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Factors Determining Banks' Loan and Advance: A Case Study on Commercial Banks in Ethiopia

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Abstract: Commercial banks are the most important depository organizations that provide loan and advance in developing country. The objective of this study was to provide empirical evidence on determinants of banks' loan and advances in Ethiopia. Fixed effect balanced panel regression was used for the data of ten purposively chosen commercial banks over the period of 12 years (2010 to 2021). To realize the stated objective quantitative approach and explanatory design were employed using secondary data sources from the audited financial statement. Consequently bank specific, industry specific and macro-economic variable that affect banks' loan were selected and analyzed by using E-view 10 econometrics software. According to the findings, capital adequacy, liquidity ratio, bank size, and foreign exchange rate all have a positive and statistically significant impact on bank loans. Profitability ratios, cash reserve ratios, and broad money supply, on the other hand, has a negative and statistically significant impact on bank lending. While fixed asset ratio, asset quality ratio, and GDP were found to have statistically insignificant effects on the bank's loans and advances. The regression result indicated that Profitability, cash reserve requirements, and broad money supplies all have negative effects. Therefore Ethiopian commercial banks and NBE must pay close attention and control for those variables to be able advancing banks' loan.

Keywords: Loans, Advances, Bank Specific, Industry- Specific, Macro-Economic Variable

1. Introduction

Financial institutions are businesses which carry out a variety of activities as part of the intermediation process. [19] defined financial institution as creating various types of loans from money that people are prepared to lend. Lenders and borrowers, or occasionally surplus and deficit sectors or units, are the parties involved in this transaction. Mostly, in developing countries where financial market is infant or not available, the intermediation process done by banks [15]. according to the research [1] banks are the most common financial intermediaries with whom the average individual interacts. Consequently, by transforming deposits into productive investments the banking sector plays an important economic role in financial intermediation and economic acceleration [43].

Banks are one of the financial intermediaries that play a significant part in a country's economic development and provide funds to certain borrowers [8]. The banking industry in Africa and Ethiopia in particular forms a strategic hub of the financial system (Amano, 2014). According to the National bank of Ethiopia (2022) from the total asset of financial system banks share 61.67%, microfinance institutions share 33.13% and insurance Sector share 5.2%.

Miskin & Eakins [26] stated that a bank's loan portfolio is both its most valued asset and the source of most profitable revenue. Loans are considered the most important assets of banks because of their significant contribution to the financial health of banks through increased interest revenue. Loan, which is a crucial asset of bank, is influenced by a variety of internal and external factors [20]. Internal determinants of bank lending are referred to as micro that inherent performance which are specific to each bank and that, in many cases, are the direct result of managerial decisions.

Bhattarai, [9] from Nepal using Ordinary Least Square (OLS)

method, find that the ratio of non-performing loans, liquidity ratio, exchange rate and interest rate have a negative and significant impact on the ratio of credit facilities, while they found that the bank size, volume of deposit and economic growth have a positive and significant impact on the ratio of credit facilities granted by commercial banks by using quantitative research approach. [5] by using fixed effect method find that find that banks' asset size, core capital, customer deposits, and profitability are positively related in three Pacific Island Countries—Fiji, Vanuatu, and the Solomon Islands.

Hair, et al. [17] using Autoregressive Distributed Lag (ARDL) approach find that growth of money supply, non-performing loan ratio, lending rate, and inflation rate and efficiency ratio have a strong link with credit growth compared to other bank-specific variables, and therefore they can be considered as long term determinants of commercial banks' credit growth in Sri Lanka. The studies also demonstrated that GDP and credit growth had a positive association, supporting the finance-growth theory's 'demand following' notion. The authors [3, 10] employed random effect regression output shows that volume of deposit, capital adequacy significantly affect banks' loan and advance. The research [16] also using fixed effect regression, resulted that volume of deposit had positive and significant impact on loan and advance. In contrast, liquidity ratio and interest rate had negative and significant impact on banks' loan.

Based on the previous discussion this study fills the gap, first by incorporate fixed asset ratio, profitability ratio and broad money supply which did not consider in the previous studies that done in Ethiopia. Second, even though different researchers used similar independent variable, their findings were contradictory. Consequently, the core purpose of this study was to validate these findings. Finally in doing this study both private and government owned commercial banks where examined. Therefore, this study specifically investigates the effect of bank specific, monetary policy instruments and macro economic variables on commercial banks' loan and advance in Ethiopia.

Significance of the Study

Identifying the important elements impacting commercial banks' lending in Ethiopia was one of the study's significance which helps commercial banks, National Bank, and the government in developing policies to improve the efficient administration and management of commercial bank loans, advances, and other types of lending in the Ethiopian economy. In addition academicians who want to do research on the subject area might use the study's findings.

2. Theoretical Literature Review

The transfer of cash from savers to borrower can be direct or indirect. Commercial banks are one of the financial institution that are carry out this service [25]. By converting direct claims into indirect claims, these intermediaries act as a link between eventual borrowers and lenders. Financial intermediaries buy direct (or primary) securities and then sell them to the public as indirect (or secondary) securities. A mortgage, for example, is a direct security purchased by a savings and loan organization, while a savings account or a certificate of deposit is an indirect claim issued [28].

Loans and advances are defined differently in different countries' legislation. Loans and advances are defined in Ethiopia as follows: "Any financial asset of a bank arising from direct or indirect advances (i.e. unplanned overdrafts, participations in loan syndication, the purchase of loans from another lender, etc.) or commitment to advance funds by a bank to a person that are conditioned on the person's obligation to repay the funds, either on a specified date or dates or on demand, usually with interest."

Term loans are credit arrangements with pre-arranged repayments that must be completed within a specific time frame. Repayments on a term loan must be in accordance with the customer's cash flow program and the nature of the business. Repayments on a term loan might be made monthly, quarterly, semiannually, annually, or in one lump sum. Term loans can be short, medium, or long in duration. Advances are a type of financing provided by banks to their customers to help them meet short-term financial needs. It is a credit facility that must be returned within one year, according to the terms, conditions, and standards set forth by the regulatory body and the lending policy of the bank. Overdraft facilities, advances against import bills, advances against export bills, and so on are all included [31].

2.1. Loan Pricing Theory

In order to maximize interest income, banks are not always able to set high interest rates. Because predicting the borrower type at the outset of a banking relationship is extremely difficult, banks should think about issues like adverse selection and moral hazard [41]. If banks set interest rates too high, high-risk borrowers are willing to accept these exorbitant rates. Setting an excessively high interest rate, according to loan pricing theory, increases the risk of loan default and, as a result, increases the rate of nonperforming loans [36].

2.2. Theory of Multiple-Lending

Literature implies that banks should be less inclined to share loans in the context of well-developed equity markets and following a process consolidation (credit syndication). Both outside equity and mergers and acquisitions boost a bank's lending capacity, reducing the need for more diversity and monitoring through share lending [20].

2.3. Credit Market Theory

Interest rates will have to rise as a result of the rising demand for credit and the fixed supply. Any additional risk associated with a bank-funded project should be accounted for by adding a risk premium to the lending rate to account for the increased probability of default. As a result, the likelihood of a borrower defaulting and the interest rate paid on the advance have a positive relationship. As a result, the larger the borrower's risk of default, the higher the interest premium [14].

2.4. Loanable Funds Theory

According to the loanable funds idea, the total amount of credit available in an economy can exceed private savings since the bank system can issue credit; the interest rate is set based on

loan demand and supply. A rise in demand for loanable funds will result in an increase in the interest rate if supply remains constant, and vice versa. On the other hand, an increase in the amount of loanable funds would result in a fall in the interest rate. If both demand and supply of loanable funds varied, the final interest rate would be highly sensitive on the quantity and direction of movement of both demand and supply of loanable funds [19]. According to the loanable funds theory of interest, interest rates are determined in the long run by both savings and investments. The financial conditions of a certain economy, on the other hand, determine short-term interest rates. The availability of loan amounts is the most essential factor in influencing interest rates in the Loanable Funds Theory of Interest. number of factors influence the availability of such loans, including the net increase in currency deposits, the amount saved, the readiness to expand cash holdings, and the availability of fresh capital formation opportunities.

2.5. Empirical Literature

Abdul Adzis et al. [1] organized a study on the factors that influence commercial banks' lending behavior in South Africa from 2007 to 2014. Credit risk, equity risk, and management efficiency all have a positive significant impact on commercial banks' lending decisions, whilst GDP growth and liquidity risk have both a negative significant impact. [29] also looked at the impact of deposit volume and interest rate on total loans granted by Kenyan commercial banks. The research used a correlation research approach and was guided by the Money Supply Theory. All 10 banks listed on the Nairobi Securities Exchange (NSE) in 2012 were included in the study's population. The sample size of nine commercial banks was determined using a census technique. The study examined the entire financial statements of the sample size over a ten-year period (2002-2011) and utilized an econometric methodology to determine the degree of correlation between the variables using the multiple regression analysis of the Ordinary Least Square (OLS) method. According to the data, lending interest rates are negatively associated and have a considerable impact on total loans issued. Furthermore, the amount of money deposited in commercial banks has a considerable and favorable impact on the overall amount of money borrowed.

Bhattari, [2] attempted to study the bank specific and macroeconomic factors of commercial bank lending in Malaysia. The influence of macroprudential policy measures adopted in 2010 on Malaysian commercial banks' lending activities is also examined in this study. Using random effects estimates, the findings show that bank size and deposit volume have a favorable impact on commercial bank lending in Malaysia, whereas liquidity has a negative impact. In terms of macroeconomic drivers, this research found no clear evidence to support the impact of GDP, lending rate, and cash reserve requirement on commercial bank lending activities in Malaysia.

Allen & Carletti, [9] examined factors associated with lending behavior in Nepal using secondary panel data from the leading ten commercial banks over a six-year period (2012/13-2017/18). The liquidity ratio, interest rate spread, and exchange rate were determined to be relevant in determining lending behavior in Nepal's commercial banks based on the estimation results. The favorable exchange rate effect implies that Nepalese commercial banks have sufficient knowledge of the world market and commerce and are prepared to meet short- and long-term commitments. The central economic policy of maintaining inflation has a positive and considerable impact on lending volumes among Nepalese commercial banks. Similarly, interest rate spread was found to be negatively and considerably affecting total loans granted to individuals and institutions.

Oyebowale [31] to analyze the relationship and direction of causality among the variables, researchers used the autoregressive distributed lag (ARDL) bounds testing approach and granger causality tests, respectively, to investigate the drivers of bank loan and advance. This research is based on the. The Granger causality tests reveal that increase in broad money drives growth in bank lending, but no other explanatory variables have a causal relationship with bank lending in Nigeria. In addition, this research reveals that increased bank lending causes an increase in the loan-to-deposit ratio and inflation in Nigeria. As a result, this paper contends that while functioning as financial intermediaries, Nigerian commercial banks are extremely concerned about their liquidity and capital adequacy issues.

Hair, [17] investigate the factors that influence bank lending in three Pacific Island nations: Fiji, Vanuatu, and the Solomon Islands. For the period 2000-2018, data was collected from 21 financial institutions, including 15 banks and 6 credit institutions. There are 229 firm-year observations in the final dataset. They use estimating techniques such as ordinary least square (OLS), fixed effect, and system Generalized Method of Moments (GMM). Asset size, core capital, client deposits, and profitability are all favorably associated to loan growth, according to the findings. Interbank deposits and non-performing loans, on the other hand, have a negative impact on bank loan growth. They also reveal that these characteristics have a bigger impact on banks than on credit institutions.

Mitiku, [27] also used balanced panel data from 15 commercial banks from 2011 to 2019 to explore the bank-specific, industry-specific, and macroeconomic factors of commercial bank lending in Ethiopia. Secondary data sources from audited financial statements of sampled commercial banks were used to achieve the stated purpose utilizing a quantitative approach and explanatory design. The study's model revealed that bank-specific factors like deposit volumes, capital adequacy, and bank size have a positive and statistically significant impact on bank lendingCash reserve requirements, bank concentration, and average lending rate are all industry-specific characteristics that have a negative and statistically significant impact on bank lending. Similarly, one of the macroeconomic variables, gross domestic product, has a statistically significant negative impact on bank lending.

Malede, [24] looked at the factors that influence commercial bank loans and advances in Ethiopian private commercial banks. Seven commercial banks were chosen at random to represent the population, stratified by asset, deposit, and paid-up capital levels. Because each bank began operations at a different time,

the study used an unbalanced panel data model and looked at secondary data from 1995 to 2016. Findings Deposit size, credit risk, portfolio investment, average loan rate, real gross domestic product (GDP), and inflation rate all had significant and positive influence on private commercial bank lending and 29 progress, according to the data. Liquidity ratios, on the other hand, have a large and negative impact on private commercial bank loans and advances.

3. Methodology

Cresswel, [12] also explained an explanatory research design is a correlational design in which the researcher is interested in the degree to which two (or more) variables co-vary, or where changes in one variable are mirrored in changes in the other. Based on the description above, an explanatory research approach was utilized to study the cause and effect relationship between independent and dependent variables. mixed methods approach is one in which researchers focus on the study problem and employ all accessible approaches to comprehend it [12]. Hence, based on the above discussions of the three research approaches and by considering the research problem and objectives, in this study, the quantitative method was used. secondary data is information that already exists and has been gathered for another purpose [22] Hence, the data used for this study is secondary in a nature which was obtained from annual financial reports of commercial banks and publications of the National Bank of Ethiopia (NBE) for bank-specific characteristics and Ministry of Finance and Economic Development (MoFED) for macroeconomic factors. From 2010 to 2021, the data spanned a 12-year period. In order to get representative data, this study used a non-probabilistic or purposive sampling by taking into account the availability of adequate data. Accordingly, Commercial bank of Ethiopia (CBE) Awash Bank S. C (AWB), Dashen Bank S. C (DB), Bank of Abyssinia S. C (BOA), Wegagen Bank S. C (WB), United Bank S. C (UB), Nib International Bank S. C (NIB), Cooperative Bank of Oromia (CBO), Lion International Bank (LIB), Oromia International Bank (OIB) were selected for this study, depending up on the level/amount of loan provision.

Before under taking statistical analysis diagnostic tests such as model adequacy, hetroscedasticity, multicollinearity, normality, autocorrelation, and cross-sectional independency were done to ensure whether the assumptions of the classical linear regression model (CLRM) were violated or not. After testing diagnostic test correlation and regression analysis were done to measure the relationship between variables.

Model Specification

The relationship between commercial bank loan and advance and each of the explanatory variables discovered through literature and theories, such as profitability ratio, liquidity ratio, cash reserve ratio, gross domestic product, broad money supply, annual foreign exchange rate of birr to US dollar, Bank size, bank capital, asset quality ratio and fixed asset ratio. To examine the effect of explanatory variables on loans and advance multiple regression models was employed. To represent some omitted variables measurement error and sampling error of the empirical model the study included disturbance (error) term, which represent other variables which were not explained by the independent variables included in the mode.

The multiple regression equation of the above model is extended as follows:

$$LOA\ it = \alpha + \beta1\ (CARit) + \beta2\ (LRit) + \beta3\ (ROAit) + \beta4\ (BSit) + \beta5\ (FARit) + \beta6\ (AQit) + \beta7\ (CRRit) + \beta8\ (M2it) + \beta9\ (GDPit) + \beta10\ (FERit) + \varepsilon it \quad (1)$$

Where;

LOAit: Loans and Advances of Bank i at time t.

CARit: Capital Adequacy of bank i at time t.

LRit: Liquidity Ratio of Bank i at time t.

ROAit: Profitability ratio i at time t.

BSit: Natural logarithm of total asset i at time t.

FARit: Fixed asset to total asset ratio i at time t.

AQRit: Asset Quality ratio (Loan loss provisions to Total Loans) i at time t.

CRRit: Cash Reserve Ratio of bank i at time t.

M2it: Broad Money supply of bank I at time t 36.

GDPit: Gross Domestic Product of Bank i at time t.

FERit: Annual Foreign Exchange rate of Birr to USD of Bank i at time t.

Є: error term of the model.

α: Intercept of the regression line.

β (1-10) parameters or coefficients to be estimated.

Table 1. *Summary of Variable Measurement.*

Variables		Measurement/proxies	Expected sign
Dependent			
loan and advance		loan and advance to total asset	NA
Independent variables			
Capital Adequacy Ratio		Total Equity/Total Asset	+
Profitability Ratio		Net profit after tax /Total Asset	+
Liquidity Ratio		Total Liquid Asset/Total Asset	-
Fixed asset ratio		fixed assets / total assets	+
Asset Quality ratio		The ratio of total NPL to total loans and advances	-
Bank size		Natural logarithm of total asset	+
Cash Reserve Required		Cash Required Reserve/Total Asset	-
Broad money supply		The sum of narrow money plus quasi money	+
Gross Domestic Product		The yearly real GDP growth rate	+
Foreign exchange rate	FER	Annual exchange rate of Birr to US Dollar	+

4. Result and Discussion

4.1. Normality Test

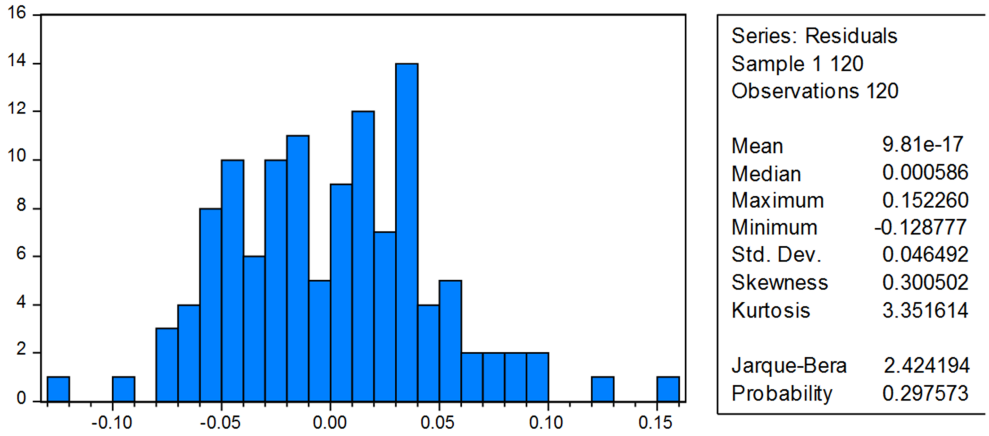

Figure 1. *Normality Test.*

According to the P-values in the histogram, the Jarque-Bera statistics were not significant at the 5% level of significance (i.e. 0.297573). As a result, the null hypothesis that the residuals follow a normal distribution fails to reject at the 5% level of significance. As a result, it appears that the error term follows the normal distribution in all circumstances, implying that inferences about population parameters drawn from samples are generally true.

4.2. Test of Autocorrelation

Autocolleration is another CLRM assumption. If the errors are not uncorrelated (correlated), they are said to be 'auto correlated' or'serially correlated.' The Breusch– Godfrey test, which allows simultaneous assessment of the connection between the error term and multiple of its lagged values, was employed to check for autocorrelation in this work.

The hypothesis for the autocorrelation test was formulated as follow:

H0: There is no autocorrelation problem in the model.

H1: There is autocorrelation problem in the model.

$\alpha = 0.05$

Decision Rule: Reject H0 if p-value less than significance level. Otherwise, do not reject H0.

Table 2. *Test of Autocorrelation.*

F-statistic	1.826918	Prob. F(2, 95)	0.1665
Obs*R-squared	4.407395	Prob. Chi-Square(2)	0.1104

Since the p-values of both F version and a $\chi 2$ version 0.1665 and 0.1104 respectively were greater than the significance level of 5%, hence, the null hypothesis of no autocorrelation is failed to reject at 5 percent of significance level. This means that there isn't enough data to believe that autocorrelation exists in this model.

4.3. Test of Multicollinearity

A linear relationship between explanatory variables is known as multicollinearity, and it might cause the regression model to be biased [16]. Perfect collinearity occurs when an independent variable is an exact linear combination of the other independent variables, and the model cannot be estimated using OLS (Brooks, 2008).

Correlation	CAR	LR	FER	ROA	M2	CRR	BS	FAR	AQR	GDP
CAR	1.000000									
LR	-0.036746	1.000000								
FER	0.088991	0.251317	1.000000							
ROA	0.094421	0.127807	-0.307287	1.000000						
M2	-0.033436	-0.17014	-0.253774	0.239494	1.000000					
CRR	-0.054327	-0.278732	-0.303581	0.27724	0.327393	1.000000				
BS	-0.084435	-0.066005	0.561034	-0.161239	-0.187009	0.023146	1.000000			
FAR	0.298418	0.101948	0.424708	-0.255787	-0.269742	-0.118481	0.175228	1.000000		
AQR	-0.005371	-0.168831	-0.246269	0.28771	0.280031	0.449767	0.029497	-0.415473	1.000000	
GDP	0.0008	-0.048073	0.070981	0.223238	0.482886	0.182304	-0.03394	-0.118028	0.125703	1.000000

Figure 2. *Test of multicollinearity.*

Inter-correlation among independent variables more than 0.80 indicates is a possible Multicollinearity problem, according to the research [20]. The largest correlation of 0.561034, as seen in the above correlation matrix table is between bank size and foreign exchange rate. As a result, we find that all factors have low correlation power of less than 0.80, meaning that the explanatory variables chosen to explain banks' loan and advance in commercial banks in Ethiopia do not have a major multicollinearity problem.

4.4. Test of Heteroskedasticity.

The assumption of a standard linear regression model is that the variables should be homoscedastic. This implies that the variance should be stable and consistent. The variance of residuals should be constant;

Table 3. *heteroskedasticity test.*

White Test of Heteroskedasticity			
F-statistic	1.119182	Prob. F(65, 54)	0.3366
Obs*R-squared	68.87446	Prob. Chi-Square(65)	0.3477
Scaled explained SS	66.81666	Prob. Chi-Square(65)	0.4144

As it can be seen from table above, both F-static and Chi-Square versions of the test statistic gave the same conclusion that there is no evidence for the presence of heteroskedasticity, since the p-values of 0.3366 and 0.3477 respectively were in excess of 0.05, so the null hypothesis not rejected.

4.5. Result of Regression

Table 4. *Result of regression.*

Dependent Variable: LOA				
Method: Panel Least Squares				
Date: 05/03/22 Time: 07: 52				
Sample: 2010 2021				
Periods included: 12				
Cross-sections included: 10				
Total panel (balanced) observations: 120				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CAR	0.437409	0.070372	6.215686	0.0000
LR	0.321431	0.044680	7.193988	0.0000
FER	0.522257	0.073090	7.145446	0.0000
ROA	-1.505548	0.535053	-2.813831	0.0059
M2	-0.173282	0.064110	-2.702909	0.0081
CRR	-0.102227	0.045234	-2.259975	0.0260
BS	0.010589	0.004958	2.135788	0.0351
FAR	-0.545189	0.310027	-1.758523	0.0817
AQR	0.515950	0.322785	1.598434	0.1131
GDP	-0.020588	0.041366	-0.497709	0.6198
C	0.102262	0.055174	1.853455	0.0668
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.903350	Mean dependent var		0.493505
Adjusted R-squared	0.884986	S. D. dependent var		0.092768
S. E. of regression	0.031461	Akaike info criterion		-3.929113
Sum squared resid	0.098981	Schwarz criterion		-3.464531
Log likelihood	255.7468	Hannan-Quinn criter.		-3.740444
F-statistic	49.19251	Durbin-Watson stat		2.076649
Prob (F-statistic)	0.000000			

The regression result shows that capital adequacy and liquidity ratio, which was a bank specific variables, had a positive and statistically significant impact on loan and advance (p-value = 0.0000) at 1% significance level. Similarly, foreign exchange rate which was a macroeconomic variables, had a positive and strong statistically significant impact on loan and advance (p-value = 0.0000) at 1% significance level. Consequently, one of bank specific variable (i, e bank size) had a positive and statistically significant impact on loan and advance (p-value = 0.0351) at 5% significance level. Whereas, asset quality, which is one of bank specific variables, had a positive and statistically insignificant relationship with loan and advance with a p-value of 0.1131, which makes it the only variable that has positive and insignificant impact on loan and advance. Besides, the adjusted R-squared statistics has a value of 0.884986. The result indicates that the changes in the independent variables explain 88.49% of the changes in the dependent variable. That is capital adequacy, liquidity Ratio, foreign exchange rate, profitability ratio, broad money supply, cash reserve requirement, bank size, fixed asset to total asset ratio, asset quality ratio and gross domestic product are collectively explain 88.49% of changes in loan and advance. The remaining 11.51% of the change in dependent variable is explained by other factors which are not included in this study model. It indicates that the model is a good fit. As a result, these variables are excellent explanatory variables for commercial bank loan and advance in Ethiopia. Furthermore, the F-statistic was 49.19251 and the probability of not

rejecting the null hypothesis that there is no statistically significant relationship existing between the dependent variable and the independent variables, is 0.000000 indicates that the overall model is highly significant at 1% and that all the independent variables are jointly significant in causing variation in total loans and advances. The panel fixed effect estimation regression result shows that, coefficient intercept (α) is 0.102262. This means, when all explanatory variables took a value of zero, the average value LOA would be take 0.102262 unit and statistically significant at 5% level of significance. Finally the amount of Durbin Watson's stat show that 2.076649. Consequently a review of Durbin Watson's statistics shows clearly that the dependent variable does not face the complexities of serial correlation [16].

4.5.1. Capital Adequacy Ratio (CAR) and Loan and Advance (LOA)

The coefficient of capital adequacy, as evaluated by total equity over total, asset is 0.437409, with a p-value of 0.0000, according to the model results. It means that if capital adequacy increased by one percent, total loans and advances of commercial banks would increase by 43 percent, which is statistically significant at the one percent level of significance. The outcome confirms the previously held belief that the bigger the bank capital, the higher the bank loans and advances. According to the findings, hypothesis number one, that capital adequacy has a favorable effect on bank loan and advance, was not rejected. The findings are consistent with those of the authors [29, 10, 41, 5, 18], who discovered that bank capital has a beneficial impact on bank loan and advance. However, contrary to the research [31, 15] discovered a negative impact of bank capital on bank lending.

4.5.2. Liquidity Ratio (LR) and Loan and Advance (LOA)

In this study, the liquidity ratio is defined as the proportion of a bank's liquid assets to its total assets. With a p – value of 0.0000 and a coefficient of 0.321431, the results of this study reveal a positive and significant influence. With the remaining independent variables held constant at their average value, it is reasonable to conclude that if liquidity (LIQ) increased by 1%, total loans and advances of sampled commercial banks would increase by 32%, which is statistically significant at the 1% level of significance. As a result, the null hypothesis that liquidity has a beneficial impact on bank loans and advances was not rejected by the researcher. This suggests that there isn't enough evidence to back up the claim that there is a negative association between liquidity and loans and advances. Prior research findings [15, 11, 9] support the outcome of a favorable relationship between liquidity and total loans and advances [10, 9, 18, 17], on the other hand, found a negative link between loans and advances. When a bank is more liquid, it may offer its customers additional loans and advances, and vice versa.

4.5.3. Profitability Ratio (ROA) and Loan and Advance (LOA)

Profitability ratio has a negatively and statistically significant with a p – value of 0.0059 and coefficient of -1.505548. Significant effect on bank loans and advance, which depicted that holding all the other variables constant, an increase in profitability ratio by one unit leads to decreasing bank lending by 150 percent. Based on the findings, the study reject hypothesis number three namely profitability ratio has a positive effect on banks' loan and advance. Banks' profitability measured by ROA, appears to be positively and significantly related to lending. The result implies that banks with higher profitability have a larger capacity to extend loans. Higher profitability increases banks' lending capacity in several different ways. For example, a bank with high profitability earns trust from both depositors and borrowers because profitable banks are sound and stable [31, 28, 8, 7]. Moreover, profitability augments banks' financial strength which they can utilise for lending activities.

Bank Size (BS) and Loan and Advance (LOA)

As a result, the null hypothesis that liquidity has a beneficial impact on bank loans and advances was not rejected by the researcher. This suggests that there isn't enough evidence to back up the claim that there is a negative association between liquidity and loans and advances. Prior research findings [1, 12, 8] support the outcome of a favorable relationship between liquidity and total loans and advances [11, 19, 40, 21], on the other hand, found a negative link between loans and advances. When a bank is more liquid, it may offer its customers additional loans and advances, and vice versa. The findings [35, 34, 27, 18, 11] contradict those findings [9, 5, 2, 17], who found a positive association between bank size and bank lending. According to the findings, the larger the bank, the greater the ability of commercial banks to hold loanable capital to lend to their consumers.

4.5.4. Fixed Asset Ratio (FAR) and Loans and Advance (LOA)

The fixed asset ratio has a negatively and statistically insignificantly with a p – value of 0.0817 and coefficient of -0.545189. This indicates that holding other independent variables constant at their average value, when fixed asset ratio increased by one percent, loans and advances of sampled commercial banks would be decreased by 54 percent and statistically insignificant. Therefore, the researcher failed to rejects the null hypothesis number five that fixed assets ratio has negative effect on banks' loan and advance. This means, there is no sufficient evidence to support the negative relationship between fixed asset ratio and bank lending. Because these variables are not employed by different researchers performing studies in the same setting (on bank loans and advances), the researchers do not receive supported writing except [19]. Only when the fixed effect model estimation technique is applied does the fixed assets ratio indicate a substantial positive link with bank loan growth. Fixed asset ratio is positively and statistically significant, according to the research [25].

4.5.5. Asset quality (AQ) and Loans and Advance (LOA)

A higher asset quality ratio means that bank's loans turn bad at a higher rate. As a result, banks are required to maintain a larger number of provisions against those bad loans. The

coefficient of asset quality which was measured by the ratio of nonperforming loans and advances to total loans and advances is 0.515950 with the p-value of 0.1131. This indicates that holding other independent variables constant at their average value, when asset quality increased by one percent, total loans and advances of sampled commercial banks would be increased by 11 percent and statistically insignificant. Therefore, the researcher rejects the null hypothesis number six that asset quality has a negative effect on total loans and advances. The result is parallel with the prior studies [20] that found a positive relationship between asset quality and total loans and advances. However, it is in contrary with the studies [4, 9, 33, 38] who finds that a significant relationship between asset quality and bank lending and AQ show a negative impact on the growth of total loans. [15], also obtain in his study on the determinants of bank lending of a sample Ethiopian commercial banks, finds that a significant relationship between AQ and bank lending and AQ show a negative impact on the growth of total loans and advances.

4.5.6. Cash Reserve Requirement (CRR) and Total Loans and Advances (LOA)

Cash reserve requirement has a negative and statistically significant effect on bank lending. This revealed that the higher the central bank's reserve requirements, the less loans and advances a bank is ready to make to the general people. As a result, the coefficient of the cash reserve need, as measured by the yearly reserve requirement rate, is -0.102227, with a p-value of 0.0260 in the model. It implies that holding other independent variables constant at their average value, when cash reserve requirement increased by one percent, total loans and advances of sampled commercial banks would be decreased by -10 percent and statistically significant at 5% level of significant. Based on the findings, the study failed to reject hypothesis number seven namely cash reserve requirement has a negative effect on bank lending. The result is similar to the findings [21, 33, 7, 8, 27, 15, 20], who concluded that an increase in cash reserve requirement decreased bank credit. However, the authors [1, 10, 18] established a positive relationship between cash reserve requirement and bank lending. According to the regression results, the cash reserve requirement imposed by the regulatory agency NBE has a negative impact on commercial bank loans and advances.

4.5.7. Gross Domestic Product (GDP) and Loan and Advances (LOA)

The coefficient of gross domestic product (GDP) growth rate is -0.020588. This revealed that GDP and commercial banks' lending have an inverse relationship. This implies that for one unit change in GDP, keeping other things constant had resulted 2 percent changes volume of commercial bank loans and advances in opposite direction. However, the p-value of the parameter is 0.6198 and this denotes that GDP is not statistically significant at 1%, 5% & 10% significance levels over the study period. Based on the statistical value null hypothesis nine ―there is significant effect on banks' loan and advance.‖ was reject since it is statistically insignificant. Thus, GDP is not a good determinant for Ethiopian commercial banks' lending for the study period. However, according to the research [41, 12, 10, 37] the insignificancy of GDP can be explained by firms' high demand for credit or financial constraints and supply side constraints in credit to firms. However, the result of this study is in contrary to the findings [20, 31, 25, 40], Their finding states that gross domestic product affect bank loans positively since an increase in GDP causes a raises in both supply and demand for loans. An increase in GDP means more funds are available for banks to make loans since deposits are more likely to increase.

4.5.8. Foreign Exchange Rate (FER) and Loan and Advance (LOA)

The final macroeconomic explanatory variable in this study is the foreign exchange rate, which is used to understand the impact of currency depreciation on bank loan and advance. The Ethiopian birr is continuously depreciating against the US dollar; as a result, the researcher in this study uses the reciprocal value of the annual average foreign exchange rate expressed in US dollars to determine the impact of continuous currency depreciation on commercial bank loans and advances. From the above fixed effect regression analysis tables, foreign exchange rate is found positive and statistically significant with beta coefficient of 0.522257 and p-value of 0.0000 in the determination of banks loan and advance. This shows that relationship between foreign exchange rate and LOA is direct, positively related. As a result Ethiopian commercial banks loan and advance will increase with the percentage amount of 0.522257 if Ethiopian birr is farther run down by one percent relative to United States dollar and statistically significant at 1% level of significant. Based on the findings, the study failed to reject hypothesis number ten foreign exchange rate has positive and significant effect on banks' loan and advance. The study result is consistent with the study [31, 30, 26, 13] who found that foreign exchange rate has a positive and significant effect on banks' loan and advance. However, [42] obtain in a negative relationship between foreign exchange rate and bank lending.

4.5.9. Broad Money Supply (M2) and Loan and Advance (LOA)

Broad money supply (M2), which is also assumed to be a direct source of credit growth, is also used since an increase in money supply enhances banks' capacity of credit creation which boosts credit growth. Table above indicated that broad money supply has a negative and statistically significant effect on bank lending. Consequently, model result shows the coefficient of the broad money supply which measured by sum of narrow money plus quasi money is -0.173282 and its p-value is 0.0081. It implies that holding other independent variables constant at their average value, when cash reserve requirement increased by one percent, total loans and advances of sampled commercial banks would be decreased by 17 percent and statistically significant at 1% level of significant. Based on the findings, the study failed to reject hypothesis number eight namely broad money supply has significant impact on banks' loan and advance The result is

differ from to the findings of research [14, 22], who concluded that an increase in broad money supply increased bank credit.

5. Conclusion

The main objective bank established is channeling of scare resources from the surplus economic units to the deficit economic units. By doing this it earns profit and contributes to economic growth. The growth of economic in turn with the collaboration of others variables influence the supply of bank's loans. Generally, these influencing factors can be classified into four categories: bank-specific, macroeconomic, monetary and other factors.

Accordingly, this study examined the relationship between Ethiopian commercial banks' loan and advances with bank specific, (capital adequacy ratio, liquidity ratio, bank size, profitability ratio, asset quality and fixed asset ratio), industry specific (broad money supply and cash reserve requirement) and macroeconomic (GDP and annual foreign exchange rate to USD) factors of commercial banks which affect commercial banks' loan and advances.

Broad money supply and cash required reserve variables are the way government used to control inflation. Consequently decease amount of cash reserve requirement is root of inflation. Also increasing cash reserve requirement leads to decrease in the profitability of commercial banks which cause to decrease the capacity of banks' in providing loan and advance to their customer. In addition to that government also used broad money supply to stimulate the economy of the country though lower interest rates which result in more money.

Profitability ratio is one of bank specific factors that represents a bank's ability to produce profits from its assets and gives an indication of how efficiently management is utilizing its assets to generate earnings. Accordingly, the study result showed that profitability ratio has negative impact with taking large percent from the variable used in determining Ethiopian commercial banks' loan and advance. This show that for the study period Ethiopia commercial banks' loan and advances was more affected by profitability ratio. Decrease profitability cause financial stability, problem of financial performance, solvency and liquidity indirectly.

Capital adequacy ratio, liquidity ratio, foreign exchange rate and bank size have positively and statistically significant. All those variables are internal factor except foreign exchange rate. This indicates that internal factors have a greater impact on Ethiopian commercial banks' loan and advance decisions. The amount of suitable capital in banking, on the one hand, directly raises the liquidity of commercial banks in Ethiopia, and on the other hand, indirectly serves as a confidence booster to depositors that their money is safe, so enhancing the deposit as well as the banks' solvency. This allows banks to offer their customers greater loans and advances.

The findings also sugges that; fixed asset ratio, asset quality ratio and GDP growth rate ratio did not explain Ethiopian commercial banks' loan and advance significantly during the study period. Generally, the study found that; profitability ratio, broad money supply and cash reserve requirement have negatively and statistically significant effect on Ethiopian commercial banks' loan and advance. As well capital adequacy ratio, liquidity ratio, foreign exchange rate and bank size have positively and statistically significant. However, fixed asset ratio, asset quality ratio and gross domestic product growth rate did not explain Ethiopian commercial banks' lending during study period.

6. Recommendations

The role of credit is considered to be the key to economic for many countries as it lubricates the economy. This service is performed mostly by banks, especially in developing countries. Therefore, commercial banks constitute a majority of total assets and total deposits in the banking system in Ethiopia and extension of credit is one of the major functions of banking institutions. Accordingly, to improve this activity, it is most important to identify main determinants of credit provisions. Thus, depending on result from the study, the following recommendation were given.

Among bank specific variable capital adequacy, liquidity, and bank size were the major factors that positively and significantly affected the lending decision of commercial banks in Ethiopia. Hence, banks are required to devote more towards improving their liquidity position and level of capitalization so as to increase their lending ability and to ensure their profitability.

Profitability ratio is also one of the bank specific factors that affect Ethiopian commercial banks' loan and advance negatively and significantly. Decrease in profitability cause financial stability. Therefore, banks must work on the ways to increase profitability such as:- decreasing loans to total assets ratio, decreasing customer deposits to total liabilities ratio, decreasing nonperforming loans to gross loans ratio, increasing efficiency, and increasing revenue diversification.

Both monetary policy variables (i.e. broad money supply and cash reserve requirement) were factors that negatively and significantly affect the lending decision of commercial banks in Ethiopia. Those variables help policymakers to better understand potential inflationary trends as they are key monetary policy instruments for the central bank. Therefore, when regulatory measures are taken by the central bank (NBE) to control the economy as a whole and to maintain the soundness and stability of the financial sector, there should be closer consultation and cooperation between banks and the regulatory authorities at the stage of policy formulation. Furthermore, it is better to take into account, the effect of the regulatory measure on banks' loan and advance, because reduction in the lending ability of banks not only affect the growth and profitability of the banks but also hamper the general economy of the country.

Increasing the minimum cash reserve requirements by Central Bank of Ethiopia (NBE) cause low lending capacity of banks. Hence, banks will ask more people to open deposits in their bank accounts and also raise the interest rate. As a result this activity discourages borrowers from applying for loans

due to the increased interest rate. Hence, Central Bank of Ethiopia should try to decrease minimum cash reserve requirements ratio for all commercial bank.

Suggestion for Further Study

This research aimed to concentrate on bank-specific, industry-specific, and macroeconomic factors affecting Ethiopian banks' loan and advance. However, this does not imply that this study includes all elements that influence bank loan and advance decisions. Since there are continuous changes in globalization, deregulation, and parallel competition from the non-banking financial institutions there have to be further study on the determinants of Ethiopian.

commercial banks' loan and advance by considering other industry specific variables and government regulations. As a result, while the study just looks into the bank side, it is also advised that it look into the customer side, which would look into both the demand and supply sides at the same time, the bank and its clients.

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