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MODERATING IMPACT OF FINANCIAL RATIOS AND NON-PERFORMING LOANS ON THE PROFITABILITY OF AFRICAN DEVELOPMENT BANK

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Abstract. *Development banks are crucial financial intermediaries of any developing nation by supporting its economic and social development, providing financing and support for such development. Thus, it must maintain its profitability and financial health. However, non-performing loans and financial ratios are crucial determinants affecting banks' components. Therefore, this study intends to analyse the aftermath of Non-performing loans (NPLs) and financial ratios on the profitability of the Development Bank of Africa. For this purpose, the data from eight years, from 2014 to 2021, have been considered and analysed using time series regression. The findings reveal the significant impact of NPLs and solvency ratio and the insignificant impact of shareholders' equity ratio on the bank's profitability, represented by return on assets. It is recommended to keep a check on NPLs and take steps to mitigate in various ways discussed and improve profitability so that efforts towards economic development would not be adversely affected.*

Keywords: *non-performing loans (NPLs), development banks, shareholders' equity, solvency ratio, return on assets, credit risk management.*

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Introduction

Banks are generally considered successful businesses, just like other businesses, based on how much money they make and how well their assets are maintained. Asset quality, progress rate, and price behaviour are often associated with business performance. Nonetheless, these factors only determine whether the profit system is desirable. An individual's performance is most closely evaluated by their profit within the system. An organization's profitability indicates how successful they are at generating profits. A company's profitability can be determined by various factors, including how efficiently its operations are run, how customers treat its products or services, and how competitive they are. It is generally believed that companies with higher profitability ratios are more successful and financially healthy. In developing countries, development banks provide loans and other financial assistance to promote economic development. Development banks are susceptible to non-performing loans and financial ratios, just like other financial institutions. The bank may be unable to finance development projects if its non-performing loans are high, which can decrease its profitability. Further, as a result of a high non-performing loans (NPL) level, the bank's reputation may suffer, which could negatively impact deposit and investment growth. Low NPL levels, however, are considered a sign of a well-managed development bank. As a result, the bank

can count on its borrowers to meet their repayment obligations, which indicates that they have made sound lending decisions. It can be easy to attract funding, support, and development projects if the bank has a low level of NPLs. In addition to providing insight into a development bank's performance and risk profile, financial ratios can also reveal the company's financial health. It is possible to observe the profitability, efficiency, and risk profile of a bank using a variety of ratios. The management of NPLs and financial ratios is imperative for development banks in order to maintain financial stability and achieve their development objectives. As part of this process, policies could be implemented to manage risks, technical assistance may be provided to borrowers, and other actions may be taken to mitigate the risk of non-performing loans.

In this context, this study intends to determine the impact of financial ratios and non-performing loans (NPLs) on the performance of development banks in Africa.

Literature Review

A wide range of variables must be considered when banks offer loans to reduce NPLs. Firstly, contemplation should be given by banks whether the national economy has a high level of competitiveness on international markets because if the level of competitiveness is low, then Borrowers might have a hard time repaying their debts to several export-oriented sectors on the global market (Dash and Kabra, 2010). There needs to be a balance between the interest rates charged by such institutions and the profitability of the real economy when extending loans. An economic recession will lead to impaired loans, one of the most critical issues.

To evaluate the stability and resilience of the banking system, commercial banks must incorporate prudential indicators, such as the Growth Domestic Products (GDP), into their macroeconomic surveillance (Messai and Jouini, 2013). Accordingly, NPLs are affected by the economy's condition and factors specifically related to banks, which act in the region's economic recovery due to their connection to macroeconomic conditions, such as growth in GDP, redundancy, and price rise (Klein, 2013). To solve NPLs, banks should ensure their customers have viable repayment mechanisms. Furthermore, the bank can advise and guide the loan collector on investing the loan efficiently to achieve the desired return on investment by ensuring the collector can meet the profit goals. As a result, the customers who collect loans must keep proper records of their business activity so the bank can track the progress of the business within the period of the loan, comparing the results with expectations.

A bank can detect if the client's business is underperforming so that they can take necessary action before it is too late to prevent the situation from worsening (Adebisi and Matthew, 2015). For improved profitability and risk management, the banks also have to extend their loans selectively to maximize their capital and maintain the level of NPLs at a low level to reduce the level of NPLs and, as a result, increase public confidence in the banks (Christaria and Kurnia, 2016). The profitability of commercial banks is directly affected by NPLs since lending is their most profitable investment. NPLs must be managed as the funds given to borrowers as loans must be safe, recovered, and paid back on time (Akter and Roy, 2017). In one of the studies, there was an association between an increase in non-performing loans and a decrease in the return on assets. In the past, researchers have suggested that asymmetry of information theory and bad management hypothesis support the hypothesis that credit risk, to the extent of its maximum coverage gauged by NPLs, usually comes with higher operating costs and a decrease in profitability due to increased credit risk (Kingu, Macha and Gwahula, 2018).

Developing effective NPL management tools is essential for banks to reduce the risk of NPLs. As a result, the banks can contribute to the economic development of their countries by ensuring maximum dedication to building the banking industry (Patwary and Tasneen, 2019). As a result of their importance in assessing the health of a business, financial ratios are another tool to measure performance, as they have been proven to be critical indicators and thus can predict both favourable and adverse business continuity (Amalia, 2020). Analysing financial reports is one of the methods of assessing bank performance. Banking plays a key role in piloting a nation's economy. Consequently, banks are intermediaries, channelling funds from surplus to deficit economies, i.e.,

acting as funds collectors and channellers (Angelina, 2020; Sarkin & Gulleroglu, 2019). Following the above statement, the studies have proved that the leverage ratios, NPLs, and the loan-to-deposit ratio all positively impact the profit position of banks, as evidenced by the return on assets (Amalia and Nugraha, 2021).

The results of another study revealed that Return on Assets (ROA), Bank Size, Growth Domestic Products (GDP), and inflation all play a significant role in predicting the amount of NPLs a bank accumulates. Still, Capital Adequacy Ratio (CAR) has no considerable impact on Non-Performing Loans (NPLs) for banks. It shows that bank growth increases when Growth Domestic Products (GDP) grows, even when income grows non-significantly (Singh, Basuki, and Setiawan, 2021). A healthy financial position in the country depends on banks being rational in financing debt and selecting appropriate borrowers (Uddin, 2022). As an indicator of bank size, assets are one of the variables that influence Non-Performing Asset (NPA) because banks with more considerable assets have more efficient lending policies and better management. The banks with significant assets working in these conditions can mitigate the risk of Non-Performing Assets (NPAs) to keep the quality of their assets at the highest possible level (Gustriani et al., 2023).

Based on the readings and review of the above literature, it has been observed that no study has been undertaken for the period of time on any development bank in Africa aligning the financial ratios and non-performing loans in a particular study. Thus, to fill the research gap, this study intended to determine the impact financial ratios and NPLs have on African development banks' profitability.

Methods

The data is retrieved from the African Development Bank using the purposive sampling covering the span of eight years from 2014 to 2021 with the variables namely Non-Performing Loans (NPL), Solvency and Shareholder Equity ratio as independent variables, and Return on Assets (ROA) as dependent variable. Data for the study is secondary and comes from the financial and annual reports of the African Development Bank for the respective years. The millions of unit amounts are removed from the statements and later transformed using the log function to count the data on the same ground. Time-series regression is imposed in the current study to justify the objectives. The definitions of each variable are listed below in Table 1. This study uses the following equation (Eq. 1) to test the time series regression.

$$¥ = \alpha + \beta_1 + x_1 + \beta_2 + x_2 + \beta_3 + x_3 + e_i \quad (1)$$

Where:

¥ - is the dependent variable Return on Assets (ROA);

α is the model constant;

$\beta_1, \beta_2, \beta_3$ are the model coefficients for the independent variables that are included in the model;

x_1, x_2, x_3 are the independent variables;

e_i is the model error.

Hypothesis:

H1: There is a substantial influence of non-performing loans on return on assets.

H2: There is a substantial impact of shareholder equity ratio on return on assets.

H3: There is a substantial impact of the solvency ratio on return on assets.

Table 1. Operational Definition of Selected Variables

Variables	Definitions
NPL	Loans And Advances
Profitability	ROA (Return on Assets)
Shareholder	Total Assets/Total Equity
Solvency Ratio	(Net Income + Depreciation) / Total Liabilities

Table 2. Descriptive Statistics of Financial Ratios, NPA and Profitability

	ROA	NPL	SHAREHOLDER_EQUITY_RATIO	SOLVENCY_RATIO
Mean	2.00	3.50	4.35	0.01
Maximum	2.18	3.67	4.77	0.01
Minimum	1.71	3.33	3.25	0.00
Std. Dev.	0.22	0.16	0.50	0.00

Descriptive Summary

The foremost analysis is done through the descriptive statistics of the variables listed above in Table 2. The average ROA is upheld at 2 by the sample bank for the period 2014-2021. However, the average NPL and shareholder equity ratio is higher than the ROA, and the solvency ratio is the lowest.

Results

This section provides a summary of the assumptions along with the regression results used to study the impact of financial ratios (shareholder equity and solvency ratio) and non-performing loans (NPL) on the profitability (ROA) of the bank.

Diagnostic Test

Table 3. Diagnostic Test and Model Selection

Tests	Statistics
Breusch-Godfrey Serial Correlation	0.22
Breusch-Pegan Godfrey Probability	0.80
Jarque-Bera Probability	0.19
F-statistics	6.91
Significance of F-statistics	0.04
R^2	0.83

Preliminary statistics are to be followed for the appositeness of the model as the residuals should not be autocorrelated, which the Breusch-Godfrey Serial Correlation test applies; the variance of the residual has to be homoscedastic, which uses Breusch-Pegan Godfrey test, the residuals must follow the normality of the data which use Jarque-Bera test, Cohen (1992) suggested if R square is more than 0.26 indicates high effect size. Table 3 displays the model fitness as determined by F-statistics.

Table 4. Regression Results

Variables	Coefficient	Std Error	Prob.
Non-Performing Loan	1.23	0.35	0.03
Shareholder Equity Ratio	0.48	0.19	0.07
Solvency Ratio	-172.55	45.25	0.01
C	-3.5	1.68	0.10
Durbin Watson Test			1.72

The following is the mathematical formula that represents the linear relationship between Return on Assets (ROA), Non-Performing Loan (NPL), Shareholder Equity Ratio and Solvency Ratio (Eq. 2):

$$\text{Return on Assets} = -3.5 + \text{Non-Performing Loan } (1.23) + \text{Shareholder Equity Ratio } (0.48) + \\ + \text{Solvency Ratio } (-172.55) + e_i \quad (2)$$

All the tests are coming out, and they are satisfied as the statistical values for each test are statistically met. Table 4 below shows regression results, which state that non-performing loans' positive and significant impact on the bank's profitability as its prob. value is 0.03<5%. Similarly, the solvency ratio is significant as the prob. value is 0.01<5%. Conversely, the shareholder equity ratio had an insignificant influence over the bank's return on assets with 0.07>5%. Hence, the alternate hypotheses formulated in H1 and H3 are accepted, while H2 is rejected.

Conclusion

There is a wide variety of sectors in which development banks are involved, including infrastructure, education, health care, and environmental protection, for which it tends to provide funding and support for developing projects in a particular sector. The primary purpose of these banks is to promote economic development in specific regions or countries, and they belong to governments or a group of governments. Depending on the financial health of the development bank, it may be a profit-making institution or a non-profit institution. The foundation of non-profit development banks typically promotes economic development rather than generating profits for shareholders. On the other hand, successful development banks aim to make a profit. Still, they are most often used to make further investments in development projects and initiatives and not necessarily to generate profits. Whether a development bank is profit-oriented or not, its ultimate objective is to increase the quality of life in the societies it serves by supporting the development of projects. The support for these projects can take the form of financial assistance, expertise, or other forms of assistance. However, development banks can be adversely affected by non-performing loans (NPLs) in various ways. Development banks may reserve money to cover the losses resulting from loans when dealing with NPLs, which can reduce their capital. Banks with this problem are less likely to be able to lend to other borrowers, which can harm the stability of the bank's finances. In addition to damaging a bank's reputation, non-performing loans can also give the impression that the organization is untrustworthy or less risk-averse.

Consequently, investors and other sources may have difficulty attracting funds for the bank. Moreover, NPLs can cause the bank to put more effort and resources into managing and collecting these loans, leading to problems with their operations. Resources that could be directed towards economic development initiatives are diverted from this activity. Similarly, their financial ratios highly represent the profitability and performance of development banks, making them crucial components in determining their financial health and stability. Thus, this study was carried out to get a clear picture of the impact of financial ratios and NPLs on the performance of African development banks. The results generated from the analysis of the study depict that NPLs and solvency ratios have a significant bearing on the profitability of the development banks in Africa. In

contrast, shareholders' equity has nothing to do with the profitability of such banks supported by insignificant results.

Non-performing loans (NPLs) can be managed and reduced by African development banks in several ways, like identifying and resolving problem loans early through regular portfolio monitoring and looking into potential loan problems. In this case, the bank can either negotiate a loan restructuring with the borrower or find another solution to avoid the loan default. Moreover, it's also advisable to adhere to the provisioning of loan losses, which involves reserving a certain amount out of the bank's profits to cover the probable losses from the loans. This procedure can lead to the achievement of capital protection and financial stability. Also, NPLs can be packaged and sold to investors by development banks through securitization. By doing this, banks can free up capital by reducing NPLs on their balance sheet and reducing debt.

Furthermore, development banks can also improve credit risk management to reduce NPL risk. An enhanced risk management infrastructure can help banks implement stricter lending policies and use more robust risk assessment tools. On the other hand, African development banks can address profitability by augmenting their financial ratios such as Return on Asset (ROA), Return on Equity (ROE), etc. To achieve this, banks can boost their net interest margin (NIM), the amount of interest they earn when they lend money, and the interest they pay on their deposits. A reduction in operating expenses and an increase in loan volume can also improve bank ROA and ROE. It is also possible for banks to focus on more profitable lines of business, such as providing financial services to large corporations and governmental organizations, to make their profits grow.

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