

DETERMINANTS OF BANK LENDING PATTERNS IN TANZANIA: A COMPREHENSIVE ANALYSIS

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Abstract

The study looked at bank and industry-specific factors that influence listed commercial banks' lending behaviour in Tanzania for the five-year period from 2016 to 2020. Asset quality, capital adequacy, liquidity, and bank size were employed as bank-specific factors, whereas Gross Domestic Product and inflation rate were used as industry-specific factors. To establish the cause-and-effect relationship between the response and explanatory variables, the study used an explanatory research design. Secondary data were extracted from seven listed commercial banks audited financial statements for a five-year period, totaling 35 data points. After performing pre-regression analysis (multicollinearity test), correlation and linear analysis were conducted. From 2016 to 2020, the study discovered that capital adequacy and bank size have the biggest impact on Tanzanian listed commercial banks' lending behaviour. At 5 per cent level, other explanatory variables such as asset quality, liquidity, GDP growth rate, and inflation rate were insignificant. Thus, the study concludes that capital adequacy and bank size influence the lending behaviour of the listed commercial banks in Tanzania from 2016 to 2020. The research was limited to seven Tanzanian listed commercial banks from 2016 to 2020. Regardless of their capital adequacy or size, the banks should lend cautiously. This is because, in today's intensely competitive business, if larger banks with massive capital lend irresponsibly, they are likely to collapse. Finally, the study results demonstrated that the bank size and capital adequacy influence the lending behaviour of the listed commercial banks in Tanzania

Keywords: Lending behaviour, internal factors, external factors, listed banks, Business cycle theory

1. Introduction

The financial sector is supposed to drive economic growth in any economy. The availability of funds in the financial sector is crucial to a country's economic growth and development. Business firms can also receive funding through borrowing from financial organizations, primarily the banks, in addition to raising capital on the stock market (Olokoyo, 2011; Oyebowale, 2020) this paper provides empirical evidence on determinants of bank lending in Nigeria. The parsimonious model of this study investigates the impact of growth in loan-to deposit ratio, growth in inflation, growth in broad money, and growth in bank capital on growth in bank lending using annual data from 1961 to 2016. This study adopts the autoregressive distributed lag (ARDL). Commercial banks are engaged in the financial sector by collecting funds from the public in the form of savings and distributing them to the public in the form of credit or other forms in order to improve their customers' standard of living. It

is worth noting that the banks constitute the backbone of the nation's economic, and that the intermediate role they play allows capital to be transferred from capital owners to capital borrowers (Yasnur & Kurniasih, 2017). Commercial bank lending is critical in igniting industrialisation in any economy by promoting capital mobilization; this in turn has a multiplier effect in the economic output of a country. A well-functioning commercial bank encourages technological innovation by providing capital to innovative entrepreneurs who then develop new products and manufacturing processes (Olumuyiwa, 2012) the study make use of secondary data and series of Econometrics techniques were adopted, to justify the long run relationship between Commercial bank and its lending behaviour over the period of analysis. Moreover, the study investigates the level of commercial banks loan advances in Nigeria and to also examine those various determinants of commercial banks' lending behavior in Nigerian. More so, the model used is estimated using Nigerian commercial bank Loan and advances (LOA).

Bank credit is a critical component of financial development, which enhances economic growth. Bank lending can be done for a short, medium, or long periods. In other words, the banks provide grants, loans and advances to individuals, businesses, and governments so that they can embark in investment and development activities (Getahun, 2014; Rabab'ah, 2015; Miyajima, 2020). The credit supplied to these sectors is critical for them to carry out their responsibilities in company operations and investments, which will enable them to achieve meaningful growth in the output, which will be reflected in the economy as a whole. The natural logarithm of the loan and advance is used to quantitatively measure the bank lending behaviour (Gautam, 2021). Loans and advances make up the majority of the bank's asset portfolio and are also its predominant source of revenue.

Thus, it is imperative for commercial banks to comprehend the factors both internal and external that influence the banks' lending behaviour in order to maximize their productivity and performance (Malede, 2014; Gautam, 2021). There is substantial evidence to support the notion that the economy of well-functioning commercial banking institutions is likely to observe significant levels of economic growth. On the contrary, a poorly functioning banking system is a recipe for intensified poverty and slow economic growth (Hamza, 2017; Laryea, Ntow-Gyamfi, & Alu, 2016; Zhang et al., 2012)

Tanzania's banking sector is one of the most vibrant in Africa, with a higher number of commercial banks than the larger African economies. According to the Central Bank of Tanzania, Tanzania has 34 commercial banks. This figure is higher than that of big economies such as Nigeria (22) but lower than Kenya (39) and Egypt (40). According to the latest BoT financial supervisory report, the industry mobilized TZS 24.76 trillion in deposits in 2020, with total assets of TZS 34.69 trillion and loans, advances, and overdrafts of TZS 18.78 trillion. The vibrancy of the industry is a clear example of key strengths that the Tanzanian economy has high resilience and capacity for adjusting to change (Bank of Tanzania, 2021; Kanyabwoya, 2021). The year 2021 was good for commercial banks in Tanzania with the country's largest 10 lenders reporting a record combined net profit of TZS 715 billion. This suggests that the financial sub-sector, which had passed through a trying period during the

previous few years managed to stand up and kept and running and giving lucrative returns to their shareholders. The net profits earned in 2021 were 62 percent more than the aggregate net profit of TZS 440.9 billion recorded by the ten lenders in 2020. Commercial banks with assets of over TZS 1 trillion make up the top ten lenders. The CRD Bank Plc, NMB Bank Plc, National Bank of Commerce (NBC), Standard Chartered Bank Tanzania, Diamond Trust Bank (DTB) Tanzania, Stanbic Bank Tanzania, Exim Bank, Azania Bank, Tanzania Commercial Bank (TCB), and Citibank Tanzania are among these banks (Christopher, 2022).

The profitability and capital adequacy of banks are critical to the banking system's safety. Profitability is a metric that reveals the bank's management strategy and competitive position in the market. This setting allows the banks to tolerate a certain level of risk while still providing support in case of a short-term crisis (Tabari et al., 2013). The lending activities of commercial banks are an input of the latter's profit-making capabilities. As a result, commercial lending behaviour is a topic that deserves research interest, because non-prudent lending practices can result in large percentages of non-performing loans, implying poor credit management on the part of commercial banks. In the light of this, the study upon which the paper is based aimed at looking into the bank and industry-specific factors that influence the listed commercial banks' lending behaviour in Tanzania between 2016 and 2020.

2. Literature review

2.1 Theoretical review Business Cycle Theory

The phrase "business cycles" describes the entire economic system or the entirety of economic activity, which is generally characterized by cyclical patterns of economic decline and recovery (economic growth). Real gross domestic product is frequently used to determine the cyclical ups and downs of a country's economy. Additionally, business cycles affect other macroeconomic factors. The boom-and-bust nature of the business cycle is significantly influenced by the way the banks alter their lending criteria throughout economic ups and downs. Lending criteria are often moderate in expansions and strict in recessions because during recession, default prone borrowers are more likely to occur. In any case, there is a pro-cyclical trend in the bank lending, which means that lending tends to fall off during a recession and rise during a boom period (Lucas, 1980; Akinboade & Makina, 2009)

Agency Theory

There are two types of moral hazard problems that might cause Bank Managers to compromise with a riskier lending policy compared to the optimal level. The first one is managerial rent-seeking, which occurs when Bank Managers pursue their own benefits by investing in pet projects or lending to companies, individuals or organizations, in order to gain the favour or benefits from borrowers. This type of moral hazard has detrimental effects to the bank. The second type of moral hazard is one the caused by a conflict of interest between shareholders and the bank's creditors. In this case, the creditor is a customer. The shareholders want to invest in

risky loans to get higher returns for themselves; but when the banks face a risk, shareholders shift this risk to the depositors (Jensen, M., & Meckling, 1976)

Moral Hazards Theory

One of the most important instruments of modern banking regulations is capital regulation. The regulation is intended to provide a buffer during economic downturns and to prevent banks from taking risks. During an economic downturn, the quality of the bank's assets deteriorates, resulting in a drop of capital. It should be clear that the theoretical foundation for the relationship between capital and risk is primarily based on the theory of moral hazard, which emerged as a result of agency problem (Jokipii & Milne, 2008).

2.2 Bank-specific factors and Listed Bank lending behaviour

According to the literature, non-performing loans (asset quality), capital adequacy ratio, liquid asset ratio, and bank size are among the bank-specific factors that are predicted to influence the bank's lending behaviour. These factors represent sufficient explanatory variables because they include credit risk, capital capacity and liquidity (Arintoko, 2021) both symmetrically and asymmetrically. The capital adequacy ratio (CAR). Thus, based on the availability of data, the following internal factors were selected for this particular study: non-performing loans (Asset quality), capital adequacy ratio, liquid asset ratio, and the bank size.

Bank Capital and Listed bank lending behaviour

The ability of an organization to withstand anomalous losses is measured in terms of capital adequacy, which also demonstrates the bank's resilience and stability during times of crisis (Ermias, 2016; Khan et al., 2020). The basic ratio for capital strength is capital adequacy, which is a measure of the total equity to the total assets (Salem Al Zaidanin, 2020) Return on Equity and Net Interest Margin. The study uses bank - specific and microeconomic factors as independent variables. The bank-specific factors include bank size, capital adequacy, assets quality, liquidity, deposits, diversification, business mix, and efficiency, while the macroeconomic factors include real Gross Domestic Product growth, Inflation Rate, and Real Interest Rate. Regression models were used to relate bank profitability ratios to the independent variables built on panel data for the period 2013-2019 of sixteen commercial banks operating in the United Arab Emirates. The results of the study show that asset size, liquidity, off-balance sheet activities, and diversification have significant impact on profitability as measured by the Net Interest Margin. In addition, loans under follow-up to total loans, and managerial efficiency are found to be highly significant variables of profitability in the context of the United Arab Emirates commercial banks as measured by Return on Assets and Return on Equity. Furthermore, diversification has a significant impact on profitability as measured by Return on Assets.

The remaining bank-specific factors (capital adequacy, loans to total assets, liquidity, deposits to assets ratio, and operating expenses to total assets ratio. An increase in the capital adequacy ratio indicates that the banks are becoming more capable of absorbing losses without lowering capital. A higher capital adequacy ratio increases the bank's ability to handle the risk of each unsafe credit, allowing it to provide more credit (Arintoko, 2021) both

symmetrically and asymmetrically. The capital adequacy ratio (CAR). A study conducted in Saudi Arabia using a panel technique and bank-level data from 2000 to 2015, indicates that capital ratios have a beneficial impact on the bank lending behaviour (Miyajima, 2020). Another study (i.e., Polizzi et al., 2020) found that the capital adequacy ratio influences the bank lending in a positive and significant way. Another study by the Bank of England found that increasing the capital to asset ratio during good times reduces the bank lending, with severe impact on corporate loans than it is on household loans. In this situation, the capital to asset ratio shows a negative association with bank lending (Noss & Toffano, 2014).

Asset quality and Listed bank lending behaviour

Asset quality simply refers to the assets of the bank, which comprises current assets, credit portfolios, fixed assets and other investments. The bank's insolvency is frequently caused by poor asset quality. The loan portfolio issued by banks is the key asset that creates a significant portion of the bank's revenue, and thus the quality of the loan portfolio influences the banks' success. Nonperforming loans (NPLs) are often used to assess the quality of a bank's loans (Berhanu, 2016). NPLs are used as a tool to analyse the quality of a bank's loan portfolio as well as to gauge the risk of credit that impacts the banking sector of a country (Tomak, 2013; Sarath & Pham, 2015; Singh et al., 2021). When the loan's 90-day term expires and the bank is unable to collect the principal and interest, the loan becomes non-performing (Goswami, 2021). NPLs limit the banks' capacity to grow financially since they cause liquidity issues, preventing them from extending funds to other promising business projects (Khan et al., 2020). In general, NPLs have a negative impact on commercial banks' lending behaviour because the banks with high NPLs have riskier bank lending portfolios; as a result, they are obligated to allocate more loan loss provision to cushion customer default risk, resulting in a reduction in credit delivery to the public (Chernykh & Theodossiou, 2011; Amidu, 2014). For example, A study by Berha (2016) which looked at the determinants of lending decisions in private Ethiopian commercial banks from 2001 to 2015 revealed that non-performing loans had a negative and statistically significant influence on the bank lending.

Bank liquidity and Listed bank lending behaviour

Liquidity is defined as a bank's capacity to convert short-term assets into cash with the least amount of loss. The ratio of liquid assets to the total assets is used to determine liquidity. The higher the ratio the more liquid the bank is. Insufficient liquidity is one of the major reasons causing the banks figures (Salem Al Zaidanin, 2020) Return on Equity and Net Interest Margin. The study uses bank-specific and microeconomic factors as independent variables. The bank-specific factors include bank size, capital adequacy, assets quality, liquidity, deposits, diversification, business mix, and efficiency, while the macroeconomic factors include real Gross Domestic Product growth, Inflation Rate, and Real Interest Rate. Regression models were used to relate bank profitability ratios to the independent variables built on panel data for the period 2013-2019 of sixteen commercial banks operating in the United Arab Emirates.

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Bank size and Listed bank lending behaviour

The logarithms value of the total assets is used to calculate the bank size in numerous studies (Chernykh & Theodossiou, 2011; Amidu, 2014). Due to economies of scale, the bank size is used to determine the bank's ability to lend money. Larger banks are likely to have lower production and information costs, facilitating bank lending indirectly (Adzis, Sheng & Bakar, 2018) the findings demonstrate that bank size and volume of deposit positively influence commercial bank lending in Malaysia, while liquidity negatively influences the lending activities. With regard to macroeconomic determinants, this study does not find any conclusive evidence to support the influence of gross domestic product (GDP. According to research undertaken in African countries (Amidu, 2014; Malede, 2014), the bank size has a beneficial impact on the bank lending. A study by Rabab'ah, (2015) conducted in Jordan to analyse commercial banks' lending behaviour, indicate that larger banks offer more loan facilities than smaller banks.

2.2. Industry-specific factors and Listed bank lending behaviour

The macroeconomic factors are the most common external issues over which commercial banks have no immediate influence. These macroeconomic uncertainties, which are impacted by monetary and fiscal policy, have a short- and long-term impact on the bank lending (Obeng, & Sakyi, 2017). According to literature, factors such as inflation, GDP, broad money supply, exchange rates, and others have a significant impact on the bank lending behaviour. Thus, gross domestic product and inflation rates will be the focus of this study.

Gross Domestic Product and Listed bank lending behaviour

The extent to which commercial banks extend loans to their customers is influenced by the gross domestic product (GDP) and the inferred level of economic activity. Strong economic conditions encourage the banks to expand

their exposure by making loans to a variety of industries (Assefa, 2014; Ujuju & Etale, 2016). For example, a study by Coetzee and Genukile (2020) on short and long-term drivers of lending behaviour in South African banks from 1994 to 2016 found that GDP was the factor that explained the lending behaviour. GDP growth has had a positive and significant impact on the bank lending behaviour, meaning that the higher GDP growth the higher the beneficial impact on the lending, increasing economic and financial activity (Zandi et al., 2019). This is consistent with prior research that revealed that GDP has a statistically favourable impact on commercial bank lending behaviour (Malede, 2014; Alkhazaleh, 2017; Timsina, 2017). A study on the drivers of bank lending in Tunisia (Moussa & Chedia, 2016), on the other hand, found that the gross domestic product has a negative association with the bank lending.

It is also worth noting that credit demand, on the other hand, falls during economic downturns. These findings are in a procyclical relationship between GDP and the bank lending (Ladime et al., 2013). Thus, when there is a boom, we anticipate that the gross domestic product will increase, which will have a beneficial effect on the bank lending behaviour as anticipated from the business cycle theory.

Inflation rate and Listed bank lending behaviour

Inflation indicates a gradual increase in the prices of goods and services (Nyoni, 2019). Inflation is often reported to have a negative impact on the bank lending behaviour due to the rising borrowing costs. Inflation should be kept at two digits, as inflation exceeding that can be harmful to the economy and lending practices (Zandi et al., 2019). Inflation has a negative and considerable impact on the bank lending behaviour (Timsina, 2017; Zandi et al., 2019; Akindutire, 2021). However, another study in Jordan (Alkhazaleh, 2017) indicates that inflation has a positive impact on the bank lending behaviour. According to business cycle theory, the availability of money and bank credit improves during the boom season. Thus, as the supply of money increases, so do prices, profits, total output, and the bank lending. On the contrary, as the economy enters a recession, production activities slow down, money supply shrinks, prices fall, profits fall and the overall output falls. This has a negative impact on the bank lending policies (Akinboade & Makina, 2009). Thus, we anticipate a positive relationship between inflation and the bank lending activities during the boom phase, and a negative relationship during the downturn.

Based on the literature review the conceptual model for this study can be described as follows.

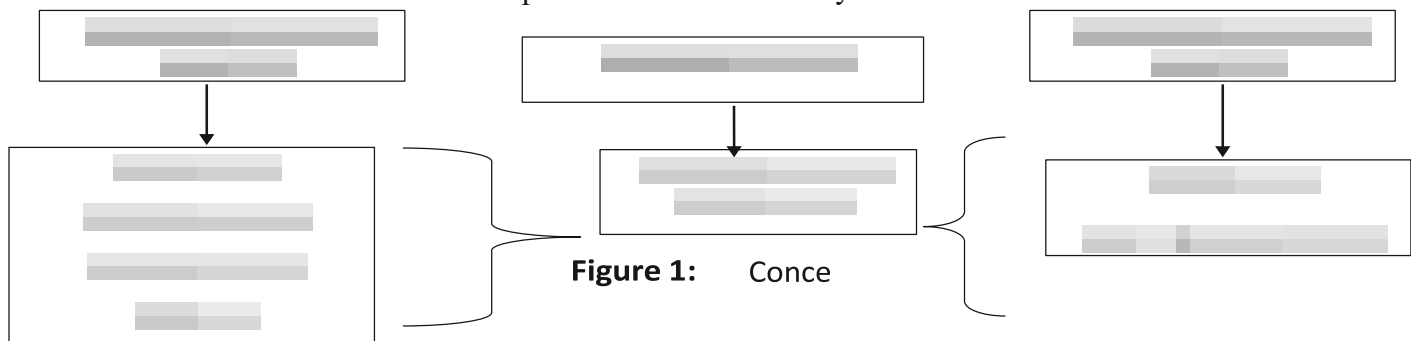


Figure 1: Conce

Thus, this study is guided by the following hypothesis

H1: Capital adequacy is positively and significantly related to the bank lending behaviour

H2: Asset quality is negatively and significantly related to bank lending behaviour

H3: Liquidity is negatively and significantly related to bank lending behaviour

H4: Bank size is positively and significantly related to bank lending behaviour

H5: Gross Domestic Product rate is positively and significantly related to bank lending behaviour

H6: Annual inflation rate is negatively and significantly related to bank lending behaviour

3. Methodology

Explanatory research design was applied to establish the cause-and-effect relationship between the bank lending behaviour (loans and advances used as a proxy) and the bank specific and industry- specific factors of listed banks in Tanzania. The majority of earlier literature followed secondary published data from corporate reports and various corporate databases to explore the relationship between bank-specific factors, industry-specific factors and the bank lending behaviour (Miyajima, 2020; Khan et al., 2020; Akindutire, 2021; Timsina, 2017; Chernykh & Theodossiou, 2011; Amidu, 2014). Thus, for the purpose of this study, secondary data were retrieved from the audited financial statements of the listed banks at the DSE. The study used purposive sampling to select the listed banks only from the pool of 46 licenced banks in Tanzania as per BOT annual report (BOT, 2021). The study involved 7 listed banks for a period of five (5) years from 2016 to 2020 making 35 data points. Bushra and Mirzsa (2015) recommended that for a quantitative study to be viable, it should involve more than 30 observations or data points. The selection criteria for these banks and the time were availability of data, the size of the banks, the banks performance and their significance in defining Tanzania's economic conditions.

The extracted secondary data were analysed using the SPSS software whereby pre regression test of multicollinearity was done followed by correlation analysis. Finally, a multiple linear regression was performed to examine the causal relationship between the bank-specific factors, and industry-specific factors. Table 1 shows the list of listed banks at DSE in Tanzania.

Table 1: Listed banks at the DSE in Tanzania

S/NO	Name of the Bank	Abbreviation	Year to be listed at DSE
1	Dar es Salaam Commercial Bank Plc	DCB	2008
2	National Microfinance Bank Plc	NMB	2008
3	CRDB Plc	CRDB	2009
4	Maendeleo Bank Plc	MBP	2011

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5	Mkombozi Commercial Bank Plc	MKCB	2014
6	Mwalimu Commercial Bank PLC	MCB	2015
7	Kenya Commercial Bank Plc	KCB	2016

The specification of the model of this particular study is explained below;

$$LOA_{it} = \beta_0 + \beta_1 AQ_{it} + \beta_2 CAR_{it} + \beta_3 LQ_{it} + \beta_4 BS_{it} + \beta_5 IR_{it} + \beta_6 GDP_{it} + \varepsilon_{it} \quad \text{Eqn}$$

Where: LOA_{it} = Denotes the natural logarithm of loan and advance for the bank i in time period t

AQ_{it} = Represents the Asset quality of the individual bank for the time period t

CAR_{it} = Represents Capital adequacy of the bank for the time period t

LQ_{it} = Represents Liquidity of the bank for the time period t

BS_{it} = Shows the bank size of the individual bank in time period t

IR_{it} = Shows the inflation rate of the individual bank in time period t

GDP_{it} = Shows the Annual Gross Domestic Product

β_0 = Constant term

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ are the coefficients of the determinants of Listed Commercial Bank Lending

ε_{it} = the error term

Table 2: Measurement of variables used in this study

Variable	Acronym	Definition	For Refer mul ences a
Response	Loan and LOA variable	Advance	ofLog (Gaut (Lo am, an 2021) and adv ance)
		natural loan and advance	
Internal explanatory vari ables	Asset quality	A non-performing Q to total loans ratio	NP (Gos LS/ wami, TL 2021; x (Berh 100 anu, 2016) .

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2		C Total A Equity/Total R Assets x 100	TE/ (Sale TA m Al Zaida nin, 2020)
Capital adequacy			
3		L Liquid assets/Total Assets x 100 Q	LQ (Sale A/T m Al A x Zaida 100 nin, 2020)
Liquid asset ratio			
4	Bank size External explanatory var	B Natural logarithm of Total assets S ia bl es	Log (Cher (Tot nykh al & asse Theo ts) dossi ou, 2011; Amid u, 2014)
1			Ann (Nyo ual ni, cons2019)
Inflation		Indicates gradual increase in prices of	
IR rate		goods and services	r pric e inde x
2	Gross GDP Domestic product	Indicates growth rate of annual gross domestic product	Ann (Berh ual anu, GD 2016) P . (% of gro wth)

4. Results and Discussion

4.1 Descriptive statistics

The descriptive statistics of the model is shown in Table 3, with Loans and advances serving as a proxy for listed commercial banks' lending behaviour (response variable) whereas capital adequacy, asset quality, liquidity, bank size, GDP growth rate, and inflation rate are the explanatory variables, which include both the bank and industry-specific factors. As an example, the minimum and maximum values of lending behaviour are 2.783 and 6.632 correspondingly, whereas the mean value is 5.310 and the standard deviation is .956 and the rest of explanatory variables are shown in Table 3.

Table 3: Descriptive Statistics

	<u>Minimum</u>	<u>Maximum</u>	<u>Mean</u>	<u>Std. Deviation</u>
Loan and advances	2.783	6.632	5.310	.956
Capital adequacy	8.20	92.74	22.695	19.566
Asset quality	0	20	8.30	5.853
Liquidity	14.39	85.70	64.908	21.895
Bank size	4.474	6.855	5.596	.8539
GDP growth rate	4.8	7.0	6.500	.8657
Inflation Rate	3.290	5.318	4.148	.9137

N= 35

Table 4 shows the correlation matrix that reveals that the lending behaviour of the listed banks have a positive correlation with the asset quality and the bank size. The other variables, capital adequacy, liquidity, GDP growth rate and inflation rate tend to have a negative relationship with the lending behaviour of Listed banks.

Table 4: Correlation Matrix

	<u>Correlations</u>						
	Loan and advances	Capital adequacy	Asset quality	Liquidity	Bank size	GDP growth rate	Inflation rate
Loan and advances	1						
Capital adequacy	-.666**	1					
Asset quality	.176	-.489**	1				

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Liquidity	-.271		-.157	.071	1		
Bank size	.965**		-.529**	.118	-.410*	1	
GDP growth rate	-.066		.084	-.078	-.017	-.051	1
Inflation Rate	-.111	.105	-.046	-.092		-.053	.404*
							1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Source: Estimation using SPSS

To test for multicollinearity this study employed the Variance Inflation Factor (VIF) as shown in Table 5. According to Epaphra (2020), multicollinearity problem is present if VIF is greater than 10 and 1/VIF is less than 0.1. The study results show that the VIF for our explanatory variables are all less than ten and the inverse VIF is also greater than one. Hence, there is no multicollinearity for the explanatory variables in this study. Other studies (i.e., Alkhazaleh, 2017; Malede, 2014; Magoma et al., 2022) have also adopted the same method.

The F-statistic results show a value of 151.326 and p-value of 0.000 which indicates that the level of significance is lower than 5 per cent. This implies that the model is fit or the variables fit the model. Furthermore, the R-square was 97 per cent implying that the variables employed in the specified model explains the listed commercial banks' lending behaviour by over 95 per cent while other omitted variables accounted for the remaining proportion.

Table 5: Determinants of Bank Lending Behaviour

Independent variable	Definition	Hypothesis	Coef	Coef values	tstatistics	pvalues	Hypothesis testing
Constant	Model constant		$\beta\beta_0$	-.031	-.059	.953	
Capital adequacy		H ₁	β_1	-.010	-3.932	.001	Accept
Asset quality		H ₂	$\beta\beta_2$	-.005	-.847	.404	Reject
Liquidity		H ₃	$\beta\beta_3$	.003	1.413	.169	Reject
Bank size		H ₄	$\beta\beta_4$	.991	17.999	.000	Accept
GDP growth		H ₅	$\beta\beta_5$	-.031	.343	.734	Reject
Inflation rate		H ₆	$\beta\beta_6$	-.010	-1.221	.232	Reject
Additional statistics	.985 ^a						

R	
R ²	.970
Adjusted R ²	.964
F-value	151.326
Prob (F)	.000 ^b
VIF	>1.2

a. Response Variable: Loan and advances

b. Predictors: (Constant), Inflation Rate, Asset quality, Liquidity, GDP growth rate, Bank size, Capital adequacy
 $LOA_{it} = -.031 -.010CAR -.005AQ_{it} + 0.03LQ_{it} + .991BS_{it} + .14GDP_{it} -.046IR_{it} + \epsilon_{it}$

4.2 Determinants of Bank Lending Behaviour

4.2.1 Bank-specific factors

Bank size

The bank size had a positive and statistically significant influence on the listed commercial bank lending behaviour as the bank size is used to gauge the bank's ability to lend money. Logically larger banks offer more credit than smaller banks. This is because larger banks are more likely to have access to larger funds, give more business loans, and provide larger credit facilities to the general public than is the case with smaller banks. These findings concur with the findings in previous studies (i.e., Amidu, 2014; Malede, 2014; Rabab'ah, 2015).

Capital adequacy

Capital adequacy was measured by the ratio of total equity to the total assets which signifies capital strength implying the ability of the bank to stand in case of abnormal losses. In this study, capital adequacy had a negative and statistically significant influence on the lending behaviour of the listed banks. These findings were in contrast with the results of other empirical studies (i.e., Miyajima, 2020; Polizzi et al., 2020; Arintoko, 2021) economic activity, and oil prices support bank lending. Reduced bank concentration appears to have helped. Lending remained robust in 2015 despite oil prices having declined, helped by strong bank balance sheets and a reduction in bank holdings of "excess liquidity". To support bank lending in the period ahead, bank balance sheets need to remain strong. Fiscal adjustment and a reduced reliance on banks to finance the budget deficit would support credit provision to the private sector.

The purpose of this study is to estimate the symmetric and asymmetric effects of internal factors on bank lending measured by loan to deposit ratio (LDR. However, the findings matched those of a study by Noss and Toffano (2014, which found that an increase in capital to asset ratio during good times leads to a reduction in the bank lending, with greater on corporate loans than is on household loans. In this case, capital to asset ratio has a negative relationship with the bank lending.

Bank liquidity

Bank liquidity was measured as the ratio between the liquid assets to the total assets which simply explains the ability of the bank to convert its short-term assets into cash with minimum loss. In this study, liquidity had a negative correlation with the lending behaviour which matches the expected sign. Unfortunately, the findings show that the statistical relationship between the variables is insignificant. This leads to the dismissal of the hypothesis that there is a significant negative relationship between the bank liquidity and the lending behaviour. The negative relationship is consistent with the findings in a study by Amidu (2014) and Adzis et al. (2018) the findings demonstrate that bank size and volume of deposit positively influence commercial bank lending in Malaysia, while liquidity negatively influences the lending activities. With regard to macroeconomic determinants, this study does not find any conclusive evidence to support the influence of gross domestic product (GDP) who revealed a negative

statistically significant relationship between the bank lending behaviour and liquidity position. In our study the findings were statistically insignificant

Asset quality

Asset quality simply refers to the bank's assets, which include, among other things, current assets, credit portfolios, fixed assets, and other investments. Nonperforming loans (NPLs) are commonly used to measure the quality of the bank loans offered by commercial banks. NPLs impede the banks' financial growth by causing liquidity constraints that prevent them from lending funds to other viable business enterprises (Khan et al., 2020). NPLs have a detrimental impact on commercial banks' lending behaviour in general because the banks with large NPLs have riskier bank lending portfolios, requiring them to allocate greater loan loss provision to mitigate customer default risk (Chernykh & Theodossiou, 2011; Amidu, 2014). In this study, asset quality had a negative correlation with the lending behaviour which matches the expected sign. Unfortunately, the findings show further that the statistical relationship between asset quality and the bank lending behaviour is insignificant, contrary to the findings in a study by Berhanu (2016) who found a negative and statistically significant relationship between asset quality and commercial bank lending behaviour

4.2.2 Industry- specific factors**Inflation**

Inflation rates simply measure the increase in the general price level of goods and services. The sign of the correlation between inflation rate and lending behaviour of the banks is as anticipated although there is no statistical significance of the relationship between these variables. The evidence from regression result rejected the null hypothesis that there was a significant negative relationship between LOA and the annual inflation rate. This negative relationship is in accordant with the findings in other studies (i.e., Timsina, 2017; Zandiet al., 2019; Akindutire, 2021). Thus, in line with the business cycle theory, the negative relationship between inflation rate and the bank lending behaviour exists during the downturn.

Gross Domestic Product

In case of GDP, the negative relationship is contrary to the theoretical expectation, since in the period of financial boom, the banks are more elastic and therefore lend to both good and bad projects and in times of economic depression, the majority of loans are deemed non-performing and thus constraining the credit available to the private sectors (Mukhanyi, 2016). Likewise, it worth noting that credit demand, on the other hand, falls during economic downturns. This finding is in a procyclical relationship with the GDP and the bank lending (Ladime et al., 2013). Thus, when there is an economic downturn, we anticipate that the gross domestic product will decrease, which will have a negative impact on the bank lending behaviour as anticipated from the business cycle theory. This entails the negative relationship existing between GDP and the bank lending activities as revealed in the study findings.

5. Conclusion and Recommendations

The findings show that the bank lending behaviour is inversely related to liquidity, GDP and inflation rate. Because of the increase in borrowing costs, inflation is frequently reported to have a negative relationship with the bank lending behaviour. Thus, in line with the business cycle theory, a negative relationship between inflation rate and the bank lending behaviour exists during the downturn. Negative relationship existing between the GDP and the bank lending behaviour is best explained during times of economic downturns where credit demand falls leading to a procyclical relationship between GDP and bank lending as pointed out by business cycle theory. Furthermore, the study finds a statistically significant inverse relationship between capital adequacy and the bank lending behaviour, positive relationship between the bank size and the lending behaviour.

Following the conclusions presented, this paper advises the banks to avoid irresponsible lending, which would increase the bank's bad loan portfolio. This paper encourage Tanzanian listed banks to monitor and evaluate these factors for improvement in order to ensure their survival in a highly competitive banking industry. This study focused on the determinants of lending behaviour of seven publicly traded banks over a five-year period from 2016 to 2020, focusing on both bank-specific and industry-specific factors. More factors, such as a country's political environment and socioeconomic environment, must be considered in future studies. A similar comparative study is required in other trading blocs such as the East African Community, ECOWAS, and COMESA, among others.

References

- Adzis, A. A., Sheng, L. E., & Bakar, J. A. (2018). Bank lending determinants: Evidence from Malaysia commercial banks. *Journal of Banking and Finance Management*, 1(3), 36–48.
- Akinboade, O. A., & Makina, D. (2009). Bank lending and business cycles: South African evidence. *African Development Review*, 21(3), 476–498.

- Akindutire, T. (2021). Determinants of deposit money banks' lending behaviour to the private sector of the economy in Nigeria (1986–2017). *Management and Economics Research Journal*, 3(1), 76–94.
- Alkhazaleh, A. M. K. (2017). Factors may drive the commercial banks' lending: Evidence from Jordan. *Banks and Bank Systems*, 12(2), 31–38.
- Amidu, M. (2014). What influences banks' lending in Sub-Saharan Africa? *Journal of Emerging Market Finance*, 13(1), 1–42. <https://doi.org/10.1177/0972652714534022>
- Arintoko, A. (2021). Internal factors affecting commercial bank lending: Symmetric and asymmetric effects of macro-level data evidence. *Jurnal Keuangan dan Perbankan*, 25(3), 717–733. <https://doi.org/10.26905/jkdp.v25i3.5760>
- Assefa, M. (2014). Determinants of growth in bank credit to the private sector in Ethiopia: A supply-side approach. *Research Journal of Finance and Accounting*, 5(17), 90–102.
- Bank of Tanzania. (2021). Bank of Tanzania. <http://www.bot.go.tz>
- Berhanu, A. (2016). Determinants of lending decision and their impact on financial performance: A case study on commercial banks of Ethiopia (Master's thesis). University of Addis Ababa.
- Bhattarai, B. P. (2020). Bank lending determinants: Evidence from Nepalese commercial banks. *International Journal of Management*, 11(10), 1–10. <https://doi.org/10.34218/IJM.11.10.2020.001>
- Bushra, A., & Mirza, N. (2015). The determinants of corporate dividend policy in Pakistan. *The Lahore Journal of Economics*, 20(2), 77–98.
- Chernykh, L., & Theodossiou, A. K. (2011). Determinants of bank long-term lending behavior: Evidence from Russia. *Multinational Finance Journal*, 15(3–4), 193–216.
- Christopher, J. (2022, February 5). Tanzania's large banks shared Sh715 billion net profit. *The Citizen*. <https://www.thecitizen.co.tz/tanzania/news/tanzania-s-large-banks-shared-sh715-billion-net-profit-3700426>

- Coetzee, J., & Genukile, L. (2020). The short- and long-run drivers of lending behaviour by South African banks. *African Journal of Economic and Management Studies*, 11(4), 639–651. <https://doi.org/10.1108/AJEMS-08-2019-0316>
- Epaphra, M. (2020). Quantitative methods for economics and finance. VIRTUS ENTERPRESS.
- Ermias, G. (2016). Financial performance of private commercial banks in Ethiopia. Addis Ababa University.
- Gautam, M. (2021). Determinants of bank value: Evidence from Nepalese commercial banks. *International Research Journal of Management Science*, 6(1), 29–38. <https://doi.org/10.3126/irjms.v6i1.42336>
- Getahun, A. (2014). Determinants of lending behavior of banks: A case study of commercial banks in Ethiopia. Addis Ababa University.
- Goswami, A. (2021). Does credit risk persist in the Indian banking industry? Recent evidence. *Asian Journal of Economics and Banking*. <https://doi.org/10.1108>
- Hamza, S. M. (2017). Impact of credit risk management on banks' performance: A case study in Pakistan banks. *European Journal of Business and Management*, 9(1), 57–64.
- Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. Harvard University Press, 3(4), 1–78.
- Jokipii, T., & Milne, A. (2008). The cyclical behaviour of European bank capital buffers. *Journal of Banking and Finance*, 32(8), 1440–1451.
- Kanyabwoya, D. (2021, October 12). Tanzania's banking industry: History, evolution, and inclusiveness. The Citizen. <https://www.thecitizen.co.tz/tanzania/news/tanzania-s-banking-industry-history-evolution-and-inclusiveness-3592184>
- Khan, M. A., Siddique, A., & Sarwar, Z. (2020). Determinants of non-performing loans in the banking sector in developing state. *Asian Journal of Accounting Research*, 5(1), 135–145. <https://doi.org/10.1108/AJAR-10-2019-008>
- Ladime, J., Kumankana, E. S., & O. K. (2013). Determinants of bank lending behavior in Ghana. *Journal of Economics and Sustainable Development*, 4(17), 42–47.

- Laryea, E., Ntow-Gyamfi, M., & Alu, A. (2016). Nonperforming loans and bank profitability: Evidence from an emerging market. *African Journal of Economic and Management Studies*, 7(4), 462–481.
- Lucas, R. E. (1980). Methods and problems in business cycle theory. *Journal of Money, Credit and Banking*, 12(4), 696–715.
- Magoma, A., Mbwambo, H., Sallwa, A., & Mwasha, N. (2022). Financial performance of listed commercial banks in Tanzania: A CAMEL model approach. *African Journal of Applied Research*, 8(1), 228–239.
- Malede, M. (2014). Determinants of commercial banks' deposit growth: Evidence from Ethiopian commercial banks. *European Journal of Business and Management Research*, 6(20), 109–117.
- Md Isa, M. A., A Latif, R., Nasrul, F., Zaharum, Z., & Noh, M. K. (2019). Internal factors influencing commercial banks' lending behaviour in Malaysia. *Advanced International Journal of Banking, Accounting and Finance*, 1(1), 48–58. <https://doi.org/10.35631/aijbaf.11005>
- Miyajima, K. (2020). What influences bank lending in Saudi Arabia? *Islamic Economic Studies*, 27(2), 125–155. <https://doi.org/10.1108/ies-07-2019-0018>
- Moussa, M. A., & Chedia, H. (2016). Determinants of bank lending: Case of Tunisia. *International Journal of Finance and Accounting*, 5(1), 27–36.
- Mukhany, M. (2016). Determinants of lending behaviour of commercial banks in Kenya (Master's thesis). University of Nairobi.
- Noss, J., & Toffano, P. (2014). Estimating the impact of changes in aggregate bank capital requirements during an upswing. BoE Working Paper 494.
- Nyoni, T. (2019). Forecasting Australian CPI using ARIMA models. Munich Personal RePEc Archive.
- Obeng, S. K., & Sakyi, D. (2017). Macroeconomic determinants of interest rate spreads in Ghana. *African Journal of Economic and Management Studies*, 8(1), 76–88. <https://doi.org/10.1108/AJEMS-12-2015-0143>
- Olokoyo, F. O. (2011). Determinants of commercial banks' lending behavior in Nigeria. *International Journal of Financial Research*, 2(2), 61–72.