

Determinants of Liquidity in Ethiopian Commercial Banks: The Case of Some Selected Commercial Banks.

Alemayehu Mosisa*

Tadele Mengesha**

Tebetina Demissie***

Roba Weyuma****

Mesfin Tesfaye Geleta*****

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Abstract

Commercial banks are primarily concerned with creating liquidity because their activities directly affect their liquidity, namely deposit mobilization and lending. The prime aim of this study was to investigate the determinants of Liquidity in Ethiopian Commercial Banks. The study covered the period 2012-2024 G.C and twelve commercial banks which selected based on their years of establishment. Quantitative research approach and explanatory Research design was adopted. Secondary data was collected from the selected commercial banks, World Bank report and National Bank of Ethiopia. The data was analysed by using Eviews-9; both descriptive (mean and standard deviation) and inferential statistics (correlation and panel regressions) were employed. The results of regression analysis revealed that among the incorporated independent variables: capital adequacy, return on asset and government expenditure has positive and statistically significant impact on liquidity. The remaining variables have a negative and insignificant effect on liquidity. The research findings would have an insightful impact on different stakeholders like commercial banks in Ethiopia and policy makers like national bank of Ethiopia with respect to determinants of liquidity. The study would contribute to knowledge gap and capacity building with respect to determinants of liquidity in Ethiopian Commercial banks.

Keywords: Commercial banks, liquidity, Internal factor, Macroeconomic factor.

*Corresponding author: tesfaye.mesfin@ju.edu.et

*Department of Banking and Finance, Jimma University, Ethiopia. alemayomosisa2021@gmail.com

**Department of Banking and Finance, Jimma University, Ethiopia. tdlmngsh@gmail.com

***Department of Management, Jimma University, Ethiopia. demissie.tehetina@ju.edu.et

****Department of Banking and Finance, Jimma University, Ethiopia. roba.dame@ju.edu.et, ORCID ID: 0009-0006-0539-5680

*****Department of Banking and Finance, Jimma University, Ethiopia. tesfaye.mesfin@ju.edu.et, ORCID ID: 0009-0005-6734-4363

Introduction

In financial system, banks are essential, because they act as intermediaries, transferring funds from lenders to borrowers in order to provide financing channels. Rost (2010) released policies on liquidity management to increase bank liquidity following the global financial crisis of 2007–2009. One of the first studies to demonstrate the significance of the bank's "transformational role" in creating liquidity was (Diamond, 2007). Diamond (2007), De Waal et al., (2013) defines liquidity as the ability of a bank to fund increases in assets and meet obligations as they come due, at reasonable cost.

Belete (2018) stated that, Liquidity risk derives from the ultimate role of banks in the maturity conversion of short-term deposits into long-term loans. Consequently, banks must maintain a high level of liquidity that will allow them to turn a profit and fulfil their obligations. Since creating liquidity is essential to commercial banks' survival, it is one of their primary goals. It is well known that a nation's banking industry has a significant impact on its economic development. This is achieved by matching economic units in deficit with those in surplus.

To the best of the researchers' knowledge, eight scholars have examined related topics in the setting of Ethiopian commercial banks. However, their findings have been inconsistent. For example, Tseganesh (2012), Pham & Pham (2022) and Belete (2018) discovered that bank size has a positive and significant impact on liquidity, but (Yimer, 2016), Girma et al. (2022), Fekadu (2018) and Berihun-Engida (2015) identified a statistically significant and negative association between bank size and bank liquidity. Regarding the variable Capital adequacy, (Yimer, 2016) and (Molla, 2017) reported an insignificant result, but (Tseganesh, 2012), (Leykun, 2016) and (Assfaw, 2019) discovered a positive and substantial outcome.

Therefore, the main reason for this research is to overcome the ambiguous results of aforementioned papers. In addition to these, the government expenditure is not considered by previous study particularly in Ethiopian case. Thus, this study considered government expenditure as the major determinant factor of commercial bank's liquidity based on the literature. Thus, by examining the firm-specific and macroeconomic factors of twelve commercial banks in Ethiopia, this study seeks to close the aforementioned gaps. Finally, conducting study on the relationship between liquidity and firm specific and macroeconomic

determinants of commercial banks liquidities after corona virus and the war happened in northern part of our country with recent data is very critical.

Specifically, the primary aim of this study was to accomplish the subsequent specific objectives.

- To determine the impact of capital adequacy on commercial banks liquidity in Ethiopia.
- To determine the impact of bank size on commercial banks liquidity in Ethiopia.
- To determine the impacts of non-performing loan on commercial banks liquidity in Ethiopia.
- To determine the impacts of inflation on commercial banks liquidity in Ethiopia
- To determine the impact of profitability on commercial banks liquidity in Ethiopia.
- To determine the impacts of real gross domestic product (GDP) on commercial banks liquidity in Ethiopia
- To determine the impacts of interest rate margin on commercial banks liquidity in Ethiopia.
- To determine the impact of government expenditure on commercial bank's liquidity in Ethiopia.
- To examine the impact of unemployment rate on commercial bank's liquidity in Ethiopia.

1. Literature Review

Theoretical literature review

Keynes -Liquidity Preference Theory

The literature on finance and economics examines potential justifications for businesses holding liquid assets. Three reasons were noted by (Pigou, 1936) for why individuals favor and seek liquidity. The transaction incentive in this case is that businesses keep cash on hand to meet their demands for both inflow and outflow of funds. Transactions require cash, and the need for liquidity serves this purpose. The amount of income, the intervals between income receipts, and the ways in which the available cash is spent all influence the demand for cash. Keeping cash on hand allows a company to have an emergency fund out of caution. Cash retained as a precaution could be used to meet short-term obligations for which the cash inflow may have been benchmarked if anticipated cash inflows are not received as expected. Holding cash is speculative because it gives a company the option to seize unique possibilities that, if quickly seized, will benefit the company.

Theory of Corporate Liquidity

Almeida et al. (2002) presented a theory of corporate liquidity demand predicated on the idea that decisions about liquidity will be influenced by a company's ability to access capital markets and the significance of upcoming investments to the company. According to the concept, businesses with financial constraints will set aside a positive percentage of additional cash flows, but businesses without such constraints will not. Enterprises that are categorized as financially limited save a positive portion of their cash flows, whereas enterprises that are classified as unconstrained do not, according to empirical research. Due to the anticipated losses from passing up profitable investment possibilities, companies with a bigger investment opportunity set may incur a higher cost in a liquidity crisis. Consequently, a favorable relationship between cash holdings and investment opportunities is anticipated.

Bank liquidity Creation and Financial Fragility Theory

The idea of financial intermediation holds that banks play a crucial role in the economy by supporting short-term liquid liabilities with long-term illiquid assets. Banks generate liquidity through their role as liquidity providers, which involve holding illiquid assets and supplying the rest of the economy with cash and demand deposits. Banks carry out important tasks on both sides of their balance sheets: they lend money to clients who need liquidity on the asset side and give depositors access to liquidity when needed on the liability side. Depositors now have more access to their money than they would have if they made the same direct investment and anticipated the same return (Diamond & Rajan, 2001). This is known as liquidity generation.

Empirical Literatures

Al-Homaidi et al. (2019) looked at the factors influencing an Indian commercial bank's liquidity. The study utilized pooling, fixed, and random effect models in addition to GMM on a panel of 37 commercial banks that were listed between 2008 and 2017 on the Bombay Stock Exchange (BSE) in India. Liquidity in the bank was considered a dependent variable that was influenced by macroeconomic and bank-specific factors. The findings showed that the following bank-specific factors have positive and significant impact on liquidity: bank size, capital adequacy ratio, deposits ratio, operation efficiency ratio, return on assets ratio, assets management ratio, return

on equity ratio, and net interest margin ratio. The results showed that interest rates and currency rates have a major negative impact on liquidity in terms of macroeconomic considerations.

Tasnova (2022) looked into how macroeconomic and bank-specific factors affected the liquidity of 29 Bangladesh commercial banks that were listed. In order to investigate the link, the study used the Pooled Ordinary Least Square method, fixed and random effect estimates, and the GLS random effect method on a well-balanced panel dataset from 2014 to 2019. The study found that bank liquidity is inversely impacted by the business cycle and the interest rate of monetary policy. On the other hand, there was a positive correlation between bank liquidity and interest rate spread, profitability, non-performing loans, and capital adequacy. The study's conclusions indicate that the business cycle and capital adequacy have a big influence on liquidity.

Mdaghri & Oubdi (2022) examined the liquidity creation of 153 banks in 12 MENA countries based on their on- and off-balance sheets for 2008-2017 and to find the main internal (bank-specific) and external (macroeconomic) factors driving bank liquidity production in the MENA region. A Fixed Effects (FE) model and a novel econometric technique based on the Moments Quantile Regression (MMQR) Method were employed in the study. According to the result, the sample bank generated \$ 461.32 billion in liquidity in total in 2017, which is around 1.51 times the total amount created in 2008. The study's conclusion demonstrates that, among bank-specific variables, bank risk has negative effect on liquidity creation, while profitability, and increase in deposits have positive effect. In terms of macroeconomic variables, inflation and unemployment have negative consequences; savings, and monetary policy have positive consequences on the banks liquidity creation.

(Tseganesh, 2012) sought to determine the factors that influence Ethiopian commercial banks' liquidity; second, it examined the effects of banks' liquidity on financial performance by examining the key variables that contribute to liquidity. Eight commercial banks were included in the sample, and the data was analysed using a balanced fixed effect panel regression model. The results of the study show that the following factors had a positive and statistically significant impact on banks' liquidity: capital adequacy, bank size, the percentage of non-performing loans in the total volume of loans, interest rate margin, inflation rate, and short-term interest rate. Conversely, the real GDP growth rate and the expansion of loans had a statistically negligible effect on the liquidity of banks.

(Berihun-Engida, 2015) regression study results indicated that loans and bank size had a statistically significant negative impact on banks' liquidity as determined by the ratio of liquid assets to total assets. The real growth rate of the GDP based on price level, lending interest rate, the percentage of non-performing loans in the overall loan volume, bank size, actual reserve ratio, and short-term interest rate all showed statistically significant positive trends. The growth rate of the gross domestic product on the basis of price level, the actual reserve rate, and the percentage of non-performing loans in the total volume of loans had a negative impact on profitability, while bank size had a positive and statistically significant impact on profitability.

(Yimer, 2016) between 2000 and 2015, a sample of six Ethiopian private commercial banks provided the data used by this researcher. The balanced panel fixed effect regression model was used to evaluate macroeconomic and bank-specific factors. Three ratios are used to assess a bank's liquidity: loan to deposit, liquid asset to total asset, and liquid asset to deposit. The study's conclusions showed that, while non-performing loans, profitability, and inflation have positive and statistically significant effects on Ethiopian private commercial banks' liquidity, bank size and loan growths have a negative and statistically significant impact on it. Nonetheless, there is no statistically significant correlation between the liquidity of Ethiopian private commercial banks and capital adequacy, interest rate margin, real GDP growth rate, interest rate on loans, or short-term interest rate.

(Assfaw, 2019) the purpose of this study was to investigate the macroeconomic and firm-specific factors that may have an impact on Ethiopia's private commercial banks' liquidity situation. Eight carefully chosen private commercial banks' audited annual financial reports covering the years 2011–2017 were the source of secondary data for the investigation. By using the balanced panel fixed effect regression model, the panel data was examined. The study concluded that the size, growth in loans, and deposit levels of individual banks are firm-specific characteristics that have significant positive influence on the liquidity of banks. Furthermore, the GDP, yearly inflation, national bank bill purchases, low interest rate margin, and other daunting macroeconomic factors have a big negative impact on Ethiopia's private commercial banks' liquidity.

Based on the above reviewed literatures the researchers have developed the following research hypothesis.

H1: There is a negative and significant relationship between non-performing loan and bank's liquidity.

H2: Capital adequacy has positive and significant impact on the bank liquidity.

H3: There is negative relationship between bank size and bank liquidity.

H4: ROA has positive and significant impact on bank's liquidity.

H5: GDP has negative impact on bank's liquidity.

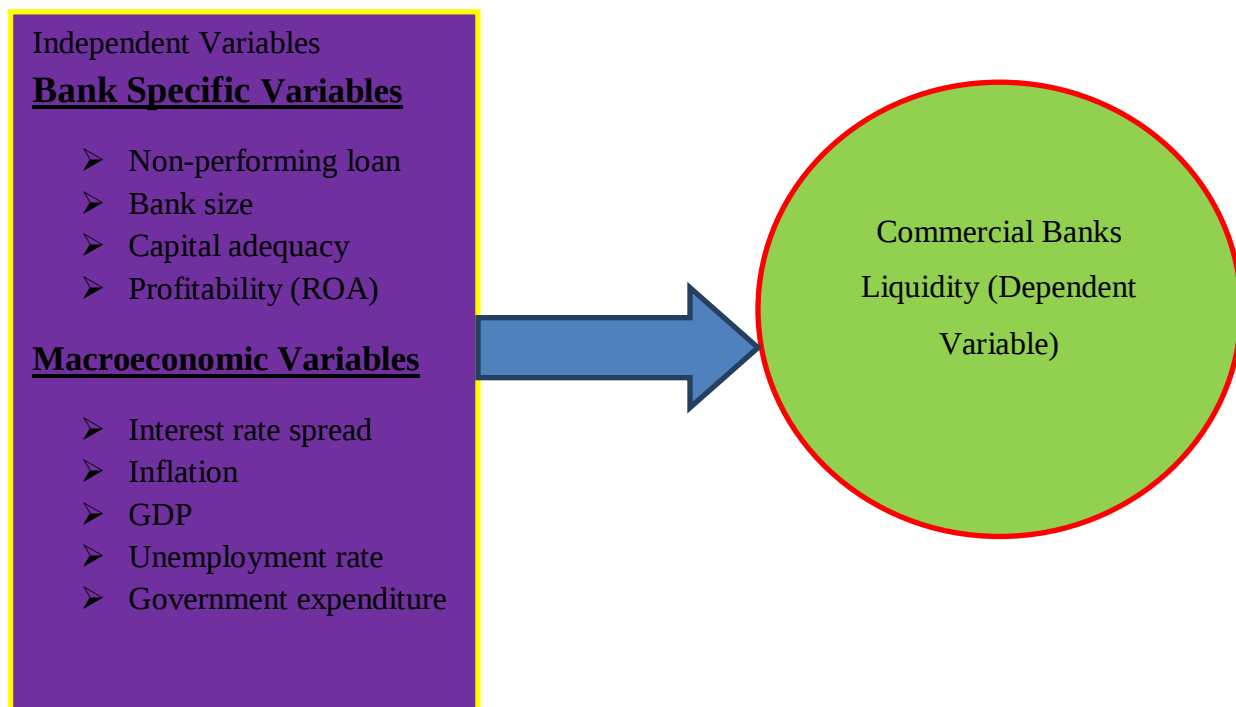
H6: There is negative relationship between Interest rate margin and bank liquidity.

H7: Inflation has positive impact on the banks liquidity.

H8: Unemployment rate has negative impact on the bank liquidity.

H9: Government expenditure has positive impact on the bank liquidity.

Conceptual Framework: Based on both theoretical and empirical viewpoints, the conceptual framework that explains the relationship between the dependent and independent variables has developed as follows.



Source: from literatures review, (2025)

Figure 1. Conceptual Framework

2. Data and Method

The research covered the period 2012-2024 G.C and twelve commercial banks, both public and private. These banks were selected due to their large market share, and their establishment dates,

as they allow acquiring the necessary data. So, purposive sampling technique was employed to select the sample from total population. Therefore, the researchers incorporated 12 commercial banks (Commercial Bank of Ethiopia, Awash International Bank, Cooperative Bank of Oromia, Oromia Bank, Nib bank, Bank of Abyssinia, Berhan Bank, Dashen Bank, Lion Bank, Wegagen Bank, Zemen Bank, and United Bank) which fulfil the data required for the research. Quantitative research approach and explanatory Research design was adopted. Secondary data was collected from the selected commercial banks, World Bank report and National Bank of Ethiopia for the stated period of time. The study used both descriptive and inferential statistics. Mean and standard deviation were used as descriptive statistics, whereas correlation and panel regressions were used from inferential statistics by using Eviews-9.

The dependent variable of this study is Liquidity of Bank; non-performing loans, capital adequacy of banks, size of the bank, profitability of the bank (ROA), gross domestic product (GDP), interest rate margin (IRM), the rate of inflation, unemployment rate, and government expenditure are dependent or explanatory variables.

The regression model used for this study was adopted from (Yimer, 2016), (Malik & Rafique, 2013; Tseganesh, 2012; Vodova, 2013; Vodová, 2011). Thus, the following equation indicated the general model for this study.

$$L_{it} = \alpha + \beta X_{it} + \delta_i + \varepsilon_{it}$$

Where L_{it} is a liquidity ratios for bank i in time t , X_{it} is a vector of explanatory variables for bank i in time t , α is constant, β are coefficient which represents the slope of variables δ_i denotes pooled OLS in bank i and ε_{it} is the error term. The subscript i denote the cross-section and t representing the time-series dimension. Therefore the general models which incorporate all of the variables to test the determinants of banks liquidity are:

$$\begin{aligned} Li_{it} = & \alpha + \beta_1 (NPL_{it}) + \beta_2 (BS_{it}) + \beta_3 (CA_{it}) + \beta_4 (ROA_{it}) + \beta_5 (IRM_{it}) \\ & + \beta_6 (GDP_t) + \beta_7 (IRM_t) + \beta_8 (IR_{it}) + \beta_9 (GE_{it}) \delta_i \\ & + \varepsilon_{it} \dots \dots (Model) \end{aligned}$$

Where:

Li it: represents the banks liquidity measured by loan to deposit & short term borrowing ratio of ith bank in year “t”

CAPit: is capital adequacy ratio of ith bank in the year “t”

BSit: is the size of ith bank in the year “t”

NPL: Non-performing loan of ith bank in the year “t”.

IR: inflation rate of ith bank in the year” t”

ROAit: is the return on asset of ith bank in the year “t”.

IRM: interest rate margin of Ethiopian commercial bank in the year “t”.

GDPT: is the real gross domestic product growth of Ethiopia in the year “t”.

UER: impact of unemployment rate on ith bank in the year “t”.

GE: government expenditure of i th bank in the year t.

δ_i : denotes the pooled OLS in bank “i”

ϵ_{it} : is a random error term

3. Results & Discussion

Descriptive Statistics

The descriptive statistics of the dependent and independent variables are given in this part.

Table 1. Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
LQ	0.607929	0.615562	0.914554	0.389785	0.119019	155
NPL	0.022653	0.017551	0.088308	0.001842	0.015358	155
LOGBS	4.244747	4.237289	5.853018	2.579229	0.598320	155
CA	0.141261	0.134906	0.344931	0.067845	0.037561	155
ROA	4.262021	2.940148	6.717239	-2.214827	4.710495	155
IRM	3.984044	4.004989	8.590188	0.171720	1.850318	155
CPI	16.62423	13.83304	33.88988	6.628133	9.575383	155
RGDPR	8.681935	9.000000	11.40000	4.900000	2.011250	155
UN	2.928658	2.735000	4.126000	2.250000	0.664759	155
LOG_GE	9.799198	9.917639	9.992593	9.512534	0.184795	155

Source: Own computation, (2025)

Table 1 illustrates that the mean liquidity value is 0.61, indicating that the percentage of liquidity is 61%, surpassing the minimum requirement of the National Bank of Ethiopia (NBE) which stands at 15%. The minimum and maximum values of liquidity are 0.39 and 0.91 respectively, above the NBE's minimum requirement. The standard deviation of the data is 0.12. This indicates that, the market liquidity is constant across all banks in the sample, the greater the proportion of liquid assets to total assets, the greater the ability to withstand a shock to liquidity. Any licensed commercial banks must maintain liquid assets equal to at least fifteen percent (15%) of their net current liabilities, as defined by the National Bank of Ethiopia's NBE directive number SBB/57/2014.

The NBE's 2024 financial stability report, which states that "the majority of Ethiopian banks meet their payment obligations in the RTGS and adhere to NBE's minimum liquidity ratio requirement of 15 percent," lends credence to this conclusion. With a mean of 0.0226 (2.26%), the non-performing loan ratio ranges from 0.0018 to 0.088 when divided by the total number of loans. This shows that Ethiopian commercial banks' overall loan loss was 8.8% due to non-performing loans. The banking industry in Ethiopia is mandated to keep the ratio of non-performing loans (NPLs) at or below 5% (NBE, 2008).

The natural logarithm of total assets is used as a proxy for commercial bank size (BS). To reduce the amount of variation between the maximum and minimum numbers, the natural logarithm is used. The average total asset size of the sampled commercial banks in Ethiopia over the study period is implied by the mean value of BS, which is 4.245. CBE recorded the highest total asset size value of 5.853 in 2019; Berhan Bank recorded the lowest total asset size value of 2.579 in 2012 among Ethiopia's sampled commercial banks. For all Ethiopian commercial banks that were sampled, the standard deviation value of 0.598 (59.8%) indicates a quite moderate BS dispersion from the mean value.

The average capital adequacy ratio (CA) of the banks under study was 0.141, with the highest and lowest CAs being 0.345 and 0.067, respectively. There was variation with respect to the mean capital adequacy ratio, as indicated by the standard deviation of 0.038 for CA. In 2013, the Abyssinia bank recorded the maximum capital adequacy ratio at 0.067 while the cooperative bank of Oromia recorded the minimum at 0.067. A minimum of 8% is necessary since the ratio of regulatory capital to risk-weighted assets determines capital adequacy.

The ratio of return on assets to total assets, or net income before taxes and provisions, is used as a proxy for profitability (ROA). The sampled CBs in Ethiopia are producing 4.26 returns for every birr invested throughout the study period, according to the average ROA mean value of 4.26. It depends far more on advances and loans given to borrowers. In 2012, Berhan Bank revealed that it had lost 2.215 cents for every birr invested, while Zaman Bank had the highest profit of 6.717 during that same year. A greater amount of ROA decrease from the mean value is implied by the standard deviation number of 4.71.

The interest rate spread had a mean of 3.984, a standard deviation of 1.85, a minimum of 0.172, and a maximum of 8.59. The difference in interest rates between depositors and creditors reached a high point in 2018 of 8.59 percent, whereas the lowest interest rate margin in Ethiopian commercial banks was 0.172 in 2013.

Over the course of the sample period, the average inflation rate, or price of goods and services based on inflation in the nation, was reported at 16.62. 33.89 and 6.628 represent the maximum and smallest values of inflation during the study period. With a standard deviation of 9.575, the inflation rate was considerably distributed, showing a wider dispersion than its mean value during the research periods.

The GDP is a proxy for the yearly real GDP rate. It gauges the nation's economic performance. Its mean value of 8.682% indicates that, during the course of the last 13 years, from 2012 to 2024, the average market values of all final goods and services produced in Ethiopia's economy have been 8.682%. The year 2013 saw the highest GDP value of 11.4%, while the year 2024 saw the lowest failed production value of 4.9%. The standards deviation of 2.011% indicates a negligible variation in economic growth when compared to the mean GDP.

The UN is a proxy for the annual percentage of the labor force that is jobless. Its mean value of 2.928% indicates the workforce's average unemployment rate for the study period. The maximum percentage of 4.126% was recorded in 2024, while the minimum percentage of 2.25% was recorded in 2015. With a standard deviation of 0.66%, the workforce's unemployment is less dispersed than the average UN worker.

Government spending has a favourable impact on liquidity. Thus, increased government expenditure is likely to increase liquidity (Faramarzi et al., 2014). This analysis uses the total

yearly government spending, which includes all capital, financial, recurring, and other (frozen account) expenses. The mean value of government spending, as seen in the above table, is 9.799. During the study period, government expenditures ranged from a maximum of 9.99 to a minimum of 9.51.

Correlation matrix

The correlation coefficient's values are consistently within the range of -1 and +1.

Table 2. Correlation

	LQ	NPL	LOGBS	CA	ROA	IRM	CPI	RGDPR	UN	LOG_GE
LQ	1	-0.231634	-0.031969	0.072094	-0.150741	0.495044	0.123512	-0.443032	0.467329	0.441943

Source: Own computation, (2025)

Table 2 shows that explanatory variables such as NPL, BS, ROA, and RGDP have a negative connection with liquidity. A moderately negative correlation value of -0.44 between RGDP and liquidity suggests that the independent variables are perfectly associated in a negative linear sense. This shows that the independent variables' correlation coefficient and liquidity are perfectly correlated in a negative linear sense. Nonetheless, a positive association was observed between liquidity and explanatory factors such as UN, GE, CA, IRM, and CPI.

The above correlation analysis only shows the direction and degree of associations between variables; it does not allow the researcher to make cause and effect inferences regarding the relationship between the identified variables. Therefore, the econometric regression analysis, provides assurance to overcome the limitations of correlation analysis when studying the impacts of certain independent variables on bank liquidity.

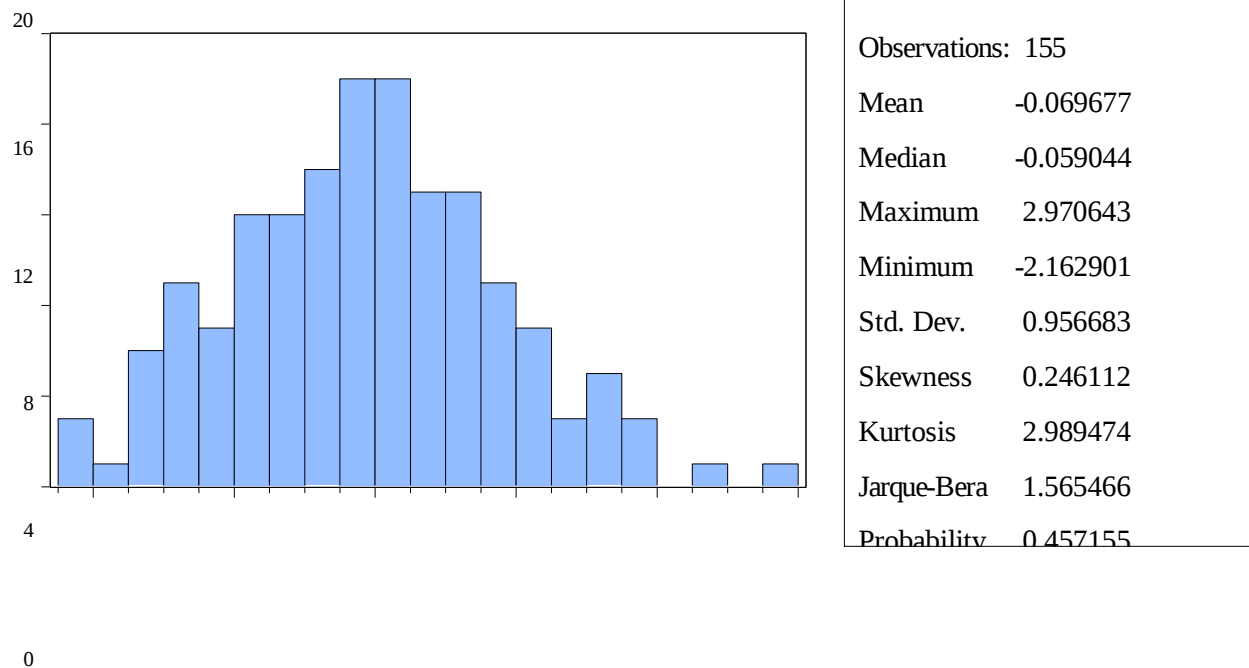
Tests for the Classical Linear Regression Model (CLRM) Assumptions

This section offers tests for the multicollinearity, heteroscedasticity, autocorrelation, and normality assumptions of the classical linear regression model (CLRM).

Normality Assumption Test

The results of the normalcy test indicate that the Jarque-Bera statistic is not significant even at the 10% level of significance (P-value = 0.09 greater than 0.05), and the coefficient of Kurtosis (2.989) mean less than 3 or. Given that the P-value is higher than 5%, it may be concluded that the data is normally distributed.

Figure 1. Normality test result



Source: Own computation, (2025)

Heteroscedasticity Test

This test is used to determine if there is heteroscedasticity (unequal variances) in a regression model. Then, F-statistic is 0.14 and Prob. F (1, 294) is the p-value associated with the F-statistic. In this case, the p-value is 0.688, which is greater than the typical significance level of 0.05. Therefore, we do not have enough evidence to reject the null hypothesis of homoscedasticity (equal variances).

Table 3. Heteroscedasticity test result

F-statistic	0.140566	Prob. F(1,294)	0.6880
Obs*R-squared	0.141455	Prob. Chi-Square(1)	0.6768

Source: Own computation, (2025)

Multicollinearity Test

The result of the correlation matrix below indicates that the relationship between government expenditure and real GDP has the strongest correlation, at 0.7. As a result, no explanatory variable in this study has a correlation coefficient greater than 0.8. Therefore, there is no multicollinearity problem in this study.

Table 4. Multicollinearity test result

	LQ	NPL	LOGBS	CA	ROA	IRM	CPI	RGDPR	UN	LOG_GE
LQ	1.000000									
NPL	-0.231634	1.000000								
LOGBS	-0.031969	0.065648	1.000000							
CA	0.072094	0.021076	-0.379206	1.000000						
ROA	-0.150741	-0.148580	-0.202059	-0.043769	1.000000					
IRM	0.495044	-0.383811	0.089170	-0.175139	-0.030149	1.000000				
CPI	0.123512	-0.148292	0.151405	0.006561	0.043865	0.100314	1.000000			
RGDPR	-0.443032	0.166089	-0.493541	0.203224	0.039472	-0.365043	-0.460528	1.000000		
UN	0.467329	-0.171591	0.565117	-0.241129	-0.051615	0.403371	0.468281	-0.684809	1.000000	
LOGE	0.441943	-0.099463	0.608749	-0.353700	-0.093679	0.413101	0.068445	-0.708133	0.623238	1.000000

Source: Own computation, (2025)

Result of Regression Analysis

This part depicts the regression analysis of dependent and independent variables.

Table 5. Model regression estimate

Dependent Variable: LQ

Method: Least Squares

Date: 05/05/25 Time: 09:28

Sample: 2012, 2024

Periods included: 13

Cross-sections included: 12

Observations: 155

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NPL	-0.308866	0.124970	-2.471527	0.0146
LOGBS	-0.079368	0.007060	-11.24188	0.0000***
CA	0.424914	0.040317	10.53941	0.0000***
ROA	0.004194	0.000337	-12.46068	0.0000***
IRM	-0.016064	0.000728	22.07891	0.0000***
CPI	7.74E-05	0.000416	0.186250	0.8525
RGDPR	-0.011132	0.002925	-3.805565	0.0002***
UN	-0.025126	0.013319	1.886495	0.0612
LOG_GE	0.229281	0.037757	6.072534	0.0000***
C	-1.378837	0.341737	-4.034789	0.0001***
Weighted Statistics				
R-squared	0.903939	Mean dependent var		8.160642
Adjusted R-squared	0.897976	S.D. dependent var		15.13625
S.E. of regression	0.988555	Sum squared resid		141.7000
F-statistic	151.6057	Durbin-Watson stat		1.858225
Prob(F-statistic)	0.000000			

Sources: Own computation, (2025)

Discussion of regression result

Non-performing loan

The percentage of the provision for non-performing loans to the total amount of loans and advances is used to calculate non-performing loans, or NPLs. Regression analysis revealed a statistically significant negative impact on liquidity. The variable's coefficient value is -0.3088, meaning that for every unit increase in NPL, the liquidity of a subset of commercial banks in Ethiopia decreases by 0.3088 units, noteworthy with a p-value of 1%. This outcome is in line with studies by (Joseph et al., 2012), (Toby, 2008), (Al-qudah, 2020) and (Singh & Sharma, 2016) that found a negative relationship between non-performing loans and bank liquidity. As a result, the hypothesis was realized that there was a statistically significant and negative association between nonperforming loans and liquidity.

Bank size

The natural logarithm of total assets was utilized in this study as a stand-in for bank size in order to determine how Ethiopian commercial banks' liquidity was affected by their size. With a p value of 0.0000, bank size was determined to be statistically significant and negatively significant at the five percent significance level. With all other factors held constant, the coefficient value of -0.079 showed that for every unit rise in total asset, Ethiopian commercial banks' liquidity decreased by 0.079 units.

This finding was consistent with the findings of (Choon et al., 2013), (Malik & Rafique, 2013); (Chagwiza, 2014). Moreover, the result of this study about Banks liquidity and Bank size are also relevant with the empirical findings of (Vodová, 2011); (Elsas et al., 2010); (Kashyap et al., 2002); (Saha et al., 2019), (Al-qudah, 2020), (Ahamed, 2021), (Shah et al., 2018) and (Ahmad & Rasool, 2017) in which bank size has found a significant negative relationship with liquidity. Large banks therefore have a tendency, based on this argument, to invest implicitly in riskier assets and hold less liquid assets. When there is a lack of liquidity, big banks can turn to the central bank, which serves as the lender of last resort, for advances to get through the crisis. The central bank can also lend to smaller banks, although at a higher interest rate and on a smaller scale. The hypothesis, which proposed a negative and statistically significant link between bank size and liquidity, was therefore failed to reject.

Capital adequacy

The equity capital to total assets ratio is used in this study to gauge the capital of sampled CBs. It was postulated that capital sufficiency has a favourable and noteworthy impact on CBs' liquidity in Ethiopia. According to the results of the OLS multiple regression analysis model, CAP has a positive and statistically significant impact on the liquidity of CBs in Ethiopia. According to the table above, the positive coefficient sign value of 0.4249 indicates that there is a positive association between CAP and CBs' liquidity. This means that, assuming all other factors remain constant, CBs' liquidity increases by 0.4249 cents for every 1 birr increase in CAP.

Thus, a positive correlation between CAP and CBs' liquidity aligns with the risk absorption theory's premise that CBs with a stable CAP will also have a stable liquidity. Furthermore, it is in view of this study's hypothesis. The study's findings are in line with those of (Singh & Sharma, 2016), (Fekadu, 2018), (Vodova, 2013).

Profitability (ROA)

Return on assets serves as a proxy for CB profitability, and it is hypothesised that profitability positively and statistically significantly affects CB liquidity in Ethiopia. However, the results of the regression analysis show that ROA, with a coefficient value of 0.004194 and a p-value of 0.0000, has a positive and statistically significant impact on CBs' liquidity in Ethiopia. This demonstrates that, when all other variables remain constant, a 1% change in ROA results in a 0.4194% change in CB's liquidity in Ethiopia. Therefore, the positive correlation between ROA and CB's liquidity suggests that raising the former will also raise the latter. The primary sources of CB's profitability are loans and advances, which motivates high volume lending to generate large profits.

As a result, they provide more loans and advances (long-term illiquid assets), but this will also decrease their exposure to liquid assets. The statement "although more liquid assets increase the ability to raise cash on short-notices, they also reduce the ability of management to commit credibly an investment strategy that protects investors" highlights the contrasting influence of CBs' increasing liquidity assets, which ultimately reduces CBs' capacity to raise external finance.

More generally, the regression analysis result is consistent with these study expectations, (Vodova, 2013) CBs in Poland and (Vodová, 2011), (Fekadu, 2018), (Yimer, 2016), (Melese,

2015), (Choon et al., 2013),. So, this study hypothesis that states profitability has positive and statistically significant influence on CB's liquidity is failed to reject.

Interest rate margin (spread)

It is hypothesized that interest rate margin has a negative and statistically significant impact on CB's liquidity in Ethiopia. Interest rate margin is the proxy difference between interest income from loan and advances as a percentage of the total loan and advances and the interest paid out on deposit as a percentage of total deposits or net interest income to total outstanding loans and advances ratio. With a coefficient value of -0.016064, the regression analysis results show that IRM has a negative and statistically significant impact on CB's liquidity in Ethiopia at a 1% confidence level. With all other variables held constant, the negative coefficient sign values indicate that a 1% change in IRM may result in 0.016064 changes in CB's liquidity. The adverse effect of low IRM on CB's liquidity indicates that low IRM discourages CB from lending, increases interest costs for savers, and increases their susceptibility to retaining low-return, highly liquid assets. It contradicts the liquidity preference theory, which held that large IRM is necessary for money lenders. This study finding result is in consistent with, (Vodova, 2013), (Fekadu, 2018) and (Vodová, 2011). And hence, the hypothesis that states interest rate margin has negative and statistically significant influence on CB's liquidity in Ethiopia is not rejected.

Real GDP

The real growth rate, which is a measure of the GDP, is one of the macroeconomic factors that impact the liquidity of commercial banks in Ethiopia. Regression analysis revealed that GDP has a statistically significant negative influence on the liquidity of a sampled of Ethiopian banks. That is, other things remain constant one unit increase in real GDP rate leads to decrease in bank's liquidity by 0.011132. This result is consistent with (Vodová, 2011), (Aspachs et al., 2005), (Al-qudah, 2020), (Tseganesh, 2012) and (Yimer, 2016) which established negative relationships between the two. As the GDP climbed and vice versa, UK banks appeared to hold less liquidity, according to (Aspachs et al., 2005). This suggests that commercial banks have greater liquidity during economic downturns than they do during booms. Its impact on liquidity is also statistically negligible. Therefore, it is not appropriate to accept the theory that the real GDP growth rate has a positive and considerable impact on bank liquidity. One independent variable that doesn't significantly affect liquidity is GDP. This suggests that the GDP growth rate

of Ethiopia during the research period had effect on the liquidity of Ethiopian commercial banks. Hence, the hypothesis stating; real GDP growth rate has negative and significant impact on banks liquidity should be accepted.

Unemployment rate

The unemployment rate (UN), which serves as a stand-in for the nation's yearly workforce unemployment rate percentage, is thought to have a negative and statistically significant impact on Ethiopia's commercial bank's liquidity. As a result, the results of the regression analysis show that UN has a statistically significant negative impact on CB's liquidity. The p-value of 0.0612 and the negative coefficient sign of -0.025126 suggest a negative association between UN and CB's liquidity. Therefore, other things remain constant; the CB's liquidity will fall by 0.0612 for every 1% increase in UN. This could be the case since no depositor saves money in CBs when the nation's unemployment rate rises periodically and fails to generate new job possibilities. They therefore find it difficult to generate liquidity through deposit mobilizations and to appropriately distribute liquidity. In times of economic turmoil, CBs may also reduce their efforts to create capital and liquidity if the UN is high. Therefore, this study finding is consistent with null hypothesis. On the other hand, the finding of this study is consistent with (Singh & Sharma, 2016), (Vodova, 2013) and (Munteanu, 2012).

Government expenditure

Large-scale government expenditures are typically associated with higher commercial bank liquidity since the funds flow through the banking system. The regression result revealed that there is positive and significant relationship between government expenditure and commercial bank's liquidity. That is, other variable remain constant, one unit increase in government expenditure leads with increase in commercial bank's liquidity by 0.229281. Government spending has favorable impact liquidity. Therefore, higher government spending is probably going to improve liquidity, because high government expenditure means there is high employment opportunity. This lead the individual income increased and which further leads increase in deposit. Thus, deposit is one way used by commercial banks to improve their liquidity. The finding of this study is consistent with the study of (Faramarzi et al. (2014).

4. Summary

This paper attempts to examine the determinants of liquidity in the Ethiopian commercial banking sector over 2012–2024 using E-Views 9. The analysis revealed that most of the variables, capital adequacy, bank size, return on assets, non-performing loan ratio, interest rate margins, gross domestic product, unemployment rate and government expenditure, have significant effects on the liquidity position of the banks in the country whereas inflation rate has only insignificant effects. Variables impact positively on the liquidity have, capital adequacy and bank profitability and those exerting negative effects are bank size, capital adequacy, non-performing loans, interest rate margin and gross domestic product. Bank size exerts negative impacts on the bank liquidity this may be related to "too big to fail" problem, the higher the level of non-performing loan ratio depresses bank liquidity, and the lower the level of interest margin increases the cost of liquidity. At the same time, income level (gross domestic product) significantly exerts negative effect. Finally, unemployment has insignificant negative impact and government consumption expenditure significantly exerts positive effect on the bank liquidity position. Hence, macro and micro variables are having substantial influences, thus both should be taken into consideration on continuous basis while assessing the bank liquidity including regulatory factors.

Recommendations: Commercial banks should design appropriate ALM framework to bring stability to the balance sheets of banks, improve capital structure, and diversify sources of funds. They should build robust Asset–Liability Management (ALM) systems through enhanced Asset and Liability Committee (ALCO) activity, clear liquidity minimums, and continual monitoring of the liquidity gap to control liquidity risks. Banks should concentrate on the key internal factors such as capital adequacy, high profitability, and low non-performing loans (NPL). By maintaining buffers of capital, reducing risk-weights, strengthening earnings, improving asset quality and operational efficiency, bank should focus on the key external factors like macroeconomic environment, interest rate policies, and also government security allocations. Macroeconomic factors should be incorporated into planning and projections by utilizing appropriate information on real GDP growth, interest rate changes, and government expenditure. The policy makers and banks should remain committed to prudently developing the financial system through deepening of the money markets, and widen access to different sources of funds. Policymakers should design policies, which are applicable and practical for both private and

public banks, to promote liquidity creation and efficient utilization and provide a stable and healthy banking system.

Suggestions for future research: This study employed basically OLS for data analysis and it would be better if other researchers use other means of data analysis. Furthermore, the authors suggest that it would be useful if the future researchers incorporate regulatory factors as they are subject to change over a period of time and other remaining firm specific and macroeconomic factors.

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