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The Macro-Economic Variables, Tax Revenue and Performance of Financial Institutions in South Sudan

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Abstract

To examine the impact of macroeconomic variables and tax revenue on the performance of financial institutions in South Sudan. The study used secondary data from the Central Bank of South Sudan and other statutory bodies. The study used the Econometric Views (EViews) software for data analysis and management. Descriptive statistics, diagnostic tests, regression, and correlation analysis were conducted to examine the relationships between the variables. The study found that there was an inverse statistically significant relationship between macroeconomic variables and tax revenue and the performance of financial institutions in South Sudan. This means that when macroeconomic variables and tax revenue decrease, the performance of financial institutions also decreases. The study concluded that the government can utilize macroeconomic variables and tax revenue to influence the performance of financial institutions. The government should implement policies to promote economic stability and increase tax revenue in order to improve the performance of financial institutions.

Keywords: *Macro-Economic Variables, Tax Revenue, Performance, Financial Institutions*

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1.1 Introduction

In South Sudan, financial institutions play a vital role in enhancing economic growth through the facilitation of transaction services and timely cash transfers that enable improvement in citizens' livelihoods. Since Southern Sudan's autonomous establishment in 2005, financial institutions have been the bridging gap and gauge in providing a wide variety of financial facilities like deposit, savings, lending, and investment services to individuals, businesses, and soft loans to those who need finances to help solve their pressing issues and investment development. South Sudan's financial sector is dominated mainly by East Africa's financial institutions which opened branches in search of business opportunities immediately after the CPA, while other foreign entrepreneurs came with perceived motives and speculations that donor money and oil-contract jobs arelucrative. The gap filled by financial institutions is manifested by a lack of infrastructuraldevelopment such as roads, hospitals, and good households. People use banking services to help their relatives by sending and receiving money across places and transfers from other countries and/or continents for those with relatives abroad. Financial institutions' operations and presence have significant contributions to job creation and wealth effect in South Sudan. Central Bank of South Sudan (CBSS) data for 2016, 2017, and 2018 indicated that financial institutions' annual lending projections were SSP11.377 billion (bn),17.432bn, and 59.177 bn from Jan-Oct 2018.

At the independence, the CBSS introduced South Sudan Pounds on 9th July 2011. Reng and Mayai, (2016) South Sudan established its currency and pegged its exchange rate regime fixed atthe official rate of SSP 2.95 per US Dollar. However, the banking sector was almost nonexistent at the time, and Southern Sudan was benefiting from an ample supply of petrodollars, thus it was appropriate to implement and defend a fixed exchange rate system. Athorbai & Mayiik (2015) announced that the GRSS would adhere to adopting the floatation of SSP currency against the dollar from an official rate of SSP2.9632 to $18.5. Countries with considerable currency reserve hardly accept devaluation because this decision usually sparks high consumer commodity prices, inflation, and exchange rate burden on individual country's citizens and therefore, leads to civil unrest. Boldit (2016) argued that the fixed of USD/SSP2.96 had turned worthless as a minimal number of institutions and individuals used the official exchange rate. During FY 2015/16 & 2017/18, financial institutions faced liquidity challenges to serve their clients and customers, especially holders of foreign currency accounts. Mayiik (2014) Banks shall be required to make compulsory payments to all individuals, businesses, and institutions in SSP. Boldit (2016) asserts that funding government spending with the CBSS's loans has increased the money supply making independent targeted financial policy impossible to realize thus, without reduced government deficit, the country cannot have a reliable and effective monetary policy.
South Sudan Infrastructure Action Plan 2011 reported that with international practice, important elements for a successful migration from the growth of low-income economies to middle income with improved living standards and reduced poverty like South Sudan depend on the well-functioning private and public organizations, well-developed basic infrastructure; a firm macroeconomic structure and lastly, a strong and knowledgeable workforce. South Sudan has the potential of becoming one of the wealthiest countries in Africa because of its vast unutilized fertile agricultural land, its greatest oil reserves, and with other untapped natural resources.

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The broad problem faced by financial institutions attributes to South Sudan's frequent conflicts, a landlocked country with no infrastructural development, constant monetization of a currency that is not being exchanged and/or traded for business transactions in bordering countries, and low or no proper financial market. In summary, the nation is like an imaginary closed economy where economic agents pay for products in the world without money to purchase any goods or services whereas an individual would have to pay without other goods or services.

Taxation is one of the oldest activities, as old as humankind itself, since it has been a part of civilized societies for ages and/or thousands of years. According to Lymer and Oats (2014), taxation refers to the compulsory levy that is enforced by the authorities on income, wealth, people, and expenditure without any reciprocation or subsequent direct or indirect goods or services in exchange for the individual taxpayer. Taxation and tax revenue continue to play one of the most important roles in governments and administrators across the world. Dorsey, Fiore, and O'Reilly (2019) In setting tax rules and rates for individuals and firms, governments affect revenue and income, which in turn, affect personal and corporate spending. Ayensu, Kuma, and Appiah (2017) Assessed the Performance of the Ghana Revenue Authority in Tax Revenue Mobilization and found five (5) years (2010 to 2014) efficiency rates were 97%; 97%; 99.36%; 96.36%, and 97.07% while the importance rate was 70.47%; 80.18%; 84.35; 83.61%; and 80.53% chronologically. It is the basic source of finance for the various governments, and also a key element for running different regimes and states' infrastructure development in countries like South Sudan. This is because the incidence of tax enables different governments to be able to acquire financing and funds which enable them to run their activities and pay for various expenditures. For South Sudan, it is no different than the government of a ruling administration can rule and run its activities courtesy of the funds collected from taxation.

1.2 Statement of the Problem

The various financial institutions in South Sudan have continued to struggle over the past few decades. However, the nature of financial institutions matters because they are active enterprises that store wealth, facilitate monetary transactions, and generate jobs. Harker and Zenios (2000) found that the growth and economic development of any country are the main objectives of most governments across the world. Therefore, any government would do anything to achieve economic development, reduce inflation to acceptable levels, and achieve full employment for that particular country. During the pre-independence period (2008-2010), the institutions (MoFEP and CBSS) tasked with regulatory authority for the well-functioning and efficient operation of financial systems, financial institutions, and the economy at large, did not put in place tangible and/or more realistic exit strategies and policies as the then Southern Sudan prepared for expected independence (2011) results. Upon independence, it became a nightmare on the very night of July 9, 2011, when the Central Bank of Sudan (CBS) immediately cut its banking operations with the Central Bank of South Sudan (CBSS), one of its then-branches, which consequentially paralyzed financial services, especially banking systems. Garang (2014) hinted that creating workable government structures in South Sudan has been a major challenge, essentially starting from scratch.

For South Sudan, the total discovery and exploration of oil since 2005, as an important natural resource, is a good national asset for revenue generation in improving the financial system. However, this has not yielded well due to regulatory lags and a lack of full revenue disclosures,

financial management, transparency, and accountability, which are key dividends for a vibrant and prudent stable economy. Schreuder (2008) found that oil and gas can be a curse to the nation if they are not managed well. Given its position as a lender to the government, which gets funding from oil revenues, borrows from overseas, and accepts grants in foreign currencies, the Central Bank of South Sudan (CBSS) will continue to provide foreign currency to the foreign exchange market (World Bank, 2017). Dau (2017) found that as economic conditions have worsened at a slower rate than last year, the country must have faced and lived with the reality that unless there are reduced conflicts, insecurity, and civil wars, then the country will have difficulty in economic recovery.

The non-oil revenue accounts for less than 5% of the total collections. In addition, the Tax Act of South Sudan, which was developed and signed in 2009, mandated three tiers of government: national, state, and local government, to levy taxes on financial institutions. In reality, however, the unsystematic taxation and inconsistencies of the Tax Act of 2009 have created loopholes and financial (tax) manipulations, which prompted the government to revise the Tax Act twice and eventually establish the National Revenue Authority in 2018. Parmar et al. (2019) found that since the performance of financial institutions is measured broadly by the number of services they offer, their tolerance ability to the financial crisis, and socioeconomic and political pressures earn them factual resilience and credit to benefit economically and profitably prosper. Having applied different measures to improve the economy and full employment, among other aspects of the economy, the government of South Sudan did not experience a turnaround of the economy and the currency strength. In this study, the researcher analyzed the impact of macroeconomic variables, tax revenue, and the performance of financial institutions in South Sudan, the newest state.

1.3 Objectives of the Study

i. To establish the impact of foreign exchange on the performance of financial institutions in South Sudan.
ii. To ascertain the impact of the inflation rate on the performance of financial institutions in South Sudan.
iii. To examine the impact of interest rates on the performance of financial institutions in South Sudan.
iv. To analyze the tax revenue capacity moderating influences on the performance of financialinstitutions in South Sudan.

2.0 Literature Review

This section presents the theoretical review, empirical review, and conceptual framework of the study. It shows the relationship between the study variables.

2.1 Theoretical Review

This section presents the theories that inform the study variables, which include the monetarist theory, the Fisher effect, the purchasing power parity theory, and information asymmetry.

2.1.1 The Monetarist Theory

Milton Friedman postulated the monetarist theory in the 1970s, and other scholars later improved it (Kay, 1986; Howard, 1997; Kehoe, 1998). In particular, Coddington (1976) attributed the instability of demand for money as the central approach, emphasizing the monetary variables'

capability to impact employment and output in both the short and long runs. The theory states that the money supply is the most important driver of economic growth. It suggests that as the money supply increases, individuals demand more, and industries produce more, hence creating more jobs. Bachurewicz and Gdańsk (2019) presented an institutional (central bank and the Ministry of Finance) analysis of Poland, arguing that MMT is relied on credit creation through government spending and also based on the balance sheet as asset and loan. Castillo, Montoroz, and Tuesta (2008) found that the interest rate used as the tool for monetary policy study prompts a decrease in macroeconomic risks. This theory is applicable to the study as it informs monetary (central bank) and fiscal policies such as exchange, inflation, interest rates, and tax revenue (independent variables), usually referred to as the monetary transmission mechanism of the economy, which are here the primary performance determinant measures of financial institutions.

2.1.2 The Fisher Effect

This theory was named after economist Irving Fisher in 1930. It states the relationship between interest rates and inflation. Cooray (2002) asserts that the Fisher effect was initially put out by Fisher (1930), who hypothesized that the nominal interest rate in any time is equal to the product of the real interest rate and the anticipated rate of inflation. This theory expands and supports calculations used in the quantity equation of the exchange theory of money, as it is directly related to the concept of money neutrality. Clare and Thomas (2019) contend that inflation and inflation expectations are more likely to be impacted by changes in the money supply and/or growth rate than real interest rates are. Thus, investors can never be sure about the future value of such economic variables to compensate them for this uncertainty. As such, they require a risk premium for the uncertainty, and so, all interest rates are comprised of three components: a required real return; a component compensating investor for expected inflation; and a risk premium to compensate them for uncertainty (Claire and Thomas, 2013). This theory is relevant in that it supports inflation and interest rate variables, respectively. Whatever the definition and function or precise origins of money are, as a unit of accounts and a means of payment and settlement of debts, it operates within the nation's controls. Financial institutions use funds for operations, and as money becomes an instrumental means, it is used as a performance measure such as liquidity, profitability, and solvency ratios, etc., and for equity and credit analysis.

2.1.3 The Purchasing Power Parity Theory

Gustav Cassel put forward this theory in 1945. The Purchasing Power Parity (PPP) theory states that exchange rates between two countries' currencies are in equilibrium when their purchasing power is evenly equal. According to the University of British Columbia, as soon as the level of a home country and/or local market price is rising (i.e., it experiences inflation), the exchange rate of that country must be devalued to return to PPP, making it the law of one price. In the absence of other costs (e.g., transaction and transportation costs), competitive markets drive the price of similar goods to equalize in two countries once prices are stated in one currency. PPP is useful for internationally comparing costs of living between countries, as it truly explains exchange rates for comparing costs/prices and revenues of varying currencies (Griffin, 2018). The theories support the exchange rate, inflation, and interest rate variables. The fact is that, by floating South Sudanese pounds against USD, theoretically and/or practically, South Sudan is trying to import US inflation to its market to equalize prices for achieving inflation-targeted management, hence striving at fulfilling the policy of price stabilization.

2.1.4 The Information Asymmetry

This theory was postulated in the 1970s and 1980s (George Kerlof 1970, "The Market for Lemons", Michael Spence 1973, "Job Market Signaling", and Joseph Stiglitz 1980, "Theory of Market Screening and Insurance Market Uncertainty") to explain the unexplainable general equilibrium economic phenomena as common phenomena. In simple terms, it states that in markets and/or certain markets, an information imbalance between buyers and sellers can lead to inadequate results. Many researchers have assessed and helped to explain the most effective facts of financial institutions' information asymmetry as they relay information to the market, which is later used in evaluating an institution's past financial and management performance and predicting market return (Huynh, Wu, and Duong, 2017; Chod and Lyandres, 2019; Marcel, Tudor, and Otgon, 2020). The theory is relevant in the sense that information released by various identified sources conforms to how financial institutions' performance will address not only what happened but also why it happenedthat is, the reason behind performance and how the performance reflects the institutions' profitability, liquidity, solvency, and growth strategies/goals. Information from sources such as government taxes, and accounting body disparities like IFRS vs US GAAP or local GAAP create imbalances in areas of estimations, cost formulas, and depreciations that require adjustments to ensure companies' comparability in the financial industry.

2.2 Empirical Review

Ogunjimi (2020) adopted the Autoregressive Distributed Lag (ARDL) and Nonlinear Autoregressive Distributed Lag (NARDL) framework to study the symmetric and asymmetric relationship between exchange rate movement and sectorial output. The results established that exchange rate dynamics encourage the services sector and agricultural performance for short-run linear ARDL, while the nonlinear ARDL shows that agricultural depreciation and appreciation are positive with industrial output indicating an inverse relationship. On the other hand, the sectoral output is inversely related to the monetary policy rate, however, the degree of responsiveness to a change is very low in both models. Additionally, the long-run findings demonstrate that although the monetary policy rate is negatively associated to the performance of these sectors, depreciation and appreciation have beneficial effects on sector production. In Gambia, Joof and Jallow (2020) found a positive relationship between inflation and exchange rate, showing an upward drive-in inflation rate that caused the dalasi to appreciate against the US dollar. Hence 1% increase in inflation raised the exchange rate by 0.39%. Therefore, the interest rate is negatively related to the exchange rate; this suggests that an upturn in interest rate caused Gambian Dalasi (GMD) to depreciate by 0.07%. In Sudan, Talha (2016) adopted an econometrics approach to examine monthly time series data over two periods of Jan.1993- Dec.1997 & Jan.2010 Sep.2014. The findings showed that the inflation rate responds favorably in the short term and adversely in the long term, showing that a 1% depreciation in the exchange rate causes a rise in inflation of 1.7% before the break and 2.7% after the break when the cash is available.

Hennecke (2017) examined interest rate pass-through in Germany in the context of low interest rates using data from the ECB's Monetary Financial Institutions (MFI) interest rate statistics from 2003 to 2013. The findings showed that although Germany experienced the same reserve, interest rate pass-through only weakened in the nations that suffered the most from the sovereign debt crisis. The findings of the analysis suggest that Germany's enhanced short-term pass-through also contributes to the variability. Niyonsaba and Shukla (2017) used comparative studies for both

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quantitative and qualitative research to study the effects of interest rate instability on interest income in financial institutions in Rwanda. The results proved a significant association between interest rate instability and the interest income of selected financial institutions. The study concludes that all of its objectives have been achieved. Key interest rate components, such as lending and deposit rates, which financial institutions rely on for profits and solvency, have not been addressed. Therefore, the researcher established how interest rate impact and performance of financial institutions.

Ukraine, Cherep et al (2020) researched on Assessment of the level of financial and economic security at machine-building enterprises, estimated based on the values of the following generalized groups of indicators: financial sustainability, liquidity and solvency, business sentiment, profitability, investment attractiveness, and innovative development. The research demonstrated that the efficiency of the management system may alter the degree of financial and economic security for any size of organization. Additionally, evaluating them enables the determination of the activity's strengths and limitations, which enables efficient management techniques. In Croatia, Novokmet and Marinović (2016) the empirical research on bank solvency and liquidity interdependence for 32 financial institutions from 2002-2010 using dynamic panel data analysis, which confirmed a two-way positive relationship between bank solvency and liquidity. For large banks, bank size plays an essential part in liquidity management and capital, while liquidity level and solvency are a trade-off. In addition, policymakers should consider liquidity and capital interdependence.

2.3 Conceptual Framework

The conceptual framework demonstrates the diagrammatic summary of different variables graphically that as the profitability and solvency levels of the selected firms and different explanatory variables that as foreign" exchange, inflation status, interest rates, and Tax Revenue.

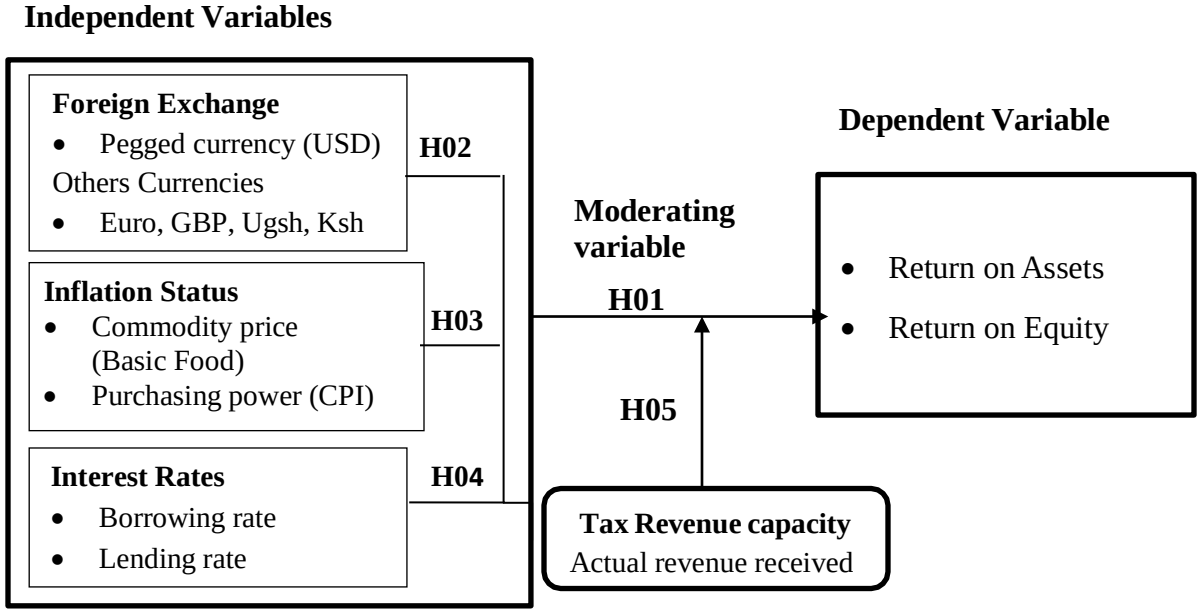

Figure 1: Conceptual framework

3.0 Research Methodology

The study used descriptive research design. The researcher adopted selected banks as sample members. The researcher adopted selected banks which were considered as sample members. The gathered data was from the CBSS's compiled filed reports of 30 registered financial institutions for a target population. The usable data for this study was secondary data which was collected from the CBSS and MoFP websites, economic reviews, and financial institutions' financial statements/reports. The researcher used Econometric views (EVIEWS) for data management and analysis. The researcher used the following model:

$Y1 = \beta o + \beta 1X1it + \beta 2X2it + \beta 3X3it + \beta 4X4it + €$
$Y2 = \beta o + \beta 1X1it + \beta 2X2it + \beta 3X3it + \beta 4X4it + €$

Where € is the error term representing any periodic variable of the source not explained by the model. βo represents a constant term, the true mean value to sources of macroeconomic variables and tax collected when the independent variables X1it, X2it, X3it… is equal to zero. β1, β2, β3, β4 and β5 are correlation coefficients that show the responsiveness of the dependent variable as a function of change in the independent variables.

Y1 = Financial institution's performance
Y2 = Return on Equity
X1 = Foreign Exchange Rate
X2 = Inflation Rate X3 = Interest rate X4 = Tax Revenue
€ = Error Term

The researcher also used MMR analysis for two-way interactions to regress the dependent variable (Y) on an independent/predictor variable (X) and the hypothesized moderator (Z). The standard form of the two-way moderator regression equation can be presented below.
$Y = \beta 0 + \beta 1X1it + \beta 2X2it + \beta 3X1X2it + \beta 4Z + \varepsilon\ 1$

Where Z represents other estimated covariates not part of moderator elements. β0= is the estimated intercept, β1β2 = the estimate of population regression for coefficient X, β4 = is the estimate of population regression for coefficient Z, and ε= residual term. X1X2 is the cross- product to be correlated with X1 and with a non-constant X2 multiplier coefficient of X1. This can be interpreted as a form of multicollinearity and collinearity that makes it difficult to distinguish the separate effect of X1X2 and X1 and/or X2, (Echambadi and Hess, 2004).
The second equation added the interaction term of equation 1 as below

$Y = \beta o + B1X + B2X + B3X1X2 + B4Z + B5XZ + \varepsilon\ 2$

4.0 Findings and Discussion

The first model estimated in this section of the paper was meant to demonstrate the impact of the macroeconomic variables on the performance of financial institutions. It indicates that there was statistical significance (p-value = 0.000), as shown in Table 1. This is supported by the goodness of fit of the model (R-squared = 0.6721), which indicates that the explanatory variables fully explain the changes in the dependent variable (ROA). The independent variables explain 67.21% of the changes in the dependent variable (performance of financial institutions).

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Table 1: Ordinary Least Square regression model 1

Dependent Variable: ROA
Method: Panel Least Squares
Date: 11/02/22 Time: 15:14
Sample: 2000 2014
Periods included: 15
Cross − sections: 155
Total panel (unbalanced) observations: 2321

Variable	Coefficient	Std. Error	t − Statistic	Prob.
EXCHANGE_RATES	0.023923	0.006335	3.776364	0.0002
INFLATION_RATES	-0.025632	0.001011	-25.35241	0.0000
INTEREST_RATES	0.024120	0.004680	5.153690	0.0000
TAX_REVENUES	0.295676	0.004484	65.94163	0.0000
C	0.030018	0.001306	22.97626	0.0000

R − Squared	0.672135	Mean dependent var	0.069148
Adjusted R − squared	0.671568	S.D. dependent var	0.065672
S. E. of regression	0.037636	Akaike info criterion	-3.719559
Sum squared resid	3.280542	Schwarz criterion	-3.707173
Log − likelihood	4321.548	Hannan-Quinn criteria.	-3.715045
F − statistic	1186.969	Durbin-Watson stat	0.778122
Prob(F − Statistic)	0.000000		

The variable exchange rate was estimated to have a positive coefficient of 0.024 units which is an indication demonstrated the performance of the financial institutions and the exchange rate were positively correlated. This also means that a unit change in the exchange rate leads to a 0.024-unit change in the dependent variable which is the performance of the financial institutions with all other variables held constant. Further, the variable interest rates were estimated to have a positive coefficient of 0.02412 units which means that a unit change in the dependent variable's interest rates leads to a 0.024-unit change in the performance of financial institutions that is, the reduction or decrease in the same would also potentially lead to a negative change of the same coefficient on the performance of the financial institutions. The findings can be connected to the study by Siriba (2020) in Kenya where it was established that there was a negative non- significant link between the credit risks and the performance of the financial institutions in Kenya. However, this study deviated from the findings by Siriba (2020). The variable tax revenue was estimated to have a positive coefficient of 0.2957 units which means that if the tax revenues are increasing for the institution, then it means that the institution's profitability or revenues was much higher than the net income. If this is the end of the financial year, it would mean that an increase in the revenues from taxes would increase the performance of the financial institution with all other variables held constant. This would also be negative or contrary if the institution was experiencing an increase in tax expenses meaning that it is a negative tax revenue. This means that the institution's profitability or the net revenues after expenses would be much less or negatively affected. The model in table

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4.5 shows the regression results that were estimated by use of the return on equity and the same shows that the R-squared had a coefficient of 0.7145 units which indicates that the change in the independent variables led to a 71.45% change in the dependent variable that is the ROE on the performance or the profitability of the financial institutions.

Table 2: Ordinary Least Square regression model 2

Dependent Variable: ROE
Method: Least Squares
Date: 03/14/23 Time: 09: 36
Sample (adjusted): 1 2325
Included observations: 2319 after adjustments

Variable	Coefficient	Std. Erro	t – Statistic	Prob.
INTEREST_RATES	-0.021936	0.000971	-22.58335	0.0000
INFLATION_RATE	-0.037724	0.024648	-1.530544	0.1260
EXCHANGE_RATE	0.259104	0.004627	56.00080	0.0000
TAX_REVENUE	0.016901	0.000890	18.97904	0.0000
C	0.005980	0.001779	3.362212	0.0008

R – Squared	0.714574	Mean dependent var	0.069173
Adjusted R – squared	0.714080	S.D. dependent var	0.065693
S. E. of regression	0.035127	Akaike info criterion	-3.857538
Sum squared resid	2.855264	Schwarz criterion	-3.845142
Log – likelihood	4477.815	Hannan-Quinn criteria.	-3.853020
F – statistic	1448.294	Durbin-Watson stat	0.968160
Prob(F – Statistic)	0.000000		

The probability value was 0.000 units which are less than the critical value of 0.05 units suggests that the estimated regression model above has statistical significance. The interest rates were estimated to have a negative coefficient of -0.021936 units which indicates that there was aninverse association between the rates of interest and the performance of financial institution that is the profitability of return on equity (ROE). The same is also the with the inflation rate which was discovered to have a negative coefficient of -0.038 units. It is an indication that when there is a unit change in the inflation rates, it leads to -0.0377 units change in the ROE. The tax revenues were demonstrated to have a favorable coefficient that is 0.0169 units which means that a unit change in the tax revenues leads to 0.0169 units change in the performance of the financial institutions. This is an indication that when the tax revenues are increased, the financial institution can save more revenues. This can be equated to a decrease in tax obligations or tax expenses and as such, it increases the performance of financial institution. The variable exchange rate was estimated to have a coefficient of 0.259 units which is proof that there was a beneficial connection between the exchange rates and the dependent variable which is the profitability (ROE) or the performance of the financial institutions. Therefore, a unit change in the exchange rate leads to 0.259 units change in the financial institution's performance.

4.1 After the Devaluation

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In the second model estimated in tables 3 and 4, the researcher presents the relationship between the indicators of the macroeconomic variables and the performance of financial institution in South Sudan. This model was able to demonstrate that there was a reduction of the R-squared which was previously at 67% and in the current model that same is estimated to be 0.46 units which are equivalent to 46% in table 6. This means that the changes in the independent variables explain about 46 % of the changes in the performance of financial institutions which is a drop from the 67% from the first period that is before the devaluation. The coefficients of the independent variables such as exchange rate, interest rate and tax revenue depicted different signs in the model with those that influenced the dependent variables positively while inflation negatively influenced the change in the dependent variables.Table 3: Ordinary Least Square regression model 3

Dependent Variable: ROA
Method: Panel Least Squares
Date: 11/02/22 Time: 15: 28
Sample: 2000 2014
Periods included: 15
Cross – sections: 155
Total panel (unbalanced) observation 2324

Variable	Coefficient	Std. Error	t – Statistic	Prob.
EXCHANGE_RATES	0.011862	0.008147	1.456000	0.1455
INFLATION_RATES	-0.009044	0.001265	-7.149876	0.0000
INTEREST_RATES	0.036930	0.005997	6.158174	0.0000
TAX_REVENUE	0.329135	0.007913	41.59174	0.0000
C	0.050430	0.001560	32.33734	0.0000

R – Squared	0.459692	Mean dependent var	0.069157
Adjusted R – squared	0.458760	S.D. dependent var	0.065774
S. E. of regression	0.048389	Akaike info criterion	-3.216931
Sum squared resid	5.429971	Schwarz criterion	-3.204558
Log – likelihood	3743.074	Hannan-Quinn criteria.	-3.212423
F – statistic	493.2493	Durbin-Watson stat	0.949223
Prob(F – Statistic)	0.000000		

The regression model in the table 4 was estimated to show the changes after the event had taken

place that is after the devaluation and how the same affected the performance of the financial institutions. The results showed that performance was affected negatively due to devaluation. This is because the R-squared that resulted after the devaluation was lower than it was witnessed before the devaluation of the currency. It indicates that the R-squared when the return on equity is used as the dependent variable was 0.673929 units. The model also proved to have been statistically significant, as demonstrated by the probability value that is 0.000 less than the critical value of 0.05 The different macroeconomic variables were also established to have probability values that are less than the critical value of 0.05 units which shows that the inflation rate, the exchange rate, the interest rates, and tax revenues statistically significant relate to the main dependent variables, return on equity and or return on assets.

Table 4: Ordinary Least Square regression model 4

Dependent Variable: ROE

Method: Least Squares

Date: 03/12/23 Time: 09: 16

Sample: 1 2325

Included observation: 2319

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFLATION_RATE	-0.024861	0.001025	-24.25591	0.0000
EXCHANGE_RATE	0.294860	0.004475	65.89401	0.0000
INTEREST_RATES	0.126979	0.024638	5.153759	0.0000
TAX_REVENUES	0.024196	0.004669	5.182827	0.0000
C	0.027882	0.001397	19.96280	0.0000
R – Squared	0.673929	Mean dependent var		0.069173
Adjusted R – squared	0.673365	S.D. dependent var		0.065693
S. E. of regression	0.037545	Akaike info criterion		-3.724405
Sum squared resid	3.261858	Schwarz criterion		-3.712010
Log – likelihood	4323.448	Hannan-Quinn criter.		-3.719888
F – statistic	1195.652	Durbin-Watson stat		0.863747

5.0 Conclusion of the Study

In the current study, it was revealed that there was a positive relationship between the macroeconomic variables, tax revenues, and the dependent variable, which is the performance of financial institutions (i.e., return on assets) in the South Sudan economy. This is in line with some previous studies on the relationship between tax revenue and performance measures. The current study also revealed a relationship between the macroeconomic variables, tax revenue, and financial institution performance in South Sudan. This means that even though the macroeconomic variables were instrumental in influencing changes in financial institution performance, tax revenue income was also a factor that influenced increased financial performance of financial institutions in South Sudan. This is because an increase in tax revenues contributed to an increase in changes in

profitability and revenues for financial institutions. This is because tax revenues are different from tax obligations or tax expense, which would have had a reducing effect on the performance and profitability of financial institutions in South Sudan.

6.0 Recommendations of the Study

In relation to the recommendations, the current study makes recommendations based on its findings. The study recommends that the government develop policy and formulate laws that inform the financial sector and the banking environment to allow for the proper functioning of financial institutions and hence increased profitability. It also recommends that the different macroeconomic policies, such as fiscal and monetary policy, be addressed in a way that is favorable to the financial environment and the money market within South Sudan. Additionally, the study recommends that some of the policy-making and central bank committees work hand-in-hand with financial institutions to understand how they can manage the financial markets and systems.

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