

-RESEARCH ARTICLE-

DETERMINANTS OF BANK DEPOSITS IN ALBANIA

Anila (Voci) Çekrezi

Department of Finance and Accounting, Economic
Faculty, "A-Xhuvani" University, Albania
Email: vocianila@yahoo.com, anila.voci@uniel.edu.al

—Abstract—

This study aims to identify the factors that influence the level of deposits at commercial banks in Albania, considering the literature gap about banks operating in this country. The population comprises secondary data from six commercial banks operating in Albania between 2009 and 2020. The information was extracted from the Albanian Association of Banks' annual reports. The dependent variable in this study was the deposit levels of commercial banks. This study utilized internal (capital sufficiency and ROA) and external factors as explanatory variables (GDP growth rate, remittances and population growth). The investigation was conducted using the weighted least square approach and cross-sectional time series data. Using the statistical package developed by [Gretl \(2012\)](#), the results indicate that the coefficients of capital adequacy and remittances are negative and significant. In contrast, the coefficient of ROA is positive and significant. In addition, regression analysis revealed that the GDP growth rate had a negative but not statistically significant effect on commercial bank deposits. In contrast, population growth had a positive but not statistically significant effect on deposits. The analysis concludes that attention should be paid to capital adequacy because it causes a decline in deposits and because remittances are not positively connected with deposits as anticipated. These findings may be valuable to various actors functioning in the banking business or to other researchers who wish to do additional research on the same topic.

Key Words: Bank deposits, commercial banks, internal factors, macroeconomic factors.

Citation (APA): Çekrezi, A. V. (2022). Determinants of Bank Deposits in Albania. *International Journal of Economics and Finance Studies*, 14 (02), 101-121. doi:10.34111/ijefs. 20220026

1. INTRODUCTION

1.1 Background of the Study

The primary duty of banks is to collect deposits and lend money to those in need. Banks significantly contribute to economic growth through their role as intermediaries between surplus and deficit fund sectors (Saunders, 2011). According to Ünvan and Yakubu (2020), deposits are crucial to bank operations in emerging markets. Most firms rely largely on bank loans for finance, and without deposits, they would be unable to engage in lending activities. Deposits are liabilities for banks and should be returned to them after a specified period. According to Jaber and Manasrah (2017), the deposit is a contract between the client and the bank. The customer deposits funds for conservation or investment, and the bank agrees to return the funds at a specified date upon the customer's request (Jaber & Manasrah, 2017). People's deposits are the natural source of banking systems' financial capital (Namazi & Salehi, 2010). An aspect of a country's financial system that contributes to its economic growth is bank deposits (Boadi, Li, & Lartey, 2015).

The number of deposits is a significant indicator of banks' attention to the particulars of the banking system's activity (Turhani & Hoda, 2016). Namazi and Salehi (2010) assume that customer deposits are the primary source of banking systems' financial resources. The primary source of liquidity from which banks can generate profits is deposited. They immediately contribute to the financing of the economy. For banks to effectively attract deposits, it is essential to determine the elements that impact those most (Yakubu & Abokor, 2020). Not just unique bank issues but macro factors influencing deposit levels are considered. If banks lack sufficient deposits, they will be unable to meet their obligations and experience a financial crisis. Insufficient deposits and the inability to pay operational expenses are the primary causes of bank failure (FDIC., 2022). During the American financial crisis, the Federal Deposit Insurance Corporation (FDIC.) closed 140 failed banks in 2009 and 157 in 2010, compared to only 4 bank failures in 2019 and 4 in 2020. (FDIC., 2022).

The Albanian financial system is regarded to be relatively new. At the end of 1991, the banking system structure in Albania was typical of a centrally planned economy. With the passage of Law No. 7559, dated 22.04.1992, "On the Bank of Albania," the two-tier banking system was established in April 1992. At the end of 1993, seven banks, including the Bank of Albania, were engaged in this sector. The Albanian banking system faces two major shocks (Banks., 2012). The first shock to the banking system occurred in 1997 due to the severe problems produced by the economy's informal sector and the collapse of pyramid schemes, which impacted social and political life and the banking system. The second shock occurred in 2002 when panicked depositors withdrew 21.4 billion US dollars, or 154.87 million Euros (at an exchange rate of 138.18 per Euro), from two major banks within two months (Sheqeri, 2003).

There are now 12 banks with foreign and domestic capital operating in Albania: Alpha Bank, ABI, BKT, Credits Bank, Fibank, Intesa Sanpaolo Bank, OTP Bank, Procredit Bank, Raiffeisen Bank, Tirana Bank, Union Bank, and UBA (Albania, 2022). It has been observed that the number of banks in the Albanian banking system has declined from 16 in 2017 to 14 in 2018 (a domestically-owned bank absorbed a minor foreign bank, and another bank had voluntarily closed) and to 12 in 2019. BKT, Credits, and Raiffeisen held the highest share of deposits in December 2020, with 26.8 percent, 17.4 percent, and 16.6 percent, respectively (Banks, 2009-2020). In addition, these three banks hold the highest assets in the banking sector in 2020, with BKT accounting for 27.87%, Credins for 16.3%, and Raiffeisen for 15.7%. Deposits fund about 82.55 percent of all banking assets. There are 10,102,693 Euro deposits compared to 12,237,647 Euro in total banking assets (Banks, 2009-2020).

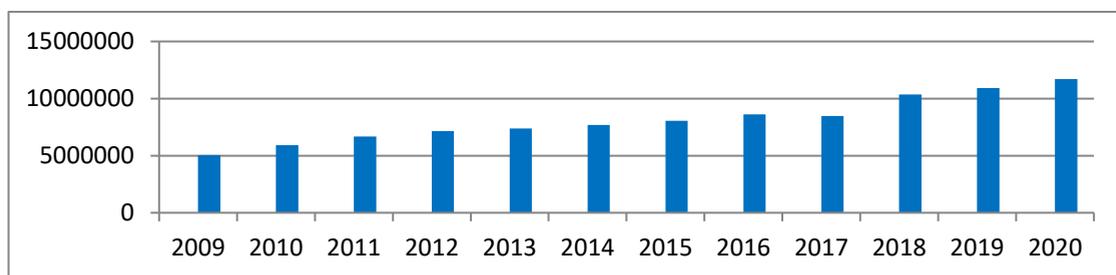


Figure 1. Total Deposit Level at Albanian Commercial Banks in the Period of 2009-2020 (in 000/Euro)

Source: Albanian Association of Banks, Annual Reports 2009-2020

The research of selected commercial banks' financial statements reveals that total deposits have increased by 1.32 times over a period of twelve years, from 5,049,691,000 Euro in 2009 to 11,693,541,000 Euro in 2020. In 2020, the average growth rate of deposits was 6.98 percent greater than in 2019. In 2018, the highest deposit growth rate was recorded at 22.17 percent compared to 2017.

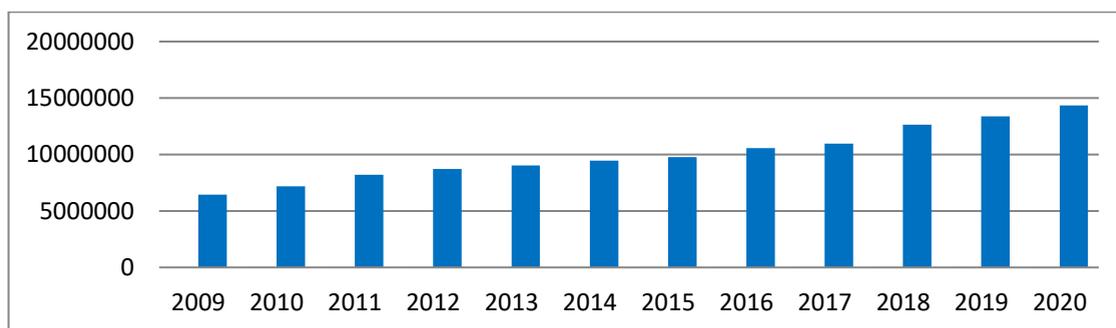


Figure 2. Total assets at Albanian commercial banks in the period of 2009-2020 (in 000/Euro)

Source: Albanian Association of Banks, Annual Reports 2009-2020

The research of selected commercial banks' financial statements reveals that their total assets have expanded by 1.22 times over twelve years, from 6,455,538 (000) Euro in 2009 to 14,338,691 (000) EUR in 2020. In 2020, the average growth rate of assets was seven percent greater than in 2019. The largest growth rate in assets was reported in 2018 at 15 percent, compared to 2017's rate of growth of 10 percent. 60.49 percent of total deposits are concentrated in three banks: BKT, Credins, and Raiffeisen bank, with 26.8 percent, 17.44 percent, and 16.25 percent, respectively.

Let's introduce the identical facts and figures from the year 2020 when a global health crisis triggered by the COVID-19 pandemic compelled all governments to take distinct economic measures. After the Albanian government declared a natural disaster, the Bank of Albania cut its main interest rate from 1 percent to 0.5 percent. Due to sluggish demand for goods and a drop in foreign prices, the inflation rate for the year 2020 was calculated to be 1.6%. The employment rate decreased by 1.2%, while the unemployment rate jumped to 11.6%.

The economic crisis did not affect the banking sector as the primary economic financiers. Following low-interest rates and liquidity in the banking sector, the loan portfolio grew by an average of 6.8 percent in 2020. In 2020, the GDP growth rate was -3.5 percent, and the average annual inflation rate was 1.6 percent. The average interest rate on business loans was 5.4% in 2020, down from 6% in 2019. The average interest rate on loans to households was 6.4%. In 2020, the average annual growth rate for deposits in the banking system was approximately 6.7%. During the year, the average yearly increase in foreign currency deposits was 6.1%. ([Report, 2020](#)).

1.2 Theories of Saving (deposit)

1.2.1 The Classical Theory of Interest

The classical theory of interest is also known as the saving investment theory. The same economists (Alfred Marshall, David Ricardo, and Johan Gustaf Knut Wicksell) who provided the foundation for John Maynard Keynes' theory also formulated this idea ([Carvalho & Carvalho, 2019](#)). According to them, capital demand would decrease if the interest rate increases, and vice versa. In addition, the interest rate affects the supply of capital or savings. Consequently, the interest rate is controlled by the intersection of money demand and money supply. Consequently, according to the traditional theory, the interest rate positively influences the decision to save money.

1.2.2 Neo-Classical Growth Theory

Through their studies, [Mundell \(1963\)](#) and [Tobin \(1965\)](#) explained the potential impact of inflation on a nation's economic growth. Their research resulted in the neoclassical growth hypothesis. They reasoned that a rise in inflation would lead to a rise in the nominal interest rate. In this situation, investing is better for consumption. Therefore, these writers conclude that inflation and savings have a positive relationship. If there is deflation, it is preferable to spend money rather than save it. [Sattarov \(2011\)](#). Money is

maintained to satisfy a cash-in-advance limitation on consumer purchases, according to [Stockman \(1981\)](#). His theory contradicts the previous studies' findings. Thus, inflation will reduce investment. The subject of [Gomme \(1996\)](#) investigation was examining the neoclassical growth model.

1.2.3 Savings and Economic Growth Theory

Keynes's 1936 theory claims that aggregate demand (the sum of spending by families, firms, and the government) is the most significant determinant in the development of the economy. According to [J. M Keynes \(1936\)](#), individuals should cut their savings and increase their spending to enhance employment and economic growth.

[Miszta \(2011\)](#) demonstrated a unidirectional, positive causal relationship between economic growth and savings in emerging and developing economies.

1.2.4 Life-Cycle Theory

This hypothesis describes the spending and saving behavior of individuals throughout their lives. The research of [Ando and Modigliani \(1963\)](#) indicates the presence of an individual's consuming life cycle. The life-cycle hypothesis is a theory used to evaluate individuals' retirement savings and behavior after retirement. This theory is predicated on the notion that consumption requirements and income are often unequal between younger and older individuals. This hypothesis posits that younger individuals are borrowers and that, throughout the middle years, individuals save more to repay loans and prepare more for retirement when their income is greatly reduced. Population expansion will increase the number of individuals in their middle years, leading to a rise in savings.

There are numerous studies on the determinants of bank deposits ([Larbi-Siaw & Lawer, 2015](#); [Pradhan, Shyam, & Paneru, 2017](#); [Thao, 2021](#); [Yakubu & Abokor, 2020](#)); however, there are fewer studies on Albanian banks with diverse empirical data.

2. RESEARCH OBJECTIVE

This study aims to achieve the following objective:

1. Examine the bank-specific variables that influence the level of deposits in Albanian banks. For this objective, bank-specific indicators, such as capital adequacy ratio and performance (ROA), are considered.
2. Examine the impact of macroeconomic factors, such as remittances, the GDP growth rate, and population increase, on the number of bank deposits.

2.1 Significance of the Study

This study's primary contribution is evidence of the bank deposit determinants (specific and macro factors) in Albania, a developing nation. Fewer capital structure studies are conducted in developing nations than in industrialized nations such as the United States

and Europe (Cohen & Kaufman, 1965; Yakubu & Abokor, 2020). Morina and Osmani (2019) focused on the countries in the Western Balkans, whereas Turhani and Hoda (2016) concentrated on Albania.

This research can benefit banks, policymakers, and researchers on the same subject in the following ways:

1. Informing the banks of the factors that increase their deposit.
2. Informing the policymakers on the macro factors that increase deposits.
3. Raising the knowledge by determining the relationship between bank deposits and several factors for researchers.

Organization of the paper

This paper aims to define the determinants of bank deposits in Albania for 2009-2020 using panel data regression. The paper is as follows. Section 2 is introduced a literature review of other authors. Section 3 presents the methodology, the following sections are results, and conclusions, and the last is recommendations.

3. LITERATURE REVIEW

Various academics have examined the relationship between deposit amounts and banking parameters. They have considered particular characteristics, macro factors, and demographic factors that affect bank deposits. Below is a brief literature overview of authors that have analyzed the primary factors influencing deposit levels in various nations. Using panel data regression, Ferrouhi (2017) discovered that deposits of Moroccan banks during 2003-2014 are positively connected with bank size, internal and external funding, deposit interest rate, and unemployment rate. Larbi-Siaw and Lawer (2015) studied the effects of variables (interest rate, inflation, monetary policy rate, and growth of money supply and stock prices) on bank deposits in Ghana from 2000 to 2013. The quarterly data analysis revealed inflation to be negative and statistically significant in explaining bank deposit levels.

Additionally, deposit interest rates and monetary policy interest rates have a positive but negligible link with bank deposits in Ghana. The article by Eriemo (2014) investigates the macroeconomic determinants of bank deposits in Nigeria from 1980 to 2010. It attempts to assess the impact of various macroeconomic indicators on bank deposits. The ordinary least square technique revealed that bank investment, bank branches, interest rate, and price level are major predictors of bank deposits in Nigeria. The interest rate coefficients and past price levels resulted in substantial and favorable changes, illustrating their powerful influence on bank deposits. Considering the diversity of variables explored by previous studies and the assumptions met by the selected model, this study focuses on the same variables proposed.

Influence of bank profitability on deposits: [Thao \(2021\)](#) research examines the macroeconomic and bank-specific factors influencing bank deposits of 40 Vietnamese banks from 2006 to 2019. The bank-specific criteria were capital adequacy ratio, profitability, nonperforming loans, liquidity, and listing. In addition, GDP and inflation were incorporated into the analysis. According to their article, bank deposits are significantly affected by bank size, bad loans, profitability, GDP, and inflation. Profitability (ROA) significantly increased bank deposits in Vietnam. [Ünvan and Yakubu \(2020\)](#) used a random effect to examine the variables of bank deposits in Ghana from 2008 to 2017. According to the findings, profitability (ROA), bank size, and liquidity are key drivers of bank deposits.

Additionally, inflation had a considerable negative influence on bank balances. The study by [Haddaweaa and Flayyihb \(2020\)](#) focused on Jordanian banks from 2012 to 2016. The study indicated a substantial positive correlation between deposits and performance measures (ROA and ROE). During 2008-2013, [Pradhan et al. \(2017\)](#) analyzed the macroeconomic factors of bank deposits at 18 Nepalese commercial banks. The dependent variables are fixed deposit and savings deposit, while the independent variables are GDP growth rate, inflation, number of branches, and ROA. GDP, inflation, and ROA all have negative but statistically negligible beta coefficients. The results imply that the bank fixed deposit would lower the ROA.

Influence of bank capital adequacy on deposits: The study by [Thao \(2021\)](#) in Vietnam includes the capital adequacy ratio as a bank-specific variable to be analyzed and its impact on deposits. He discovered a correlation between adequate capitalization and deposits using the ratio of equity to assets. [Ünvan and Yakubu \(2020\)](#) discovered that banks' capital sufficiency is adversely correlated with deposits and is a major determinant of deposit levels.

Influence of remittances on deposits: [J. M. Keynes \(1929\)](#) was one of the first researchers to initiate the transfer problem discussion on remittances. Research on remittances demonstrates that remittances can affect national economic well-being, especially their implications on national savings ([Gani, 2016](#)). [Gani \(2016\)](#) investigated how remittances affect private national savings. The sample comprised nine Asian economies under development. Using annual cross-country data from 2002-2011 and fixed-effect and random-effect models, this study indicated that remittance inflows positively and statistically significantly impact private national savings. The research of [Ashraf, Aycinena, Martínez A., and Yang \(2015\)](#) demonstrates a correlation between household savings and remittances. According to [Esteves and Khoudour-CastÉras \(2011\)](#), remittances boost financial institutions in underdeveloped nations by increasing demand for deposit and savings accounts. They discovered evidence that deposits and remittances are positively correlated. [Saca and Caceres \(2006\)](#) have analyzed El Salvador's remittance transmission mechanism for the 1990s. Their research indicates that an increase in remittances reduces domestic savings. [Yentürk \(1999\)](#) found that increased capital inflows harmed domestic savings.

Influence of GDP growth rate on deposits: According to a study by Phuong Thao and Thanh in 2021, Vietnam's GDP has a favorable and considerable effect on bank deposits. [Tenaw \(2020\)](#) research indicates that real GDP growth has a positive and statistically significant effect on deposit growth. He investigated the macroeconomic and bank-specific factors influencing the increase of deposits in Ethiopian private commercial banks. [Yakubu and Abokor \(2020\)](#) utilized quarterly data for the Turkish banking system from 2000 to 2016 to demonstrate the relationship between bank deposits and six explanatory variables, including bank stability, bank efficiency, branch expansion, broad money supply, GDP growth, and inflation. The analysis revealed that the GDP growth rate coefficient resulted in negative and statistically significant growth and that the inflation rate coefficient had a direct and statistically significant impact on bank deposit growth. Using panel data regression methods, [Islam et al. \(2019\)](#) studied the impact of firm-specific and macroeconomic variables on deposits in Bangladesh. The GDP growth rate had no substantial effect on the growth rate of bank deposits. [Pradhan and Paneru \(2017\)](#) examined the determinants of bank deposits in 18 commercial banks listed on the Nepal Stock Exchange (NEPSE) from 2008 to 2013. They discovered a substantial negative correlation between GDP growth rate and bank fixed deposits. According to the findings of [Turhani and Hoda \(2016\)](#), the interest rates on foreign currency deposits and the GDP growth rate were positive and important in influencing bank deposits in Albania from 2005 to 2014.

On the other hand, the interest rate has a negative and substantial effect on the volume of domestic currency deposits. The research of [Garo \(2015\)](#) analyzed the factors of deposits and commercial banks in Ethiopia from (2001/2-2012/13). According to the study, economic growth, as assessed by the real per capita GDP growth rate, had a negligible beneficial influence on deposit mobilization.

Influence of population growth on deposits: The research conducted by [Bayiley and Belay \(2022\)](#) examined the short- and long-term effects of economic growth, interest rates, population growth, and branch expansion on deposit growth. The sample consists of Ethiopian commercial banks from 1974/75 to 2013/14. The predicted results from the VECM model revealed that population increase and economic growth had a positive association with deposit growth, but only in the long term were the results statistically significant. [Legass et al. \(2021\)](#) evaluated the primary factors of deposit growth in commercial banks in Ethiopia from 2010-2019 and discovered that population growth had a statistically significant negative impact on deposit growth. [Tenaw \(2020\)](#) discovered that population expansion has a statistically significant and favorable effect on deposits. [Hailemariam \(2017\)](#) observed that population increase has a negligible effect on the growth of bank deposits. The study suggests that economic growth stimulation is the most influential factor in bank deposit growth. According to [Teshome \(2017\)](#), population increase had a negligible negative effect on the growth of bank deposits.

4. METHODOLOGY

Data and source: The data utilized in this study come from official sources, such as the economic statistics provided by the Central Bank, the yearly reports produced by the Albanian Association of Banks, and the macro data compiled by the Statistical Centers of Albania. Utilizing an econometric time-series model, altitude is computed. Tests indicate that the variables do not interact with one another. The model is derived using an estimate of Ordinary Least Squares (Alebachew. H, 2021). GRETl statistics package is utilized, and the research population consists of six banks (Alpha Bank, BKT Bank, Credits Bank, Intesa San Paolo Bank, Raiffeisen Bank, and Tirana Bank) that have operated in Albania for the past twelve years (2009-2020). Except for Credins bank, which was founded 18 years ago, the other banks in the Albanian financial system have more than 24 years of history. The primary criterion for selecting the sample was the average total asset worth during the study period. The banks with an average total asset value of less than 550,000,000 Euro were removed since the regression findings did not meet the OLS regression method testing criteria. Variables' descriptive statistics are shown below.

Table 1: Descriptive Statistics of the Variables

Variable	Mean	Median	S.D.	Min	Max
LNDEP	13.7	13.6	0.602	12.7	14.8
CAP	0.117	0.117	0.0306	0.0706	0.186
ROA	0.00626	0.00791	0.0121	-0.0407	0.0219
LNREM	21.1	21.1	0.0877	21.0	21.3
GDPG	0.0240	0.0295	0.0204	-0.0350	0.0420
POPG	-0.000545	-0.00200	0.00961	-0.00987	0.0331

Source: Author's computation

The table 1 above provides descriptive statistics for all variables considered over the 2009-2020 research period. During the study period, the average capital adequacy rate was 11.7%, with a standard deviation of 3.06%, and the average ROA rate was 0.626 %, with a standard deviation of 1.21 %. GDP growth averages 2.4% and a standard deviation of 2.03% if we only consider macro statistics. In the case of Albania, the increase in the nation's gross domestic product (GDP) is below what was anticipated and budgeted. The population growth rate was -0.0545 percent, with a standard deviation of -2.04 percent.

The hypothesis tested: In this research, internal and external factors affecting bank deposits will be tested. The hypotheses are as follows:

H 1-Capital adequacy ratios have a significant positive effect on deposits.

It is measured as the ratio of capital to total assets. According to [Phuong Thao and Thanh \(2021\)](#) and [Unvan and Yakubu \(2020\)](#), one of the measures of capital adequacy in banks

is the ratio of equity to total assets. If this ratio is high, the bank has capital on reserve to manage a possible amount of loss in the future. In this case, clients will be more confident in giving their money to the bank.

H 2: Bank performance has a significant positive effect on deposits.

Performance (ROA) is measured by the ratio of net income to total assets (Unvan & Yakubu, 2020; Pradhan & Paneru, 2017; Athanasoglou, 2006). So if this ratio is high, it shows that the bank can increase its income, which will positively affect the level of deposits.

H 3: Remittances have a significant positive effect on deposits.

The hypothesis is that an increase in remittances received by the population from outside the country can positively affect banks' deposits, as verified by the study by Gani (2016).

H 4: GDP growth rate has a significant positive effect on deposits.

Pradhan and Paneru (2017) and Turhani and Hoda (2016) used GDP growth rate as a proxy for economic growth. Pradhan and Paneru (2017) found a negative relationship between this variable and saving deposits. The negative relation demonstrates that an increase in the gross domestic product over the years decreases bank deposits. Turhani and Hoda (2016) study found a positive relationship between the variables.

H5: Population growth has a significant positive effect on deposits.

Legass et al. (2021), Hailemariam (2017), Teshome (2017) and Bayiley and Belay (2022) used the annual population growth rate of the country to test its influence on deposits. An increase in population led to an increase in the labor force, that is, potential individuals who would save their money. This study expects a positive relationship between population growth and bank deposits.

Study model: The regression function between deposits and other factors is as follows:

$$\text{LN (DEP)}_{i,t} = \beta_0 + \beta_1 * \text{CAPI}_{i,t} + \beta_2 * \text{ROAI}_{i,t} + \beta_3 * \text{LN (REM)}_{i,t} + \beta_4 * \text{GDP}_{i,t} + \beta_5 * \text{POPG}_{i,t} + \epsilon_{i,t}$$

As dependent variable is used as deposit level in Albanian banks, while ten explanatory variables are used: two bank-specific variables (capital ratio as equity to total assets CAP and banks' performance ROA); and two country economic variables (growth rate of gross domestic product GDP and remittances REM) and one demographic variable (population growth rate POPG).

Data Analysis: This study employs quantitative research using panel data and pooled OLS regression method to identify the significance of each variable.

Testing Assumptions of Classical Linear Regression Model

The same diagnostic tests are undertaken to ensure the model is valid. We have transformed the level of deposits and remittances to fulfil all the required tests. The results of the tests are below:

4.1 Test of Linearity

Linear functional form: The response variable y should be linearly related to the explanatory variables X . [Field \(2009, p.147\)](#) has mentioned that if the data are normally distributed, then the observed values (the dots on the chart) should fall exactly along the straight line. This means that the observed values are the same as the expected values from a normally distributed data set.

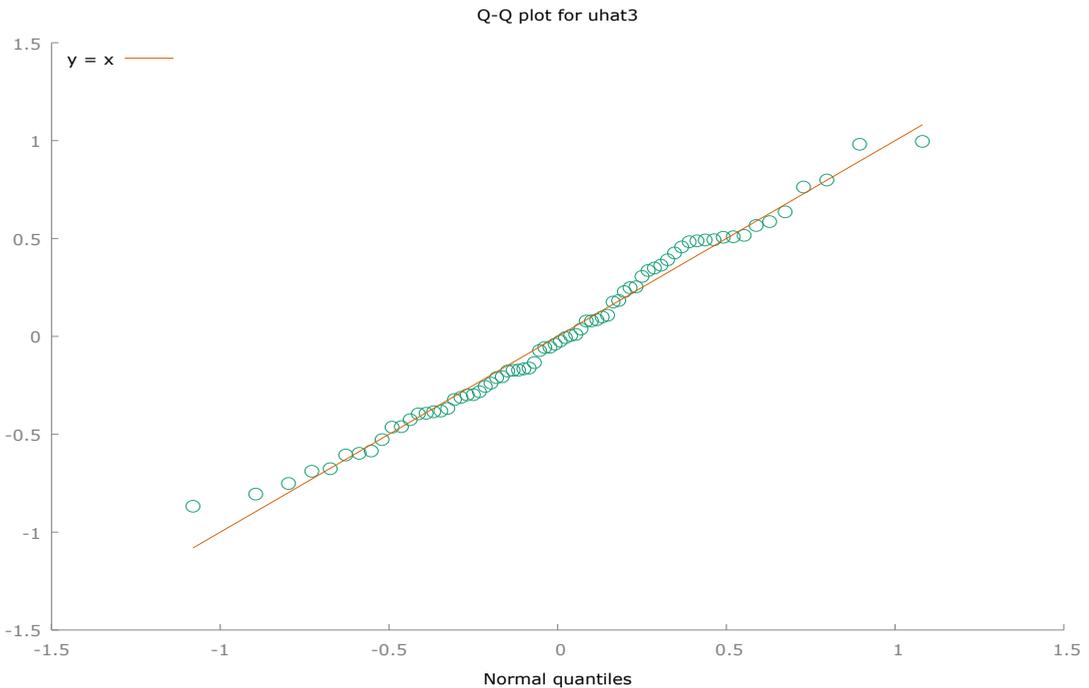


Figure 3: Graph for Linearity Test

Plotting the dependent variable against the explanatory variables shows that if the graph is symmetrically distributed along the 45-degree line, then the linearity assumption holds.

4.2 Test for Normality

If error terms are not normal, then the standard errors of OLS estimates won't be reliable. In linear regression analysis, this is tested with the Jarque-Bera normality test of residuals. The histogram should be bell-shaped, and the P-value should be greater than 0.05 ([Brooks, 2008](#)).

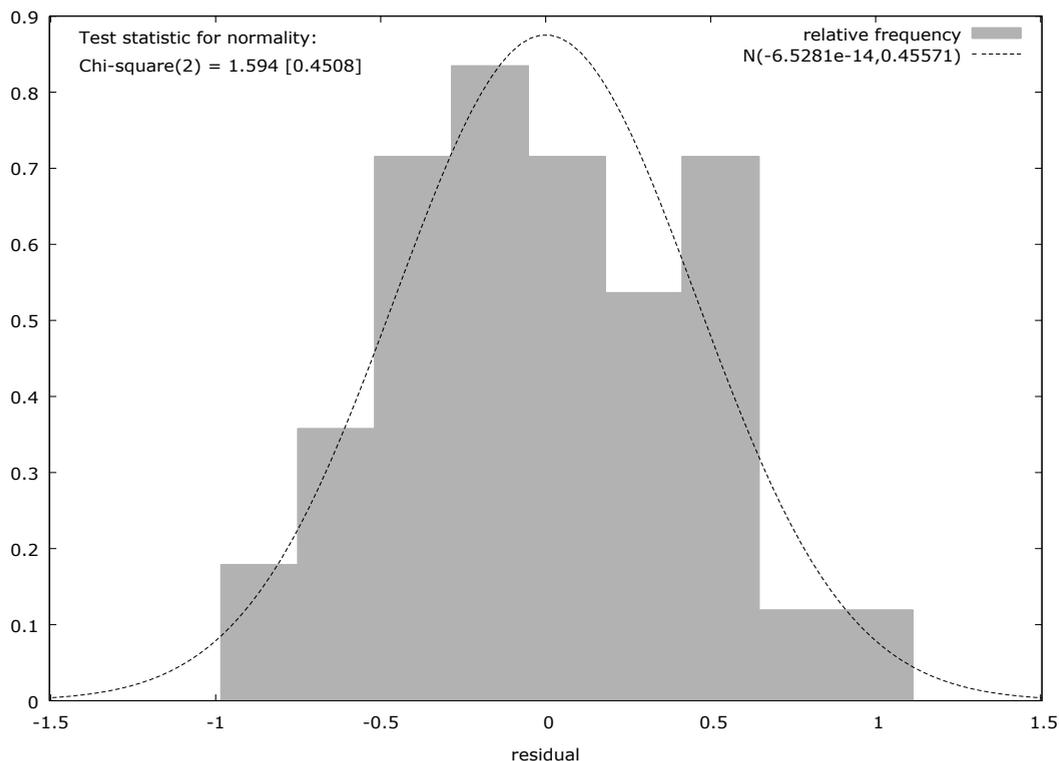


Figure 4: Graph for Normality

Test for null hypothesis of normal distribution: Chi-square (2) = 1.594 with p-value 0.4508.

Table 2: Jarque-Bera Test for Normality

Mean	-5.1317e-014
Median	-0.031704
Minimum	-0.86768
Maximum	0.99614
Standard deviation	0.43937
C.V.	8.5619e+012
Skewness	0.17595
Ex. kurtosis	-0.65026
Jarque-Bera test = 1.64003,	
p-value=0.440424	

Test for normality of residual: Jarque-Bera statistics resulted in 1.64 and has a P-value of 0.44, which is greater than 0.05, indicating that the residuals are normally distributed or near normality.

4.3 Multicollinearity Test

Multi-co-linearity may exist, according to Gujarati (2004), if the correlation between two variables is between 0.8 and -0.8. Identical variables were eliminated from the initial model because their coefficients were greater than 0.80. (Field, 2009, p. 224) VIF indicates if a predictor has a strong linear association with another predictor (s). Below are the test's findings for the existence of multi-collinearity among eight independent variables.

Table 3: Correlation Matrix Between Variables, Using the Observations 1:01-12:12, 5% Critical Value (two-tailed) = 0.2319 for n = 72

LNDEP	CAP	ROA	LNREM	GDPG	POPG	Variable	VIF
1.0000	-0.4516	0.4876	-0.1689	-0.1521	-0.0716	LNDEP	-
	1.0000	-0.4880	-0.2587	0.0062	-0.1540	CAP	1.335
		1.0000	0.3589	0.0044	0.1206	ROA	1.427
			1.0000	0.0848	0.4158	LNREM	1.381
				1.0000	0.0769	GDPG	1.011
					1.0000	POPG	1.220

Source: Author's Computation.

The correlation between the explanatory factors regarding the natural logarithm of deposits is displayed in the table above. LNDEP is adversely connected with CAP (45.16%) and LNREM (16.89%) and has a modest negative association with GDPG and POPG. LNDEP correlates positively with ROA (48.76 percent). In addition, the variance inflation factors of the employed variables are examined. The VIF for all independent variables was less than 10, and the problem of multicollinearity does not exist. If VIF values are less than 10, the variables in the multiple regression models are unrelated (Gujarati, 1995) ().

4.4 Test for Autocorrelation

The residual terms for any two observations should be uncorrelated (or independent). This occurrence is sometimes referred to as an absence of autocorrelation. Field (2009, p.220-221).

The Durbin-Watson test is utilized to examine autocorrelation. DW values vary between 0 to 4. (Milhoj, 2016). DW values between 0 and 2 exhibit positive autocorrelation, whereas values between 2 and 4 exhibits negative autocorrelation. Our DW test result was 2.05, within the permitted limit (1.5 to 2.5).

As a rule of thumb, test statistic values between 1.5 and 2.5 are considered normal for DW tests. Outside of this range, values may be cause for worry. Field (2009, p. 220-221) argues that values less than 1 or greater than 3 cause grave worry.

4.5 Test for Heteroscedasticity

White Test suggested by Brooks (2008) is used to test for Heteroscedasticity. If errors are heteroscedastic, the OLS assumption is violated, and then it will be difficult to trust the standard errors of the OLS estimates.

Table 4: Heteroscedasticity Test

Unadjusted R-squared = 0.257867 Test statistic: $TR^2 = 18.566413$, with p-value = $P(\text{Chi-square}(20) > 18.566413) = 0.550149$ There is no evidence of heteroscedasticity as its p-value is reasonably higher than 0.05.
--

4.6 Test for Model Specification: Ramsey RESET Tests

Ramsey RESET Tests show the model's goodness of fit to the population, considering the sample size and the number of independent variables used (Brooks, 2014).

Table 5: Ramsey Reset Test

Test statistic: $F = 2.809765$, with p-value = $P(F(2,64) > 2.80976) = 0.0677$
--

So it would be concluded that the model specification is linear and thus, does not reject null hypothesis H_0 , which states the model specification is correct.

5. REGRESSION RESULTS

After the diagnostic test (Normality, Multicollinearity, Autocorrelation, model specification test), there is no evidence of the violation. Employing panel data (cross-pooled sectional data), OLS regression (Gujarati, 2004) and using Gretl's (2012) statistical package, we obtained the following results:

The model's explanatory power is 0.4678 (R-squared is 0.4678), indicating that the model explains over 46.78 percent of fluctuations in bank deposits. The F-statistic of 11.6045 and the extremely low probability ratio imply that the whole model is highly significant and that independent variables cause variations in bank deposits. LNDEP has a negative and significant relationship with the capital adequacy ratio (Ünvan & Yakubu, 2020). Results indicate that ROA has a favorable and statistically significant relationship with LNDEP (Haddaweaa & Flayyihb, 2020; Thao, 2021). The relationship between the natural logarithm of remittances and LNDEP is negative and substantial (Hossain, 2014; Saca & Caceres, 2006). The GDP growth rate coefficient is negative but not statistically significant (Pradhan et al., 2017), whereas the population growth rate coefficient is positive but not statistically significant (Teshome, 2017).

Table 6: Summary of Tests Conducted for OLS Regression Assumptions

Test	Null Hypothesis	Result	Interpretation
Linear functional form	H0: The regression holds the linearity assumption	The X-Y graph is symmetrically distributed along the 45-degree line.	(H0 win)
Test for normality of residual-the histogram should be bell-shaped	H0: The residuals are normally distributed.	Test statistic: Chi-square(2) = 1.59357 with p-value = 0.450776	P-value of 0.44, which is greater than 0.05 (H0 win)
Jarque-Bera normality test of residuals		Jarque-Bera test = 1.64003, with p-value 0.440424	P-value of 0.44, which is greater than 0.05 (H0 win)
Test for Multi-co linearity	H0: Multicollinearity doesn't exist.	Correlation matrix and VIF<10	All VIF<10 (H0 win)
Autocorrelation Test	H0: No evidence of autocorrelation	Durbin-Watson test (2.05)	DW near the value 2 (H0 win)
White's test for heteroskedasticity	H0: Heteroskedasticity not present.	Test statistic: LM = 18.5664 with p-value=P(Chi-square(20) > 18.5664) = 0.550149	P-value of 0.55 which is greater than 0.05 (H0 win)
RESET test for specification	H0: Specification is adequate (the model is correct).	Test statistic: F(2, 64) = 2.80976 with p-value=P(F(2, 64)>2.80976) = 0.0676651	P-value of 0.067 which is greater than 0.05 (H0 win)

Table 7: Coefficients of the Variables of the Model (Pooled OLS, Using 72 Observations, Included 6 Cross-sectional Units, Time-series Length = 12, Dependent Variable: LNDEP)

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	74.5830	15.2825	4.880	<0.0001	***
CAP	-6.39207	2.04350	-3.128	0.0026	***
ROA	23.7863	5.32952	4.463	<0.0001	***
LNREM	-2.85537	0.724550	-3.941	0.0002	***
GDPG	-3.45972	2.66536	-1.298	0.1988	
POPG	0.165536	6.21856	0.02662	0.9788	
Mean dependent var	13.69870	SD dep. Var.	0.602297		
Sum squared resid	13.70641	SE of regression	0.455711		
R-squared	0.467839	Adjusted R-squared	0.427523		
F(5, 66)	11.60451	P-value(F)	4.62e-08		
rho	-0.135280	Durbin-Watson	2.050767		

Source: Author's computation.

Variables statistically representative: *** 10% level.

6. CONCLUSIONS

This study investigated the impact of bank-specific and macroeconomic factors on six Albanian banks' deposits. From 2019 onwards, the number of active banks in Albania will be reduced from 16 to 12 institutions. To implement the OLS estimation approach, the CLRM assumptions (normality, multicollinearity, autocorrelation, and heteroskedasticity) and model specification test (Ramsey Reset tests) were done.

The findings revealed that capital sufficiency, profitability, and remittances substantially impacted bank deposits. During the 2009-2020 study period in Albania, neither the GDP growth rate nor the population growth rate significantly impacted the bank deposits of the sample.

The impact of capital adequacy ratios on deposits is negative and significant. This suggests that banks with a greater capitalization ratio rely less on deposits for operations. Banks make no attempts to raise deposits. This result is similar to the findings of [Unvan and Yakubu \(2020\)](#), who reached an identical conclusion. In contrast, the study conducted by [Phuong Thao and Thanh in 2021](#) indicated a positive correlation between enough capital and deposits.

The correlation between ROA and deposits is positive and statistically significant, demonstrating that banks with larger profitability attract deposits. This conclusion is consistent with [Phuong Thao and Thanh's \(2021\)](#) and [Haddawee and Flayyih's \(2020\)](#) findings of a positive and statistically significant relationship between these two factors. The results, however, contradict the findings of [Unvan and Yakubu \(2020\)](#), who

discovered a negative and statistically significant relationship between ROA and deposits, and Pradhan and Paneru (2017), who identified a negative but not statistically significant relationship between ROA and deposits.

Deposits are negatively and significantly affected by remittances. This result contradicts the findings of Gani (2016), who discovered that remittances are positively and statistically significantly connected with savings. This result is similar to the findings of Hossain (2014) and Caceres and Saca (2006), who discovered that remittances have a substantial negative effect on domestic savings. According to Ahlburg (1991), remittances contribute little to savings and investment. This is primarily because remittances are utilized for consumption and spent on imported items.

This relationship between the GDP growth rate and deposits is not statistically significant. This study's findings were inconsistent with those of Phuong Thao and Thanh (2021), Tenaw (2020), Turhani and Hodo (2016), and Bayiley and Belay (2022), who found a positive and significant relationship between the variables, and Yakubu and Abokor (2020), who found a negative and significant relationship. In addition, this result is similar to the findings of Pradhan and Paneru (2017), who discovered a negative but insignificant correlation. In addition, Islam et al. (2019) found no correlation between GDP growth rate and deposits.

Population expansion has a positive but insignificant influence on deposits, indicating that it will increase savings. Teshome's research also revealed a non-significant correlation between population and deposit (2017). This study's findings are not comparable to those of Tenaw (2020), who discovered a positive and substantial relationship between population growth and deposits, and Legass et al. (2021), who discovered a significant negative relationship between population growth and deposits.

7. RECOMMENDATION

The data imply that effective policies that enhance capital sufficiency, profitability, and remittances are crucial for bank deposits. Based on the analysis conducted and the results obtained, the following recommendations are made:

Increasing the capital adequacy ratio decreased deposits. A bank with a high capital adequacy ratio is solvent, suggesting that the likelihood of insolvency is low. Banks do not utilize politics to recruit depositors in this situation because they have sufficient funds to cover withdrawals or investments. Private commercial banks must maintain a suitable profit margin to remain competitive and increase deposits. A commercial bank is an extremely public-facing institution. Thus it must be lucrative to attract deposits.

Remittances do not appear to promote utilizing financial services such as bank savings accounts. One possible explanation is that remittances are spent on consumption rather than saved or invested. However, fees for remittance services are an additional factor. Considering the high transfer fees, poor migrants avoid using banks for money transfers.

However, they prefer money transfer companies or sending funds through known individuals. Banks should cut remittance costs and strengthen the financial infrastructure to enable remittances to service this demographic.

Not many studies in Albania have examined the factors that influence bank deposit levels. Consequently, the literature can be expanded by this study. Additional research could consider additional microeconomic and macroeconomic elements influencing deposits or utilize quantitative and qualitative methodologies to discover additional results.

REFERENCES

- Albania, B. o. (2022). Retrieved from https://www.bankofalbania.org/Supervision/Licensed_institutions/Banks/
- Alebachew, H, A., A. (2021). The Determinants of deposit growth in case of commercial banks in Ethiopia. *Research Journal of Finance and Accounting*, 12(19), 16-28.
- Ando, A., & Modigliani, F. (1963). The "Life Cycle" Hypothesis of Saving: Aggregate Implications and Tests. *The American Economic Review*, 53(1), 55-84. Retrieved from <https://www.jstor.org/stable/1817129>
- Ashraf, N., Aycinena, D., Martínez A., C., & Yang, D. (2015). Savings in Transnational Households: A Field Experiment among Migrants from El Salvador. *The Review of Economics and Statistics*, 97(2), 332-351. doi:https://doi.org/10.1162/REST_a_00462
- Banks, A. A. o. (2009-2020). Annual Reports. Retrieved from <https://aab.al/wp-content/uploads/2022/02/Raporti-Vjetor-2020-EN.pdf>
- Banks., A. A. o. (2012). Historiku i Bankave në Shqipëri. Retrieved from <https://aab.al/wp-content/uploads/2018/02/historiku-i-bankave-ne-shqiperi.pdf>
- Boadi, E. K., Li, Y., & Lartey, V. C. (2015). Determinants of bank deposits in Ghana: does interest rate liberalization matters? *Modern economy*, 6(9), 990-1000. doi:<http://dx.doi.org/10.4236/me.2015.69094>
- Carvalho, A. C., & Carvalho, D. F. (2019). Keynes' Critique Of The Classical And Neoclassical Theories Of The Rate Of Interest. *Análise Econômica*, 37(72). doi:<https://doi.org/10.22456/2176-5456.73001>
- Cohen, B. C., & Kaufman, G. G. (1965). Factors Determining Bank Deposit Growth By State: An Empirical Analysis*. *The Journal of Finance*, 20(1), 59-70. doi:<https://doi.org/10.1111/j.1540-6261.1965.tb00184.x>
- Eriemo, N. O. (2014). Macroeconomic determinants of bank deposits in Nigeria. *Journal of Economic and Sustainable Development*, 5(10), 49-58. Retrieved from https://d1wqtxts1xzle7.cloudfront.net/34229347/Mass_Transportation_System_in_Nigeria-with-cover-page-v2.pdf?
- Esteves, R. U. I., & Khoudour-CastÉRAS, D. (2011). Remittances, capital flows and financial development during the mass migration period, 1870–1913. *European Review of Economic History*, 15(3), 443-474. doi:<https://doi.org/10.1017/S1361491611000037>

- FDIC. (2022). Commercial Bank Failures in the world. FDIC annual report. Retrieved from <https://www.fdic.gov/bank/historical/bank/>
- Ferrouhi, E. M. (2017). Determinants of bank deposits in Morocco. *Maghreb Review of Economics and Management*, 4(1), 23-26. . Retrieved from <https://mpru.ub.uni-muenchen.de/id/eprint/79075>
- Gani, A. (2016). Remittances and savings in Asia: Some empirical evidence based on the life-cycle model. *Journal of Finance and Economics*, 4(1), 24-38. doi:<http://dx.doi.org/10.12735/jfe.v4i1p24>
- Gomme, P. (1996). Anticipated Inflation in a Neoclassical Growth Model with a Cash-in-Advance Constraint. *Unpublished. Simon Fraser University*. Retrieved from <https://paulgomme.github.io/cia.pdf>
- Gujarati, N. D. (1995). *Basic Econometrics*, (3rd ed.). New York: McGraw-Hill Publishing Co Ltd.
- Haddaweaa, A. H., & Flayyihb, H. H. (2020). The relationship between bank deposits and profitability for commercial banks. *International Journal of Innovation, Creativity and Change*, 13(7), 226-234. . Retrieved from https://ijicc.net/images/vol_13/Iss_7/13737_Haddawee_2020_E_R.pdf
- Hossain, D. (2014). Differential Impacts of Foreign Capital and Remittance Inflows on Domestic Savings in Developing Countries: A Dynamic Heterogeneous Panel Analysis. *Economic Record*, 90(s1), 102-126. doi:<https://doi.org/10.1111/1475-4932.12114>
- Jaber, A. S., & Manasrah, M. S. (2017). The factors that affect to attract deposits in Palestinian Islamic banks. *Asian Journal of Finance & Accounting*, 9(1), 261-273. doi:<http://dx.doi.org/10.5296/ajfa.v9i1.11020>
- Keynes, J. M. (1929). The German Transfer Problem. *The Economic Journal*, 39(153), 1-7. doi:<https://doi.org/10.2307/2224211>
- Keynes, J. M. (1936). *The general theory of employment, interest and money*. Macmillan Cambridge University Press, Cambridge.
- Larbi-Siaw, O., & Lawer, P. A. (2015). Determinants of bank deposits in Ghana: A cointegration approach. *Asian Journal of Economics and Empirical Research*, 2(1), 1-7. Retrieved from <https://ideas.repec.org/a/aoj/ajeaer/v2y2015i1p1-7id194.html>
- Misztal, P. (2011). The Relationship between Savings and Economic Growth in Countries with Different Level of Economic Development (Wspólzależności między oszczędnościami i wzrostem gospodarczym w krajach o różnym poziomie rozwoju gospodarczego). *Finansowy Kwartalnik Internetowy e-Finanse*, 7(2), 17-29. Retrieved from <http://cejsh.icm.edu.pl/cejsh/element/bwmeta1.element.0eb75c01-cd41-3c1d-8702-7895c731db8d>
- Morina, F., & Osmani, R. (2019). The impact of macroeconomic factors on the level of deposits in the banking sector, an empirical analysis in the Western Balkan countries. *Financial Review.*, 3(2), 180-189. Retrieved from <https://www.um.edu.mt/library/oar/handle/123456789/44839>

- Mundell, R. A. (1963). Capital Mobility and Stabilization Policy Under Fixed and Flexible Exchange Rates. *Canadian Journal of Economics and Political Science*, 29(4), 475-485. doi:<https://doi.org/10.2307/139336>
- Namazi, M., & Salehi, M. (2010). The Role of Inflation in Financial Repression: Evidence of Iran. *World Applied Sciences Journal*, 11(6), 653-661. Retrieved from <https://www.researchgate.net/profile/Mohammad-Namazi-3/publication/279885924>
- Pradhan, P., Shyam, R., & Paneru, D. (2017). Macroeconomic determinants of bank deposit of Nepalese commercial banks. *Radhe Shyam and Paneru, Dipika, Macroeconomic Determinants of Bank Deposit of Nepalese Commercial Banks (September 27, 2017)*. doi:<https://dx.doi.org/10.2139/ssrn.3044098>
- Report, B. o. A. A. (2020). Retrieved from https://www.bankofalbania.org/Publications/Periodic/Annual_Report/Annual_Report_2020.html
- Saca, N. N., & Caceres, L. R. (2006). What do remittances do? Analyzing the private remittance transmission mechanism in El Salvador. Retrieved from <https://www.imf.org/external/pubs/ft/wp/2006/wp06250.pdf>
- Sattarov, K. (2011). Inflation and Economic Growth. Analyzing the Threshold Level of Inflation.: Case Study of Finland, 1980-2010. In.
- Saunders, A. C., M.M. (2011). Financial markets and institutions, (5th ed.). Chapter 11, Commercial Banks: Industry Overview. McGraw-Hill Education, New York, NY.
- Sheqeri, S. (2003). Tronditjet e sistemit bankar shqiptar dhe politikat e Bankës sëShqipërisë. *Banka e Shqipërisë, Material Diskutimi(2)*, 13. Retrieved from https://www.bankofalbania.org/rc/doc/Tronditjet_e_sistemit_bankar_shqiptar_dhe_politikat_e_Bankes_se_Shqiperise_1783_1_6312.pdf
- Stockman, A. C. (1981). Anticipated inflation and the capital stock in a cash in-advance economy. *Journal of Monetary Economics*, 8(3), 387-393. doi:[https://doi.org/10.1016/0304-3932\(81\)90018-0](https://doi.org/10.1016/0304-3932(81)90018-0)
- Tenaw, M. S. (2020). *Determinants Of Deposit Growth: An Empirical Study On Ethiopian Private Commercial Banks*.
- Teshome, F. (2017). Determinants of Commercial Banks Deposit in Ethiopia. *Degree of Master Thesis, Addis Ababa University*. Retrieved from <https://scholar.archive.org/work/g243shi4bra7plqfnnwmzxs67i/access/wayback/https://nadre.ethernet.edu.et/record/7476/files/FissehaTeshome.pdf>
- Thao, V. T. P. (2021). An Empirical Analysis of Macroeconomic and Bank-Specific Factors Affecting Bank Deposits in Vietnam. *International Journal of Financial Research*, 12(2), 172-183. doi:<https://doi.org/10.5430/ijfr.v12n2p172>
- Tobin, J. (1965). Money and Economic Growth. *Econometrica*, 33(4), 671-684. doi:<https://doi.org/10.2307/1910352>
- Turhani, A., & Hoda, H. (2016). The Determinative Factors of Deposits Behavior in Banking System in Albania (Jan 2005 – Dec 2014). *Academic Journal of*

Interdisciplinary Studies, 5(2), 246.
doi:<http://dx.doi.org/10.5901/ajis.2016.v5n2p246>

Ünvan, Y. A., & Yakubu, I. N. (2020). Do bank-specific factors drive bank deposits in Ghana? *Journal of Computational and Applied Mathematics*, 376, 112827.
doi:<https://doi.org/10.1016/j.cam.2020.112827>

Yakubu, I. N., & Abokor, A. H. (2020). Factors determining bank deposit growth in Turkey: an empirical analysis. *Rajagiri Management Journal*, 14(2), 121-132.
doi:<https://doi.org/10.1108/RAMJ-05-2020-0017>

Yentürk, N. (1999). Short term capital inflows and their impact on macroeconomic structure: Turkey in the 1990s. *The Developing Economies*, 37(1), 89-113.
Retrieved from
https://www.ide.go.jp/library/English/Publish/Periodicals/De/pdf/99_01_04.pdf