did not assess the effect of operational efficiency on the loan performance of SACCOS measured by the proportion of non-performing loans to total loans. For example, Situmorang et al. (2024) used deposit and capital adequacy ratios. Dimitras et al., (2024) and Sharma (2024) used profitability while Chen et al., (2024) used market efficiency. Third, these studies measured operational efficiency differently using cross-sectional data and largely ignored the pecuniary aspects of operational efficiency against non-performing loans as posited by theoretical perspectives by efficient structure theory postulated by Demsetz (1973). These measures could have led to mistaken inferences. The current study filled these research gaps.

The metric for measuring the performance of loans is the percentage of NPLs to total loans (Ghosh et al., (2024). Non-performing loans are the sum of money borrowed upon which scheduled payments have not been made for at least 90 days (Bank for International Settlements, Performing loans, on the other hand, is a loan in which both the principal and interest payments are not more than 90 days overdue and in which continued payment of the loan is anticipated (Arthur-Sam, 2025). Hence, financial institutions focus on reducing NPLs due to the risk of the principal loans and interests not being recovered (Otieno & Nyagol, 2019).

Engelmann and Pham (2020) propose that a scheme based on risk-adjusted return on capital (RAROC) can be used to measure the performance of a loan. RAROC is computed as interest income minus all costs (funding, operational, expected loss) divided by the capital used as a buffer against unexpected losses. A large stream of literature addresses the statistical aspects of credit scoring and estimating credit risk parameters for Basel regulation and provisioning. Literature on applying these parameters in banking practice beyond their regulatory purpose is comparatively scarce. An evaluation of the impact of Basel regulation on loan prices was done by Repullo and Suarez (2004), while the impact of IFRS 9 was studied by Abad and Suarez (2018). Improving the loan origination process by integrating credit scoring models with loan performance measures is suggested by Sharma (2024). However, we lack research combining the credit risk modelling for Basel regulation and the new accounting standards into a multi-period loan performance measurement scheme.

SACCOs in Kenya have recorded higher NPLs than the standard globally (World Bank, 2023). According to Arthur-Sam (2025), non-performing loans have continued to record sharp upward growth over the years despite the increasing efforts to curb non-performing loans. For instance, in Kenya, non-performing loans for SACCOs increased from 4.96% in 2013 to 5.9% in 2014, 8.97% in 2015, 9.02% in 2016, 11.38% in 2017 and 14.92% in 2018, 15.2 in 2019 and 19.0 % in Dec 2020 (Sacco Society Regulatory Authority, 2021). In 2018, the NPLs in the SACCOs were 14.92%, and the four-year average from 2015 to 2018 was 11.07%, which was higher than the recommended rate of 1% (World Bank, 2023). According to Muthoni et al. (2020), the high amounts of NPLs indicate poor credit management by the SACCOs. NPLs mainly occur due to inefficiencies in the credit management practices employed by the SACCOs (Morton, 2020).

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

According to previous empirical research, financial institutions have been moving towards streamlining their operational efficiency. When new technology is used, there is a perceived improvement in job performance, increased work efficiency, and better outcomes (Alemu & Worku, 2025). A study by Dimitras et al. (2024) to investigate whether operational efficiency improved the financial processes of fifteen (15) listed DMBs in

Journal of Information Systems Engineering and Management
2025, 10(51s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Nigeria confirmed increased profitability. Arthur-Sam (2025) investigated the effect of operational efficiency and mobile banking on bank's 29 profitability. The ordinary least squares regression result showed that while mobile payment transactions impacted profitability positively, operational efficiency had a strong negative effect. The two studies do not describe how operational efficiency impacts the loan performance of commercial banks. Moreover, the studies used primary data, which did not capture the financial relationship between operational efficiency and the proportion of non-performing loans and had contradictory findings.

The relationship between credit management practices, operational efficiency and financial sustainability was also studied by Chen et al. (2022). The study focused on green management practices and Bangladesh's commercial banks' financial performance. The green management practices included credit management, operational efficiency and loan performance practices. The study collected data using questionnaires and found a positive effect of operational efficiency on banks' performance. The effect of operational efficiency on the proportion of non-performing loans is not indicated. Further, the study used primary data on a cross-sectional sample, while the current study used secondary data obtained from the audited financial statements of sampled deposit-taking SACCOs. Unlike the study of Chen et al. (2022), the current study determined the effect of operational efficiency on the proportion of non-performing loans in SACCOs.

Kule et al. (2020) studied the relationship between credit management, operational efficiency and financial performance of SACCOS) Uganda. The study adopted a cross-sectional research design, a positivist paradigm. The study established a significant relationship between credit management, operational efficiency and financial performance of SACCOS) in mid-western Uganda. The effect of operation efficiency on the proportion of non-performing loans is not indicated. The current study used a wider scope of SACCOs in Kenya and related the variables to loan performance instead of financial performance. Further, the current study used panel data and a causal research design.

The study was further anchored on the efficient structure theory, which links the structure-performance relationship with efficiency postulated by Demsetz (1973). The theory implies that better organisational structures and inputs achieve higher returns. Applied to the SACCOS sector, this theory stipulates that a SACCO that operates more efficiently in terms of total expenses and revenues performs better in terms of credit management and hence attains loan performance. This theory is the foundation for the study's objective, which is to determine the effect of operation efficiency on the relationship between the loan performances of SACCOs. Shepherd (1986) criticises this theory for independently assuming a direct relationship between proper structure, inputs and performance. Efficient structure theory does not fully explain the effect of operation efficiency on the loan performance of SACCOs. The current study aims to add to the postulates of this theory by providing empirical evidence of the relationships between the variables. The efficient structure hypothesis considers loan performance as a proxy for efficiency by proper credit management. The efficient structure hypothesis explains that credit management practices and the resultant loan performance may differ depending on the organisation's structure. Through the firm's efficiency, structure prevails when a significant positive correlation between credit management and loan performance is signalled (Njeru & Omagwa, 2018). The theory explains that credit management is not the only source of loan performance. Loan performance can only be achieved by operation efficiency.

The study sought to test the following hypotheses based on the above literature.
Ho1: Operation efficiency does not significantly affect Sacco's loan performance.

3. METHODOLOGY

The study focused on a total of 180 deposit-taking SACCOs in Kenya. The study aimed to determine the effect of operational efficiency on loan performance in deposit-taking SACCOs in Kenya, covering a period of 7 years, where data were collected from the financial statements of the SACCOs from 2016 to 2022. The study employed a causal research design. The design enables the study to test the hypotheses, measure, and

Journal of Information Systems Engineering and Management
2025, 10(51s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

describe the relationship between the variables using panel data analyzed using linear and multiple regression. Panel data is adopted because it takes care of heterogeneity associated with individual SACCOs and provides more information, more variability, less collinearity among variables, and more degrees of freedom and efficiency (Ogboi & Unuafe, 2019).

Karl Pearson's correlation helped measure the degree of association between different variables under consideration. Regression analysis was used to estimate the relationship among the variables.

Measurement of Study Variables

Variable	Type of the Variable	Indicator (s)	Measurement
Loan Performance of SACCOs	Dependent	Proportion of non-performing loans to total loans	Non-performing loans Total Loans
Operational Efficiency	Independent	Operational Efficiency	Total expenses Total Revenue

Data Analysis Model

The study adopted fixed effects regression model. The study therefore adopted the model in equation 1.

$y_{it} = \beta_o + \beta_1 x_{1\,it} + \varepsilon_{it}$ ..... **Equation 1**

Where:

$\mathbf{y_{it}}$ is Loan Performance

β_o is regression constant

$\boldsymbol{\beta_1}$ = Coefficient

x_{1it} is operational efficiency

ε_{it} **is** error term

5 DESCRIPTIVE STATISTICS

Variable	Obs	Mean	Std. Dev.	Min	Max
Lending performance	1,120	.372	1.46	.0017	43.81
Operational efficiency	1,120	2.77	5.59	.033	93.46

The mean lending performance is 0.372 during the study period, with a deviation of 1.46. During the period, lending performance in the Sacco sector ranged from a minimum of 0.0017 to a maximum of 43.81. Further, the mean operation efficiency was 2.77, deviating from 5.59, implying that operational efficiency was constant across all manufacturing firms, ranging from a minimum of 0.033 to a maximum of 93.46. A study by Njue (2022) reported a lower operational efficiency for credit societies in Kenya. Similarly, a study by Alemu et al. (2025) reported a lower operational efficiency for private commercial banks in Ethiopia. This finding addresses two gaps in extant literature. First, no previous studies reviewed have used a more comprehensive number of SACCOs; second, none of the extant studies done in a developing country's SACCOs sector evaluated the operational efficiency of SACCOs using panel data of total expenses to total revenues.

6 DIAGNOSTIC TESTS

Normality Test

Doornik-Hansen test statistics for multivariate normality

Journal of Information Systems Engineering and Management
2025, 10(51s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Chi square	36077.293
P-value	0.0000

The Doornik-Hansen test for multivariate normality (Doornik, and Hansen, 2008) is based on the skewness and kurtosis of multivariate data that is transformed to ensure independence. It is more powerful than the Shapiro-Wilk test for most tested multivariate distributions. Doornik-Hansen test for multivariate normality was significant, hence implying that the data was normal for further analysis.

Hausman Test

	Coefficients (b) fe	(B) re	(b-B) Difference	Sqrt(diag(V_b-V_B)) S.E.
Operation efficiency	-0.0264	0.0077	-0.0341	0.0057
	Chi square	36.04		
	P-Value	0.000		

The Ho was, "difference in coefficients not systematic". b= consistent under Ho and Ha, B=Inconsistent under Ha, Consistent under Ho

Hausman test was carried out to make a choice between random effects and fixed effects model. Hausman test statistics was 36.04 with a p-value of 0.000 less than 0.05. This implied that the null hypothesis was rejected. A decision was made that fixed effects is the preferred model.

7 Regression Results

	Coeff.	**Std. Err.**	**t**	**P-value**
Operation efficiency	-0.026***	0.0097	-2.73***	0.007
Cons	0.445***	0.0507	8.77***	0.000
F statistic	7.44*			0.007
Corr.	-0.305			
R-squared: within	0.0077			
R-squared: between	0.1492			
R-squared: overall	0.0010			
Obs.	1,120			
No. of Groups	120			
R-squared: between	0.1492			
R-squared: overall	0.001			

*, ** and *** indicates statistical significance at 10%. 5% and 1% respectively.

The F statistic is 7.44, with a p-value of 0.007. This implied that the model was fit for the estimation of loan performance. R- Squared overall is 0.001, implying that changes in operational efficiency account for 0.01% variation in the dependent variable (Loan performance). The Spearman's correlation coefficient is -0.305. This implies a weak negative relationship between operation efficiency and loan performance measured by the proportion of non-performing loans to total loans.
The Table shows a statistically negative coefficient (-0.026) of operation efficiency. This implies that operation efficiency has a negative effect on loan performance. Increasing the efficiency of operations leads to decreased loan performance due to increased non-performing loans. The negative coefficient implies that operation efficiency is negatively related to loan performance. This indicates that a one per cent increase in operation efficiency leads to decreased loan performance.

Journal of Information Systems Engineering and Management
2025, 10(51s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

The conclusion can be explained on several grounds. First, regarding the concerns for this study, operational efficiency was operationalized as total expenses to the total revenue. Consequently, the findings arrived that operational efficiency had an insignificant effect on loan performance. This could be attributed to increased costs associated with programs geared towards increasing efficiency in SACCOs where benefits do not outweigh the incurred costs. As Arnoby and Rahmayanti (2025) explain, when operating costs are higher relative to the financial institution's ability to generate revenue, the SACCOs may be unable to operate efficiently, negatively impacting loan performance.

Second, from the descriptive findings, the study obtained an operational efficiency mean of 2.77, deviating by 5.59 during the study period. This explains the negative effect of operational efficiency on loan performance in two ways. First, the operational efficiency mean of 2.77 implies that the SACCOs in Kenya are operating inefficiently, raising concerns about how well they use their resources to produce revenue. A study by Li and Luo (2025) observes that a higher operating cost to operating income ratio indicates higher operating costs and an inability to generate revenue, which may affect the functionality of other activities, such as loan performance. Secondly, the high deviation raised concerns about the reactiveness of debt management by most SACCOs studies, which may explain the negative effect of their operational efficiency on the rate of non-performing loans.

This finding addresses several gaps in extant literature. First, the findings provide empirical evidence of the effect of operational efficiency in terms of total expenses to total revenue on loan performance measured by the proportion of non-performing loans to total loans. Previous studies such as Arnoby and Rahmayanti (2025) and Arthur-Sam (2025) have only linked operation efficiency to profitability, while Rana et al. (2025) have linked it to sustainable development goals while Li and Luo (2025) linked it to efficiency in commercial institutions, second, none of the extant studies done in a developing country's SACCO sector relating operation efficiency in terms of total expenses to total revenue and loan performance measured by the proportion of non-performing loans.

Third, from the theoretical literature, the study used the efficient structure theory, which links the structure-performance relationship with efficiency postulated by Demsetz (1973). The current study adds to the development of this theory in two ways: First, by showing that operational efficiency should be objectively planned to strike a proper balance between total expenses and revenues held; otherwise, it will not affect the proportion of non-performing loans and second, by proving the effect of operation efficiency on the loan performance of SACCOs through the empirical evidence of the relationships between the variables. Therefore, loan performance cannot be achieved only through operational efficiency.

Lastly, the findings further bridge the gaps identified in the previous literature reviewed; Chen et al. (2022) studied the relationship between operation efficiency and financial sustainability of commercial banks' financial performance in Bangladesh. The study collected data using questionnaires and found a positive effect of operational efficiency on banks' performance. The current study used panel data from the audited financial statements of sampled deposit-taking SACCOs. Kule et al. (2020) studied the relationship between Credit management, operational efficiency and financial performance of SACCOS) Uganda. The study adopted a cross-sectional research design and established a significant relationship between credit management, operational efficiency and financial performance of SACCOS) in mid-western Uganda. The current study used a wider scope of SACCOs in Kenya and related the variables to loan performance instead of financial performance using panel data and causal research design.

8 ROBUSTNESS CHECK

	Coeff.	Std. Err.	z	P-value
Lag 1	0.012	0.013	0.93	0.351
Operation efficiency	0.041	0.011	3.69	0.000
Cons.	0.241	0.031	7.66	0.000
Chi square	14.42			0.001
No. of observations	800			
No. of groups	160			
No. of instruments	17			

Journal of Information Systems Engineering and Management
2025, 10(51s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

To check on the robustness, the study adopted dynamic model. The assumption was that previous loan performance had an impact on current year's loan performance. GMM model was applied. The GMM results indicate that all the coefficient signs and statistical significance was retained this implied that data was robust and fit for estimation of loan performance in Sacco's.

CONCLUSION AND RECOMMENDATION

Conclusion

The study findings led to the conclusion that operational efficiency negatively influenced the loan performance of SACCOs in Kenya. An increase in operational efficiency in terms of total expenses to total revenue led to a decrease in loan performance measured by the proportion of non-performing loans to total loans.

Recommendations

The study established a significant inverse relationship between operational efficiency and loan performance. Therefore, operational efficiency negatively influenced the loan performance of SACCOs in Kenya. Therefore, the study recommends that SACCOs keep their operational efficiency toned in by reducing their total expenses to total revenue since these aspects predict the proportion of non-performing loans to total loans. The current study used panel data to test the hypotheses about relationships of causality. The study recommends that future studies use alternative empirical measuring and testing methods. Due to the dynamic nature of debt management and loan performance, it is necessary for future studies to resort to case studies, cross-sectional samples or mixed research methodologies.

REFERENCES

[1] Abad, J., & Suarez, J. (2018). Assessing the procyclicality of expected credit loss provisions. *Centre of Economic Policy Research Discussion Paper, August*.

[2] Alemu, F. M., & Worku, M. D. (2025). Impacts of corporate governance mechanisms on dynamics of banks financial performance: empirical evidences from private commercial banks of Ethiopia. *Cogent Business & Management*, *12*(1), 2477286.

[3] Arnoby, A. A. P., & Rahmayanti, D. (2025). The Impact of Capital Adequacy, Credit Risk, and Operational Efficiency on the Profitability of State-Owned Banks in Indonesia (2014-2023). *Journal of Finance and Business Digital*, *4*(1), 95-108.

[4] Arthur-Sam, J. (2025). The Effect of Non-Performing Loans on the Profitability of Banks in Africa. International Journal of Applied Research in Business and Management, 6(1).

[5] Chen, J., Siddik, A. B., Zheng, G. W., Masukujjaman, M., & Bekhzod, S. (2022). The effect of green banking practices on banks' environmental performance and green financing: an empirical study. *Energies*, *15*(4), 1292.

[6] Chen, Y. C., Lin, T. Y., Chiu, Y. H., & Yang, C. I. (2024). An exploration of operational efficiency, market efficiency, and sustainable development in the banking industry. *Corporate Social Responsibility and Environmental Management*, *31*(5), 4819-4848.

[7] Demsetz, H. (1973). Industry structure, market rivalry, and public policy. *The Journal of Law and Economics*, *16*(1), 1-9.

[8] Dia, M., Takouda, P. M., & Golmohammadi, A. (2022). Assessing the performance of Canadian credit unions using a three-stage network bootstrap DEA. *Annals of Operations Research*, 1-33.

[9] Dimitras, A. I., Dokas, I., Mamou, O., & Spyromitros, E. (2024). Investigating the performance of European banks using non-parametric techniques: the role of performing loans efficiency. *EuroMed Journal of Business*, *19*(4), 1066-1083.

[10] Doornik, J. A., & Hansen, H. (2008). An omnibus test for univariate and multivariate normality. Oxford bulletin of economics and statistics, 70, 927-939.

[11] Engelmann, B., & Pham, H. (2020). A RAROC valuation scheme for loans and its application in loan origination. *Risks*, *8*(2), 63.

[12] Ghosh, P., Rajpal, M., Dwivedi, V., & Rahman, M. A. (2024). Bridging Perspectives between Bibliometric Analysis and Data Analytics in the Realm of Literature Study: A Case Study Exploration. *Journal of Data Science, Informetrics, and Citation Studies*, *3*(3), 294-305.

[13] Kule, B. J. M. K., Kamukama, N., & Kijjambu, N. F. (2020). Credit management systems and financial performance of savings and credit cooperatives (SACCOS) in mid-western Uganda.

[14] Li, W., & Luo, X. (2025). How does FinTech affect the efficiency of non-performing loans? Evidence from China. Journal of Financial Regulation and Compliance.

[15] Morton, J. (2020). On the susceptibility and vulnerability of agricultural value chains to COVID-19. *World development*, *136*, 105132.

[16] Muthoni, M. I., Mwangi, L. W., & Muathe, S. M. (2020). Credit management practices and loan performance: empirical evidence from commercial banks in Kenya. *International Journal of Current Aspects in Finance, Banking and Accounting*, *2*(1), 51-63.

[17] Njeru, I., & Omagwa, J. (2018). Mobile banking and Profitability of tier 1 commercial banks in Kenya. *International journal of scientific and education research*, *2*(4), 1-15.

[18] Njue, J. M. (2022). Effect of Financial Restructuring on Operational Efficiency of Savings And Credit Societies In Kenya (Doctoral dissertation, KCA University).

[19] Ofori-Abebrese, G., Pickson, R. B., & Opare, E. (2016). The effect of bank specific factors on loan performance of HFC bank in Ghana. *International Journal of Economics and Finance*, *8*(7), 185.

[20] Ogboi, C., & Unuafe, O. K. (2019). Impact of credit risk management and capital adequacy on the financial performance of commercial banks in Nigeria. *Journal of Emerging Issues in Economics, Finance and Banking*, *2*(3), 703-717.

[21] Otieno, S., Nyagol, M., & Onditi, A. (2016). Relationship between Credit risk management and financial performance: empirical evidence from microfinance banks in Kenya. *Research journal of finance and accounting*, *7*(6), 2222-2847.

[22] Rana, M., Islam, H., Al Mamun, M. A., & Rekha, R. S. (2025). Impacts of bank loan performance, stability and risk factors on sustainable development goals: insights from South and Southeast Asia. *Asia-Pacific Journal of Regional Science*, 1-30.

[23] Repullo, R., & Suarez, J. (2004). Loan pricing under Basel capital requirements. *Journal of Financial Intermediation*, *13*(4), 496-521.

[24] Sharma, K. P. (2024). Effects of non-performing loan and operational efficiency on profitability of Nepalese commercial banks. *Resunga Journal रेसुङ्गा जर्नल*, *3*(1), 51-77.

[25] Shepherd, R. (1986). Self-identity and the theory of planned behavior: Assesing the role of identification with" green consumerism". *Social psychology quarterly*, 388-399.

[26] Situmorang, D. R., Sagala, F., Silitonga, I. M., Panjaitan, R. Y., & Sagala, L. (2024). Analysis Of The Influence Of Loan To Deposit Ratio, Capital Adequacy Ratio, Non-Performing Loan, Operational Efficiency Ratio, And Total Asset Turnover On Return On Asset Of Commercial Bank Listed On The Indonesian Stock Exchange Period 2019-2023. *Jurnal Ilmiah Accusi*, *6*(1), 66-76.

[27] World Bank (2023).*Databank: World Development Indicators*. Accessed on March 21,201fromhttp://databank.worldbank.org/data/reports.aspx?source=2&series FB.AST.NPER.ZS&country.