



Empirical Evidence on the Impact of the Banking Sector on the Sierra Leone Economy

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E32; E44; O47.

Abstract: *The study seeks to assess the impacts of the banking sector on the Sierra Leone economy. The Case study research design was adopted for this study. The Pooled OLS regression Model, Correlation Matrix, and Descriptive Statistics were employed in the study. E-Views was used to analyze the panel data using the Pooled OLS regression data, Descriptive statistics, and the Correlation Matrix. The Pooled OLS econometric result shows that Bank Liquid Reserves to Assets positively correlates with Gross Domestic Product with a coefficient value of 0.8425. It was further revealed that the relationship is highly significant (p-value of 0.0158 and a t-stat of 2.4560. Domestic credit to the Private Sector has a negative relationship with the Gross Domestic Product with a coefficient value of (-0.155367). This relationship was further revealed to be highly insignificant (p-value of 0.7533 and t-stats of -0.3152). The result also shows that Deposit Interest Rates have a positive coefficient value of (2.1040), which is also highly significant (p-value of 0.0013 and t-stats of 3.3050). The study further revealed that the Gross Domestic Product (% of GDP) has a negative relationship with the GDP, with a coefficient value of (-0.2055). It further revealed that the result is highly insignificant (p-value of 0.1383 and t-stats of -1.4944). On the other hand, Interest rate spread has a negative relationship with the Gross Domestic Product with a coefficient value of (-3.0265). It was further revealed that the relationship is highly significant (p-value of 0.0000 and t-stats of -4.8611).*

Keywords: *Banking Sector; Economic Growth; Sierra Leone Economy.*

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Introduction

In recent years, the economies of both developed and under-developed countries have depended greatly upon efficient distribution and optimal utilization of resources, especially financial resources (Ngumi, 2015).

The financial sector as a whole plays a vital role in the economic development of a nation. The financial system comprises a set of sub-systems of financial institutions, financial markets, financial instruments, and services that help form capital.

Commercial Banks as financial intermediaries play a significant role in the financial intermediation. Specifically, the excess funds of depositors (the surplus units) are issued as loans to the economic agents who need funds (the deficit units). This process helps the savings deficit units increase their wealth capacity through investment. The process of securing such funds through means of collaterals helps in the effective management of risks of (future) capital flow in an economy (Daboh et al., 2022). Banks, as financial intermediaries, play a vital role in the economic life of a nation (Dincera et al., 2011). That is, by mobilizing, pooling, and channeling domestic savings into productive resources and thus contributing to the economic development of a nation.

Commercial Banks play a crucial role in modern society's financial and economic activities. They serve as an intermediary between the surplus units and the deficit unit; by accepting deposits from the surplus unit and giving out loans to the deficit unit (Annor & Obeng, 2018), and bridging the gap between the two units through the transformation methods. One of the main activities in the banking industry worldwide, especially in Sierra Leone, is the creation of credit to well-deserved and qualified deficit units in the economy. Credit creation by banks serves as the primary source of revenues generated by the banks and helps enhance economic growth. One of the main functions of commercial banks is to facilitate the operational lending of funds as much as possible to increase investment in the economy (Siddik et al., 2016) because the economic development of a nation greatly depends on an increase in the rate of investment.

Recent trends in technology, financial innovations, and globalization are posing new challenges and creating opportunities for market participants within the Sierra Leone financial sector, especially after the war. To the present extent, advances in technology and telecommunications are expanding the frontiers of electronic banking and market-based monetary services in Sierra Leone. Commercial banks mobilize and channel the nation's domestic resources from the saving units to those who need financial resources; they also increase or reduce the amount of money available in the economy through their intermediation role. The banking industry is also seen as a channel through which the central bank typically performs its principal function, output and price stability, aiming to stabilize the economy and enhance economic growth and development in a country.

Mobilizing financial resources in the financial market is critical in enhancing economic growth and development in a country, especially for developing countries (World Bank, 1997); the study stress on the contribution of the banking sector to financial integration processes in developing countries.

Samitas & Kenourigios (2007) stated that the banking industry's financial services are vital for a nation's economic growth and development, especially where bank debt and equity, investment, insurance, and savings enable people to save money and safeguard them against potential financial losses.

Economic Growth in Sierra Leone

Economic growth refers only to the quantity of goods and services produced (Encyclopedia Britannica, 2008). According to this encyclopedia, Economic growth in a country can fluctuate with either positive growth, which indicates the economic living standard, or negative economic growth, which indicates that a particular country's economy is shrinking, which usually gives rise to a recessionary period. Duramany-Lakkoh et al. (2022) noted that the development of the banking sector is an essential driver of economic growth in a country.

The real GDP of Sierra Leone's economy was continuously falling from the beginning of the 1980s to the beginning of the 2000s, which made the nation's economy to become depressed, despite the rich natural resources that the country was endowed with, such as diamonds, bauxite, and gold. Like other countries' sectors, Sierra Leone's financial sector was hard hit by the rebel war, which damaged the country's financial system, especially the urban base. The central role of the financial system was intermediation which was restricted to primarily urban elites, with investment and trade receiving limited support via the provision of basic facilities such as foreign exchange and letters of credit. On the other hand, since the war ended in Sierra Leone, the level of formal savings has significantly increased due to competition in the banking sectors to mobilize savings, expand bank branches, and improve financial literacy campings in the country's sector.

During the Ebola Virus in 2014 and 2015, the Sierra Leone economy experienced a shock, which slowed down major economic activities and caused a drastic fall in the prices of international commodities, including agricultural products. (Report on the 2019 and 2020 Real Gross Domestic Product (RGDP) Figures at 2006 Prices, Statistics Sierra Leone National Account Section, Statistics Sierra Leone).

However, after Sierra Leone's economy entered into a recession by recording a negative growth rate of 20.5 percent in 2015, the economy recovered sharply to a 6.3 percent growth rate in 2016. It slowed to 3.8 percent and 3.5 percent in 2017 and 2018, respectively. After the General Elections in 2018, the economy grew to 5.4 percent due to growth in agriculture and industrial activities. In 2019 the economy grew by 5.4 percent, showing a strong recovery from the 2018 election. (Report on the 2019 and 2020 Real Gross Domestic Product (RGDP) Figures at 2006 Prices, Statistics Sierra Leone National Account Section, Statistics Sierra Leone).

Fig 1.1 shows the GDP trend (Current US \$); we can see that GDP in Sierra Leone in US \$ has been experiencing a tremendous decrease. However, there has been an increase from 2005 to 5% from 3% in 2001. However, there was a further increase in 2008, 2012, and 2013 to 6%, 7%, and 8%. However, from 2014 to 2015, GDP fell to 1% and later increased at the end of 2016 to 8% and in 2019 to 9%.

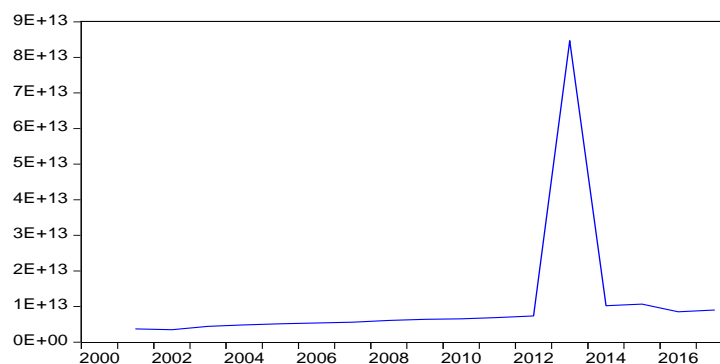


Fig. 1. Gross Domestic Product (current in US \$)

Source: World Development Indicators, 2023.

Asset Concentration in the Sierra Leone Banking Sector

Figure 2 gives a vivid description of asset concentration in the banking sector within the domestic economy. The composition of these assets includes both local and foreign banks, which comprises the total assets of all 14 commercial banks and the total assets as a percentage of the gross domestic product (GDP).

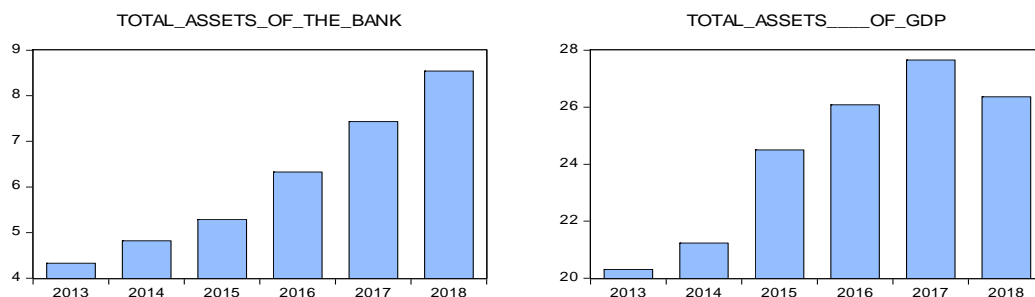


Fig. 2. Total Asset Concentration in the Banking Sector

Source: BSL, 2018.

The total asset of the banking sector has been increasing on yearly basis, while the total assets (% of GDP) has also been increasing especially in 2017 to 27.65% showing the impacts of the banking sector in the economic development of the Sierra Leone economy.

Problem Statement

Commercial banks play an imperative role in the economic development and growth of a country, especially in developing countries, through the intermediation role they perform by channeling the financial resources of a country from the surplus units to the deficit units. In performing their intermediation roles to contribute to the economic growth of a country, they are usually exposed to high which is commonly known as credit risk. Credit creation by banks serves as the critical component in enhancing growth and development in a particular country because the resources provided are usually used for investment purposes by both the government and the private sector.

The economy's growth reduces the magnitude of fixed costs, and many people participate. Therefore, the growth of the economy enables the establishment of promoting intermediaries of finance, while the establishment of intermediaries of finance hastens growth by increasing the allotment of capital.

According to (Azo, 2011), an increase in the economic growth rate will lead to a higher demand for a separate agreement. Hence, a well-developed financial institution will respond to these types of demands. The relationship between financial institutions and economic growth has been subject to considerable debate in the literature on development and growth. Therefore, there exists a gap that this research study will address, especially on how financial institutions (specifically commercial banks) impact the economic growth and development in Sierra Leone.

According to (Duramany-Lakkoh et al., 2022), commercial banks promote economic growth in a country by creating facilities or giving out loans to the public, which may impact the economy positively. However, due to the process of creating this facility, banks face high risks, which may lead them to fail in the long run. In Sierra Leone, there have been issues of bank failure, which has led to various studies assessing banks' performance in Sierra Leone. The novelty of this study is to determine the impacts of banks' performance on the economic development of Sierra Leone.

Aim and Objectives of the Study

The general aim of the study was to assess the impacts of the banking sector on the growth of the Sierra Leone economy.

The following specific objectives guided the study:

- To determine the effect of bank interest rate spread on the growth of the Sierra Leone economy;
- To assess the effects of bank liquid reserves to bank assets ratio on the growth of the Sierra Leone economy;
- To determine the impacts of domestic credit to the private sector by banks on the growth of the Sierra Leone economy;
- To determine the effect of bank deposit interest rates on the growth of the Sierra Leone economy;
- To establish the effect of gross domestic savings on the growth of the Sierra Leone economy.

Hypothesis of the Study

The study uses the Null Hypothesis, which states that the banking sector indicators do not have any significant effects on the economic growth of the Sierra Leone economy.

Literature Review

Theoretical Literature Review

This section reviews various theories on the subject matter and as well as helps in giving extensive knowledge on the role of banks in the economic development of a nation. The study reviews financial intermediation theory, Modern Economic Theory, financial deepening measure, economic growth, and The Imperfect Information Hypothesis Theory.

Financial Intermediation Theory

Financial intermediation is the process through which banks bridge the gap between the surplus and the deficit units through; the pooling of assets, risk transformation, and maturity transformation. The financial system comprises a subset of financial institutions, financial markets, financial instruments, and financial services. Financial institutions involve those institutions whose principal function is to perform the intermediation process, channeling resources from unit one (surplus) to another unit (deficit) in the economy for investment purposes. Financial markets, on the other, refer to the market where investors buy and sell securities and get access to finance for investment purposes.

The financial system consists of those who need funds for investment purposes, commonly referred to as the deficit units, and those who have excess funds, also known as the surplus units. Bondie et al. (2009) and Caporale et al. (2009) in their studies classified the activities of financial intermediaries into four broad categories; the first classes are those financial institutions whose liabilities are fixed in nature and do not relate to the portfolio performance; secondly, those institutions whose liabilities are short-term in nature than their assets, thirdly, those institutions whose proportion of their liabilities are in the form of a cheque and be withdrawn on demand, and finally, those financial institutions whose assets and liabilities cannot be transferable. Financial intermediaries play significant roles in the intermediation process.

The financial intermediation theories seek to address the issues with transaction cost and asymmetric information in the market, which intermediaries intend to resolve through the transformation mechanism. An increase in technological development, financial market deepening, and financial institutions' deregulations will help reduce transaction costs. In contrast, symmetric information in the financial market, on the other hand, will make the demand for intermediation more valuable and unusual, as borrowers and lenders can quickly locate themselves to transact business dealings. Evidence from this statement shows that the financial intermediation theory cannot fully explain the existence of financial institutions in the intermediation process.

(Greenwood & Jovanovich, 1990) posts that the services provided by financial intermediaries are classified as specialist products and services. Financial intermediaries exist as a result of market imperfections. Thus, the role of financial intermediaries will need to be more beneficial due to a perfect market or adequate information in the market. A perfect market is a process through which the surplus units and the deficits have adequate information in the market. With the perfect market, savers and borrowers can easily access themselves without incurring more costs than in the imperfect market. In order to better understand modern finance theory, three pillars were formulated such as; Optimality which refers to the ability of investors to get optimal returns on an investment venture, secondly, arbitrage which refers to the ability of commodity and asset prices to be the same in every aspect without price restrictions in the market, and finally, an equilibrium which refers to the adjustment of prices in the market due to the forces in demand and supply. According to the neo-classical theory of market perfection, the prices of the commodity can be determined by an individual party, lending conditions in the market are all equal to all parties involved, and finally, no barriers exist to enter the market.

During the late 1950s, Robinson (1952) conducted a study on the structure of the financial system and the economic development of a nation. His study revealed that an increase in the economic growth and development of a nation would make the financial system more liquid and rich in wealth and resources to help perform the intermediation role more effectively and efficiently. The size and nature of the financial system in a particular country dramatically depend on the forces of its surplus units and the deficit units. Financial intermediaries have significantly impacted a country's economic development, especially developing nations, through the channeling of funds from the surplus units to the deficit units for investment purposes. Levine (1997) Asserted that a well-structured and developed financial system can help enhance economic growth and development through the efficient allocation of financial resources and the optimal utilization of resources. On the other hand, financial intermediation can affect economic development and growth in a country through an increase in the saving rate by the surplus units and the fraction of funds channeled to the deficit units for investment and other lucrative purposes (Levine et al., 2000).

Modern Economic Theory

The modern economic theory was first propounded by (Solow, 1956) and later by Swan (1956). The modern economic theory can also be traced back to Adam Smith's work *An Inquiry into the Nature and Causes of Wealth of Nations*. Economic theory can be defined as tools and models used by economists in order to conduct research and study the economy to gain more insight into the phenomena that commonly occur frequently in the country and globally. Modern economic theory has helped discover the phenomena surrounding communities and the societies, such as unemployment, inflation, national income, the balance of payment, social and cultural norms, and values.

According to Kenourgios & Samitas (2007), economic theory is affected by two key factors. Firstly, individual behavior and decisions like habit formation, practice, and learning can influence emergent economic issues and past and future demands and expectations. Secondly, another factor affecting economic theory is the slow emergent variables such as one's attitude,

culture, and institutions that need better recognition and incorporation. (Patrick, 1996) posts that most economists believed that an increase in financial returns in the financial system could easily foster growth and development and develop an efficient structure in the system that can absorb financial shock during a crisis. However, it is believed that most economists need help comprehending the effect between an increase in emergent economic activities and a decrease in emergent economic activities.

According to (Pradesh, 2006), economic theories help economists with various sets of tools/models which they usually use to help solve rising phenomena that occur in our daily course of living and proffer solutions. He further argued that economists globally need to have enmity amongst themselves on the purpose and nature of modern economic theories. Therefore, this raises the question of whether economic theory should predict the future outcome of nature or lay assumptions about it. There has been an increase in the volume of economic theories, with each period addressing different emerging economic issues and problems. However, economic theory does not belong to any specific race, age, period, individual, or country. Thus, the ultimate goal of modern economic theories is to predict the present and future economic outcomes and their prevailing effects on the economic performance of the nation at large. For instance, a perfect theory invented must be able to predict a specific event's occurrence and solve specific economic issues and problems. For example, suppose the producer's objective is maximizing profit given specific demand, supply functions, and prices. In that case, this objective of the producer can be easily changed from profit maximization to lower profit through the implementation of the ad valorem tax. Thus an increase in ad valorem tax will increase production cost, and the result will be a severe reduction in the production of a particular commodity; this, in turn, can lower the producers' profit maximization objectives through the government's intervention in the economy. Economic theories can only sometimes be accurate and realistic. Therefore, economic theory aims to formulate a hypothesis that will serve as an essential element in addressing major economic issues that may arise. It is also argued that modern economic theory should formulate and ask questions to solve economic phenomena.

Measure of Economic Growth

Economic growth is defined as an increase in the production level and a corresponding increase in the gross domestic product of a particular country. The performance of a particular country is usually determined through the national income accounting calculation. A country's economic performance is of great concern to economists globally because economic policy is dependent on the country's performance in terms of growth and development. Assessing the economic growth of a country involves quantifying the average welfare of the economy and that of the social and economic changes. Economic growth further refers to an increase in the economic welfare of the nation and that of the corresponding changes in the structure of the economy in terms of; average income per head, consumption, the level of financial and non-financial literacy, demography, and as well as the health structure of the nation. Thus, in the long run, the cultural, social, and political norms change with the transformation of the sectors mentioned above. An increase in economic performance will lead to an increase in multidimensional economic activities.

There are various methods used in calculating and measuring economic growth by economists globally, including; the level and size of national income, gross domestic products of the nations, and the physical allocation of capital. Gross domestic product measures the production of all goods and services within geographical boundaries. The gross domestic product estimates are complex and subject to uncertainties; thus, it is difficult to measure them, especially for government economists (Aghion et al., 2005). From the highlighted problems, there arises the question, of all the economic data collected from the national accounts systems; the gross domestic product is the most suitable one used in measuring the nation's overall economic well-

being. This type of measurement method takes account of household consumption and the level of national income. It assesses if there are any discrepancies with other countries when conducting the cross-country comparison based on gross domestic product. The gross added value per head is being highlighted as another method of measuring a particular country's economic growth and sound economic performance (-ies). Even though this method has some criticism, it gives a broader view of the country's overall performance in terms of employment and production capacity.

Measure of Financial Deepening

Financial deepening refers to an aggregate increase in the supply of assets in the economy, specifically financial assets. A rise in the supply of financial assets in the economy will help to enhance growth and development. Therefore, it is of great importance to measure the financial assets in the economy on a broader range and scope, including the volume of money, which can be determined by the quantity supplied by the regulatory authority to ensure stability, maintain inflation rates, and as well as ensuring stability in prices and output. Measuring the financial assets, including the supply of money in the economy, first involves identifying, assessing, and evaluating the available financial assets and calculating them all together for a better understanding of how the various financial assets have helped in deepening the economy. (Greenwood & Jovanovich, 1990) posits that adding up all the financial assets, including money, falls under one category commonly referred to as financial deepening, which thus includes the growth of the per capita income in the country. The various classes of financial assets that are included in this study include; the liabilities of non-banking financial assets, government securities which include treasury bills and bonds, broad money supply, the values of shares in the market, and as well as the money market, and the capital market funds. Schumpeter (1911), in his study of growth, treated the growth output rates as a dependent monetary variable, including the growth rate of money and the level of financial intermediation in the system. Thus, summing up these financial assets is a broader range in measuring financial deepening in the entire economy.

Determinants of Financial Development

Financial development and economic growth are interchangeably used. Financial development refers to a sustained increase in the allocation of capital and other investment ventures, the management of financial risk, and the implementation of sound corporate governance principles to enhance growth and stability in the economy. While economic growth, on the other hand, refers to the monetary value of all goods and services produced in a country. Economic growth serves as a critical indicator of the economic development of a particular country or nation. The financial development of a nation can be affected by various sets of factors, and some of these factors are explained below;

Gross Domestic Product

The gross domestic product can be easily defined as the monetary value of all goods and services produced within the geographical boundaries of a country. It is also referred to as the market value of all the production of relative goods and services made within the country. GDP is one of the key measures used by economists in assessing the country's economic development level and the contribution of GDP to the financial sector development. Gross Domestic Product is used to measure the standard of living of the people of a particular country. Thus, an increase in the per capita of income per head denotes that the country is experiencing an increase in the gross domestic product, which also leads to an increase in economic growth and vice versa. Many scholars and highly professional economists have widely criticized the use of GDP to determine the economic growth of a country, and this has given rise to the implementation of an alternative method to measure the economic growth of a country due to the high number of

criticism on the GDP as a measure to determine the standard of living of the people in the economy. The gross domestic product of a country can be measured using three fundamental approaches, namely, the output method, the income method, and the expenditure method (Demetriades & Hussein, 1996). The results from the approaches mentioned above must be all the same. The production or output approach is one of the most common direct methods used to measure the total values of all goods and services produced within the geographical boundary of the country. The income approach denotes that the total production of goods in a country must be equal to the total average income received by the citizens or household incomes (Demetriades & Hussein, 1996). Finally, the expenditure approach establishes that the citizens must buy the productive factors. Therefore, the value of the total production output must equal the total expenditures incurred by the household or the citizens in a particular country.

Money supply (M2)

Money supply refers to the total volume of money circulating with the public at a point in time. M2 serves as a vital force in increasing financial development in a country. The term "money" has been defined in various ways; this study defined money as anything generally accepted as a medium of exchange, including cash, securities, convertible instruments, and cheque deposits. The central bank is the only leading institution with the power and the mandate to print issues and keep data on the total volume of money supplied in the economy or currency in circulation. Due to the supply of money affecting the economy, various economists, researchers, and scholars have studied the behavior of the supply of money in influencing other variables such as inflation, exchange rates, the balance of payment, and cyclical business fluctuation. M2 is a broader aspect of money than M1 and also represents close substitutes for money. Money supply (M2) has been used by most researchers, economists, and scholars when calculating the total volume of money in circulation and its effect on the economy at large. It is also a key indicator variable that monetary authority uses to explain the economic condition of the nations and to predict future economic outcomes of the country in terms of inflation (King & Levin, 1993).

The level of economic activities and the volume of savings greatly depend on the volume of money supply in the economy. For instance, if the central bank realizes that there is a high rate of inflation in the economy which is due to the increase in the volume of money in the economy, it will increase the interest rate, which in turn will reduce the supply of money in the economy, by so doing, the level of economic activities will fall as a result of an increment in the interest rates and the reduction in the supply of money. Thus, the problem of inflation can be easily controlled. However, the level of saving is greatly dependent on the money supply; an increase in the supply of M2 will encourage more savings as there is idler cash lying down. There are various forms undertaken in the financial system, including depositing idle cash with commercial banks and other depositary institutions for safekeeping, and savings might also be in the form of pension and provident funds. It is obvious that savings involve the reduction of potential expenditures and the reduction of risk; as a result, money is deposited in the bank and also invested in other forms of securities for safekeeping and the generation of additional income. Lucas (1988) noted that savings serve as an elemental force that drives growth and enhances financial stability in the economy. With savings, the intermediation role/functions will be more effective and efficient. Financial intermediaries greatly depend on the savings the economy's surplus unit makes to undertake their intermediation roles.

Advances to deposit ratio

Advances refer to the number of money given by financial institutions or banks for investment purposes or to meet day-to-day activities. These advances are generally granted to individual households, corporate, private, and public sectors for investment purposes or day-to-day affairs. Conversely, deposits refer to the amount of money or idle received from the various surplus

units in the economy by banks and other financial institutions either for safekeeping or investment purposes. The central role of financial intermediaries is to bridge the gap between the surplus and the deficit units by collecting excess cash from the savers and giving out loans to those needing money for investment purposes. An increase in the level of economic activities in the country will increase the volume of savings due to changes in the income level in terms of increment. Thus, this increment will also enable the banks to receive an increase in deposits. (Sutton & Jenkins, 2007) Posts that an increase in the level of savings from the public will enable the bank to give more loans and advances and thus add to the volume of money in circulation. This, in turn, will positively impact a particular country's economic development.

Empirical Literature Review

Aghion, et al., 2005 conducted a study on financial development and growth. The result from their study revealed that financial engagement helps to hedge against liquidity risk and also helps management in maintaining highly liquid assets with them in order to meet the demand for the savers and the borrowers. In their study, Bencivenga and Smith (1991) also indicate that banks as financial intermediaries bridge the gap between the surplus and the deficit units through maturity transformation. Their study shows that this can be effective with a highly liquid asset.

Research Methodology

The Causal research design was used, because it enabled the researchers to generalize the findings to a larger population which was all the commercial banks in Sierra Leone.

The target population of the study was the 14 commercial banks licensed and registered with the Bank of Sierra Leone, while specific attention was paid to the Bank of Sierra Leone.

The primary data was gathered through the help of a field survey to gather adequate information from the staffs of the selected Commercial Banks. This was done through the questionnaires that were administered to the respondents from the selected population at different level.

The Regression and Correlation Analysis was used in order to assess the impacts of banks performance on the Sierra Leone economy, while the descriptive statistics was used in order to test the normality of the data.

Data Analysis, Presentation and Interpretation

The gross domestic savings is total amount of savings made by individuals, corporate and government with the various commercial banks. Below is the graph of the total deposit funds within the banking sector.

Figure 3 shoes that there has been a significant negative decrease in the gross domestic savings in the country on a yearly basis with it recording the highest in 2013, and 2016 with -16.44% and -14.54% respectively. However, the country experiences its highest increase in the gross domestic savings in 2010 with 13.39%.

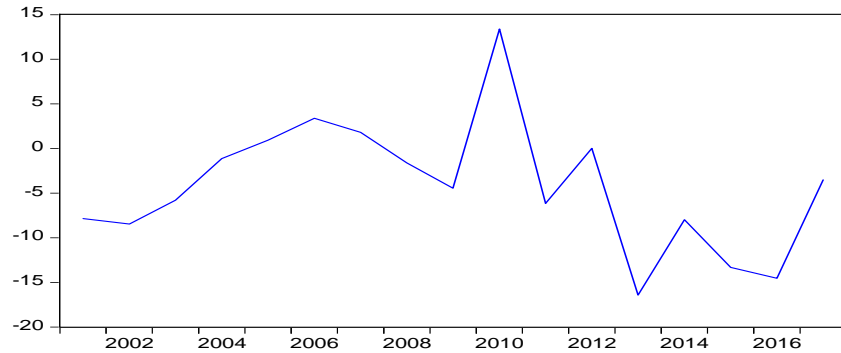


Fig. 3. GDS (% of GDP)

Source: BSL, 2023.

Interest rate spread

The bank interest rate spread refers to the difference between the interest rate a bank pays to the surplus unit and the interest charged by the bank for loans given out to their customers. The chart below presents the bank interest rate spread. The interest rate spread charged by the banks has been fluctuating at an increasing rate, with it recording the highest figures in 2001, 2007 and 2015 with 16.5%, 14.21% and 14.24% respectively. Indicating that banks are able to generate more revenue and hence ensure their sustainability in the market (Figure 4).

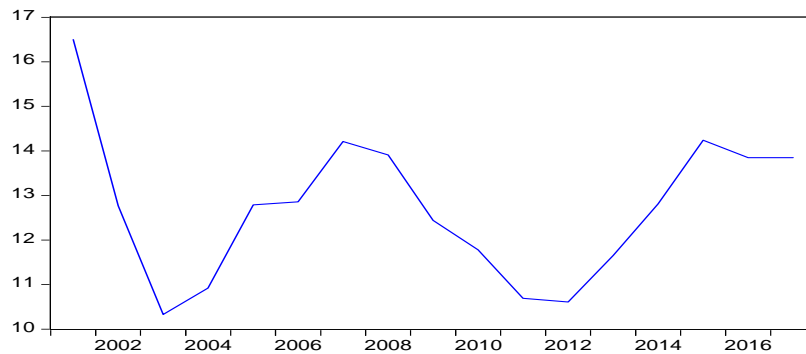


Fig. 4. IRS (Interest on Loan – Interest on Deposit)

Source: BSL, 2023.

Domestic credit to the private sector

The banking sector has experienced an increase in the domestic credit to the private sector on a yearly basis showing how sound the banking sector is (Figure 5). The highest increase in domestic credit to the private sector was recorded in 2009, 2010 and 2011 with 8.16%, 7.77% and 7.62%. An increase in domestic credit by banks will increase their profitability base if effective measures are used in combating non-performing loans which will in turn create positive impacts on the growth of the economy. However, the banking sector has also experienced decline in the domestic credit granted to the private sector during 2001, and 2002 to 1.52% and 1.92% respectively, this decline was due to the devastating rebel war in the country which lasted for over ten (10) years.

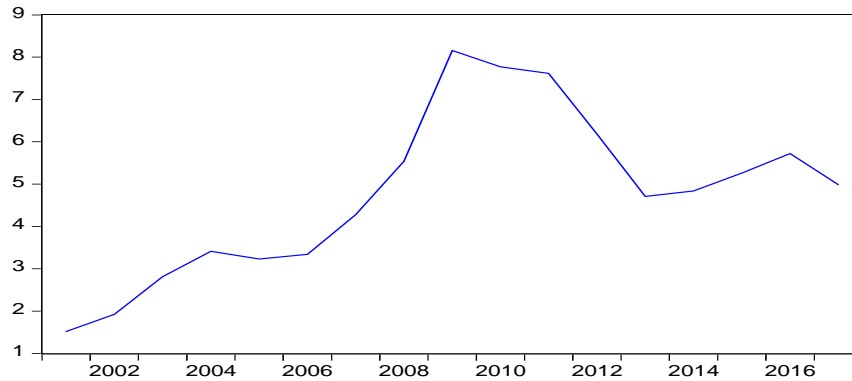


Fig. 5. DCPS (Private sector credit / Gross domestic product)

Source: BSL, 2023.

Deposit interest rate

The deposit interest rates have been fluctuating with an increasing rate on a yearly basis. During the period 2004, 2005 and 2006 the banking sector recorded its highest deposit interest rates with 11.7%, 11.8% and 11.4% (Figure 6). An increase in the bank deposit interest rates in savings account, time deposit account and certificate of deposit will encourage more deposit by customers with the banks, which create greater liquidity position and hence enable banks to perform their intermediation roles effectively and efficiently and vice versa. However, the bank has recorded a significant decrease in deposit interest rates during 2015, 2016 and 2017 to 4.49%, 4.19% and 4.07%.

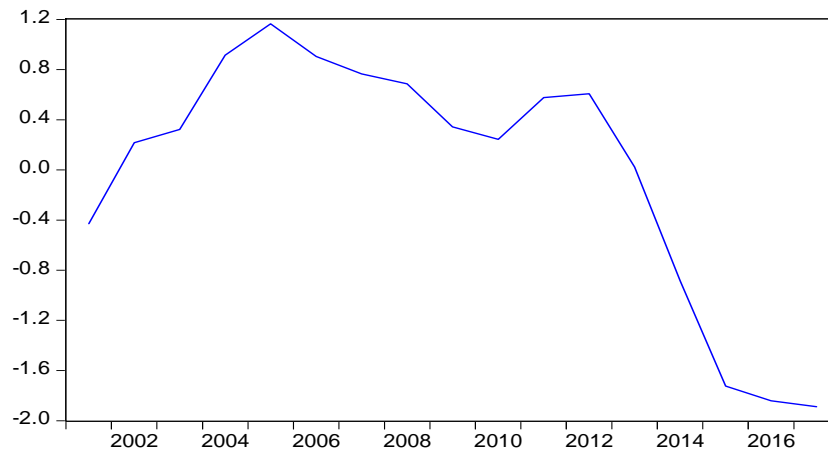


Fig. 6. DIR (Bank deposit x interest on deposit x time)

Source: BSL, 2023.

Correlation Matrix

Correlation is used to test how strongly two or more variables are correlated. The test was carried out in order to test the relationship between the variables and the results of the test are presented in Table 1. The correlation matrix helps the researcher to determine which one of the variables is positive and as well as significant in explaining the impacts of banks on the economic growth of the Sierra Leone economy. The result from the correlation matrix is presented in the table below.

Table 1. Correlation between Bank Liquid Reserves to Assets and Gross Domestic Product

Correlation						
	GDP	BLRBS	DCPS	DIR	GDS_OF_GDP	IRS
GDP	1.000000					
BLRBA	-0.246873	1.000000				
DCPS	-0.032771	-0.204202	1.000000			
DIR	0.368847	-0.812331	-0.086739	1.000000		
GDS_OF GDP			0.182838	0.549801	1.000000	
IRS			-0.309571	-0.444188	-0.187561	1.000000
Probability						
GDP						
BLRBA	0.3395					
DCPS	0.9006	0.4318				
DIR	0.1451	0.0001	0.7406			
GDS_OF GDP	0.9213	0.0314	0.4824	0.0222		
IRS	0.0460	0.0173	0.2266	0.0741	0.4710	

Source: BSL, 2023.

The result in Table 1 shows that there is a non-significant relationship between BLRBA and GDP ($r = -0.246873$ and $p\text{-value} = 0.3395$), there is also a non-significant relationship between DCPS and GDP ($r = -0.032771$ and $p\text{-value} = 0.9006$). There is a significant relationship between DIR and GDP ($r = 0.368847$ and $p\text{-value} = 0.1451$), there is also a significant relationship between GDS (% of GDP) and GDP ($r = 0.025917$ and $p\text{-value} = 0.9213$) and finally, there is a non-significant relationship that exists between IRS and GDP ($r = -0.489779$ and $p\text{-value} = 0.0460$).

Independently pooled OLS regression model

The Pooled Ordinary Least Square Regression model is used to demonstrate the functional relationship that exists between two or more independent variables and a dependent variable. It helps to compute the values of co-efficient of correlation interpreted as the fraction of the sample. As in the case of this study the Pooled OLS Regression Model will help to determine which one of the variables are important in explaining the impacts of Banks on the economic growth of the Sierra Leone economy. However, the Pooled OLS Model does not differentiate between banks. In other words, it is that type of model that assumes homogeneity of all the sections of data in a panel data study that is; it does not treat each section separately, but rather, treats all section as just a single section data. Table 2 shows the regression output.

Table 2. Regression Output

Dependent Variable: GDP				
Method: Pooled Least Squares				
Date: 07/07/22 Time: 10:42				
Sample: 2001 2017				
Included Observations: 17				
Cross - sections included: 6				
Total pool (balanced) observations: 102				
Variable	Coefficient	Std. Error	t - Statistics	Prob.
BLRBA	0.842491	0.343030	2.456026	0.0158
DCPS	-0.155367	0.492859	-0.315236	0.7533
DIR	2.104022	0.636615	3.305013	0.0013
GDS_OF GDP	-0.205575	0.137563	-1.494405	0.1383
IRS	-3.026543	0.622596	-4.861170	0.0000
C	10.63580	13.92592	0.763741	0.4469
R-squared	0.352971	Mean dependent var		3.031765

Table 2 (cont.)

Adjusted R-Squard	0.319271	S.D dependent var	9.346566
S.E. of regression	7.711505	Akaike info criterion	6.980326
Sum squard resid	5708.862	Schwarz criterion	7.134736
Log likelihood	-349.9966	Hannan -Quinn Criter.	7.042852
F- statistic	10.47408	Durbin -Watson stat	2.106218
Prob (F – statistic)	0.000000		

Source: BSL, 2023.

The econometric result using Pooled OLS shows that Bank Liquid Reserves to Assets (BLRBA) has a positive relationship on Gross Domestic Product (GDP) with a coefficient value of 0.842491. It was further revealed that the relationship is highly significant (p-value of 0.0158 and at t-stat of 2.456026). Domestic Credit to Private Sector (DCPS) has a negative relationship on the Gross Domestic Product (GDP) with a coefficient value of (-0.155367). It was further revealed that this relationship is highly insignificant (p-value of 0.7533 and t-stats of -0.315236). The result also shows that Deposit Interest Rates (DIR) has a positive coefficient value of (2.104022), which is also highly significant (p-value of 0.0013 and t-stats of 3.305013). The study further revealed that Gross Domestic Product (% of GDP) has a negative relationship on the Gross Domestic Product (GDP) with a coefficient value of (-0.205575). It further revealed that the result is highly insignificant (p-value of 0.1383 and t-stats of -1.494405). On the other hand; Interest rate spread (IRS) has a negative relationship on the Gross Domestic Product (GDP) with a coefficient value of (-3.026543). It was further revealed that relationship is highly significant (p-value of 0.0000 and t-stats of -4.861170). With an R- squared of 0.352971, which means that about 35% of the predictive power in the dependent variable was jointly explained by the independent variables. This implies that dependent variable in Sierra Leone cannot be 100 percent explained by the variables used in this study. The unexplained part of the dependent variable can be attributed to exclusion of very important independent variables that can explain the dependent variable but are outside the scope of this study.

Conclusions

The study assessed the impacts of the banking sector on the growth of the Sierra Leone economy. The objectives of the study were to determine the effect of bank interest rate spread on the Sierra Leone economy, to assess the effects of bank liquid reserves to bank assets ratio on the Sierra Leone economy, to determine the impacts of domestic credit to private sector by banks on the Sierra Leone economy, to determine the effect of bank deposit interest rate on the Sierra Leone economy and, to establish the effect of gross domestic savings on the Sierra Leone economy.

The Case study research design was adopted for this study where the target population of the study consists of the 14 Commercial Banks in Sierra Leone. The Pooled OLS regression Model, Correlation Matrix and Descriptive Statistics were employed in the study. Eview version 8 was used to analyze the panel data using the Pooled OLS regression data, Descriptive statistics and the Correlation Matrix.

The econometric result using Pooled OLS shows that Bank Liquid Reserves to Assets (BLRBA) has a positive relationship on Gross Domestic Product (GDP) with a coefficient value of 0.842491. It was further revealed that the relationship is highly significant (p-value of 0.0158 and at t-stat of 2.456026). Domestic Credit to Private Sector (DCPS) has a negative relationship on the Gross Domestic Product (GDP) with a coefficient value of (-0.155367). It was further revealed that this relationship is highly insignificant (p-value of 0.7533 and t-stats of -

0.315236). The result also shows that Deposit Interest Rates (DIR) has a positive coefficient value of (2.104022), which is also highly significant (p-value of 0.0013 and t-stats of 3.305013). The study further revealed that Gross Domestic Product (% of GDP) has a negative relationship on the Gross Domestic Product (GDP) with a coefficient value of (-0.205575). It further revealed that the result is highly insignificant (p-value of 0.1383 and t-stats of -1.494405). On the other hand; Interest rate spread (IRS) has a negative relationship on the Gross Domestic Product (GDP) with a coefficient value of (-3.026543). It was further revealed that relationship is highly significant (p-value of 0.0000 and t-stats of -4.861170). With an R- squared of 0.352971, which means that about 35% of the predictive power in the dependent variable was jointly explained by the independent variables. This implies that dependent variable in Sierra Leone cannot be 100 percent explained by the variables used in this study. The unexplained part of the dependent variable can be attributed to exclusion of very important independent variables that can explain the dependent variable but are outside the scope of this study.

The result from the correlation analysis shows that there is a non-significant relationship between BLRBA and GDP ($r = -0.246873$ and $p\text{-value} = 0.3395$), there is also a non-significant relationship between DCPS and GDP ($r = -0.032771$ and $p\text{-value} = 0.9006$). There is a significant relationship between DIR and GDP ($r = 0.368847$ and $p\text{-value} = 0.1451$), there is also a significant relationship between GDS (% of GDP) and GDP ($r = 0.025917$ and $p\text{-value} = 0.9213$) and finally, there is a non-significant relationship that exists between IRS and GDP ($r = -0.489779$ and $p\text{-value} = 0.0460$).

The activities of the Commercial Banks in Sierra Leone are controlled by the Central Bank through the Monetary Policy set and determine by the Central Bank. The financial performance of Commercial Banks is normally determined by the Monetary Policy set by the Central Bank, any changes in the Monetary Policy tools can affect the financial performance of Commercial Banks both positively and negatively.

The study sought to assess the impacts of the banking sector on the Sierra Leone economy. however, the study concludes that Domestic Credit to Private Sector (DCPS) has a negative relationship on the Gross Domestic Product (GDP) with a coefficient value of (-0.155367). Thus; implying that a unit increase in domestic credits will lead to a contraction in the Sierra Leone by -0.16 times.

Also the study concludes that; Deposit Interest Rates (DIR) has a positive coefficient value of (2.104022), which is also highly significant (p-value of 0.0013 and t-stats of 3.305013). The null hypothesis is therefore rejected in the study and concludes that deposit interest rates has a significant relationship on the Sierra Leone economy, which implies that every improved effort placed on deposit interest rates will lead to an in growth in Sierra Leone economy by 2.10 times.

Furthermore, the study concludes that Gross Domestic Product (% of GDP) has a negative relationship on the Gross Domestic Product (GDP) with a coefficient value of (-0.205575). It further revealed that the result is highly insignificant (p-value of 0.1383 and t-stats of -1.494405). The null hypothesis is therefore accepted in the study and concludes that gross domestic savings does not have any significant relationship in enhancing growth on the Sierra Leone economy. The study further concludes that a unit increase in the domestic savings will proportionately leads to a decrease in the growth rate of the economy.

Moreover, the study concludes that Bank Liquid Reserves to Assets (BLRBA) has a positive relationship on Gross Domestic Product (GDP) with a coefficient value of 0.842491. It was further revealed that the relationship is highly significant (p-value of 0.0158 and at t-stat of 2.456026). The null hypothesis is therefore rejected in the study and concludes that bank liquid reserves to bank asset has a significant relationship on the Sierra Leone economy. The study further concludes that every improved effort placed on bank liquid reserves to bank asset will lead to an increase in the Sierra Leone economy by 0.84 times.

Finally, the study concludes that Bank Interest rate spread (IRS) has a negative relationship on the Gross Domestic Product (GDP) with a coefficient value of (-3.026543). The null hypothesis is therefore accepted in the study and concludes that there is no significant relationship between bank interest rate spread on the Sierra Leone economy. The study further concludes that a unit increase in the interest rate spread will lead to a proportionate decrease in the Gross Domestic Product in the Sierra Leone economy by -3.03 times.

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