Determinants of lending behaviour of commercial banks in Tanzania

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Abstract

This paper assesses the determinants of the lending of six commercial banks in Tanzania from 2015 to 2019 using a quantitative research design. The data were collected from Annual Reports of the six commercial banks. The results show that liquidity and capital adequacies have a significant relationship with lending, whereas interest rate and management efficiency have no statistically significant influence on lending. Thus, effective policies should be developed to ensure commercial banks grow and be able to advance more credit. Additionally, the banking sector needs to prioritize increasing the liquidity ratio to ultimately strengthen the bank’s financial position. Furthermore, commercial banks should be more innovative in their lending since different sectors present different risk profiles. Lastly, commercial banks management needs to employ capital growth strategies to enhance the banks’ capital conservation buffer that requires banks to build up extra buffers outside periods of stress.

Introduction

Lending is not as simple as taking money and then just giving it back (Charalambakis & Psychoyios, 2012). Often there is a charge for borrowing money because ultimately, lending has a cost to the lender. Funding (or finance) has been an integral part of any civilization. Whether it was through barter or indigenous lenders, funding has played a major role in all civilizations in every part of the world. This may be the reason why lending and financing have evolved and grown rapidly over the years, taking more effective and creative forms. Referring to Kenya, Ayieyo (2016) notes that the lending sector has been growing at an exponential rate, which is the same trend in other countries as well. Lending is a major driver of economic activities of households, firms and governments, which stir economic growth and development of any nation. The variation in lending is a concern to all the major stakeholders in the economy (Imran & Nishat 2012). Thus, in lending, banks act as an intermediary between those who supply funds and those in need of money as loans (Al-Kilani and Kaddumi, 2015).

Financial institutions in Tanzania support the business sector and national development. Through financial institutions, businesses deposit, transfer and obtain loans for businesses. The process of issuing loans by financial institutions is associated with risks, such as loan repayment risks, financial risks, interest rates and foreign exchange risks, operating risks, technical risks, fraud risks, regulatory risks, and non-balancing risks. To reduce these risks, financial institutions need to establish appropriate and efficient lending facilities (IMF, 2018). The lending follows the borrowing policy and regulatory framework in Tanzania's content regulations. The regulations require a minimum loan rate of 80% and a portable asset with a total capital of at least 20%. The collateral needs to be 125% of the loan amount, and the loan should be 25% of the principal amount if the loan is fully secured, 10% of the principal amount if the loan is partially secured and 5% if the loan is not secured. The lending requirement is 5% of the capital. In addition, the credit policy will consider the following guidelines: credit will only be provided for the amount and for the specific purpose or project and the time necessary to complete the work or project to be paid. Overdraft facilities are provided for operational purposes only for one year (BOT, 2019).
Lending is affected by different factors, including interest rate, liquidity, inflation, exchange rate, capital, and economic growth (Akinlo & Oni, 2015). Thus, bank lending is determined by macro-economic factors and bank-specific factors, which include inflation, exchange rate, capital, economic growth, management efficiency and bank profitability (Kim & Sohn, 2017). As Mousa & Chedia (2016) have found, the amount to lend depends on the size of the bank, credit risk, interest rate and liquidity. Several studies have been conducted internationally and domestically on the factors that affect lending. For example, Nasrul et al. (2019) evaluated the factors affecting the lending of Malaysian commercial banks. Mousa & Chedia (2016) analysed the determinants of bank loans in Tunisia; Shoyo et al. (2020) assessed the determinants of interest rates for the Tanzanian banks. However, the results from previous studies are not consistent. Whereas some studies have found that bank lending is determined by liquidity, interest rate, and capital adequacy may not have a bearing on the lending.

This study assessed the determinants of commercial banks’ lending in Tanzania, including liquidity, interest rate, capital adequacy and management efficiency.

**Literature Review**

**Theoretical and Conceptual Review**

**Loan Pricing Theory**

The theory was developed by Stiglitz & Weiss (1981), who posited that banks should not always focus on offering very low interest rates on deposits but and charging high-interest rates on loans to increase their incomes. Rather, they should be cautious about behavioural risk and improper selection when strategizing to increase revenue because it is difficult to understand the type of borrower with confidence when starting a customer relationship (Stiglitz & Weiss, 1981). For example, high-interest rates can create the problem of poor selection because high prices will be more acceptable to high-risk borrowers. Once these borrowers have secured loans, the lenders are more likely to develop risky behaviour due to project entry and highly risky investments (Chodechai, 2004). In the recent years in Tanzania, commercial banks and other financial institutions have been undertaking various reforms on the marketization of interest rates, whereby the floating space of loan interest rates has been constantly expanding. Because loan pricing has become the most critical link of Tanzania’s commercial banks, analysing factors that determine the lending of commercial banks is geared at contributing to improving the loan pricing by commercial banks.

**Market Power Model**

This model was developed by Gorton & Winton (2000). The theory posits that, since capital acts as a loss-absorbing buffer, banks with high capital ratios should be less vulnerable to runs (from both deposits and short-term wholesale funding). This lower run risk allows highly capitalized banks to offer more loans. Repullo (2004) has argued that banks choose to manage their liquidity risk prudently only when their leverage is low. The lower the bank’s capital ratio, the lower the ability of the bank to lend. To enhance its lending ability, a bank needs to hold a large number of liquid assets. As a result, a bank with little capital will have a relatively low ability to lend and will find it relatively expensive to insure against lending risks. The theory points to the relationship between capital and liquidity in bank lending and risk minimization. The theory indicates that the provision of loans favour banks with high capital and liquidity. Hence this study has sought to test that theory.

**Empirical Literature Review**

Various studies have examined empirically factors that influence lending. Nasrul et al. (2019) examined factors that influence the lending of commercial Banks in Malaysia in the period 2009 – 2018 and found that deposit volume, liquidity and bank size had a significant effect on commercial bank lending in Malaysia following the 2007/2008 global financial crisis. Specifically, they found that the amount of deposits and non-performing loans were found to hurt the conduct of bank loans, whereas the level of bank failure and size of the bank had positive effect on the conduct of lending. These findings are beneficial to commercial banks, the Central Bank of Malaysia (BNM), investors/shareholders and business firms in planning and formulating appropriate policies, leading to informed decisions. In addition to these findings, Adzis et al. (2018) also examined the determinants of lending by the Malaysian commercial banks. The study collected data from the reports for a sample of 10 banks and used regression to analyse the data. The results showed that long-term creditworthiness, GDP growth and bank size affect the ability of commercial banks to extend loans, whereas the relationship between liquidity and lending was found to statistically insignificant.

Furthermore, Arifii et al. (2014) analysed Basel III’s borrowing behaviour in the Kosovo Banking system and found that the relationship between liquidity and lending was positive and statistically significant. Ngata & Njeru (2015) conducted a study on the effect of Basel Liquidity Rules on the Interbank Money Market behaviour in Kenya using regression analysis on the data collected from the banks’ annual reports. The study found a relationship between liquidity and lending. Tomak (2013) analysed the determinants of commercial bank lending in Turkey for all listed banks in the period 2006 to 2011 using panel data regression and Generalized Autoregressive Conditional Heteroscedasticity (GARCH). The panel data regression model showed that interest rate has a significant impact on lending. Mousa & Chedia (2016) examined the determinants of bank lending in Tunisia using multiple linear regression to analyse the data collected from documentary reviews. The study found that private banks charge higher interest rates than state-owned banks on similar firms or industries, which affect lending. Similarly, Malede (2014) used a regression model to analyse the determinants of lending by Ethiopian Commercial Banks. The study found that the interest rate has a positive but
statistically insignificant relationship with commercial banks' lending. The study accounted the rise in interest rates to high operating costs, non-performing loans and financial costs. The three factors accounted for 70.4 percent of the small bank loans in 2014-17; while in medium-sized and large banks, they constitute about 69.5 percent and 67.4 percent of lending rates, respectively. Concerning economic estimates, the findings confirm the role of operating costs, non-performing loans, and financial costs in defining volatility in bank lending rates. Operating costs, monetary costs, and inflation were found to have a statistically significant effect on bank lending rates, while bank size and cash inflation had a negative impact. Taking from these findings, this study assessed the determinants of lending especially in relation to interest rates in Tanzania’s commercial banks. Sanfilippo et al (2018) used data collected from questionnaires and analysed descriptively and found capital adequacy to have a relationship with bank lending. Louhichi & Boujelbene, (2017) used regression analysis to examine bank capital, mortgage and financial conduct for dual banking systems. The study analysed ten years of data collected from the financial statements of selected banks. Contrary to Sanfilippo et al (2018) they concluded that there was no relationship between capital adequacy and lending. Hence, the results with regard to the relationship between capital and lending has not been conclusive.

Several studies have been conducted internationally and locally on the factors affecting lending. The results from the reviewed studies are not consistent. For example, some studies have found that bank lending is determined by liquidity, interest rate, and capital adequacy, whereas other studies have found the contrary to be the case. This study has added to the corpus of this literature by examining the relationship the effect of liquidity, interest rate, capital adequacy and management efficiency on lending in Tanzania.

**Research and Methodology**

**Research Design, Population, Sample Size and Data**

The study employed a quantitative research design, which facilitated the use of mathematical and statistical tools to analyse the objectives of the study. The population of this study was the 37 commercial banks in Tanzania. The population was adequate for the data required for the study, Best & Kahn, (2006) explain that a sample of 10-30% is sufficient for a population of more than 30. Hence, the study took about 16% of the population of banks, such that the sample size of the investigation includes six (6) commercial banks had more than 8 years in the business, which caters for the investigation period of 2015-2019.

The data for the study included liquidity, management efficiency, interest rate and capital adequacy as determinants of the lending of commercial banks. These data were obtained from secondary sources; specifically, they were obtained from commercial banks' annual reports and from the Bank of Tanzania reports for the period of 2015-2019.

**Variables**

The independent variables include liquidity, interest rate, capital adequacy and management efficiency ratio. The dependent variable is lending.

| Variable               | Definition                                                                                                                                  | Measurement                                                                 | Source                                      |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------|
| Lending                | Lending is when anyone gives something to someone to have it returned.                                                                      | Natural logarithm of net loans and advances                                  | (Louhichi & Boujelbene, 2017; Kosak et al, 2015) |
| Liquidity              | The degree to which an asset or security can be quickly bought or sold in the market at a price reflecting its intrinsic value           | Liquid assets/total deposits                                                 | (Kosak et al, 2015; Nasrul et al, 2019)        |
| Capital Adequacy       | Amount of own fund available to support bank business and level of bank capital creates                                                    | Equity / total assets                                                        | Nasrul et al, (2019)                           |
| Interest rate          | Is the amount a lender charges for the use of assets expressed as a percentage of the principal                                              | Interest income/average loans                                                | Kosak et al, (2015)                           |
| Management Efficiency Ratio | Is the support to the integration of human resources planning with business planning by allowing organizations to assess the current human resource capacity based on their competencies against the capacity needed to achieve the vision, mission and business goals of the organization | Expenses / Revenues                                                          | Ngata and Njeru, (2015)                          |
Data Analysis and Model Specification

The collected data were checked for completeness and comprehensibility. Then the data were analysed using STATA software. The study also used statistical methods, such as regression and correlation to examine the relationship between the independent and dependent variables. Multiple regression analysis method was also be used to estimate the equation shown below

\[ \text{LB}_{it} = \beta_0 + \beta_1 \text{LIQ}_{it} + \beta_2 \text{INT}_{it} + \beta_3 \text{CAP}_{it} + \beta_4 \text{ME}_{it} + \epsilon_{it} \]

Where;

\( \text{LB} \) = lending
\( \beta_0 \) = Coefficient of the model
\( \beta_1 - \beta_4 \) = Beta Coefficient of Determination
\( \epsilon \) = Stochastic Error Term
\( \text{LIQ} \) = Liquidity
\( \text{INT} \) = Interest rate
\( \text{CAP} \) = Capital adequacy
\( \text{ME} \) = Management Efficiency

\( i \) = Companies
\( t \) = Time

Econometrics Tests

Multicollinearity refers to the situation in which independent variables are highly correlated; resulting in a paradoxical effect, whereby the regression model fits the data well, but none of the independent variables has a significant impact in predicting the dependent variable (Gujarati, 2021). The existence of multicollinearity is tested by calculating the Variance Inflation Factor (VIF). According to the rule of thumb VIF coefficient greater than 10 indicates the presence of multicollinearity. Autocorrelation test is a test that can be used to check whether the errors are uncorrelated to each other, thereby assuring whether the model was in line; which implies that the error terms are not serially correlated. Heteroscedasticity gives us the information needed to determine whether the assumption of homoscedasticity is valid or not.

Findings

The collected data were examined for completeness and comprehensibility. The data was then cleaned and analyzed using the STATA software. The statistical assumption was conducted to detect an error in data before regression analysis.

The study collected data from six selected large commercial banks. Correlation and regression were conducted to show the relationship between variables.

Correlation

This section presents the correlation analysis. Pearson’s correlation was carried out to examine the relationships between variables. This research aimed to assess the determinants of the Lending of commercial banks in Tanzania. The objective of conducting correlation analysis was to show how independent variables (liquidity, interest rate, capital adequacy, management efficiency) and dependent variable (lending) correlate. Table 2 presents the correlation of the variables used in the analysis.

| Variables       | Lending     | Liquidity | Interest | Capital Adequacy | Management Efficiency |
|-----------------|-------------|-----------|----------|------------------|-----------------------|
| Lending         | 1.0000      |           |          |                  |                       |
| Liquidity       | 0.4731      | 1.0000    |          |                  |                       |
| Interest        | -0.1238     | -0.0620   | 1.0000   |                  |                       |
| Capital Adequacy| 0.5455      | 0.0884    | 0.0542   | 1.0000           |                       |
| Management Efficiency | 0.4897   | 0.1653    | 0.4312   | 0.2351           | 1.0000                |

The correlation between the Lending behavior of banks and the liquidity of the bank is positive. This implies that as the liquidity of the bank increases there is an increase in the lending behavior of the bank. Arifi et al, (2014) found a positive correlation between liquidity and other variables, whereas Adzis et al, (2018) found a negative correlation between liquidity and other variables. Furthermore, there is a negative correlation between the lending behavior of banks and interest rate. This implies that as the interest rate increases there is a decrease in the lending behavior of banks. Kananu and Ireri, (2015) found a positive correlation between interest rate and other variables, whereas Labonne and Lame. (2014) found a negative correlation between interest rate and other
variables. Moreover, the study has shown a positive correlation between the lending behavior of banks and capital adequacy of banks. The results imply that as capital adequacy of a bank increases, there is an increase in the lending behavior of banks. Nasrul et al. (2019) found a positive correlation between capital adequacy and other variables while Adzis et al., (2018) found a negative correlation between capital adequacy and other variables. The study has found a positive correlation between the lending behavior of banks and the management efficiency of the bank. This implies that as the management efficiency of the bank increases there is an increase in the lending behavior of the bank. Tomak, (2013) found a positive correlation between management efficiency and other variables, whereas Kanunu and Ireri, (2015) found a negative correlation between management efficiency and other variables.

Statistical Assumption

Accordingly, before applying the model for testing the significance of the slopes and analyzing the regressed result, multicollinearity, autocorrelation and heteroscedasticity tests are made for identifying misspecification of data if any so as to fulfill research quality.

Multicollinearity Test

The term Multicollinearity indicates the existence of exact linear association among some or all explanatory variables in the regression model. When independent variables are multi collinear, there is overlapping or sharing of predictive power. Thus, if multicollinearity is perfect, the regression coefficients of the independent variables are undetermined and their standard errors are immeasurable (Gujarati, 2004). Multicollinearity makes significant variables insignificant by increasing p-value since increased p-value lowers the t-statistics value. Thus, the panel regression results with multicollinearity will show significant variables as insignificant variables. The multicollinearity problem is resolved by dropping highly correlated variables (Ahmad and Bashir, 2013). Then, the result provide more significant variables than before. The existence of multicollinearity is tested by calculating the Variance Inflation Factor (VIF). According to the rule of thumb, VIF coefficient greater than 10 indicates the presence of multicollinearity. Given the fact that VIF is less than 10 but tolerance is less than 2, we can conclude that no multicollinearity problem, which means that the independent variables included in the model are not substantially correlated with each other.

Table 3: Multicollinearity Test

| Variables       | Tolerance | Variance Inflation Factor (VIF) |
|----------------|-----------|---------------------------------|
| Liquidity       | .661      | 1.072                           |
| Interest        | .215      | 2.234                           |
| Capital         | .511      | 1.261                           |
| Management efficiency | .2.143 | 2.341                           |

Heteroscedasticity Test

In the linear regression model, one of the basic assumptions is homoskedasticity assumption, whereby the probability distribution of the disturbance term remains same for all observations. However, if the disturbance terms do not have the same variance, this condition of non-constant variance or non-homogeneity of variance is known as heteroscedasticity. Breusch-Pagan test was utilized in this test. This test states that if the p-value is significant at 95 confidence intervals, the data has a heteroscedasticity problem, whereas if the value is insignificant (greater than 0.05), the data has no heteroscedasticity problem. Results reported indicating that p-values were considerably greater than 0.05. This implies that there was no evidence for the presence of heteroscedasticity since the p-values are considerably more than 0.05.

Table 4: Heteroskedasticity result

|                  |                   |
|------------------|-------------------|
| Obs*R-squared    | 0.3091            |
| Prob. Chi-Square | 0.3017            |

Autocorrelation

Furthermore, the researcher tested the autocorrelation assumptions that imply zero covariance of error terms over time. That means errors associated with one observation are uncorrelated with the errors of any other observation. A Durbin Watson or DW test was used to detect the problem of autocorrelation. Accordingly, if the d computed is between 0 to <2 in the application, it is assumed that there is no autocorrelation problem. The computed “d” in this study was 1.618, which is between 0 and 2, implying the absence of an autocorrelation problem.
Random and Fixed Effect

Under the Hausman test, the researcher used alternative and null hypotheses to test which model is appropriate to use between random effect and fixed effect. Therefore, the results obtained were used to compare the p-value for random effect and fixed effect. When the p-value of fixed effects is less than 0.05, the fixed effect is more appropriate. However, when the p-value for random effect is less than 0.05, the random effect is more appropriate.

Fixed effect Model Overview

Fixed effect model is the statistical model in which the model parameters are fixed. In a panel data where longitudinal observation exists for the same subject, fixed effects represent the subject, or specifies means. In the panel data analysis, the term fixed effects estimator, also known as the within estimator, is used to refer to an estimator for the coefficients in the regression model including those fixed effects (one-time-invariant intercept for each subject). The assumption that if p-value is less than 0.05 means that all coefficients of this model are not equal to zero, therefore variables are significant.

Random effects Model Overview

The random effect model, also called a variance component model, is the statistical model where the parameters are random. It is a kind of hierarchical linear model which assumes that the data being analysed are drawn from a hierarchy of different populations whose difference relate to that hierarchy.

Thus, Hausman Specification Test identifies whether fixed-effects or random-effect model is most appropriate under the null hypothesis that unobservable individual effects are uncorrelated with one or more of explanatory variables. As noted by Gujarati (2004), fixed effect model is the most appropriate when null hypothesis is rejected, whereas random effect is appropriate when null hypothesis is not rejected.

Hypothesis Testing

H0: Random-effects model is appropriate
H1: Fixed effects model is appropriate

| Table 5: Hausman Test Results |
|-------------------------------|
| **Fixed effect** | **Random effect** |
| Chi-square statistic | P-value | Chi-square statistic | P-value |
| 2.24 | 0.001 | 6.63 | 0.313 |

Based on the result of the Hausman test, the appropriate model for this study was the fixed effect model, since from the Hausman test, the p-value of the fixed-effect model was 0.001%, which is less than 0.05; therefore, the null hypothesis was rejected, and we accept the alternative hypothesis that the fixed effects model is appropriate. Therefore, the relationship between independent and dependent variables was examined using the fixed effects model. Accordingly, the table below presents the result of the fixed effects regression model in determining the determinants of lending.

Regression Analysis

Multiple regression analysis was used to examine the determinants of the lending of banks. Specifically, the model was used to estimate the parameters used to test the determinants of the lending of banks. The table below shows the relationship between the independent variables and the dependent variable.

| Table 6: Multiple Regressions Output |
|-------------------------------------|
| **Variables** | **Coefficient** | **Std. Err.** | **t** | **P>|t|** |
| Liquidity | 4.199427 | 1.180002 | 3.56 | 0.001 |
| Interest | -35.24182 | 32.37456 | -1.09 | 0.282 |
| Capital | 8.653592 | 2.539618 | 3.41 | 0.001 |
| Management Efficiency | -0.02048723 | 0.00597736 | -0.34 | 0.436 |
| _cons | 18.48457 | 6.969159 | 2.65 | 0.011 |
| Prob>|F| | = 0.0001 |
| R-squared | = 0.6382 |
| Adj R-squared | = 0.5904 |
The R-Square is 0.63823. This indicates that variations in independent variables (liquidity, Capital adequacy, management efficiency and interest rate) collectively explain 63.8% of the variations in the dependent variable (Lending). Furthermore, the study found that the adjusted $R^2$ of the model was 0.5904, which implies that the linear regression explains 59.4% of the variations in the data. From the r squared results, it means that factors studied contribute 63.8% to lending and other factors not studied in this research contribute 36.18% of the lending of commercial banks. This shows that other factors determine the lending of commercial banks. Furthermore, the value of Prob > F in regression results is $= 0.001$, which is less than 0.05, which indicates that, overall, the regression model statistically significantly predicts the outcome variable. The results show that the independent variables which are liquidity, capital adequacy and management efficiency, are statistically significant to predict the dependent variable (Lending) of banks whereas.

Moreover, liquidity, capital and asset quality produced statistically significant results $p< 0.05$. Liquidity ($p= 0.001$), Capital adequacy ($p=0.001$), management efficiency ($p= 0.436$). This implies that the hypothesis was not rejected, which means that liquidity, capital adequacy and management efficiency, have a statistically significant contribution to the model (lending behavior).

Furthermore, interest rate produced statistically insignificant results $p> 0.05$, interest rate ($p= 0.282$). This implies that the hypothesis was rejected, which means that the interest rate, has a statistically insignificant contribution to the model (lending behavior).

The estimated parameters from the regression equation above have established that if all factors (liquidity, Capital adequacy and interest rate) are kept constant, the lending of commercial banks will be 18.4%. With a percentage increase of liquidity, the lending of commercial banks would be 4.1%. A percentage increase of interest rate, lending of commercial Bank would be 35.2%. A percent increase of capital adequacy, lending of commercial banks would be 8.6%. A percent increase of management efficiency, lending of Commercial Bank would be 2.05%

To correctly capture the effect of determinants of lending, the estimated model (see equation below) controlled for the effect of interest rate, capital adequacy, interest rate and to the Lending: -

**Estimated model**

$$Y= 18.484+4.199LIQ+ 35.241INT + 8.653592CAP + 0.02048723ME +\varepsilon$$

**Discussion**

The discussion is presented with regard to specific objectives as follows:

**The relationship between liquidity and Lending**

The hypothesis on the effect of liquidity on the Lending of banks was tested and indicated a statistically significant relationship between the liquidity and the lending of banks. The estimated coefficient of liquidity is 4.199 which implies that a unit increase in liquidity would lead to a change of 4.199 in the Lending of commercial banks. The coefficient was also supported by t values of 3.56 with the p-value is 0.001, which rejects the hypothesis that the estimated coefficient is statistically different from zero. Thus, at a 5% level of significance, we conclude that liquidity contributed significantly to the overall lending of the bank. The results are consistent with Ngata and Njeru, (2015) who conducted the study on the Effect of Basel Liquidity Rules on the Interbank Money Market lending in Kenya, thereby indicating a relationship between liquidity and lending. From the findings and evidence from the literature, the study concludes that liquidity as a factor used to describe how an asset or security can be quickly bought or sold in the market at a price reflecting its intrinsic value is a factor to be considered by a commercial bank in lending since it shows the availability of cash or cash equivalents to meet short-term operating needs. Therefore, the lending of commercial banks depends on the liquidity of the bank in such that, the higher the liquidity gets, the higher is the ability of lending of commercial banks.

**Relationship between Interest Rate and Lending**

Another hypothesis related to the effect of interest rate on the lending behavior of banks in Tanzania, whereby it was found that the relationship between interest rate and lending behavior of banks was not statistically significant. The estimated coefficient of interest rate is -35.241 which implies that a unit increase in interest rate would lead to a change of -35.241 in the lending behavior of the commercial banks. The coefficient was also supported by t values of -1.09 with a p-value is 0.282, indicating that the estimated coefficient is statistically different from zero. Thus, at a 5% level of significance, we conclude that interest rate contributed insignificantly to the overall lending behavior of the banks. Furthermore, Malede (2014) conducted a study on determinants of commercial banks’ lending: in Ethiopia. The study found that the lending interest rate has a positive but statistically insignificant relationship with commercial banks' lending. Furthermore, loan pricing theory stated that high-interest rates can create the problem of poor selection because high prices will be more acceptable to those who borrow at high risk. From the findings, the study concludes that an economy characterized by high-interest rates and stiff competition among banks could limit the possibilities for banks to establish appropriate prices for their credit facilities and deposits, putting pressure on the operating margin and negatively affecting banks' profitability. Therefore, the high interest rates affect the lending behavior of commercial banks. Thus, it does not make sense for banks to always offer very low-interest rates on deposits and high-interest rates on loans to increase their income. However, Tomak, (2013) found that interest rates have a significant impact on lending.
Relationship between capital adequacy and lending

Furthermore, the study tested on the effect of capital adequacy on lending of banks in Tanzania. The results showed the relationship between capital adequacy lending of banks in Tanzania to be statistically significant. The estimated coefficient of capital adequacy is 8.653592 which implies that a unit increase in capital adequacy would lead to a change of 8.653592 in the lending of the commercial banks. The coefficient was also supported by t values of 3.41 with a p-value is 0.001, which rejects the hypothesis that the estimated coefficient is statistically different from zero. Thus, at a 5% level of significance, we conclude that capital adequacy contribute significantly to the overall lending of the bank. The results are similar to Kosak et al (2015) who conducted the study on ”Quality of bank capital and bank lending during the global financial crisis”. Their study showed a statistically significant positive correlation between the degrees of capital adequacy and commercial banks’ lending. From the findings and evidence from the literature, the study concludes that capital is one of the bank-specific factors that influence the level of bank lending. The amount of own fund available to support bank business and level of bank capital contribute to the liquidity of the bank, which entail vulnerability of bank operations. Higher bank capital reduces the level of distress to the bank. Since the capital adequacy ratio (CAR) is a measurement of a bank's available capital, expressed as a percentage of a bank's risk-weighted credit exposures, depositors can be protected and the stability and efficiency of financial systems can be promoted, because high capital contain liquidation problems and reduce dependence on external funding and increase the ability of lending and profits. This study suggests that commercial banks should maintain the minimum capital requirement as per the Basel III regulations, which set the minimum capital requirements to be between 8% and 15%.

Relationship between Management Efficiency and Lending

Lastly, the study tested the effect of management efficiency on lending of banks in Tanzania. The results showed a significant relationship between the management efficiency and the lending of banks in Tanzania. The estimated coefficient of management efficiency is -0.0205, which implies that a unit increase in management efficiency would lead to a change of 0.0205 in the lending of the commercial banks. The coefficient was also supported by t values of -0.34 with a p-value is 0.436 which do not reject the hypothesis that the estimated coefficient is statistically different from zero. Thus, at a 5% level of significance, we conclude that management efficiency contributed significantly to the overall lending of banks. The results are consistent with Kosak et al. (2015) who found that management competence has an insignificant effect on lending. Management efficiency means performing activities with the minimum wastage of resources, which also refers to optimum utilization of resources, so that the organization can maximize the profit (Ozili, 2015).

Based on the findings, the study concludes that even though management efficiency is found to have no significant effect on lendings in this study, it is one of the key factors that may influence bank lending and performances if well considered. Also, a lack of management efficiency may contribute to poor performance. Despite those results have discovered the insignificant relationship between management efficiency and lending of the selected commercial banks in the study period but management efficiency if applied properly may reduce operational costs, thereby increase efficiency. Furthermore, bank investment should consider how the bank's current liquidity on better efficiency may increase more investment when banks hold high liquidity, as they do so at the expense of some investment that could generate high incomes.

Conclusion

The study assessed the determinants of commercial banks’ lending in Tanzania. Specifically, the study sought to determine the effect of liquidity interest rate capital adequacy and management efficiency on lending. That is to say, whether these variables (liquidity ratio, capital adequacy, management efficiency and interest rate) have a significant effect on lending of the commercial banking system in Tanzania. Based on the findings, the study concludes that, the commercial banking sector of Tanzania should take more into consideration banks liquidity, management efficiency and capital adequacy in the formulation of lending policies as well as in financial decisions. Furthermore, the study concludes that there is a statistically significant relationship between the liquidity and the lending of banks. On the other hand, the study finds a statistical insignificant relationship between interest rate and lending of banks. The results further show a statistically significant relationship between the capital adequacies and liquidity and the lending of banks in Tanzania while interest rate and management efficiency show an insignificant relationship towards the lending of banks.

The study recommends that effective policies should be developed to ensure commercial banks grow and therefore advance more credit. Additionally, the banking sector needs to prioritize increasing the liquidity ratio to ultimately strengthen the bank’s financial position. Moreover, the study suggests that commercial banks should be more innovative in their lending since different sectors present different risk profiles. Commercial banks’ management need to employ capital growth strategies to enhance their capital conservation buffer that requires banks to build up extra buffers outside periods of stress.

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