**DO MACROECONOMIC FACTORS HAVE IMPACT ON CORPORATE CAPITAL STRUCTURE? AN EMPIRICAL EVIDENCE FROM SUB-SAHARA AFRICA.**

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**ABSTRACT**

This research aims to evaluate the impact of macroeconomic factors of countries in Sub-Saharan Africa's capital structure. A sample of 120 companies from 5 countries (Ghana, South Africa, Nigeria, Kenya, and Zimbabwe) was chosen. The Pearson Product Moment correlation technique for analysis is used to evaluate the relationship between variables. The finding of this article indicated that macroeconomic factors as measured by interest rate, inflation rate, government debt, tax revenue, GDP growth rate, unemployment, foreign direct investment, and money supply (M2) affected the capital structure of the firms as proxied by long-term debt and short-term debt.

Keywords: Monetary policy, Fiscal policy, Macroeconomic factors, capital structure, Sub-Sahara Africa.

1. **INTRODUCTION**

Decisions on capital structure impact a company in two respects. First, companies of the same risk class with greater leverage could potentially have greater capital costs. Secondly, capital structure may influence the company's valuation, with more leveraged companies being riskier than less leveraged companies being valued. Capital structure is, therefore, an important decision because it could result in an optimal financing mix that could maximize the company's market price (Lim, 2012).

One of the most important discussions in the financial field, both theoretically and empirically, is the issue of a given capital structure that may increase the shareholder value. Frank and Goyal (2003) found that domestic determinants could explain approximately 30% of variations in the capital structure within the nation. This presupposes that other variables do not account for inner determinants influencing capital structure choices. Thus, financial market interactions, evidence from emerging market economies 137 where companies source their funding, the accessible selection of funding for companies can have tremendous impacts. Therefore, developments in the economic marketplace and the economy, in particular, are a source of concern to financial executives at a casual level. A company's capital structure is a mixture of debt and equity that a company deems appropriate to improve its activities amid multiple limitations that it presents. Berger and Bonaccorsi (2006) observed that elevated leverage or low equity /asset ratio reduces the agency's external equity costs and therefore improves firm value by forcing managers to behave more in the interests of shareholders.

For any business organization, a suitable capital structure is an important decision. Designing specific general Optimal Capital Structure for firms that maximize the firm's value is reasonably difficult. If the organizations are financing through debt, they have to pay the interest to the banks and if they are financing through equity, they have to give the dividends from their profit to the shareholders and sometimes generate the retained earnings account they did not distribute to the shareholders but reflect their profit. Hence, one of the most fundamental research questions was whether there is a unique combination of debt and equity capital that maximizes the firm's value, known as the optimal capital structure, and if so, what factors might affect the capital structure of a firm. Over the years, several scientists have been interested in choosing the capital structure and it has been one of the most widely studied fields in corporate finance. With empirical evidence on the determinants of capital structure such as Trade-off Theory, the Pecking Order Theory, and Agency Cost Theory, many researchers have contributed to superior theories. Based on these theories, many prior studies have discovered proof of relationships between some determinants and leverage on the determinants of capital structure. In many other nations like Indonesia, Jordan, China, Nigeria, Bangladesh and Ghana, such determinants are well documented. The purpose of this study is to find the macroeconomics factors that affect the capital structure of companies in Sub-Sahara Africa. The research will be purposely based on the monetary and fiscal policy of the countries. Five countries were selected for the study, as these countries have received many research areas on the internal factors that affect the capital structure of their listed companies. Following the works of Dincergok and Yalciner, 2011; Keshtkar et al 2012; Nguyen and Wu 2011; Kouki and Said, 2012; Lim, 2012; Mohammed and Yusheng, 2019; Takyi, 2019) have stated that capital structure is been affected by firm size, growth opportunity, asset tangibility, liquidity, firm performance, and cash flow. However, studies by scholars have also shown that there are external factors that account for the capital structure decision by managers of companies. According to empirical works of literature monetary and fiscal policies are a great factor that managers take into consideration when making their capital structure decisions. Siddik et al 2017; Abaidoo and Kwenin, 2013; Li 2010; Pal and Mital 2011; Mehta & Varsha, 2011; Amzallag et al 2019; Goodhart and [Kabiri](https://scholar.google.no/citations?user=rsRr3jYAAAAJ&hl=en&oi=sra) 2019, these researchers have stated inflation, unemployment, interest rate, tax revenue, money supply, and GDP growth rate are the macroeconomic variables that mangers consider before any capital stricture decision is made**.** The purpose of this research is to fill the gap that exists in the literature on capital structure and also provide investors the countries with stable macroeconomic conditions. For managers of these countries, it will help them to consider critically the macroeconomic factor.

**2.0 LITERATURE REVIEW**

Two key theoretical methods that are particularly important concerning firm-level leverage determinants: the trade-off theory and the pecking order theory. They provide several forecasts for firm-specific variables for business decision-making on debt and equity funding structure. Capital structure decisions, according to the trade-off principle, are dictated by a trade-off between debt benefits and costs. The main reasons for this trade-off are based on the effects of restructuring, tax benefits and company costs associated with the replacement of property (Myers, 1977) and investment costs. The pecking order theory by Myers which is also known as the information asymmetry states that firms range their funding by first sourcing internal, debts, and equity been the last. This helps firms to reduce the adverse selection cost associated with their information. From these theories and that of Modigliani and Miller’s (1958) perfect market theory, it can be inferred that there are other factors either internal or external that managers take into consideration when making their capital structure decision. The empirical literature has proved that these factors can be positive or negative**.**

**2.1 MACROECONOMIC FACTORS AND CORPORATE CAPITAL STRUCTURE**

The variables of macroeconomic affect the capital structure target decisions of companies since, according to the trade-off theory, target leverage is determined by balancing debt tax benefits with bankruptcy costs, both of which depend on macroeconomic conditions. Tax benefits depend on taxable earnings that are a function of the economy's state. Similarly, the likelihood of default and losses affecting the cost of bankruptcy is linked to economic conditions. Variations in macroeconomic conditions should, therefore, determine variations in the leverage of targets. The macroeconomic factors for this part have been divided into two parts that are the monetary policy a fiscal policy. Monetary policy is a complex of central bank-managed activities. The primary objective is to adjust the supply of cash or interest rates to stabilize the economy. As a rule, profit-motivated banks tend to raise loans to the private industry during the era of economic development, so corporate financial leverage should improve. According to the pecking order theory, businesses should experience higher profit during the peak financial activity era, thus preferring to use inner funding as income. Credit expansion and the amount of cash provided will increase aggregate demand to avoid inflation from rising. Conversely, bank loans also begin to decline during financial downturns and falling interest rates and subsequently corporate capital structure. But monetary policy kinds can be: expansive and contractionary. The first one, by reducing interest rates, raises the complete supply of cash to adjust unemployment. Goodfriend (1991) reviews the link between the smoothing rate and the trend-stationarity price level. The studies criticize interest rate targeting as tax smoothing for inflation. It claims that interest-rate targeting stabilization policy may accidentally cause martingale-like conduct in nominal rates and inflation. The article describes why central bankers prefer short rate continuity and indirect targeting of rates. Rogers et al. (2016) assess the impacts of unconventional financial policy surprises on both surplus returns on portfolio carriers as well as on a multitude of macroeconomic factors (bond yields, exchange rates, jobs, inflation and interest rate spreads) and foreign risk premiums in a VAR with internal tools. Fiscal policy is the way a state adjusts its levels of expenditure and tax rates to monitor and impact the economy of a nation. Fiscal policy determined how the government had to proactively control unemployment, business cycles, inflation, and cash costs in the economy. The concept is to strike a balance between public spending and tax rates. For instance, by raising expenditure or reducing taxes, stimulating a stagnant economy risks causing inflation to increase. This is because a rise in the economy's quantity of cash, accompanied by a rise in customer demand, can lead to a fall in money value**.**

**2.2 EMPIRICAL REVIEWS**

Mokhova and Zinecker (2014) examine the impact of external determinants for the 2006–2010 period on the institution’s capital structure of non-financial manufacturing companies in European developed and emerging markets. The techniques of correlation and regression were used to define the relationships between external determinants and capital structure. Macroeconomic variables have been classified into two categories reflecting a country's fiscal and monetary policies. Their results show a positive significance in the decision-making process between macroeconomic factors concerning the capital structure and a company's source of funding. Cook and Tang (2010) use two models of dynamic partial capital adjustment structure to test the impact of multiple macroeconomic variables on capital structure adjustment velocity to target leverage. Using a sample consists of 124,466 company-year analysis observations based on the book-assessed leverage ratio and 126,920 company-year analysis observations based on the market-assessed for the year 1997-2006. The findings discover proof that companies adjust their leverage to target more quickly in good macroeconomic states relative to poor states. This proof maintains that companies are subject to economic limitations or not. Fan et al (2012) in their study of institutional environment impact on capital structure and its influence on debt maturity in thirty-nine developing countries find out that the country's legal and tax system, corruption, and capital suppliers had a significant variation on leverage and debts maturity. In other studies, in Kenyan, Muthama et al (2013) study on the macroeconomic factors on the capital structure of companies in Kenyan. The finding of this study indicated that the GDP growth rate was positively linked with long term debt and negatively associated with short term debt and total debt. Inflation had a negative influence on the short -term debt while interest rates as measured by the treasury bills have a positive influence on the long- term debt ratio and total debt ratio and a negative influence on the short-term debt ratio. Pindado et al (2014) investigated the monetary policy and excepted corporate debts from an international sample. The results of the study indicated that monetary policy enables firms' access to debt irrespective of their level of financial restrictions and the level of availability of information about the debtors. The results further confirm that financially constrained companies borrow in a pro-repeated way, while unconstrained institutions increase their leverage levels counter-cyclically. In turkey, Baltacı and Hasan (2014) discover the implication of firm-specific, country, and macroeconomic factors in testing variation in leverage of selected banks. For the period 2002-2012 based on the quarterly analysis. Employing the Generalized Methods of Moment technique in the panel data analysis results shows that debt was positively and significantly connected with institutional debt, firm size, and GDP growth. The findings also show that leverage was negatively linked with assets tangibility, profitability, and inflation and financial risk. In Europe, Mokhova and Zinecker (2014) research the macroeconomic factors and corporate capital structure of countries in Europe. Five European countries were sampled for the study for the period 2006-2010. The macroeconomic factors were divided into fiscal and monetary policies. Through the use of regression and correlation techniques, the findings of this research suggested a macroeconomic factor that has a significant impact on the capital structure decision and funding of the selected countries.

**2.3 HYPOTHESIS DEVELOPMENT**

From the review of pieces of literature on the effects of macroeconomic factors on the capital structure of firms, the following hypothesis was developed

H1: There is a statistically significant association between macroeconomic factors and corporate capital structure.

H2: There is no statistically significant connection between macroeconomic factors and corporate capital structure.

**3.0 METHODOLOGY**

The paper is based on evidence in sub-Saharan Africa and emerging markets from five nations. Ghana, South Africa, Nigeria, Kenya, and Zimbabwe are among the states. Those countries were selected based on their economic environment and the same accounting practices as International Financial Reporting Standards (IFRS) are adopted in preparing and filing financial reports. A total of 720 observation was considered for this study. Companies that were listed on the stock exchanges of these companies were taken into consideration. However, financial firms were excluded. Also, companies with reporting laps, unaudited accounts, and suspended were not considered for this study. All data on macroeconomic variables were collected from the website of the World development indicators database. Data capital structure variables were taken from the annual financial statements report of the companies. The period of study was 2012-2017. The macroeconomic factors were identified by monetary and fiscal policy measures, as well as several key economic growth and stability determinants. Monetary policy variables are long term interest rate (LTIR), short term interest rate (STIR), GDP deflator (IR) inflation rate, and money and quasi-money (M2) as a percentage of GDP, which is a monetary state in general. Fiscal policy is defined by variables of government debt to GDP (CGD), tax revenue as GDP percentage (TR), income tax as revenue percentage (IT). Macroeconomic progress and prosperity are defined by the variables unemployment rate (UR) and GDP growth (GDP). The distribution of corporate capital can be calculated in various ways. One of the main classifications of capital structure proxies is debt structure. Foreign direct investment is net investment inflows to gain a permanent stake in management (10% or more of voting stock) in a company working in a nation other than the investors. It is the amount of capital resources, income reinvestment, other long-term funds, and short-term funds as shown in the payment balance. The FDI included full gross, i.e. net FDI from foreign sources in the reporting economy less net FDI from the reporting economy to the rest of the world. Investment in the fund includes investments of equity and leveraged securities.

For our research we have chosen two capital structure measures: total leverage represented by long-term debt ratio represented by long-term liabilities to total assets (LTD) and short-term debt ratio represented by short-term liabilities to total assets (STD), to take into consideration structure of debt. In our research, as a first step, we provide Pearson Product Moment Correlation analysis, to investigate the influence of macroeconomic factors on capital structure. Sampling composition of the article includes Ghana-23; Nigeria-46; South Africa-123; Kanya-34; Zimbabwe- 36.

**Table 1: variables description and measurement**

|  |  |  |
| --- | --- | --- |
| Variables  | Measurement  | Data sources  |
| Long term debts  | Long term debt to total assets | Firm’s annual reports |
| Short term debts | Short term debt to total assets  | Firm’s annual reports  |
| Inflation  | Inflation rate as GDP deflator | World development indicator database |
| Money and quasi money (M2) | As a percentage of GDP | World development indicator database |
| Unemployment  | Total percentage of the labor force.  | World development indicator database |
| Central government debts | Total central government debt to GDP | World development indicator database |
| Tax revenue  | As a percentage of GDP  | World development indicator database |
| GPD growth rate  | The annual percentage growth rate of GDP per capita | World development indicator database |
| Interest rate  | Annual interest rate  | World development indicator database |
| Foreign direct investment  | Direct investment from external countries | World development indicator database |

**Authors source 2019.**

**4.0 DATA ANALYSIS**

we conducted the Pearson correlation coefficient analysis to test the connection between capital structure variables and the macroeconomic variables. Table 2 shows the results of the South Africa capital structure variables with its macroeconomic variables. The interest rate had a mean of 3.995 and a standard deviation of 1.364. The relationship between the interest rate and long-term debt had a coefficient of -0.713 and p<0.001. This means when an interest rate increases lead to a propositional Long-term debt decreases significantly. On the part of short-term debt, the interest rate had a positive coefficient and it was insignificant (0.497, p=0.075>0.05). The inflation rate, government debt, and tax revenue had a mean of 5.452, 2.771, and 14.655 with a standard deviation of 1.364, 0.865, and 0.826. On the link with long-term debt, had a negative coefficient of -0.528, p=0.021; -0.657, p=0.000, and -0.039, p=0.000. The inflation rate, government debt, tax revenue, unemployment, and GDP growth rate all had a positive coefficient and with short-term dents. Furthermore, Unemployment and GDP growth rate had a mean and of 25.860 and -0.148 and a standard deviation of 1.109 and 0.644. On the link with long -term debt unemployment and GDP growth rate were -0.809, p=0.010<0.05 and 0.856, p=0.000<0.05. Finally, FDI and money in supply (M2) indicated a negative link with long-term debt (-0.607, p=0.091>0.05; -0.914, p=0.000). On the other hand, FDI and M2 showed a positive connection with short-term debt and both were significant at α=0.05%.

Table 3 indicates the association between capital structure and macroeconomic variables in Nigeria. Interest rate, inflation, tax revenue, and GDP growth rate all established a negative connection with long-term debt. Whiles, the government total debt rate, unemployment, foreign direct investment, and money supply (M2) had a positive link with long-term debts. As depleted, in table 3, interest rate, tax revenue, FDI, and money supply all established a negative and significant association with short-term debt. However, the inflation rate, government debts, and unemployment had an insignificant connection with short-term debt. The mean and the standard deviation of the macroeconomic variables are shown in table 4. The relationship among interest rates, inflation rate, gov-debt, and FDI had a positive coefficient and a significant connection with long-term debt. However, tax revenue, unemployment, GDP growth rate, and money supply all indicated a negative and insignificant relationship. On the part of the short-term debt interest rate, the inflation rate, government debts, and FDI showed a negative coefficient. Similarly, in Ghana, interest rate, inflation rate, unemployment, and FDI all indicated a positive and significant link with long-term debt. On the part of the short-term, the relationship was different. Concluding on Kenya, the inflation rate, government debt, and GDP growth rate indicated a negative connection. The short-term debt had a positive relationship with the interest rate, tax revenue, unemployment, FDI, and money supply.

**Table 2: Descriptive and correlation analysis (SOUTH AFRICA)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Interest rate** | **Inflation** | **Govt\_debt** | **Tax\_Rev** | **Unempl** | **GDP\_grt** | **FDI** | **M2** |
| **LTD** | **-0.713\*\*\*** | **-0.528\*\*** | **-0.657** | **-0.039\*\*\*** | **-0.809**\*\*\* | **0.856\*\*\*** | **-0.607\*\*** | **-0.914\*\*\*** |
| **STD** | **0.497\*\*** | **0.595\*\*\*** | **0.369\*\*\*** | **0.022\*\*\*** | **0.642\*\*** | **-0.727\*\*** | **0.681\*\*\*** | **0.872\*\*\*** |
| **Mean** | **3.995** | **5.452** | **2.771** | **14.655** | **25.860** | **-0.148** | **1.034** | **15.231** |
| **Stdv** | **1.364** | **0.865** | **2.157** | **0.826** | **1.109** | **0.644** | **2.136** | **24.692** |

**Table 3: Descriptive and correlation analysis (NIGERIA)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Interest rate** | **Inflation** | **Gov\_debt** | **Tax\_Rev** | **Unempl** | **GDP\_grt** | **FDI** | **M2** |
| **LTD** | **-0.051\*\*\*** | **-0.168\*\*\*** | **0.362\*\*\*** | **-0.232\*** | **0.838\*\*** | **-0.172\*\*** | **0.729\*\*\*** | **0.410\*\*\*** |
| **STD** | **-0.337\*\*\*** | **-0.240\*\*** | **0.160\*\*** | **-0.292\*\*\*** | **-0.170\*** | **0.226\*\*\*** | **-0.955\*\*\*** | **-0.271\*\*\*** |
| **Mean** | **9.113** | **11.640** | **0.525** | **14.488** | **4.409** | **0.119** | **3.231** | **23.569** |
| **Stdv** | **3.743** | **3.743** | **0.342** | **0.948** | **0.706** | **3.102** | **0.621** | **36.112** |

**Table 4: Descriptive and correlation analysis (**ZIMBABWE**)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Interest rate** | **Inflation rate** | **Gov\_debts** | **Tax\_Rev** | **Unempl** | **GDP\_grt** | **FDI** | **M2** |
| **LTD** | **0.370\*\*\*** | **0.455\*\*\*** | **0.187\*\*\*** | **-0.192\*\*** | **-0.521\*** | **-0.380\*\*\*** | **0.721\*\*\*** | **-0.497\*\*** |
| **STD** | **-0.061\*\*\*** | **-0.061\*\*** | **-0.054\*** | **0.021\*\*\*** | **0.449\*\*\*** | **0.143\*\*\*** | **-0.639\*** | **0.605\*\*\*** |
| **Mean** | **1.223** | **0.013** | **3.573** | **17.134** | **7.660** | **1.325** | **5.866** | **20.521** |
| **Stdv** | **9.363** | **1.360** | **1.514** | **1.074** | **2.377** | **2.119** | **2.978** | **18.945** |

**Table 5: Descriptive and correlation analysis (GHANA)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Interest rate** | **Inflation** | **Gov\_debt** | **Tax\_Rev** | **Unempl** | **GDP\_grt** | **FDI** | **M2** |
| **LTD** | 0.623\*\*\* | 0.870\*\*\* | -0.154\*\* | -0.766\*\* | 0.208\* | -0.464\* | 0.718\*\*\* | -0.131\*\* |
| **STD** | -0.551\*\*\* | 0.237\* | 0.901\*\*\* | -0.522\*\*\* | 0.648\*\*\* | 0.265\*\*\* | 0.667\* | 0.002\*\*\* |
| **Mean** | 20.574 | 13.995 | 2.331 | 13.994 | 4.285 | 2.696 | 7.222 | 26.351 |
| **Stdv** | 4.341 | 3.144 | 1.040 | 2.473 | 1.650 | 2.469 | 2.433 | 19.365 |

**Table 6: Descriptive and correlation analysis (KENYA)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Interest rate** | **Inflation** | **Gov\_debt** | **Tax\_Rev** | **Unempl** | **GDP\_grt** | **FDI** | **M2** |
| **LTD** | **0.507\*\*** | **-0.320\*** | **-0.0773\*\*** | **0.700\*\*\*** | **0.930\*\*\*** | **-0.171\*\*\*** | **0.981\*\*** | **0.625\*** |
| **STD** | **0.583\*\*\*** | **-0.107\*\*** | **-0.831\*\*\*** | **0.393\*\*** | **0.936\*** | **-0.247\*** | **0.384\*\*\*** | **0.688\*\*** |
| **Mean** | **7.933** | **6.363** | **1.560** | **15.661** | **5.056** | **3.102** | **0.763** | **26.351** |
| **Stdv** | **3.287** | **1.117** | **0.446** | **1.035** | **0.158** | **0.514** | **0.928** | **13.125** |

**5.0 Discussion and Conclusion**

**The relationship between long-term debt, short-term debt, and macroeconomic variables**

The finding of this indicated that long-term debt had a negative and significant relationship with inflation in South Africa, Kenya, and Nigeria. But the finding in Ghana and Zimbabwe shown a positive and significant connection. In South Africa and Ghana, government debt had a negative link unlike in the other countries which indicated a positive association. On the analysis results of foreign direct investment and money supply (M2), the relationship is similar across nations. Unemployment connection with capital structure was different among the countries. In South Africa, interest rate and inflation rate have resulted in a negative and significant relation with short-term debt. The same can be found in other countries. Indicating that, when interest rate and inflation rate increase firms in these countries do not borrow in the short-term but rather in the long-term. Government debt and Tax revenue in Ghana and South Africa were negative but insignificant in the short-term. The relation in Kenya, Nigeria, and Zimbabwe was positive. The finding is in support of the works of (Dincergok and Yalciner, 2011; Camara, 2012; Natalia and Marek, 2014; Baltacı and Hasan, 2014). However, the finding disagreed with (Gajurel, 2006; Fan et al, 2012; Muthama et al, 2013; Pindado et al, 2014).

The objective of this research is to find the effects of macroeconomic factors on the capital structure of companies in Sub-Sahara Africa. The sample of 262 companies from five countries (Ghana, South Africa, Nigeria Kenya, and Zimbabwe) for the period 2013-2018. The researches employed the Pearson Product-Moment Correlation technique in the analysis of the variables of macroeconomic and capital structure. The finding showed that macroeconomic factors have effects on the decision to choose a particular capital structure by companies. We concluded that management when making capital structure decisions should consider the external factors not only the internal forces of the company.

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