MACRO ECONOMIC CONDITIONS AND FINANCIALLY CONSTRAINTS FIRMS IN NIGERIA: A STUDY OF FIRMS FINANCIAL DECISION

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ABSTRACT

This study empirically examined macroeconomic conditions and financially constraints firms’ finance decisions in Nigeria from 1991-2018. The objectives were to find out how selected macroeconomic variables such as fluctuations in exchange rate, inflation rate, lending rate and credit to the private sector influence firms’ capital growth. The financial reports of twenty-four (24) quoted companies which cuts across the various represented sectors at the Nigeria stock market were used. Data were collected through CBN Statistical Bulletin and Stock market fact book. The Ordinary Least Square methods, Augmented Dickey Fuller, Johansen Co integration were employed. The Augmented Dickey Fuller unit root test conducted shows that all the variables become stationary at order 1 and level 1, meaning that they become stationary after the first difference. The result of the co-integration shows there are 5 co-integrating equations amongst the variables which implies that there is long run relationship amongst the variables. The Ordinary Least Square (OLS) regression showed that there is negative but in significant relationship between interest rate and firms’ capital in Nigeria. The study also found that there is negative and insignificant relationship between inflation and firms’ capital in Nigeria. Furthermore, exchange rate has positive and significant relationship with firms’ capital in Nigeria. In addition, Credit to the private sector was found to have positive and significant impact on firms’ capital in Nigeria. Granger causality test reveals no causal relationship between interest rate, inflationary rate, and equity capital while exchange rate and credit to the private sector have causal relationship with equity capital. In conclusion, it can be deduced that macroeconomic conditions affects financially constrained firms from raisin internal and external capital. Based on the findings, the study recommends that firms should use and source more of equity capital than debt in financing their business activities. Each firm should establish with the aid of professional financial managers, that particular debt-equity mixes that maximizes its value and minimizes its weighted average cost of capital.

Keywords: Macro-economic, Finance, Firms, Financial decision, Nigeria.


Introduction

The goal of any firm under a neoclassical setting is to maximize profit subject to various constraints in the process of production. One of these constraints is the ability of firms to finance their investment (Aminu and Raifu, 2019). Capital is the life-blood of every organization due to its ability to play a double edge sword role regarding the attainment of organizational goal. On one side, if short can preclude the realization of set goal while it’s excess on the other hand is capable of reducing organizational effectiveness, efficiency and productivity. However, in the course of the year, investment decisions would have to be made to enhance the competitiveness of the business hence the manager cannot wait for the uncertain profit that should accrue at the end of the year to grow his business. This is the classical situation that often demands for continuous injection of capital into the business either by way of rights issue, fresh equity or debt (Solomon, 2016).

Firms source for finance internally and externally. External sources such as banks and capital market manifest in different forms such as increase in
transaction costs, agency problems and costs of financial distress which makes the cost of obtaining external finance such as bonds or equity very high. Consequently, firms have to rely on their internally generated revenues such cash flow and retained earnings. Firms rely on internally generated revenues (cash flow) because internal funds are cheaper compared with external funds. This argument in the literature is the genesis of the concept of financial constraint and the sensitivity of the firm’s investment decision to macroeconomic conditions. Conceptual definition posits that a firm is financially constrained if it faces a wedge between the internal and external costs of funds (Aminu and Rafiu, 2019).

Financing and investment are two major decision areas in a firm. In the financing decision the manager is concerned with determining the best financing mix or capital structure for his firm. Finance structure decision is the mix of debt and equity that a company uses to finance its business. Firm’s finanestructure is then the composition or structure of its debt and equity or the capital structure of a business is the mix of types of debt and equity the company has on its balance sheet (Birro, 2016). Raising finance for business is one of the most daunting tasks for finance managers and organizational management. However, the firm’s ability to raise finance and earnings are influenced by general macroeconomic conditions. Macroeconomic conditions are defined as national economic factors that affect the economy as a whole. Examples of these factors are gross fixed capital, GDP, unemployment, price indices, investment, etc.

It has long been an important issue from the strategic management standpoint on how firms finance structure since it is linked with a firm’s ability to meet the demands of various stakeholders (Roy and Minfang, 2000). Debt and equity are the two major classes of liabilities, with debt holders and equity holders representing the two types of investors in the firm. Each of these is associated with different levels of risk, benefits, and control. While debt holders exert lower control, they earn a fixed rate of return and are protected by contractual obligations with respect to their investment. Equity holders are the residual claimants, bearing most of the risk and have greater control over decisions.

According to Ogebe, Ogebe and Alewi (2013), an appropriate finance structure is a critical decision for any business organization. The decision is important not only because of the need to maximize returns to various organizational constituencies, but also because of the impact such a decision have on an organization's ability to deal with its competitive environment. Following the work of Modigliani and Miller (1958 and 1963), much research has been carried out in corporate finance to determine the influence of factors on firm's choice of financial mix in an economy that is bedeviled with poor access to capital.

The difficulty facing firms in Nigeria has to do more with the financing – whether to raise debt or equity capital. The issue of finance is so important that it has been identified as an immediate reason for business failing to start in the first place or to progress. Thus it is necessary for firms in Nigeria to be able to finance their activities and grow over time, if they are ever to play an increasing and predominant role in creating value-added, as well as income in terms of profits (Ogebe, Ogebe and Alewi, 2013). From the foregoing, it is therefore important to understand how firm’s financing choice affects their performance. It is evidently clear that both internal (firm specific) factors and external (macroeconomic) factors could be very important in explaining the performance of firms in an economy.

The first major theoretical exposition on the relationship between macroeconomic conditions, financial status (cash flow) and investment began with the work of Meyer and Kuh (1957). Studies by Akinlo and Emmanuel (2017), Christopher, Minsoo, HuaHwa and Jun (2006), Ogbulu, Torbira and Umekinya (2015), Solomon (2018), Ndubuaku, Onwuka, Onyedika and Chimezie (2019) have shown that various macroeconomic conditions variables such as government fiscal policy, monetary policy, inflation, exchange rate, changes in laws, regulations and policies of the Central Bank, competitive factors on a global, federal, state and local government basis, general economic conditions, the performance of the financial markets, banking sector development, infrastructural development, inflationary rates, money supply, interest rates, can influence firms financial structure and investment decision. These factors can pose a positive or negative threat to the capital of a firm and its ability to raise more funds and are beyond the control of management. For instance, the monetary policy of a country affects all sectors through the cost of debt and the availability of money/credit, which could affect a firm’s ability to access external sources of fund. Fiscal policies affect a firm’s after tax net cash flow, its cost of capital, and potentially the demand for its products, and survival. Also, increases in the nominal interest rate and inflation rate intensify the aggregate rates of failure or default.

In most developing countries, for instance Nigeria, macroeconomic factors, such as hyperinflation and increasing exchange rates, are some of the factors
affecting the performance of firms and strain their resources and ability to raise capital (Owolabi, 2017). Fazzari, Hubbard and Petersen (1988) pioneered the empirical research on the examination of investment-cash flow sensitivity in the presence of market imperfections. In their work, they discovered that firms’ investment indeed is sensitive to their cash flow fluctuations and that most financially constrained firms have greater investment-cash flow sensitivity than the least constrained firms. Despite the huge volume of literature for advanced countries on the sensitivity of investment to the firm’s finance to macroeconomic conditions, there is still a dearth of such research for developing countries, especially for Africa and Nigeria in particular.

**Statement of the Problem**

Firms make several operational and strategic decisions which are usually moderated by the macroeconomic environment; these include financing decision, investing decision and operational decision. Thus, performance is often gauged from stability in the macro economy, such as exchange rate and inflation rate fluctuations, the CPI, level of government expenditure, interest rates, among others. However, macroeconomic volatility is much higher in developing countries than developed ones which can affect their ability to raise finances for investment. For instance, the Nigerian economy has shown volatility in exchange rate, inflation, interest rate, among several others. Analysts opine that growth in the private business sector is hindered negatively from high lending rates, which invariably is responsible for high cost of obtaining finance. In Nigeria, major macroeconomic indicators have shown significant fluctuations over time, more especially as the country emerges from recession. For instance, inflation rate as measured by the CPI is presently at double-digit level 14.33 as at December 2019 while its interest rate at around 18% is considered one of the highest in the world which can hamper financially constrained firms from making investment decisions. Several studies have provided varying results on how macroeconomic conditions affect firms’ capital or financial growth, the lack of consensus in their results has necessitated this study.

**Literature Review**

**Conceptual Framework**

The term finance or capital is capable of being a source of confusion because of the variety of meanings, which can be assigned to it (Onaolapo and Adebayo, 2012). To the economist, capital refers to “real” capital which is the stock of goods accumulated through production while in business and finances, it is seen as “financial capital” which in itself could sometimes mean both tangible and intangible capital. Capital structure is as ratio of debt to equity (Thomas, Chenous and Biwott, 2014). According to Ajao and Ema, (2012) debt comprises of long term loans such as debenture and equity which includes paid up share capital, e share premium, reserves, and retained earnings. Hence, a firm can use debts and/or equity to finance its investments. Apparently, capital structure has been argued by Ajao and Ema (2012) to be important management decision since it highly affect the equity return and risks related to owner as well as the market value of the shares. Thus, deciding how to finance a firm is very important not just to the managers of a firm but also to fund providers and owners.

It has long been an important issue from the strategic management standpoint since it is linked with a firm’s ability to meet the demands of various stakeholders (Roy and Minfang, 2000). Debt and equity are the two major classes of liabilities, with debt holders and equity holders representing the two types of investors in the firm. Each of these is associated with different levels of risk, benefits, and control. While debt holders exert lower control, they earn a fixed rate of return and are protected by contractual obligations with respect to their investment. Equity holders are the residual claimants, bearing most of the risk and have greater control over decisions. An appropriate capital structure is a critical decision for any business organization. According to Ogebe, Ogebe and Alewi (2013), the decision is important not only because of the need to maximize returns to various organizational constituencies, but also because of the impact such a decision have on an organization’s ability to deal with its competitive environment. Managers have numerous opportunities to exercise their discretion with respect to capital structure decisions. The capital structure employed may not be meant for value maximization of the firm but for protection of the manager’s interest especially in organizations where corporate decisions are dictated by managers and shares of the company closely held (Dimitris and Psillaki, 2008). Even where shares are not closely held, owners’ of equity are generally large in number and an average shareholder controls a minute proportion of the shares of the firm. This gives rise to the tendency for such a shareholder to take less interest in the monitoring of managers who left to themselves pursue interest different from owners of equity.

According to Tiryaki (2009), capital is assigned two general functions in firms:
1) to measure the owners’ stake in the firm. Stakeholders include anyone who has a claim on the current and future cash flows of the company.

2) to act as a shield for stakeholders. The thicker is the owners’ stake, the more protection it provides for guarantors and debt holders. Financial decision is believed to be determined by firm-specific characteristics. These six factors are size, growth opportunities, tangibility, profitability, industry median leverage and expected inflation and account for about 27% of the variation in leverage (Frank and Goyal, 2009).

Pandey (2010) defined capital structure as the various means of financing a firm, that is, the proportionate relationship between debt and equity. Pandey (2010) further stated that capital structure is a significant managerial decision because it influences the shareholder’s return and risk as the market value of the share may be affected by the capital structure decisions.

A firm’s capital structure may evolve as a result of deliberate plan by the firm’s managers while at other times it is as a result of the combination of situation in which the firm had to deal with in the past. Some firms are not able to access banks loan while some have enough retained earnings to undertake their investment opportunities without resulting to debt financing. Some firms, in principle, do not want to undertake any debt (Anderson and Williamson, 2001). Firm’s capital affords the “engine and bumper” that keeps the firm going as well as absorbing nasty shocks and the more capital a firm has, the better it is able to sustain losses without running into insolvency. Capital adequacy is seen as a quantum of fund, which a firm should have and plan to maintain in order to conduct its business in a prudent manner (Pandey, 2005). Oladejo and Oladipupo (2011) regard adequate capital as the amount of capital that can effectively discharge the primary function of preventing industries failure by absorbing losses and is seen as a way of providing the ultimate protection against insolvency arising from the risk in business sector.

Ezike and Oke (2013) argued that, adequacy of capital helps to enhance and structure the financial resources of an organization with a view to enlarging the size of long-term funds available to the company. The basis for this according to Ekundayo is to fill a hole, provided by working capital and funding capital projects. He explained that a hole could exist through persistent losses, deterioration on quality of assets, under-provisioning and fraud. The fresh injection of funds could them serve to provide working capital, computerization programmes etc. He noted that the larger the capital base of any company the easier for it to absorb any effects of sudden mishaps, the greater the size of the business the firm can handle, the lesser the risk the firm is likely to have.

Measures of Financial Management

Financial management requires that the liquidity position of a firm should be ascertained accurately during operations, in other words, every working day. The liquidity of a firm is measured by liquidity ratios; a class of financial metrics that is used to determine a company’s ability to pay off its short-term debt obligations. Commonly used liquidity ratios are the current ratio and the quick (or acid test) ratio (Andrew and Osuji, 2013). Abata (2015) noted that business organization, have some risks to manage before they can successfully achieve their aim and objectives, which are mostly profit oriented. Vishnani and Bhupesh (2007) affirmed that the most common measure of liquidity is current ratio and return on investment for profitability. The current ratio is used to test a firm’s liquidity, that is, its current or working capital position by deriving the proportion of the firm’s current assets available to cover its current liability. A higher current ratio indicates a larger investment in current assets which means, a low rate of return on investment for the firm, as excess investment in current assets will not yield enough return. A low current ratio means smaller investment in current assets which mean a high rate of return on investment for the firm, as no unused investment is tied up in current assets. However, there is consensus in theoretical literatures that the higher the ratio, the better. The concept behind this ratio is to ascertain whether a company’s short-term assets (cash, cash equivalents, marketable securities, receivables and inventory) are readily available to pay off its short-term liabilities (notes payable, current portion of term debt, payables, accrued expenses and taxes) (Loth, 2012).

According to Andrew and Osuji (2013), a firm’s performance over the years has been measured in terms of three major indicators or variables namely Profitability, Return on Asset (ROA) and Return on Capital Employed (ROCE). This was later corroborated by Combey and Togbenou (2017) who noted that in economic and financial literature, two main indicators permit measuring the bank performance in term of profitability (ROA and ROE). Volatility of these two indicators, compared to the firm buffers (capitalization and return), allow assessing the firm’s solvency risk. Profitability is the potential of a venture to be financially successful, the ability of an investment to make profit or the state or condition of yielding a
financial profit or gain. Brealey, Myers and Marcus (2004) affirmed that manager often measure the performance of a firm by the ratio of net income to total assets, otherwise referred to as Return on Asset (ROA). Return on Capital Employed (ROCE) in Accountancy is a common method of measuring and judging the size of the return which has been made on the funds invested in a business. Omorukpe (2003) posits that ROCE is the ratio of an accounting entity for a period to capital employed in the accounting entity during that period usually expressed as a percentage. Various measures of profit and of capital employed may be used in calculating this ratio. The ultimate goal of a firm in business is to maximize profit; and considering the fact that the issue of capital adequacy has reechoed often times in literatures in Nigeria.

The Importance of Financial Decisions

Firms financing choice vary with time and space therefore their transaction costs and speed of adjustments towards the optimal target as contained in the trade-off theory may also vary with time and space (Yinusa, Odusanya and Olowofe, 2017). The theoretical prediction of the trade-off theory is that inverse relationship exists between cost and speed of adjustments towards optimal debt target. Empirical evidences suggest that firms in developed economies incur more costs and adjust relatively slowly in attaining their optimal target position (Flannery and Rajan, 2005).

The four financing decisions which the financial manager makes in the day-to-day running of the firm are investment decisions (long-term asset mix); financing decisions (capital-mix); dividend decisions (profit allocation) and the liquidity decisions (short-term asset-mix). None of these four decisions is more important than the other; hence a good financial manager should attach equal importance to these decisions as the firm strives to maximize its value (Onwumere, Ibe and Ugbam, 2012). Short-term assets and liabilities are important components of the total assets of the firm hence; need for their carefully analysis. The management of these short-term assets and liabilities warrants a careful investigation since it plays an important role in firm’s profitability, risk as well as ensuring maximization of the firm’s value. Efficient management of working capital is thus a fundamental part of the overall corporate strategy of the firm in creating the shareholders’ value, keeping in mind that an optimal level of working capital will maximize the firms’ value (Deloof, 2003).

Globally, the adequacy of capital plays very crucial roles in the successful functioning of all business firms. However, the issue of asset management though important to other businesses, is most paramount to banking institutions and that explains why banks showcase cash and other liquid securities in their balance sheet statement annually. Unlike other conventional firms, bank assets are arranged in terms of the most liquid asset beginning with cash. With respect to finance and financial institutions, liquidity may be defined as the bank’s ability to meet maturing obligations without incurring unacceptable losses. A study of capital is of major importance to both the internal and external environments of a financial institution and analysts because of its close relationship with day to day operations of a business (Bhunia, 2010). Every business relies on its clients to succeed and so it is a strategic business plan to build good client relationships. Liquidity crisis, if not properly managed can destroy those relationships instantly. In order to avoid liquidity crisis, management of businesses and financial institutions in particular needs to have a well-defined policy and established procedures for measuring, monitoring, and managing capital. Managing capital is therefore a core daily process requiring managers to monitor and project cash flows to ensure that adequate liquidity is maintained at all times (Andrew and Osuji, 2013).

Damodaran (2006) had assumed that for a firm to appropriately manage its financing mix towards financing various investments it has to implement a sound financing principle. Based on their individual findings Kochhar (1996) and Korajczyk and Levy (2003) have separately proposed that organizations that have sufficient assets are expected to reduce the level of financing their investment using debt rather than financing it with their equity. As such, Korajczyk and Levy (2003) articulated that for a firm to adequately acquire financial resources to meet up its debt obligations that firm should obtain a huge and significant tangible assets as well as use of more debt. Subsequently, financing decision is also a prerequisite aspect of financial management. As such after making a fruitful investment decision, there is a need to make a sound financing decision for the firm to accomplish its overall performance. Primarily, firms used to make financing decision in order to acquire fund at a cheapest cost (Hanafi, 2005). A sound and efficient financial decision will improve the firm performance (Kajananthan and Nimalthasan, 2013).

Macroeconomic Conditions

Macroeconomic conditions also known as variables or factors have been defined as various
aspects and workings of a nation which include; income, output, and the inter-relationships among the varied economic sector (In’airat, 2018). The macroeconomic variables are significant determinants of business activities since a conductive economic operating environment propels individual businesses to a stage where they can access securities for sustained growth. Asaolu and Ogunmuyiwa (2010) established the following indicators determine the performance of organizations in an economy: real GDP growth rate, the exchange rate, rate of inflation, the fiscal position and the debt position. Other variables include the lending rate, as well as the Treasury bill rate.

**Link between Macroeconomic Conditions and Financial Decisions**

The state of the economy is a crucial factor that can influence the decisions and behavior of firms. According to Yinusa, Alimi and Ilo (2017), different economies are prone to fluctuations particularly from the environment. When the economic conditions are good the firms tend to perform well as opportunities especially financing opportunities would be available in the economy at favorable cost and firms would have the opportunities to access funds from different financing sources. However, poor state of the economy would make funds to shrink and the little available fund would be lent by the creditors and banks at very high cost.

Beginning from the theoretical proposition of Modigliani-Miller (1958), under the assumption of perfect and complete market, it was posited that corporate financing and investment decision do not depend on each other. This implies that the financial status of a firm is not relevant to its investment decision. In this case, both internal and external finances are regarded as perfect substitutes. Olowe (2011) opined that “in other to maximize shareholders’ wealth, the practical factors a financial manager should consider in the choice of capital structure include: business risk, nature of the firm’s assets, growth rates of the firm, stability of sales, profitability, taxes, control, management attitudes, lender and rating agency attitudes, conditions in the stock market, perceived under valuation of equity shares in the Stock market, and reserve borrowing capacity”. Some of the striking corporate goals include the need to maximize profit, maintain high level of capital in order to guarantee safety, attain the highest level of owner’s net worth coupled with the attainment of other corporate objectives. The importance of capital management as it affects corporate profitability in today’s business cannot be over emphasized. The crucial part in managing working capital is required maintenance of its liquidity in day-to-day operation to ensure its smooth running and meets its obligation (Eljelly, 2004). Capital plays a significant role in the successful functioning of a business firm.

The work of early economists such as Carver (1903), Aftalion (1909), Bickerdike (1916) and Clerk (1917) provide that, given flexible prices and partial adjustment towards the desired capital stock, each period’s investment depends on prices of output and interest rate (cost of capital). This means that investment and output are positively linked. Thus, as the demand for output increases due to increase in consumer’s income, the investment will increase in the same proportion. However, the accelerator principle has been criticised on the ground that an increase in demand cannot automatically translate to investment. This is because some capital acquired in the past may be lying idle and need to be put to use to produce more output to meet the increase in demand instead of acquiring new one.

The predictions of the market timing theory by Baker and Wurgler (2002) are based on the prediction that good macroeconomic conditions would make the equity market performance high and attractive to firms. The firms would be encouraged to raise equity fund because the firm would have more value during the boom period and investors would have funds to purchase the shares of the firms. However, when the economy is in a poor state, the equity market would not be attractive to raise equity as the firm’s valuation would be low and opportunities to raise sufficient equity fund may not be available. Studies by Amah and Ezike (2013) and Amah (2014) provide a developing country perspective to this apparent debt-conservatism of firms. Though bankruptcy and agency costs may discourage borrowing, the authors question whether these costs are large enough to be significant.

In Nigeria, most corporate decisions are dictated by managers. Equity issues are often favored over debt in spite of debt being a cheaper source of fund; even where debts are employed, it is usually on the short term basis. This could be as a result of the manager’s tendency to protect his undiversified human capital and avoid the performance pressure associated with debt commitment. More often, when debts are issued voluntarily, particularly long term debt, it is used as an anti-takeover device against the challenge of potential corporate rider. The corporate sector in the country is characterized by a large number of firms operating in a largely deregulated and increasingly competitive environment. Since 1987, financial liberalization resulting from the Structural Adjustment Program changed the operating environment of firms. The
macroeconomic environment has not been conducive for business while both monetary and fiscal policies of government have not been stable. Following the Structural Adjustment Program, lending rate rose to a high side from 1.5 percent in 1980 to a peak of 29.8 percent in 1992; but it declined to 16.9 percent in 2006. The high interest rate implies that costs of borrowing went up in organized financial market, thus increased the cost of operations. The Structural Adjustment Program (SAP) came with its conditions, policies that liberalized and opened up the Nigerian economy to the outside world even when the nation’s domestic produce cannot stand in equal comparison to international commodities, causing unfavorable balance of payment as domestic demand for foreign goods increased also led to the high volatility of the exchange rate system thereby rendering business in Nigeria uncompetitive, especially given high cost of borrowing and massive depreciation of Naira, which culminated to increasing rate of Inflation in Nigeria.

**Link between Inflation and Financial Decisions**

Several studies have documented mixed empirical evidence between inflation and capital structure in the literature. Some studies found inflation to be negatively related to capital structure. Other studies have documented evidence that support positive relationship between inflation and capital structure. Few studies found inconclusive evidence between inflation and capital structure. Inflation makes the real cost of debt to be lower. Therefore investors prefer to sell their bond during inflation period. Firms would prefer to use debt than equity during inflationary period as bond would become cheaper. Positive relationship was reported between inflation and the finance structure of firms (Cebenoyan, Fischer and Papaioannou, 1995; Sinha and Ghosh, 2010; Ali, 2011).

Studies by Noguera (2001), Korajczyk and Levy (2003), Bokpin (2009), and Yinusa, Alimi and Ilo (2017) found negative relationship between inflation and finance structure. It is argued that firm tend to use more debt during the period of high inflation as the cost of debt becomes cheaper when compared to noninflationary period. De Angelo and Masulis (1980) provided theoretical support for the negative relationship between inflation and capital structure as they argued that inflation makes the real cost of debt lower such that the demand for debt increases during inflationary period. During inflationary period when the real cost of debt becomes cheaper firms employ more debt to mitigate the agency related problems.

**Link between Interest Rate and Financial Decisions**

An interest rate is the amount of interest due per period, as a proportion of the amount lent, deposited or borrowed (called the principal sum) (Oxford Dictionaries 2018). Interest rates are rental payments for the use of credit by potential borrowers and return for parting with liquidity by lenders. Just like any price, interest rates perform a rationing function by allocating limited supply of credit among any competing demand on it (CBN, 1995). Like other prices interest rates perform a rationing function by allocating limited supply of credit among the many competing demands (Adofu, Abula, and Audu, 2010). Its influence on the leverage of a firm cannot be overlooked. Firms prefer to obtain more debt especially from the bank and the bond market to finance investment when the cost is very low. In most developed economies the interest rate is very low (usually single digit) particularly in bank based western economies. This creates opportunities for firms to obtain debt financing at low cost. However, interest is very high in most developing economies despite the financial liberalization of their financial markets. Interest rate is usually double digit and funds are provided mostly on short term basis. The savings behavior of bank depositors that save on short term basis and expect higher rates on saving is one of the factors that are responsible. Similarly, the high level of market imperfection such as asymmetric information between the debt holder and the firm and high tendency for moral hazard and risk shifting makes debt holders to provide funds at high cost to mitigate against the agency related problems.

The primary role of interest rate is to help in the mobilization of financial resources and to ensure efficient utilization of such resources in the promotion of economic growth and development. Interest rate also affects the level of consumption and the pattern of investment (Emmanuel and Otaro, 2017). According to Udonsah (2012), the variation of interest rates affects decision about how to save and invest. Investors differ in their willingness to hold risky assets such as bonds and stocks. When the holding stocks and bonds are highly volatile, investors who rely on these assets to provide their consumption faces a relatively large chance of having low consumption at any given time.

Theoretically, the relationship between interest rate and leverage in developed economies is expected to be positive because of the low interest rate that make debt financing attractive as well as the high quality of institutions and law that protect the rights of creditors and guarantee contract enforcement. However, theoretical relationship between interest rate and leverage in the developing economies is expected to be
negative due to the high interest rate even on short term funds which make debt financing unattractive to firms. The poor institutional quality in most developing countries that does not guarantee contract enforcement and creditors right account largely for the high interest rates in developing economies. Several studies have documented mixed results between interest rate and leverage. Positive relationship was documented between interest rate and leverage (Drobertz and Nanzenried, 2006; Bokpin, 2009; Sinha and Ghosh, 2010; Cook and Tang, 2010). On the other hand negative relationship between interest and leverage was documented by Hatzinikolaous, Katsimbris and Noulas (2002); Hackbarth, Miao and Morellec (2006), Sinha and Gosh (2010) and Cook and Tang (2010). The high interest rate on debt that is not available to the firms in developing countries on long term makes it unattractive to the owners to use it to mitigate the agency problem arising from the opportunistic behaviors of the managers (Bokpin, 2009 and Sinha and Gosh, 2010). This may alter the positive relationship expected between capital structure and interest from the perspectives of firms in the developed economies where firms have access to long term low interest rate which serves as incentives to use debt to mitigate agency problem.

**Link between Credit to the Private Sector and Financial Decisions**

The level of financial development in a country has the tendency to influence the financing decisions of firms. Economies that are well developed tend to have high level of financial development in both the money and capital markets. This creates different financing options and opportunities for firms. Several economies in the developing countries are still largely underdeveloped despite the facts that most of them have adopted and implemented the financial liberalization programs that are meant to assist in the development of the financial sector, particularly the banks and capital market, so that firms would have access to better financing opportunities at market competitive price from these financial institutions. Financial liberalization is expected is be positively related to leverage as firms are expected to have access to more external financing in terms of debt and equity from both the bond and stock market as well as the banks (Giananetti, 2003). These financial institutions in the post reform era are expected to develop fast in a competitive and efficient manner because the liberalization policy would allow the market forces to rule rather than government interventions and regulations. Firms would tend to rely more on internal funds rather than external funds like debt and equity because of the low level of development of the money market and capital market as well as several market imperfections in these economies that make the external financing very expensive and limited. Therefore the owners would not have the opportunity to use debt to mitigate the opportunistic behaviors of the managers as the debt financing would be very costly and not available in desirable quantity.

The theoretical relationship between financial development and debt financing is therefore expected to be negative in the context of developing countries while financial liberalization is expected to be positively related to capital structure of firms. Several studies documented positive relationship between financial development and financial decision of firms (Demirguc-Kunt and Maksimovic,1996; Giananetti, 2003) while negative relationship was reported in some other studies between financial development and leverage by Kyaw (2004); Bokpin (2009).

**Theoretical Framework**

Franco Modigliani and Merton Miller (MM theory) issued their seminal paper on 1958, asserts the firm value is not influenced by capital structure choices, the theory was based under very restrictive perfect market assumptions (i.e., no taxes, no transactions cost, no agency cost, no bankruptcy cost, absence of information asymmetry, equivalence in borrowing cost for both companies and investors, bond and stock trades in perfect market, no effect of debt on company’s earnings before interest and taxes). As per MM theory, the company value is only determined by optimal investments (real assets) (Modigliani and Miller, 1958/1961). However, in a real life situation those assumptions are not realistic, then after Modigliani and Miller (1963) considered the effect of taxes and recommended firms to use as much debt as possible due to tax benefits because interest expenses is tax deductible, hence they concluded that the levered firm (geared firm/firm with debt) will have a high value as compared to unlevered firm ( ungeared firm/firm without debt) due to amount of taxes saved by levered firm.

**Empirical Review**

Hobdari, Jones and Mygind, (2009) investigated the capital investment and determinants of financial constraints in Estonia using a panel data of Estonia companies over the period from 1993 to 2002. Their results show that both output and cash flow are both positively related to investment. In other words, output and cash flow are important variables in determining
investment. In addition, their results show that financially constrained firms are sensitive to the availability of internal finance, while financially non-constrained firms are more responsive to future growth opportunities. Finally, firms whose ownership structures are dominated by insiders face a higher probability of being financially constrained and display higher sensitivity to availability of internal finance.

Marhfor, M’Zali and Cosset (2012) work is based on firm’s financing constraints and investment-cash flow sensitivity: evidence from country legal institutions. The study makes use of data of 44 countries (developed and emerging countries) over the period 1995-2007. Their results suggest that the investment decisions of companies originating from countries that provide strong legal protection to minority investors are less sensitive to the availability of cash flow. Further, transparent companies exhibit lower investment-cash flow sensitivity in comparison to opaque companies. Finally, additional analysis shows negative association between their proxy of stock price information and investment cash-flow sensitivity. Thus, the overall results show that firms that are supposed to be financially constrained exhibit greater investment cash flow sensitivity having classified firms into constrained and unconstrained based on the stock price in formativeness.

Cyril and Okechukwu (2014) investigated the effect of macro – economic variables on financial performance indicators of Nigerian conglomerates sector, using data for the period, 2011 – 2014. Three (3) companies were selected out of the six (6) quoted in the Nigerian stock exchange. The Macro – economic variables used in this study are monetary policy rate, exchange rate and inflation rate, while the financial performance indicators used as proxies for profitability include earnings per share, return on equity and return on asset. The ordinary least squares regression model was used. The result reveals a positive significant relationship between monetary policy rate and earnings per share and a weak negative relationship between exchange rate and company returns. It equally reveals that inflation rate has an insignificant negative relationship with the return on equity. The result may provide some insight to corporate managers, investors and policy markers.

In a similar study, Cyril (2016) focused on the effect of Nigerian banks’ capital structure on the performance of conglomerates quoted on the floor of the Nigerian stock exchange from 2011 to 2015. Descriptive statistics and the pooled ordinary least square (POLS) regression analytical method were used for data analysis. The study finds that capital structure has effect on both return on assets and asset turnover of the conglomerates but no effect on return on equity and earnings per share of the conglomerate. It is then concluded that an in-depth analysis of business factors which affect a particular industry should be considered so as to obtain the benefits of the debt-equity mix. The result of the study is in agreement with most previous studies on other sectors that discovered mixed results on the effect of capital structure on financial performance. It is therefore necessary to employ a critical analysis of the appropriate debt-equity mix suitable for the company.

Dada and Ghazali (2016) examined the capital structure and firm performance evidence from Nigeria. The study employed a sample size of 100 non-financial firms of listed Nigerian companies in the Nigerian Stock Exchange (NSE) for a period of 2010 to 2014. The annual financial statements have been examined using a panel data approach to analyse the empirical study. However, Tobin’s Q and ROA are used as a proxy for the firm performance. It was found out that assets turnover and, tangible have a positive and significant relationship with Tobin’s Q. Also, risk maintains negative and significant relations with Tobin’s. Moreover, the age of a firm has negative and significant with ROA and Sales growth maintains positive and significant with ROA. Nonetheless, the finding of this study would go a long way to enhance the literature on capital structure and also the imperative for the non-financial companies in Nigeria in taking capital structure decisions as it is based on the most recent data cover the period of recession of 2008-2009 as being an adverse effect of recession on the Nigerian nonfinancial companies.

Nwude, Itiri, Agbadua, and Udeh (2016) provided an empirical investigation of the impact of debt structure on the performance of Nigerian quoted firms. It was conducted using 12-year annualized panel data spanning the period 2001-2012 for cross section of 43 firms from different sectorial classifications. The data were collated from the annual reports of the sampled firms and Nigeria Stock Exchange fact books. The study employed three regression estimations (Pooled OLS, Fixed Effects and Random Effects) as a result of unobserved heterogeneity in the dataset. The outcome from the regression estimations showed that debt structure has negative and significant impact on the performance of Nigerian quoted firms within the period under review. The study concludes that debt structure contribute negatively to performance of Nigerian quoted firms; thereby agree with pecking order theory.
Paseda (2016) assessed the impact of taxes on corporate borrowing in Nigeria. 50 companies were selected comprising of non-financial corporations quoted on the Nigerian Stock Exchange (NSE) covering the period 1999-2014. The study adopted panel data least squares regression. The findings found that the factors such as firm age, financing deficit, asset intangibility and expected inflation exert positive influence on corporate borrowing while those factors that exert negative influence on capital structure include asset tangibility, growth, size, volatility of earnings, profitability, liquidity, dividend-paying status and uniqueness of industry. Second, there is weak evidence that tax considerations are crucial in capital structure choice.

Egbunike and Okerekeoti (2018) examined the effect of macroeconomic factors on capital structure decisions of emerging firms. A panel data covering a period from 1990 to 2006 for 34 emerging market countries were analyzed using the seemingly unrelated regression approach to mitigate the effects of multi co linearity and to test for the stability of parameter estimates across the countries. The results largely suggest that the effect of macroeconomic factors on capital structure varies with capital structure measurement variable in most cases. Bank credit is significant in predicting capital structure choices of firms. The findings of the research also indicate a significantly negative relationship between gross domestic product (GDP) per capita and capital structure choices. Inflation on the other hand positively influences the choice of short-term debt over equity. Stock market development is however insignificant in predicting capital structure choices of firms and expectations of increasing interest rate positively influences firms to substitute long-term debt for short-term debt over equity. Most of the control variables namely asset tangibility, return on equity, return on assets and Tobin’s Q were significant predictors of corporate financing. The results of the study generally supports existing literature on the impact of investment opportunity set, profitability, and stock market development, inflation, interest rate GDP per capita and bank credit on the capital structure decisions of firms.

Apanisile and Olayiwola (2019) investigated whether external environment in which firms operate plays any role in the choice of corporate capital structure decision in Nigeria. A panel data of 66 listed companies, comprising firms' leverage, macroeconomic variables and institutional quality, are used. Data were collected from World Development Indicator, OPEC annual oil price statistics, annual reports and accounts of selected listed companies, fact books published by Nigerian stock exchange and International Country Risk Guide between 1999 and 2015. The study employs pooled OLS, random effect and system-GMM for the analysis. Results show that external environment plays important role in the choice of firm's capital structure as macroeconomic variables and institutional quality variable have significant results. Macroeconomic variables such as inflation, oil price, GDP and lagged value of the dependent variable, have positive and significant results on leverage. Other variables, such as exchange rate, corruption and investment have negative effects on leverage.

**RESEARCH METHODOLOGY**

**Sources of Data**

Data was mainly collected from Nigeria stock exchange fact book. Twenty four (24) companies were selected from various sectors across the stock market. The time series of data cover the period of 2010 to 2015. The data include:

*Independent variables*- Interest rate proxied by lending rate (LDR) , Inflation rate (INFR), Credit to the private sector (CPS), Exchange rate (EXR).

*Dependent variables*- Firms Capital proxied by Equity Capital (SHF)

**Model Specification**

To specify the model, it is imperative we identify the variables and explains their roles in the models.

**Equity Capital = F (Lending rate, Inflation rate, Credit to the private sector, Exchange rate, μ) ...... i**

Where; **Y = Equity Capital (SHF)**

\[ X_1= \text{Lending rate (LDR)} \]

\[ X_2= \text{Inflation rate (INF)} \]

\[ X_3= \text{Credit to the private sector (CPS)} \]

\[ X_4= \text{Exchange rate (EXR)}. \]

\[ \mu = \text{unexplained variable} \]

To examine the relationship between the variables, we adopt the multiple regression equation which is estimated as follows:

\[ SHF=b_0 +b_1LDR+b_2INFR+b_3CPS+b_4INFR+\mu \]

\( b_0 \) is a constant term, ‘t’ is the time and ‘\( \mu \)’ is the random error term.

**Method of Data Analysis**

In other to comprehensively analyze the quantitative data to be used for the purpose of this study Ordinary Least Square method, Augmented Dickey Fuller, Johansen Co integration and Error correction
model were employed. Augmented Dickey Fuller (ADF) Test is applied to test for stationarity of the time series data. The Granger causality test and the Johansen (1988) co-integration test are applied to test for causality between each pair of the variables and long-run relationship between the macroeconomic variables and capital respectively.

The Classical Linear Regression Model (CLRM) which represents the foundational model for most higher and vigorous econometric analyses shall form the most fundamental technique of data analyses for this work. Regression analyses is basically concerned with the study of the dependence of one variable (dependent variable) on one or more other explanatory or independent variables (regressors) with the view to finding out or estimating/predicting the mean or average value of the former in terms of known or repeated values of the latter (Gujarati and Porter, 2009). F-test and T-statistic will be used to test the significance of the overall regression and the significance of the parameter estimates respectively. This is a procedure by which sample results are used to verify the truth or falsity of a null hypothesis in the tests as conducted and reported (Lehman, 1959).

The key idea behind the test of significance of the parameter estimates is that of test statistic (estimator) and the sampling distribution of such under the null hypothesis. The hypothesis is stated thus according Gujarati and Porter (ibid):

\[ H_0 : \beta_i = 0 \]
\[ H_A : \beta_i = 0 \]

The decision to accept or reject \( H_0 \) is made on the basis of the value of the test statistic obtained. If it falls in the acceptance region, the null will be accepted but will be rejected if it falls outside the acceptance region. If the null hypothesis is rejected, it indicates that the parameters are not statistically significant. On the other hand, it is statistically significant if the value of the test statistic obtained.

RESULTS AND DISCUSSION

Presentation of Data

The data used were collected from Nigeria Stock Exchange Fact book from 1986-2018 and comprises of inflation rate, exchange rate, lending rate, equity capital, credit to the private sector.

NDIC Report Various Issues

Analysis and Interpretation of Data

Analysis of the data was carried out using E-views software

Figure 1: Graphical representation of the variables
Barikui et al. (2020).

Table 1: Data for Analysis (1986-2018)

<table>
<thead>
<tr>
<th>Year</th>
<th>Equity Capital (₦'b)</th>
<th>Inflation Rate (%)</th>
<th>Exchange Rate</th>
<th>Lending Rate (%)</th>
<th>Credit To The Private Sector (₦'b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>4300.800</td>
<td>5.60</td>
<td>9.909492</td>
<td>20.01000</td>
<td>41.35246</td>
</tr>
<tr>
<td>1992</td>
<td>4216.200</td>
<td>8.20</td>
<td>17.29843</td>
<td>29.80000</td>
<td>58.12295</td>
</tr>
<tr>
<td>1993</td>
<td>4420.200</td>
<td>13.90</td>
<td>22.05106</td>
<td>18.32000</td>
<td>127.1177</td>
</tr>
<tr>
<td>1994</td>
<td>5447.700</td>
<td>10.10</td>
<td>21.88610</td>
<td>21.00000</td>
<td>143.4242</td>
</tr>
<tr>
<td>1995</td>
<td>6530.600</td>
<td>3.60</td>
<td>21.88610</td>
<td>20.18000</td>
<td>180.0048</td>
</tr>
<tr>
<td>1996</td>
<td>8730.500</td>
<td>29.30</td>
<td>21.88610</td>
<td>19.74000</td>
<td>238.5966</td>
</tr>
<tr>
<td>1997</td>
<td>17666.50</td>
<td>10.70</td>
<td>21.88610</td>
<td>13.54000</td>
<td>316.2071</td>
</tr>
<tr>
<td>1998</td>
<td>25623.90</td>
<td>7.90</td>
<td>21.88610</td>
<td>18.29000</td>
<td>351.9562</td>
</tr>
<tr>
<td>1999</td>
<td>39388.50</td>
<td>6.60</td>
<td>92.69335</td>
<td>21.32000</td>
<td>431.1684</td>
</tr>
<tr>
<td>2000</td>
<td>58706.80</td>
<td>6.90</td>
<td>102.1052</td>
<td>17.98000</td>
<td>530.3733</td>
</tr>
<tr>
<td>2001</td>
<td>97245.00</td>
<td>18.90</td>
<td>111.9433</td>
<td>18.29000</td>
<td>764.9615</td>
</tr>
<tr>
<td>2002</td>
<td>132513.2</td>
<td>12.90</td>
<td>120.9702</td>
<td>24.85000</td>
<td>930.4939</td>
</tr>
<tr>
<td>2003</td>
<td>168516.2</td>
<td>14.00</td>
<td>129.3565</td>
<td>20.71000</td>
<td>1096.536</td>
</tr>
<tr>
<td>2004</td>
<td>206063.1</td>
<td>15.00</td>
<td>133.5004</td>
<td>19.18000</td>
<td>1421.664</td>
</tr>
<tr>
<td>2005</td>
<td>419417.2</td>
<td>17.90</td>
<td>132.1470</td>
<td>17.95000</td>
<td>1838.390</td>
</tr>
<tr>
<td>2006</td>
<td>872513.3</td>
<td>8.20</td>
<td>128.6516</td>
<td>17.26000</td>
<td>2290.618</td>
</tr>
<tr>
<td>2007</td>
<td>1560032.</td>
<td>5.40</td>
<td>125.8331</td>
<td>16.94000</td>
<td>3668.658</td>
</tr>
<tr>
<td>2008</td>
<td>2577601.</td>
<td>11.60</td>
<td>118.5669</td>
<td>15.14000</td>
<td>6920.499</td>
</tr>
<tr>
<td>2009</td>
<td>1982326.</td>
<td>12.50</td>
<td>148.8802</td>
<td>19.55000</td>
<td>9102.049</td>
</tr>
<tr>
<td>2010</td>
<td>179894.4</td>
<td>13.70</td>
<td>150.2980</td>
<td>15.74000</td>
<td>10157.02</td>
</tr>
<tr>
<td>2011</td>
<td>2266759.</td>
<td>10.80</td>
<td>153.8616</td>
<td>16.75000</td>
<td>10660.07</td>
</tr>
<tr>
<td>2012</td>
<td>2215739.</td>
<td>8.00</td>
<td>157.4994</td>
<td>16.54000</td>
<td>14649.28</td>
</tr>
<tr>
<td>2013</td>
<td>2410003.</td>
<td>8.00</td>
<td>157.3112</td>
<td>17.01000</td>
<td>15751.84</td>
</tr>
<tr>
<td>2014</td>
<td>2758640.</td>
<td>9.60</td>
<td>158.5526</td>
<td>15.88000</td>
<td>17131.45</td>
</tr>
<tr>
<td>2015</td>
<td>3213739.</td>
<td>9.10</td>
<td>193.2792</td>
<td>16.96000</td>
<td>18675.47</td>
</tr>
<tr>
<td>2016</td>
<td>3457865.</td>
<td>10.60</td>
<td>253.4923</td>
<td>17.09000</td>
<td>21082.72</td>
</tr>
<tr>
<td>2017</td>
<td>3146037.</td>
<td>16.50</td>
<td>305.7901</td>
<td>17.71000</td>
<td>22092.04</td>
</tr>
<tr>
<td>2018</td>
<td>3189550.</td>
<td>12.09</td>
<td>306.0802</td>
<td>16.90796</td>
<td>22521.93</td>
</tr>
</tbody>
</table>

Source: CBN Statistical Bulletin 2018

The figure 1 shows that SHF, EXR and CPS which represent shareholders capital, exchange rate and credit to the private indicate an upward movement. INF and LDR which represents inflation and lending rates show fluctuating movements.

Table 2: Descriptive Statistics

<table>
<thead>
<tr>
<th>Date: 04/02/20</th>
<th>Time: 22:45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample: 1991 2018</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SHF</td>
</tr>
<tr>
<td>Mean</td>
<td>1108196.</td>
</tr>
<tr>
<td>Median</td>
<td>192978.8</td>
</tr>
<tr>
<td>Maximum</td>
<td>3457865.</td>
</tr>
<tr>
<td>Minimum</td>
<td>4216.200</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>1298373.</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.614902</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>1.670119</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>3.827835</td>
</tr>
<tr>
<td>Probability</td>
<td>0.147501</td>
</tr>
<tr>
<td>Sum</td>
<td>31029486</td>
</tr>
<tr>
<td>Sum Sq. Dev.</td>
<td>4.55E+13</td>
</tr>
<tr>
<td>Observations</td>
<td>28</td>
</tr>
</tbody>
</table>

Source: E-VIEWS 8

The information provided in table 2 shows average lending rate to be 18.591% which implies that companies are borrowing at a high rate which could lead to more constraint in their ability to raise more funds. Exchange rate value averaged 119.2679 to 1 dollar and a maximum value of 306.0802 which implies
highly volatile exchange rate that may affect access to stable finance. Credit to the private sector was averaged ₦6,541.929 billion annually which is less than annual capital raised by the companies under study at about ₦110,819.6 billion.

Table 3: Summary of Augmented Dickey Fuller (ADF) Unit Root Test Result

<table>
<thead>
<tr>
<th>Variables</th>
<th>ADF Unit Root Statistics at 1st difference</th>
<th>Order of integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDR</td>
<td>-6.178834</td>
<td>1 (1)</td>
</tr>
<tr>
<td>INF</td>
<td>-7.877781</td>
<td>1 (1)</td>
</tr>
<tr>
<td>EXR</td>
<td>-3.697056</td>
<td>1 (1)</td>
</tr>
<tr>
<td>CPS</td>
<td>-3.030260</td>
<td>1 (1)</td>
</tr>
<tr>
<td>SHF</td>
<td>-5.436659</td>
<td>1 (1)</td>
</tr>
</tbody>
</table>

Critical values: 1%=-3.711457, 5%=-2.981038, 10%=-2.629906

Source: Author’s computation

The unit root test conducted shows that all the variables become stationary at order 1 and level 1, meaning that they become stationary after the first difference.

The result of the trace co-integration shows there are 5 co-integrating equations amongst the variables. Also, the maximum Eigen value statistics reveals that there are 5 co-integrating equations at 5% level of significance. Therefore, we can conclude that there is long run relationship amongst the variables. It is therefore necessary to use the framework of the Ordinary Least Square (OLS) regression to estimate the short run relationship between the variables.

Table 4: Johansen Cointegration Test

<table>
<thead>
<tr>
<th>Date: 04/03/20 Time: 00:42</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample (adjusted): 1993 2018</td>
</tr>
<tr>
<td>Included observations: 26 after adjustments</td>
</tr>
<tr>
<td>Trend assumption: Linear deterministic trend</td>
</tr>
<tr>
<td>Series: SHF INF EXR LDR CPS</td>
</tr>
<tr>
<td>Lags interval (in first differences): 1 to 1</td>
</tr>
</tbody>
</table>

Unrestricted Cointegration Rank Test (Trace)

<table>
<thead>
<tr>
<th>Hypothesized</th>
<th>Trace</th>
<th>0.05</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of CE(s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>Statistic</td>
<td>Critical Value</td>
</tr>
<tr>
<td>None</td>
<td>0.699339</td>
<td>78.87394</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.634198</td>
<td>47.62783</td>
</tr>
<tr>
<td>At most 2 *</td>
<td>0.384140</td>
<td>21.48056</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.167899</td>
<td>8.877435</td>
</tr>
<tr>
<td>At most 4</td>
<td>0.145841</td>
<td>4.098589</td>
</tr>
</tbody>
</table>

Trace test indicates 5 co-integrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Co integration Rank Test (Maximum Eigen value)

<table>
<thead>
<tr>
<th>Hypothesized</th>
<th>Max-Eigen</th>
<th>0.05</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of CE(s)</td>
<td>Eigen value</td>
<td>Statistic</td>
</tr>
<tr>
<td>None</td>
<td>0.699339</td>
<td>31.24611</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.634198</td>
<td>26.14727</td>
</tr>
<tr>
<td>At most 2 *</td>
<td>0.384140</td>
<td>12.60312</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.167899</td>
<td>4.778846</td>
</tr>
<tr>
<td>At most 4</td>
<td>0.145841</td>
<td>4.098589</td>
</tr>
</tbody>
</table>

Max-eigen value test indicates 5 co integrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values
In table 5, the researcher regressed SHF on values of LDR, INF, EXR, CPS for a sample of 28 years. In the work, four models were considered:

\[
SHF = f \left( LDR, INF, EXR, CPS \right)
\]

Where f= function.

Having considered the above four variants , the researcher chose item 4, the values of dependent and independent variables, which seemed to reduce the spuriousity of the regression results. The regression results as shown in table 5, are presented as:

\[
SHF = 811.1165 - 27.40014 \times LDR - 19.2731 \times INF + 11.27823 \times EXR + 136.1460 \times CPS.
\]

Using the \( p \) value (i.e., the exact level of significance), we test the various hypotheses.

**Hypothesis One**

**H\(_{01}\):** There is no significant relationship between interest rate and firms’ capital in Nigeria  
**H\(_1\):** There is significant relationship between interest rate and firms’ capital in Nigeria

The model shows that Interest rate has negative relationship with firms’ capital, that is, 1 unit decrease in INTR will result in 11.27823 unit rise in SHF. This conforms to apriori expectation as high lending rate discourages investment.

The standard error test shows that SE for LDR is 34.01416 which is greater than \( b_1/2 \) estimate. Going by the decision rule that: if \( b_1/2 > S (b_1) \) accept that the variables are statistically insignificant. This implies that Interest rate is statistically insignificant with firm’s capital. The t-Statistics shows a value of -0.805551 with a prob. value of 0.4288 which is greater than 0.05 or 5% confidence level of significance. From our result, we accept the null hypothesis that there is no significant relationship between interest rate and firms’ capital in Nigeria.

**Hypothesis Two**

**H\(_{02}\):** There is no significant relationship between inflation and firms’ capital in Nigeria  
**H\(_2\):** There is significant relationship between inflation and firms’ capital in Nigeria

The model equally shows that inflation has negative relationship with firms’ capital, that is, 1 unit decrease in INF will result in 19.2733 unit rise in SHF. This conforms to apriori expectation. As it implies that high inflation rate results in constraint of finance. The t-Statistics shows a value of -0.998906 with a prob. value of 0.3282 which is greater than 0.05 or 5% confidence level of significance. From our result, we accept the null hypothesis that there is no significant relationship between inflation and firms’ capital in Nigeria.

**Hypothesis Three**

**H\(_{03}\):** Exchange rate has no significant relationship with firms’ capital in Nigeria  
**H\(_3\):** Exchange rate has significant relationship with firms’ capital in Nigeria

The model equally shows that Exchange rate has positive relationship with firms’ capital, that is, 1 unit decrease in EXR will result in 0.398897 unit rise in firms’ capital. This conforms to apriori expectation. The t-Statistics shows a value of 0.469175 with a prob. value of 0.6434 which is greater than 0.05 or 5% confidence level of significance. From our result, we reject the null hypothesis and accept the alternative
hypothesis that Exchange rate has no significant relationship with firms’ capital in Nigeria.

**Hypothesis Four**

\( H_0^4 \): There is no significant impact of credit to the private sector on firms’ capital in Nigeria.

\( H_1^4 \): There is significant impact of credit to the private sector on firms’ capital in Nigeria.

The model equally shows that credit to the private sector has positive relationship with equity capital, that is, 1 unit decrease in CPS will result in 0.136,1460 unit rise in equity capital. This conforms to a priori expectation. The t-Statistics shows a value of 5.366171 with a prob.value of 0.000 which is less than 0.05 or 5% confidence level of significance. From our result, we reject the null hypothesis and accept the alternative hypothesis that there is significant impact of credit to the private sector on firms’ capital in Nigeria.

The overall goodness of fit of our regression model, usually measured by the coefficient of determination, \( R^2 \), is 0.872119, which is 87.21%. This means that the proportion of the variation in the dependent variable, or regressed and explained by the explanatory (or independent) variables or repressors, is 87.21%.

The adjusted \( R^2 \) (or \( R^2_a \)), a summary statistic for \( R^2 \), is 0.849879. Adjusted \( R^2 \) adjusts for the degree of freedom (df) associated with the sums of squares entering into \( R^2 \) equation. \( R^2 \) and \( R^2_a \), as goodness of fit measures, were used to establish the adequacy of our regression model.

The assumption of non autocorrelation of our model relates to the population disturbances or error terms, \( u_i \), which are not directly observable. The residuals, \( u_i \), can be obtained through the OLS procedures, are the proxies for \( u_i \). The Durbin-Watson \( d \) test, based on the estimated residuals and reported in the model, is 1.8579, approximated to 1.9. If the \( d \) test statistic is 2, there is no serial correlation (no first-order autocorrelation). According to Davidson (2000), the closer \( d \) is to 2, the greater the evidence that here is no First-order autocorrelation. The \( d \) test statistic in our model is 1.9, closer to 2; we conclude that there is no first-order autocorrelation in regression model.

<table>
<thead>
<tr>
<th>Pairwise Granger Causality Tests</th>
<th>Date: 04/03/20</th>
<th>Time: 00:51</th>
<th>Sample: 1991 2018</th>
<th>Lags: 2</th>
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<td><strong>Null Hypothesis:</strong></td>
<td><strong>Obs</strong></td>
<td><strong>F-Statistic</strong></td>
<td><strong>Prob.</strong></td>
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<td>INF does not Granger Cause SHF</td>
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<td>EXR does not Granger Cause SHF</td>
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<td>SHF does not Granger Cause EXR</td>
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<td>SHF does not Granger Cause LDR</td>
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<tr>
<td>CPS does not Granger Cause SHF</td>
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<td>3.14341</td>
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<td>SHF does not Granger Cause CPS</td>
<td>26</td>
<td>13.4567</td>
<td>0.0002</td>
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</table>

**Source:** Eviews

The granger causality test shows that exchange rate has unidirectional causality relationship with equity capital which implies that exchange rate influences the direction of firms’ equity capital. Again, credit to the private sector has bidirectional causality relationship with equity capital. However, lending rate and inflation rate have no causality relationship with equity capital.
Discussion of Findings

From the result, it can be observed that truly the state of the economy is a crucial factor that can influence the financial decisions and behavior of firms. When the economic conditions are good the firms tends to perform well as opportunities especially financing opportunities would be available in the economy at favorable cost and firms would have the opportunities to access funds from different financing sources. Equity capital in form of shareholders' fund has been argued by theories and most literatures as the most important source of capital which offers less risk and cost to profitability of firms. Findings showed that exchange rate has positive impact on equity capital which implies that fluctuations in exchange rate affect the ability of firms in Nigeria to raise capital for investment. It has been argued that interest rates affects decision about how to save and invest. A high lending rate makes it difficult for organizations to borrow and thus rely on the stock market for funding. However, investors may also shy away from borrowing to invest in any business if the cost of borrowing is too high as the case of Nigeria is. Thus the findings is in line with those of Hatzinikolaou, Katsimbris and Noulas (2002); Hackbarth, Miao and Morellec (2006), Sinha and Gosh (2010) and Cook and Tang (2010) and contradicts Drobetz and Nanzenried, 2006; Bokpin, 2009; Sinha and Ghosh, 2010; Cook and Tang, 2010).

Again, inflation has negative impact on equity capital of companies in Nigeria. It has been argued that inflation makes the real cost of debt lower such that the demand for debt increases during inflationary period. During inflationary period when the real cost of debt becomes cheaper firms employ more debt to mitigate the agency related problems which thus is in line with our findings as its obvious that lower equity capital implies higher debt finances. Our findings is in line with those of Noguera (2001), Korajczyk and Levy (2003), Bokpin (2009), and Yinusa, Alimi and Ilo (2017) but contradicts Cebenoyan, Fischer and Papaioannou, 1995; Sinha and Ghosh, 2010; Ali, 2011). The positive impact of exchange rate on equity capital implies that exchange rate increase tend to increase the demand for domestic products and the cost of imported capital and other imported inputs. It will cause investment increase only if the impact on demand is more than the cost effect. Our findings suggest that the more the exchange rate depreciates, the lower the value (in real terms) of the goods and services (including salaries and wages of workers) produced in a country vis-à-vis its trading partners which thus affects ability to raise capital. In order words, a stable exchange rate instills confidence on the economy and enables companies’ access to capital to expand. An unstable exchange rate discourages investment and leads to constraint in sourcing for capital by firms. The findings support the outcome of related studies such as Lotfalipour, Ashena, and Zabibi, (2013), Jongbo (2014), Ndubuaku, Onwuka, Onyedika and Chimezie (2019) which found significant impact of exchange rate on companies ability to raise funds.

It was also found that credit to the private sector leads to increase in equity capital which implies that easy access to loans makes it easy for companies and investors to invest. It reduces the strain of sourcing for finance by companies. However, a country with low credit delivery will make it difficult for firms to raise capital. As observed by Solomon (2015),the banking sector in Nigeria, which is the main source of credit to the productive sectors of the economy, is an important channel of financial intermediation through which financial resources can be mobilized for productive investment in the sector.

CONCLUSION AND RECOMMENDATIONS

An in-depth understating on the causalities and correlations between macroeconomic conditions or factors and ability of firms to raise capital has become necessary owing to its benefits for financially constrained firms. Macroeconomic variables drive the wheels of economic development in an economy and as such its influence cuts across all sectors of the economy including businesses ability to source for funds. The result of the study confirms some of our a priori expectation to a reasonable extent. Positive but insignificant relationship exists between exchange rate and equity capital. Negative and insignificant relationship between inflation and equity capital and a similar result obtained for lending rate and equity capital. A positive and significant relationship was obtained for credit to the private sector and equity capital. Granger causality test reveals no causal relationship between interest rate, inflationary rate, and exchange rate and credit to the private sector have causal relationship with equity capital. In conclusion, it can be deduced that macroeconomic conditions affects financially constrained firms from raisin internal and external capital.

Based on the findings, the study recommends as follows:

- The study strongly urges that firms should use and source more of equity capital than debt in financing their business activities.
- The Central Bank of Nigeria should take the fight against inflation serious as it tends to
adversely affect business ability to invest, grow and raise capital.

- The CBN and banks in Nigeria should reduce lending rates to encourage borrowing and access to finance by firms in Nigeria.
- During high inflation period, firms should use high levels of long-term debt which should be accompanied by a disciplined administration if they are to reduce agency costs and benefit from interest tax shields and thereby improve performance.
- Each firm should establish with the aid of professional financial managers, that particular debt-equity mix that maximizes its value and minimizes its weighted average cost of capital.

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