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Credit Management and Profitability of Banks in Zambia

Kelvin Mukolo Kayombo* Carter Mwanamangala Bbune Chitambo Mwape
School of Business, ZCAS University, Plot 5309, Dedan Kimathi Road,
P.O. Box 50497RW, Lusaka, Zambia
* E-mail of the corresponding author: kelvin.kayombo@zcasu.edu.zm

Abstract
The aim of this study was to evaluate the effect of credit management on profitability of banks in Zambia. Accordingly, the research question designed to guide the study was: To what extend do bank credit management policies and practices affect the profitability of banks in Zambia?To answer the research question above, the Return on Average Assets (ROAA) was computed as a measure of bank profitability, the dependent variable. Measures for independent variables such as leverage (the ratio of total debt to total net assets), asset quality (non-performing loan ratio) and credit risk (gross loans and advances to total assets, and loan loss provision ratio), which reflect bank credit management policies and practices were also computed. Bank size and percentage growth in annual income were included as control variables in the model. To analyze the data, a fixed effects regression model with dummy variables was employed, using panel data spanning 12 years from 2010 to 2021. The data encompassed 15 out of the 18 commercial banks operating in the country.The study found that the regression model accounted for 60% of the variation in bank profitability, of which 35% was attributable to the in-between subject variation and 25% to the independent variables. With respect to the effect of individual predictor variables on bank profit, the study found a statistically significant positive relationship with bank size, while the loan loss provision had a statistically significant negative correlation. Illustratively, a one unit increase in bank size enhanced bank profit by 0.019 units, ceteris paribus, while a one unit increase in loan loss provision decreased bank profit by 0.278 units, ceteris paribus. Furthermore, the study revealed that an increase in leverage and credit risk had negative but statistically insignificant effect on profit respectively, while growth and asset quality had the opposite but also statistically insignificant effect. Overall, the study concluded that credit management policies and practices, as measured by the independent variables, significantly affected bank profit performance in the country.
Keywords: asset quality, credit management, credit risk, leverage, profitability, return on average assets, Zambia
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1. Introduction

The aim of this study was to evaluate the effect of credit management policies and practices on profitability of banks in Zambia. The research question that guided this study was: To what extend do credit management policies and practices affect the profitability of banks in Zambia? This study is important because it establishes the extent to which policies and practices adopted in managing credit affects profitability of banks in the country.

To answer the research question above, the Return on Average Assets (ROAA) was computed as a measure of bank profitability, the dependent variable. Measures for independent variables such as leverage (the ratio of total debt to total net assets), asset quality (non-performing loan ratio), and credit risk (gross loans and advances to total assets, and loan loss provision ratio), which reflect bank credit management policies and practices were also computed. Considering that bank profitability could be affected by other factors, variables such as bank size and percentage growth in annual income were included as control variables in the model. Fixed effects regression modeling was then used to analyse panel data for 12 years from 2010 to 2021 from 15 of the 18 commercial banks in the country.

Based on our findings, we conclude that the regression model we developed accounted for 59.8% of the variation in bank profitability, of which 24.7% was attributable to the independent variables. With respect to the effect of individual predictor variables on bank profit, our study found a statistically significant positive relationship with bank size, while the loan loss provision had a statistically significant negative correlation. Illustratively, a one unit increase in bank size enhanced bank profit by 0.019 units if all variables were held constant, while a one unit increase in loan loss provision ratio decreased bank profit by 0.278 units, ceteris paribus.

Furthermore, our study found that an increase in leverage (as measured by the ratio of total debt to total net assets), and gross loans and advances to total assets had a negative but statistically insignificant effect on profit respectively. Meanwhile, interest income growth and asset quality (as measured by non-performing loan ratio) had the opposite but also statistically insignificant effect.

The remainder of the paper is organised as follows. Section 2 provides a brief review of the prior literature, while the methodology and dataset are described in Section 3. Empirical results are presented in Section 4, and Section 5 offers concluding remarks.

2. Literature Survey

Credit management plays a crucial role in the profitability and stability of banks. Effective credit management practices enable banks to mitigate credit risk, optimize asset quality, and enhance overall financial performance. Numerous studies have been conducted to explore the relationship between credit management and bank profitability, providing valuable insights into the factors influencing this association. This literature review examines a collection of relevant studies to shed light on the effect of credit management on the profitability of banks.

2.1 Studies in Sub-Saharan Africa

In Ethiopia a study was conducted on the impact of credit risk on profitability of commercial banks (Gizaw, Kebede, & Selvaraj, 2015). The independent variable was credit risk which was measured as non-performing loans (NPL), loan loss provisions (LLP) and capital adequacy (CAR). The dependent variable was profitability measured as return on assets (ROA) and return on equity (ROE), which represents the ratio of net income to total assets and net income to equity respectively. The study adopted a panel data regression model on a sample of eight (8) commercial banks. The results from this study showed that non-performing loans (negative effect), loan loss provisions (positive effect) and capital adequacy (negative effect based on ROE) had statistically significant impact on the profitability of commercial banks in Ethiopia.

In Ghana, a similar study conducted on credit risk and bank profitability appears to contradict most of the findings of Gizaw, Kebede and Selvaraj (2015) as it revealed that banks enjoyed high profit despite high credit risk (Boahene, Dasah, & Agyei, 2012). In this study credit risk was measured in terms of non-performing loans rate (non-performing loans/total loans and advances), net charge off rate (impairments/total Loans and advances) and the provision profit as a percentage of net total loans and advances. Profitability was measured as ROE. The regression analysis of the data was done using the fixed effects model.

The study by Boahene, Dasah and Agyei (2012) was narrow in scope because it focused only on six banks out of the twenty-three banks operating in Ghana (Bank of Ghana, 2023) and only covered a period of five years from 2005 to 2009. It is therefore, not clear to what extent the findings can be taken to be representative of the entire banking system in Ghana. However, the study established that there was a positive relationship between bank size, bank growth, bank debt, capital and bank profitability for the banks which were the subject of the research. The current study was much broader in focus covering fifteen banks operating in Zambia between 2010 to 2021 which is also a much longer period than that covered by Boahene, Dasah and Agyei (2012).

A study carried out in Nigeria supports the findings of Boahene, Dasah and Agyei (2012) as it concluded that credit risk has a negative impact on commercial bank profitability (Ebenezer & Omar, 2013). This study used a panel data analysis approach on eight (8) commercial banks over the period of four (4) years. The results of the study showed a negative and significant relationship between non-performing loan ratio and bank profitability. Another variable used in the study as a measure of credit risk was debt to equity ratio. The findings on this gearing ratio were that there was a negative and insignificant relationship between bank gearing and bank profitability. Another recent study carried out by Onyeiwu, Ajayi and Muoneke found a strong relationship between credit risk parameters and bank profitability in Nigeria (Onyeiwu, Ajayi, & Muoneke, 2020). These findings are consistent with the earlier findings of Boahene, Dasah and Agyei (2012). However, it is not clear to what extent the findings of Ebenezer and Omar as confirmed by the findings of Onyeiwu, Ajayi and Muoneke could be taken to apply to the Zambian banking system, given that Nigeria has a much bigger economy than Zambia. The current study sought to establish whether credit risk management impacts on profitability of Zambian banks and had a much broader bank coverage than the study by Ebenezer and Omar.

On a more regional scale, Zogning and Lenga (2022) studied the effect of credit risk management in 52 banks domiciled in six Central African countries namely, Cameroon, Central African Republic, Congo, Gabon, Equatorial Guinea, and Chad. In line with similar findings in other studies of countries in Sub-Saharan Africa, they concluded that credit risk (non-performing loans/total loans) and liquidity risk (liquid assets/total assets) had a negative and positive statistically significant impact on the profitability of banks (measured by ROA and ROE) respectively. This study also found that bank size and GDP growth had significant positive effect on ROA and ROE, while the effect of leverage and inflation were insignificant. The question then is would this be the case for Zambian banks?

2.2 Studies in Asia

A study carried out on the impact of credit risk on profitability of commercial banks in Nepal showed that there was a positive and significant relationship between non-performing loan ratio and bank profitability (Poudel, 2018). The study used one-way fixed effects model of panel data to analyze the data for a sample of 15 commercial banks in that country. The profitability measure used was ROE whereas credit risk was measured in terms of non-performing loan ratio, solvency (liquid assets), total assets, and Inter Bank Rate (IBR). The results from this study showed that non-performing loans had a negative and statistically significant effect on profitability, while solvency,

inflation and IBR had insignificant negative impact on profitability of commercial banks. The other variables such as capital adequacy, total assets and GDP growth showed a positive significant impact on the profitability of commercial banks in that country.

Findings from a study carried out in Sri Lanka showed that profitability of the banking sector could be determined by credit risk parameters (Bandara, Jameel, & Haleem, 2021). The researchers found a negative and significant relationship between non-performing loans and ROA. On the other hand, the CAR had a positive impact on profitability. The other findings from this study were that the net charge off ratio and the loan to deposit ratio did not impact bank profitability significantly.

In Bangladeshi, it was found that CAR (positive effect), cost to loan assets ratio (positive effect), NPL (negative correlation) and bank size (negative correlation) were the most significant predictors of commercial bank profitability (Biswas *et al*., 2021). These findings are consistent with the findings of Bandara, Jameel and Haleem (2021) in their study in Sri Lanka with respect to CAR and NPL. A study in Vietnam also found that credit risk as measured by loan loss provision and bank size had an adverse impact on bank profitability (Tran, 2020). Conversely, gearing (total debt to total assets), inflation and GDP growth had a positive impact on profitability.

On a more regional scale, a study carried out by De Leon (2020) on the top five banks in the Philippines, Thailand, Indonesia and Malaysia concluded that GDP growth and credit risk (as measured by reserve on loan loss to the total portfolio of loans) had negative statistically significant effect on ROA and ROE. On the other hand, the study revealed that inflation had a positive statistically significant effect on bank profitability.

2.3 Studies in MENA countries

Several studies have been carried out in the Middle East and North African (MENA) countries to investigate the effect of credit management on profitability of banks. In a study carried out in Palestine on the relationship between credit risk (as measured by NPL ratio) and profitability (as measured by ROE) of commercial and investment banks, it was found that there was no statistically significant relationship between credit risk and bank profitability (Bayyoud & Sayyad, 2015). However, this study was narrow in focus as no other predictor variables were considered.

A more comprehensive study on the relationship between credit risk and bank profitability on MENA banks was carried out by Abdelaziz, Rim and Helmi (2020). The study used two measures of profitability, namely ROA and ROE, and several predictor and control variables such as NPL ratio, loans to deposit ratio, bank size, CAR, GDP growth and inflation rate. The researchers found that credit risk (NPL ratio), liquidity risk (loans to deposit ratio) and bank size significantly decreased the bank profitability as measured by both ROA and ROE. Other researchers who reached similar conclusions in MENA countries include Ghenimi, Chaibi and Lajmi (2020), and Hakimi and Zaghdoudi (2017) in respect of liquidity risk, and Ghenimi, Chaibi and Lajmi (2020) on studies on credit risk. The study by Abdelaziz, Rim and Helmi (2020) also indicated that capital adequacy ratio was negatively and significantly correlated with bank profitability, while inflation exerted a positive and significant effect on ROE; however, the GDP growth did not exert any significant effect.

A more recent study by Al Zaidanin and Al Zaidanin (2021) confirmed some of the findings above with regard to the negative effect of non-performing loans on banks in a MENA region country (i.e. United Arab Emirates). This study also concluded that capital adequacy ratio, liquidity ratio, and loans-to-deposits ratio all had a very weak positive relationship on the return on assets and were therefore, not considered determinants of bank's profitability due to their insignificant statistical impact.

2.4 Studies in America and Europe

Numerous studies have examined the impact of credit risk on the profitability of American and European banks. The findings indicated that higher credit risk, represented by non-performing loans and loan loss provisions, had a significant negative effect on bank profitability (Altunbas, Gambacorta, & Marqués-Ibáñez, 2010; Cole & Gunther, 1998; Hamdi *et al*., 2018; Morgan & Stiroh, 2001). On the contrary, a study carried out in Albania found a significant positive relationship between credit risk and profitability of commercial banks (Hallunovi & Berdo, 2018). This latter finding has been echoed in a more recent study which concluded that there was a statistically significant positive effect of non-performing loans/gross loans ratio on the financial performance of American and European banks (Isenberg, Sazu & Jahan, 2022). The study also found a negative impact of the provision for facilities loss/net facilities ratio on financial performance, but no impact of capital adequacy ratio, as well as the credit interest/credit facilities ratio on the banks' financial performance when analyzed by ROA. This highlights the importance of effective credit risk management practices in enhancing profitability.

Another crucial aspect of credit management is capital adequacy, which measures a bank's ability to absorb losses and maintain stability. Research by Berger, DeYoung and Udell (1999) and Wheelock and Wilson (1995) found a positive relationship between capital adequacy and bank profitability, suggesting that well-capitalized banks are better equipped to manage credit risk and absorb potential losses, leading to improved profitability. However, the recent study by Isenberg, Sazu and Jahan (2022) found no impact of capital adequacy ratio on the

profitability of the 37 American and European commercial banks they researched.

Macroeconomic conditions significantly influence the credit management-profitability relationship because during periods of economic downturn, credit quality deteriorates, impacting profitability. For example, studies that explored the effect of macroeconomic factors such as GDP growth and inflation on bank profitability unveiled a negative relationship between GDP growth and profitability (Kosmidou, Pasiouras & Zopounidis, 2006; Saunders & Schumacher, 2000).

Efficiency in credit management processes can positively impact the profitability of banks. Several studies have examined the relationship between credit management efficiency and bank profitability. The findings suggested that more efficient credit management practices, such as faster loan approval processes and effective monitoring systems, were associated with higher profitability (Barrios, Blanco & Fernández de Guevara, 2012; Brewer, Mondschean & Strahan, 1997).

2.5 Conclusion

The literature review findings above indicate the need to consider regional variations and external macro-economic factors when assessing the impact of credit management on profitability. It is clear that credit management is a multifaceted aspect of banking operations that requires a comprehensive approach to maximise profitability and minimise risks. It is important to note that while the literature provides valuable insights, there are certain limitations to consider. Firstly, the studies included in this literature review cover different countries and time periods, making it challenging to draw definitive conclusions that apply universally. Secondly, the banking industry and regulatory frameworks differ across countries, which may influence the relationship between credit management and profitability.

Therefore, further research is required to address these limitations by conducting country-specific studies with larger sample sizes and longer time periods. This would provide a more comprehensive understanding of the relationship between credit management and profitability within specific contexts. The current study sought to establish what the case is in the Zambian context by examining the extent to which credit management impacts on profitability of banks in the country.

In conclusion, credit management plays a crucial role in determining the profitability of banks. The literature review highlights the significant impact of credit risk, bank size, macro-economic factors, and regional variations on the relationship between credit management and profitability. By effectively managing credit risk, maintaining adequate capital, and considering external economic factors, banks can enhance their profitability and ensure long-term sustainability. However, further research is needed to address the limitations and expand our understanding of this complex relationship in different banking environments.

3. Data and Methodology

A description of the data, data sources, and the empirical model used in the study is provided in this section.

3.1 Data and Data Sources

Financial data for the study was collected from the Bank of Zambia (BoZ), the country's central bank. The data comprised bank by bank audited financial statements for the period 2010 to 2021. The financial data collected enabled computation of profitability as proxied by Return on Average Assets (ROAA), the dependent variable, and various associated independent and control variables such as leverage (ratio of total debt to total net assets), credit risk (gross loans and advances to total assets and loan loss provision to total loans and advances), asset quality (non-performing loans to total loans), bank size, and bank growth.

The BoZ provided anonymized data for all the 18 banks in the country. However, due to bank mergers and acquisitions, we analysed data for 15 banks only. This sample represents over 80% of the population, hence we considered the sample large enough to represent characteristics of the sector.

3.2 Data Analysis Model

To better understand the data used in the study, descriptive statistics were generated. Subsequently, variance inflation factor (VIF) and correlation analyses were employed to examine whether there was multicollinearity among the variables.

The data utilized in this research encompassed both time-series and cross-sectional aspects. This type of data allowed for the application of panel data methodology in the analysis. The advantage of using panel data methodology is twofold: it not only permits the inclusion of cross-sectional observations across multiple time periods but also enables the researcher to control individual heterogeneity arising from latent factors. By employing this approach, the researcher avoids obtaining biased results.

In order to analyze the panel data, fixed effects (panel) regression using the Least Squares Dummy Variable approach in SPSS was utilized. This approach was chosen due to its ability to handle unbalanced and correlated data (SPSS Inc., 2005). The dataset used in the study had missing data for a few banks during the years 2020 and

2021, which led to the selection of the fixed effects model over the General Linear Models (GLM) approach. The fixed effects model was preferred because it is asymptotically efficient, meaning it achieves minimum variance, regardless of whether the data is balanced or unbalanced. Moreover, previous research by Yeboah and Yeboah (2014) showed that fixed effects regression analysis yielded superior results compared to ordinary least squares modeling. The inclusion of dummy variables in the model was intended to control for any potential differences among cases or banks, both observed and unobserved. Accordingly, the model takes the form:

$$yij = \alpha 0 + \beta 1x1ij + \beta 2x2ij \ldots \beta nxnij + \varepsilon ij \quad (1)$$

where yij is the value of the dependent variable for a particular ij case, α0 is the constant, β1 through βn are the fixed effect coefficients, x1ij through xnij are the fixed effect variables (predictors) for observation j in group i, and εij is the error for case j in group i.

The specific model employed in the study is listed below, while the variables are defined in Table 1.

$$ROAAij = \alpha 0 + \beta 1SIZEij + \beta 2GROij + \beta 3TDAij + \beta 4NPLij + \beta 5LTAij + \beta 5LLPij + \varepsilon ij \quad (2)$$

Table 1 Variable definitions

Variable	Type	Definition	Expected correlation between independent and dependent variables
Profitability	Dependent	Return on Average Assets which is profit/loss after tax divided by average assets (ROAA)	
Bank Size	Control variable	The log of total assets (SIZE)	Positive
Growth	Control variable	Percentage growth in annual income (interest income_1 – interest income_0/interest income_0) (GRO)	Positive
Leverage	Independent variable	The ratio of total debt to total net assets (TDA)	Positive
Asset quality	Independent variable	Non-performing loans to total loans (NPL)	Negative
Credit risk	Independent variable	Gross loans and advances to total assets (LTA)	Positive
Credit risk	Independent variable	Loan loss provision/ to total loans and advances (LLP)	Negative

4. Empirical Results

4.1 Descriptive Statistics

The descriptive statistics in Table 2 show that the sample size on each of the variables ranged from 157 to 172 which we considered large enough to generate valid conclusions. Regarding profitability, the banking sector in Zambia experienced consistent low performance, as indicated by the average return on average assets (ROAA) of 1% (with a minimum of -19% and a maximum of 8%). This reaffirms that the ROAA of banks in Zambia tends to be generally low, sometimes falling below the 4% benchmark set by the country's central bank (Bank of Zambia, 2022). This observation is further supported by the World Bank Group (2023), which reported that the aggregate ROA for the Zambian banking industry ranged from 0.8% to 3.1% between 2012 and 2021.

Table 2 Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
ROAA	171	-.19	.08	.0102	.03800
SIZE	172	12	17	14.67	1.205
GRO	157	-94	1981	42.65	161.123
TDA	172	.15	71.79	7.9169	7.06331
NPL	172	.00	.43	.0679	.06868
LTA	172	.03	.76	.3781	.15826
LLP	172	-.11	.16	.0174	.03066
Valid N (listwise)	156				

In terms of the control variables, the average bank size in the industry had a natural log of 14.67 with a standard deviation of 1.205. The bank size ranged from a minimum of 12 to a maximum of 17. Growth in interest income for the banking sector averaged 43%, which shows significant growth in the sector. The bank leverage for the sector ranged from 15% to 7,179% with an average of 790% and a standard deviation of 706%. This confirms that banks in Zambia are highly geared.

With respect to asset quality and credit risk measures, NPL ratio averaged 7% with a minimum of 0% and maximum of 76%. This average was reasonable as it was close to the prudential benchmark of 10% (Bank of

Zambia, 2022). Gross loans and advances to total assets ranged from 3% to 76% with an average of 38% and standard deviation of 16%. The average loan loss provision was 1.74%.

4.2 Correlation Analysis

Table 3 shows the correlation among the variables used in the study.

In terms of collinearity among the independent variables, the statistics suggest that except for LLP and NPL, there is no multicollinearity as all the correlations are lower than 0.5 and -0.5. To establish the possible multicollinearity between LLP and NPL, we generated collinearity statistics.

As can be seen from Table 4, the presence of multicollinearity is minimal as all tolerance statistics, including the mean values are below 1, while all the Variance Inflation Factors (VIF) is below 10. According to Pallant (2020, pp.246-247), a tolerance value of more than 0.10 and VIF below 10 suggest low multicollinearity among the regressors. We therefore proceeded with the regression analysis.

Table 3 Correlation Analysis

Correlations							
	ROAA	SIZE	GRO	TDA	NPL	LTA	LLP
ROAA	1						
SIZE	.454	1					
GRO	.011	.044	1				
TDA	-.245	.021	-.003	1			
NPL	-.251	.029	-.035	.361	1		
LTA	-.109	-.104	.076	.119	.058	1	
LLP	-.301	-.049	-.020	.004	.500	.012	1

4.3 Fixed effects regression model

As shown in Table 5, the R squared in Model 1 indicates that 35.1% of the variation in profitability is occurring in between subjects i.e., between the banks. The R Square change of .247 for Model 2 suggests that the independent and control variables account for an additional 24.7% change in bank profitability and that this effect is statistically significant. The remaining 40.2% is the unexplained part, which may be attributed to other factors that are not included in the model.

Table 4 Collinearity Statistics

Coefficients[a]			
		Collinearity Statistics	
Model		Tolerance	VIF
1	SIZE	.971	1.030
	GRO	.990	1.010
	TDA	.780	1.282
	NPL	.572	1.748
	LTA	.963	1.038
	LLP	.663	1.509
	Average	**0.82**	**1.27**
a. Dependent Variable: ROAA			

Table 6 shows that Bank size and LLP have a statistically significant effect on bank profitability in Zambia. Bank size has a positive effect on profitability with a coefficient of 0.019. This means that a one unit increase in bank size results in a unit increase of 0.019 in bank profitability; therefore, the bigger the bank size the higher its profitability is likely to become. This finding agrees with many similar studies carried out in different jurisdictions which established a positive relationship between bank size and bank profitability (Biswas *et al*., 2021; Boahene, Dasah, & Agyei, 2012; Zogning & Lenga, 2022). We attributed this discovery to the principles of economies of scale and substantial bargaining power that are typically linked to large-scale operations.

Table 5 Model Summary

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	.592[a]	.351	.287	.02697	.351	5.448	14	141	.000
2	.773[b]	.598	.539	.02169	.247	13.841	6	135	.000
a. Predictors: (Constant), Subject=9, Subject=5, Subject=3, Subject=11, Subject=10, Subject=13, Subject=15, Subject=14, Subject=12, Subject=8, Subject=7, Subject=6, Subject=4, Subject=2									

The loan loss provision had a statistically significant negative effect on profitability as indicated by a regression coefficient of -0.278. This implies that a one unit increase in the loan loss provision results in a reduction of 0.278 units in profitability of Zambian banks. This finding accords with our expectations and is in line with the findings of several studies carried out around the world (Altunbas, Gambacorta & Marqués-Ibáñez, 2010; Cole & Gunther, 1998; Morgan & Stiroh, 2001) which established a negative and significant relationship between loan loss provision and bank profitability.

Table 6 Fixed Effects Regression Results

Coefficients[a]					
	Unstandardized Coefficients		Standardized		
Model	B	Std. Error	Coefficients Beta	t	Sig.
(Constant)	.010	.008		1.230	.221
SIZE	.019	.003	.682	6.496	.000
GRO	1.473E-6	.000	.007	.130	.896
TDA	-.001	.000	-.130	-1.749	.083
NPL	-.069	.041	-.150	-1.674	.097
LTA	.017	.021	.083	.801	.425
LLP	-.278	.077	-.261	-3.628	.000

The variation in interest income (GRO) had a positive effect on bank profitability; however, its contribution was negligible and not statistically significant with a one unit increase in interest income resulting in an increase in profitability of only 0.00000001 units.

Although statistically insignificant, the NPL ratio had a substantial negative effect on bank profitability because a one unit increase in the ratio resulted in a reduction in profitability of 0.069 units. This finding is in line with our expectations as shown in Table 1 above and accords with the findings of several studies carried out around the world (Altunbas, Gambacorta & Marqués-Ibáñez, 2010; Cole & Gunther, 1998; Ebenezer & Omar, 2013; Gizaw, Kebede & Selvaraj, 2015; Morgan & Stiroh, 2001; Zogning & Lenga, 2022) which established a negative significant relationship between non-performing loan ratio and bank profitability.

Leverage had negligible and statistically insignificant negative impact on profitability. In particular, a one unit increase in leverage accounted for a paltry reduction of 0.001 units in profitability. Similarly, the effect of LTA on profitability was not statistically significant, although more telling as a one-unit increase enhanced profitability by 0.017 units.

5. Conclusion and Policy Implications

5.1 Concluding remarks

The aim of this study was to evaluate the effect of credit management policies and practices on profitability of banks in Zambia. Measures for independent variables such as leverage (the ratio of total debt to total net assets), asset quality (non-performing loan ratio) and credit risk (gross loans and advances to total assets, and loan loss provision ratio) were adopted to reflect bank credit management policies and practices.

The study established that bank size and loan loss provision ratio had a statistically significant effect on bank profitability in Zambia. Bank size had a positive effect on profitability, which suggested that the bigger the bank size the higher its profitability was likely to be. This finding could be attributed to the principles of economies of scale and substantial bargaining power that are typically linked to large-scale operations. On the other hand, loan loss provision ratio had a negative effect on profitability, implying that an increase in the loan loss provision resulted in a reduction in profitability of Zambian banks.

The variation in interest income had a positive effect on bank profitability; however, its contribution was negligible and not statistically significant. Conversely, although statistically insignificant, the non-performing loan ratio had a substantial negative effect on bank profitability. Furthermore, the study concluded that leverage had negligible and statistically insignificant negative impact on profitability, while the effect of gross loans and advances to total assets on profitability was not statistically significant, although more telling than the former.

5.2 Policy implications

In view of the findings of this study, bank management should formulate policies that are designed to grow bank assets in order to improve their profitability. Management should additionally develop policies, as part of their credit management strategies, that ensure that loan loss provisions are minimised if they are to increase profitability of their banks.

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