ABSTRACT
Working capital characteristics constitutes a substantial component of the total assets and liabilities of many organizations. Expectedly therefore, the way in which it is managed will have a significant influence on financial performance of the company concerned. It is for this reason that a large number of business failures in the part were attributed to the inability of financial managers to plan and control the working capital characteristics of their respective firms. These managerial inadequacies are still manifesting in organizations today in the form of high bad debts, over/under stocking, cash crises among others with their concomitant effect on their operational performance. This paper empirically investigates the influence of working capital characteristics on financial performance of quoted manufacturing companies in Nigeria. Time series data of different variables of working capital characteristics and financial performance from 2011-2015 were collected from annual published accounts of organizations from “Nigerian stock exchange”. The autoregressive distributed log (ARDL) model/bounds test was used in analyzing the data with the aid of “E-view 7”. The results indicate that debt financing, equity financing has a significant effect with return on equity and return on assets. The study concludes that working capital characteristics has the potency to make significant effect on financial performance of quoted companies in Nigeria. On the premises of the revelations from this study we recommends that; organizations, whether small, medium or large should consciously formulate policies geared towards effective management of working capital in view of its inherent value – adding role.

Keywords: Debt Financing, Equity Financing, Return on Equity, Return on Assets and Working Capital Characteristics.

INTRODUCTION
Financing is one of the oldest and crucial areas of a firm's operations. A financial manager is concerned with the determination of the best financing mix and combination of debts and equity for his firm's operations to yield maximum returns on investment. Capital structure decision is the mix of debt and equity that a company uses to finance its business operations and growth. (Damodaran, 2001). One of the importance of capital structure is that it is tightly related to the ability of firms to fulfill the needs of various stakeholders. Capital structure represents the major claims to a corporation’s assets which includes the different types of both equities and liabilities (Riahi-Belkaoui, 1999). There are various alternatives of debt-equity ratio, these includes; 100% equity: 0% debt, 0% equity: 100% debt and X% equity: Y% debt (Dare & Sola 2010). From these three alternatives, option one is that of the unlevered firm, that is, the firm that shuns the
advantage of leverage (if any). Option two is that of a firm that has no equity capital. This option may not actually be realistic or possible in the real life economic situation, because no provider of funds will invest his money in a firm without equity capital. This partially explains the term “trading on equity”, that is, it is the equity element that is present in the firm’s capital structure that encourages the debt providers to give their scarce resources to the business. Option three is the most realistic one in that, it combines both a certain percentage of debt and equity in the capital structure and thus, the advantages of leverage (if any) is exploited. This mix of debt and equity has long been the subject of debate concerning its determination, evaluation and accounting.

After the Modigliani-Miller (1958 & 1963) paradigms on firms’ capital structure and their market values, there have been considerable debates, both in theoretical and empirical researches on the nature of relationship that exists between a firm’s choice of capital structure and its market value. Debates have centered on whether there is an optimal capital structure for an individual firm or whether the proportion of debt usage is relevant to the individual firm's value (Baxter, 1967). Although, there have been substantial research efforts devoted by different scholars in determining what seems to be an optimal capital structure for firms, yet there is no universally accepted theory throughout the literature explaining the debt-equity choice of firms. But in the last decades, several theories have emerged explaining firms’ capital structure and the resultant effects on their market values. These theories include the pecking order theory by Donaldson, (1961), the capital structure relevance theory by Modigliani & Miller (1958 & 1963), the agency costs theory and the trade-off theory (Bokpin & Isshaq, 2008). However, my contribution/view to the research on an optimal capital structure is that bearing in mind current economic conditions, an above-average-equity to below-average-debt capital should be very ideal for firms. This will show commitment on the part of the investors and look juicy to the debt providers.

Financial constraints have been a major factor affecting corporate firms’ performance in developing countries especially Nigeria. The basis for the determination of optimal capital structure of corporate sectors in Nigeria is the widening and deepening of various financial markets. Mainly, the corporate sector is characterized by a large number of firms operating in a largely deregulated and increasingly competitive environment. Since 1987, financial liberalization has changed the operating environment of firms, by giving more flexibility to the Nigerian financial managers in choosing their firms’ capital structure. Alfred (2007) suggested that a firm’s capital structure implies the proportion of debt and equity in the total capital structure of the firm. Pandey (1999) differentiated between capital structure and financial structure by affirming that the various means used to raise funds represent the firm’s financial structure, while the capital structure represents the proportionate relationship between long-term debt and equity capital. Therefore, a firm’s capital structure simply refers to the combination of long-term debt and equity financing. Again, it is my opinion that considering the current economic conditions prevailing in Nigeria, debt providers are not willing to give out long term finance. However, whether or not an optimal capital structure exists in relation to firm value, is one of the most important and complex issues in corporate finance.

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. Research on the link between working capital characteristics and financial performance has been rewarding, revealing a significant relationship between working capital characteristics and financial performance (Abdul, 2010, Taiwo 2012).

The rest of this empirical paper is organized as follows: Section two provides a review of the related literature, theoretical framework, concepts and hypotheses. Section three discusses the research methodology and model specification. Section four presents the empirical results and discussion. Section five ends up the paper with summary, conclusion and recommendations.

**Review of related literature and hypotheses**

In finance, accounting, the capital structure substitution theory (CSS) describes the relationship between “earnings, stock price and “capital structure of public companies.” Timmer, (2011). The Capital Structure Substitute theory hypothesizes that managements of public companies manipulate capital structure such that “earnings per share” (EPS) are maximized. Managements have an incentive to do so because shareholders and analysts value EPS growth. The theory is used to explain trends in capital structure, “stock market valuation, dividend policy, the monetary transmission mechanism, and stock volatility,” and provides an alternative to the “Modigliani–Miller theorem” that has limited descriptive validity in real markets. The CSS theory is only applicable in markets where share repurchases are allowed. Investors can use the CSS theory to identify undervalued stocks. Zürcher (2014), Godwin,(2015).

**The formula**

The CSS theory assumes that company managements can freely change the capital structure of the company – substituting bonds for stock or vice versa – on a day-to-day basis and in small denominations without paying transaction costs (Kotliar, 2016). Companies can decide to buy back one single share for the current market price \( P \) and finance this by issuing one extra corporate bond with face value \( P \) or do the reverse. In mathematical terms these substitutions are defined as

![CSS equilibrium conditions](image)

CSS equilibrium conditions: (1) companies fulfilling the equilibrium condition are found on \( B-B^* \), (2) companies cannot issue debt with interest rates below ‘Aaa’ rated bonds on line \( A-A^* \), (3) high valued companies with \( E/P < R^*[1-T] \) are not expected to hold long term debt, pay no dividends and are found on line \( A-B \).
Where D is the corporate debt and n the number of shares of company x at time t. The negative sign indicates that a reduction of the number of shares n leads to a larger debt D and vice versa. The earnings-per-share change when one share with price P is repurchased and one bond with face value P is issued:

1. The earnings that were ‘allocated’ to the one share that was repurchased are redistributed over the remaining outstanding shares, causing an increase in earnings per share of:

2. The earnings are reduced by the additional interest payments on the extra bond. As interest payments are tax-deductible the real reduction in earnings is obtained by multiplying with the tax shield. The additional interest payments thus reduce the EPS by:

Combining these two effects, the marginal change in EPS as function of the total number of outstanding shares becomes:

where

- E is the earnings-per-share
- R is the nominal interest rate on corporate bonds
- T is the corporate tax rate

EPS is maximized when substituting one more share for one bond or vice versa leads to no marginal change in EPS or this equilibrium condition is the central result of the CCS theory, linking stock prices to interest rates on corporate bonds.

**Conceptual Review**

The term capital structure according to Kennon (2010) refers to the percentage of capital (money) at work in a business by type. There are two forms of capital: equity capital and debt capital. Alfred (2007) stated that a firm’s capital structure implies the proportion of debt and equity in the total capital structure of the firm. Pandey (1999) differentiated between capital structure and financial structure of a firm by affirming that the various means used to raise funds represent the firm’s financial structure, while the capital structure represents the proportionate relationship between long-term debt and equity. The capital structure of a firm as discussed by Inanga and Ajayi (1999) does not include short-term credit, but means the composite of a firm’s long-term funds obtained from various sources. Therefore, a firm’s capital structure is described as the capital mix of both equity and debt capital in financing its assets. However, whether or not an optimal capital structure exists is one of the most important and complex issues in corporate finance.

Capital structure, preferred stock and common equity are mostly used by firms to raise needed funds, capital structure policy seeks a trade-off between risk and expected return. The firm must consider its business risk, tax positions, financial flexibility and managerial conservatism or aggressiveness, while these factors are crucial in determining the target capital structure, operating conditions may cause the actual capital structure to differ from the optimal capital structure.

A critical decision for any business organization is a decision for an appropriate capital structure; the decision is not only because of the need to maximize returns to various organizational constituencies, but on an organization’s ability to deal with its competitive environment. The prevailing argument, originally developed by Modigliani and Miller (1958), is that an optimal capital structure exists which balances the risk of bankruptcy with the tax savings of debt. Once established, this capital structure should provide greater returns to stock holders than they would receive from an all-equity firm.

In theory, modern financial techniques would allow top managers to calculate accurately optimal trade-off between equity and debt for each firm. However, in practice; many studies found that most firms do not have an optimal capital structure. This is due to the fact that the managers do not have an incentive to maximize firm’s performance because their compensation is not generally linked to it. Moreover, since managers do not share firm’s profits with shareholders, they are very likely to increase company’s expenditures by purchasing everything they like and
surrounding themselves of luxury and amenities. Hence, the main concern of shareholders is ensuring that managers do not waste firm’s resources and run the firm in order to maximize its value, which entails finding a way to solve the principal-agent problem.

According to Ngereboa (2009), Capital structure is “the combination of the debt and equity structure of a company.” It can also be referred to “as the way a corporation finances its assets through some combination of equity, debt or hybrid securities; that is the combination of both equity and debt.” A firm’s capital structure is then the composition of its liabilities. The various components of a firm’s capital structure according to Inanga and Ajayi (1999) may be classified into equity capital, preference capital and long-term loan (debt) capital.

Equity capital refers to the contributed capital; money originally invested in the business in exchange for shares of stock; and retained profits; profits from past years that have been kept by the company to strengthen the balance sheet, growth, acquisition and expansion of the business. Preference capital refers to a hybrid that combines the features of debentures and equity shares except the benefits while debt capital refers to the long term bonds used by the firm in financing its investment decisions while coming up with its principal and also paying back interest.

Empirical Studies
With the view of helping both growing and grown firms in structuring their finance efficiently, many studies have been undertaken home and abroad, that is; locally and internationally, on this area of study. Some of these studies will be discussed in this section and to make this section easier, it will be grouped internationally and locally. The following studies were undertaken locally, here in Nigeria;

Chandrasekharan (2012) on its part, conducted a study using 87 firms out of the population of 216 firms listed on the Nigeria stock exchange for a period of five years (2007-2011) from static trade-off, agency and pecking order theory point of view. He employed the panel multiple regression analysis and the study reveals that for the Nigerian listed firms; firms’ size, growth and age are significant with the debt ratio of the firm, whereas, profitability and tangibility are not.

Babalola (2014), did not quite agree, using 31 manufacturing firms with audited financial statements for a period of fourteen years (1999 -2012) from static trade-off point of view. He employed the triangulation analysis and the study revealed that capital structure is a trade-off between the costs and benefits of debt, and it has been refuted that large firms are more inclined to retain higher performance than middle firms under the same level debt ratio. In another study, using a sample of 10 firms for a period of 10 years (‘2000-2009) from agency and static trade-off point of view. He used the regression analysis and concluded that the manufacturing industry’s capital structure in Nigeria is consistent with trade-off theory and the hypothesis tested that the corporate performance is a nonlinear function of the capital structure.

Akinyomi (2013), using three manufacturing companies selected randomly from the food and beverage categories and a period of five years (2007-2011) using the static trade-off and the pecking order theory point of view. He adopted the use of correlation analysis method and revealed that each of debt to capital, debt to common equity, short term debt to total debt and the age of the firms’ is significantly and positively related to return on asset and return on equity but long term debt to capital is significantly and relatively related to return on asset and return on return on equity. His hypothesis also tested that there is significant relationship between capital structure and financial performance using both return on asset and return on equity.

Taiwo (2012), using ten firms listed on the Nigerian Stock Exchange for a period of five years (2006-2010) from the static trade-off, pecking order and agency theory point of view. In his findings, He employed the Pesaran and shine unit root test and Panel Least Square test and revealed that the sampled firms were not able to utilize the fixed asset composition of their total assets judiciously to impact positively on their firms’ performance.

Bassey, Aniekan, Ikpe & Udo (2013), using a sample of 60 unquoted agro-based firms in Nigeria within a period of six years (2005-2010) from the agency cost theory point of view. They
employed the Ordinary Least Square regression and descriptive statistics and revealed that only growth and educational level of firms owners were significant determinants of both long and short term debt ratios, assets structure, age of the firms, gender of owners and export status impacted significantly on long term debt ratios, while business risk, size and profitability of firms were major determinants of short term debt ratio for the firms under investigation.

Simon-Oke & Afolabi (2011), using a study of five quoted firms within a period of nine years (1999-2007) from the static trade-off and agency cost theory point of view. They employed the panel data regression model and revealed in their study a positive relationship between firms’ performance and equity financing as well as between firms’ performance and debt-equity ratio. There is also a negative relationship that exists between firm’s performance and debt financing due to high cost of borrowing in the country.

Semiu & Collins (2011), using a sample size of 150 respondents and 90 firms were selected for both primary data and secondary data respectively for a period of five years (2005-2009) from the relevance, pecking order, the free cash flow, the agency cost and the trade-off theory point of view. They employed the descriptive statistics and Chi-square analysis and suggested that a positively significant relationship exists between a firm’s choice of capital structure and its market value in Nigeria.

The following were undertaken internationally; outside Nigeria:

Ong & Teh (2011) investigated on the capital structure and firms performance of construction companies for a period of four years (2005-2008) in Malaysia. Long term debt to capital, debt to asset, debt to equity market value, debt to common equity, long term debt to common equity were used as proxies as the independent variables (capital structure) while returns on capital, return on equity, earnings per share, operating margin, net margin were used to proxy the corporate performance. The result shows that there is relationship between capital structure and corporate performance.

In Jordan, Zeitun & Tian (2007) conducted a study on capital structure and corporate performance on 167 Jordanian firms between 1989-2003. They found a significantly negative relationship between capital structure and corporate performance. Many variables such as return on assets, return on equity, profitability, Tobin’s Q were used to measure performance while leverage, growth, size and tangibility were proxies for capital structure.

In Sri Lanka, Puwanenthiren, (2011) carried out an investigation on capital structure and financial performance of some selected companies in Colombo Stock Exchange between 2005-2009. Capital structure was surrogated by debt while performance was proxy by gross profit, net profit, return on investment / capital employed and returns on assets. The results shown the relationship between the capital structure and financial performance is negative.

Khalaf (2013) using a sample of 45 manufacturing companies listed on the Amman Stock Exchange were used for this study which covers a period of five (5) years from 2005-2009. Multiple regression analysis was applied on performance indicators such as Return on Asset (ROA) and Profit Margin (PM) as well as Short-term debt to Total assets (STDTA), Long term debt to Total assets (LTDTA) and Total debt to Equity (TDE) as capital structure variables. The results show that there is a negative and insignificant relationship between STDTA and LTDTA, and ROA and PM; while TDE is positively related with ROA and negatively related with PM. STDTA is significant using ROA while LTDTA is significant using PM. The study concludes that statistically, capital structure is not a major determinant of firm performance. It recommends that managers of manufacturing companies should exercise caution while choosing the amount of debt to use in their capital structure as it affects their performance negatively.

In Pakistan, Abdul (2010) using 36 engineering sector firms in Pakistani market listed on the Karachi Stock Exchange (KSE) during the period 2003-2009 applied Pooled Ordinary Least Square regression and revealed the results show that financial leverage measured by short term debt to total assets (STDTA) and total debt to total assets (TDTA) has a significantly negative relationship with the firm performance measured by Return on Assets (ROA), Gross Profit
Margin (GM) and Tobin’s Q. The relationship between financial leverage and firm performance measured by the return on equity (ROE) is negative but insignificant. Asset size has an insignificant relationship with the firm performance measured by ROA and GM but negative and significant relationship exists with Tobin’s Q. Firms in the engineering sector of Pakistan are largely dependent on short term debt but debts are attached with strong covenants which affect the performance of the firm.

However, what we discovered with the majority of this studies is that they are sectorial focusing; like the studies of Babalola (2014), Akinyomi (2013) & Khalaf (2013) focused on manufacturing industries of Nigeria and Amman, Shehu (2011) concentrated on insurance companies in Nigeria, Basseu, Aniekan, Ikpe & Udo (2013) focused on agro-based companies in Nigeria, Ong & Teh (2011) concentrated on construction companies in Malaysia, Berger and Wharton (2002) focused on the U. S. banking industry and Abdul (2010) focusing on the engineering sector in Pakistan. Nonetheless, most of the studies fall under the same range of period of 2000-2011 as their year of assessment, the exception of Zeitun & Tian (2007) reviewed between 1989-2003 with a period of fifteen (15) years. Most of the studies did not study on the leverage position of the firms except Ogebe, Ogebe & Alewi. (2011). In conclusion, the findings of the foreign studies are very vital only that the differences in their political and economic situation among the nations may hinder their finding from being applicable to Nigeria.

The empirical literature suggests a number of factors that may influence the financial structure of companies. As argued by Timan & Wessels (1988) and Harris & Reviv (1991), the choice of explanatory variables in the analysis of cross-sectional variation in capital structure is fraught with difficulty. As argued by Harris & Raviv (1991), the interpretation of results must be tempered by an awareness of the difficulties involved in measuring both leverage and the explanatory variables of interest. Rajan & Zingales (1995) in their study of capital structure in the G-7 economies find gearing in the UK to be positively related to tangibility (the proportion of fixed to total assets) and the size of the company, but negatively related to the level of profitability and the market-to-book ratio. The results of Rajan & Zingales (1995) are highly dependent upon the precise definition of gearing being examined. Most of the empirical evidence on capital structure comes from studies of the determinants of corporate debt ratios e.g., Timan & Wessels (1988), Rajan & Zingales (1995), Graham (1996) and studies of issuing firms’ debt vs. equity financing choice Marsh (1982), Jallily & Harris (1984), Bayless & Chaplisky (1990), Mackie-Mason (1990) and Jung et al. (1996). These studies have successfully identified firm characteristics such as size, R and D intensity, market-to-book ratio of assets, stock returns, asset tangibility, profitability and the marginal tax rate as important determinants of corporate financing choices. The effects associated with profitability ad market-to-book ratio have been found to be especially important. Allen (1991) investigated the financial managers’ perceptions of the broad determinants of listed Australian company capital structure decisions. His results were consistent with Donaldson’s (1984) previously reported American funding, in that companies appear to follow a pecking order with respect to funding sources and also report policies of maintaining spare debt capacity. His study provides a practical explanation of why debt levels and company profitability might be inversely related. Filbeck et al. (1996) tested the Patel et al. (1991) hypothesis that firms have a tendency to keep their capital structure in line with the industry and found (unlike Patel et al., 1991) virtually no support for herding behaviour of firms. They find only weak support for this hypothesis and conclude that firms act rationally with respect to financing decisions. Bervan & Daubolt (2001) examined the difficulties of measuring gearing and test the sensitivity of Rajan and Zingales results to variations in gearing measures. Based on an analysis of the capital structure of 822 UK Companies, they found Rajan & Zingales (1995) results to be highly definitional-dependent. They argue that analysis of capital structure is incomplete without a detailed examination of all forms of corporate debt. The determinants of gearing appear to vary significantly, depending upon which component of debt is being analyzed. Graflund (2000) found empirical support that capital structure follow a dynamic equilibrium path.
Hence, we cannot reject any of the theories suggesting on optimal capital structure. The findings justify the use of the cointegration framework on capital structure relationships and this ought to be applicable on other companies as well as industries. Fama and French (2002) agree that the negative effects of profitability on leverage is consistent with the pecking order model, but also find that there is an offsetting response of leverage to changes in earnings, implying that the profitability effects are in part due to transitory changes in leverage rather than changes in the target. Bancel & Mittoo (2002) in their study survey managers of firms in seventeen European countries on their capital structure choice and its determinants. Financial flexibility, credit rating and tax advantage of debt are the most important factors influencing the debt policy while the earnings per share dilution is the most important concern in issuing equity. Evidence also supports that the level of interest rate and the share price are important considerations in selecting the timing of the debt and equity issues, respectively. Finally, hedging considerations are the primary factors influencing the selection of the maturity of debt or when raising capital abroad.

Horakimian et al. (2003) have successfully identified firm characteristics such as size, R and D intensity, market-to-book ratio of assets, stock returns, asset tangibility, profitability and the marginal tax rate as important determinants of corporate financing choices. It was reported that high market-to-book firms have low target debt ratios. On the other hand, consistent with market timing, high stock returns increase the probability of equity issuance, but have no effect on target leverage.

Singh & Hamid (1992) and Singh (1995) pioneer research into corporate capital structure in developing countries. Singh (1995) observes that developing countries firms finance themselves differently, mainly due to a different financial environment. He examines financing patterns of 100 top corporations in ten developing countries in the eighties. The basic conclusions are that, first, in developing countries there is an inverse pecking order as corporations rely heavily on external financing, especially stock issues and short-term finance. Second, top corporations in developing countries rely more heavily on equity issues than their counterparts in developed countries. While in the UK and the US, large issues of stock by large corporations are likely in the periods of high takeover activity; LDC’s countries corporations use the proceeds to finance their regular investments, which is a major difference in motivation to issue shares.

Furthermore, Singh (1995) reveals that governments play substantial role in stock market formation and development, they pursue pro-equity financing policies and limit debt and equity financing of firms, especially abroad. In addition, according to him, existence of global international markets gives a special boost to stock market development in LDCs.

Omet & Mashharawe (2002) examine the nature and determinants of the company structure choice of Jordanian, Kuwaiti, Omani and Saudi non-financial listed companies. Based on the time period 1996-2001, the results indicate that Jordanian, Kuwaiti, Omani and Saudi companies have quite low leverage ratios. They argue further that the empirical results indicate that the financing decisions of Jordanian, Kuwaiti, Omani and Saudi companies can be explained by the determinants suggested by mainstream corporate finance models. Green et al. (2003) studied the financing activities of Indian quoted and unquoted companies using a unique new company accounts data set. Overall, their study provides a wealth of new information about corporate financial structures in the Indian economy.

According to Balla & Mateus (2003), in a country like Portugal that has suffered a strong development in the last fifteen years, the results are very similar to those obtained in Hungary. Total debt ratio is influenced by variables like asset tangibility, business risk, size and return on assets. Their finding that the more profitable the firm, the lower the debt ratio is consistent with the pecking-order hypothesis. Assets tangibility also affects financing decisions.

Baner (2004) examined the capital structure of listed companies in Visegrad countries (Czech Republic, Hungary, Poland & Slovak Republic) during the period from 2000 to 2001. The results are based on the database, which assembles financial reports of listed firms. In his study, six potential determinants of capital structure are analysed size, profitability, tangibility, growth
opportunities, non-debt tax shields and volatility. According to his findings, leverage of listed firms in Vise grad countries is positively correlated with size. Leverage is negatively correlated with profitability. This finding is consistent with the pecking-order hypothesis rather than with static trade-off models. Also, leverage is negatively correlated with tangibility and non-debt tax shields. There is a negative relationship between leverage measured in market value and growth opportunities. Semiu & Collins (2011) examined the considerable factors in deciding on the appropriate amount of equity and debt in the Nigerian banking industry and the factors influencing banks’ capital structure. His study revealed that ownership structure and management control, growth and opportunity, profitability, issuing cost and tax economics associated with debt are the major factors influencing bank’s capital structure. The empirical evidences discussed above came out of research investigations that mainly reproduced the literature relating to developed economies and few developing countries. Hence, the understanding of the determinants of capital structure can hardly be understated for a developing economy such as Nigeria, given the present state of international capital market.

RESEARCH METHODS
Methodological Framework and Model Specification
This section describes the methods adopted in this study. The research design adopted is causal – comparative design which attempts to identify the cause-effect relationship between working capital components and financial performance. The empirical study is to ascertain the effect of overall variables of working capital and financial performance and to determine the causal relationships of the variables.

The area of the study is Nigeria. Nigeria comprises 36 states and its Federal Capital Territory Abuja occupying an area of 923, 768km², 32nd in the world. It is the 7th most populous country in the world with population estimated above 1745 million as at 2015, and a density of 188,9km², 71st in world. Nigeria is considered as an emerging market nation by the World Bank and regarded as the second largest economy in Africa and currently the 31st largest in the world (Wikipedia, 2015).

In obtaining our data we adopted multi-stage sampling technique. First, we purposively selected the quoted manufacturing companies in Nigeria as our sampling population. We recognize that the quoted manufacturing companies spread across the major sectors of Nigeria economy making our choice well representative for our target population, the Nigeria manufacturing industry. Again, to ensure that our study covers the various sectors within our sampling frame, we employed stratified sampling technique as our sampling scheme in selecting the sampling units. Selecting the companies using this method, we sampled companies from all the sectors within this industry. Third, we employed convenience – sampling technique in selecting the sampling elements from our sampling units. This became necessary as our investigations revealed that several of our sampling objects do not have copies of annual report over the years which we investigated, while several others did not file their annual reports in the returns which they submitted to the corporate affairs commission. In addition, we discovered that the annual reports filed with the Nigerian Stock Exchange before 2015 were no longer available as NSE had discarded these reports (Zfitun & Tian 2007; Shehu, 2011; Taiwo, 2012; Toby, 2011).

The empirical study made use of corporate statement of financial position and accounts data of quoted manufacturing companies extracted from annual published accounts of the organizations. These reports were obtained from various sources including, “Nigerian stock exchange, registrars of different companies, companies head offices, corporate affairs commission, the securities and exchange commission”. Other explanatory variables were obtained from “central bank of Nigeria investment promotion commission reports, Nigeria customs services, manufacturing association of Nigeria, and federal bureau of statistics”, other sources include reports of World Bank, international monetary fund and United Nations on Nigeria, Federal Inland Revenue service”. The choice of secondary data and its services were based on the fact that the data are assumed to
to be reliable, suitable and adequate for the nature, scope and objectives of the study and are therefore assumed to be error free.

We utilize the ordinary least square of multivariate regression based Augmented Dickey – Fuller unit root test and Wald Test with the aid of e-view 7.

**Model specification**

The core model specification is based on the theory Working capital characteristics enhances financial performance of manufacturing companies in Nigeria (Abdul, 2010). Ideally, the model specification from related empirical evidences used by (Abdul, 2010) was adopted but we made modifications. We generated three models to capture the first three objectives and answer the corresponding questions. Consequently, the model specification was formulated in the following functional forms

\[
\text{ROE}_{it} = f(\text{DF}_{it} + \text{EF}_{it})
\]

\[
\text{ROA}_{it} = f(\text{DF}_{it} + \text{EF}_{it})
\]

Introducing the explicit mathematical form to arrive as thus:

\[
\text{ROE}_{it} = \alpha_0 + \alpha_1 \text{DF}_{it} + \alpha_2 \text{EF}_{it}
\]

\[
\text{ROA}_{it} = \alpha_0 + \alpha_1 \text{DF}_{it} + \alpha_2 \text{EF}_{it}
\]

Strikingly, both functional and mathematical forms do not have a stochastic variable and since in statistical relationship we deal with random or stochastic variables, that is variables that have probability distribution, the above functional and mathematical equations are stated in equation that describes how the dependent variables are related to all the independent variables and on stochastic error term disturbance term stated as a multiple regression model as follows:

\[
\text{ROE}_{it} = \alpha_0 + \alpha_1 \text{DF}_{it} + \alpha_2 \text{EF}_{it} + \mu_{it}
\]

\[
\text{ROA}_{it} = \alpha_0 + \alpha_1 \text{DF}_{it} + \alpha_2 \text{EF}_{it} + \mu_{it}
\]

Where: \(\text{ROE}_{it}\) = Return on Equity for the period of time. \(\text{ROA}_{it}\) = Return on Asset for the period of time. \(\text{DF}_{it}\) = Debt Financing for the period of time. \(\text{EF}_{it}\) = Equity Financing for the period of time. \(\alpha_0\) = Intercept term. \(\alpha_1 - \alpha_2\) = regression coefficients. \(\mu_{it}\) = error term or stochastic disturbance term. \(i\) = for the period of time.

**ECONOMETRIC RESULTS AND DISCUSSION**

The section interprets the econometric results obtained. The data collected was based on the, research hypotheses formulated. The variables are debt financing and equity financing as independent variable. Return on equity and return on assets was used as dependent variables and as a proxy for financial performance.

**\(H_0\)**: Debt financing does not have significant effect on Return on Assets of companies in Nigeria.

**\(H_0\)**: \(\beta_1, \beta_2 = 0\) i.e all slope coefficients are simultaneously zero

**\(H_0\)**: \(\beta_0, \beta_2 \neq 0\) i.e., not all slope coefficients are simultaneously zero.

To test the above hypothesis, we used the ARDL/Bound testing general to specific approach to co-integration adopting all the performance variables as regression and working capital generated by the company as the regressed.
Table 1: ARDL/Bounds Test (general to specific approach)
Result for Hypothesis 1.
Dependent variable: D(LOGROA)
Method: Least square
Date: 09/12/2017  Time: 13.35
Sample (Adjusted): 227
Included observations: 26 after adjustments

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<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-statistic</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>LGDF (-1)</td>
<td>-0.481689</td>
<td>0.127599</td>
<td>-3.775046</td>
<td>0.0012</td>
</tr>
<tr>
<td>LOGEF (-1)</td>
<td>-0.032429</td>
<td>0.012595</td>
<td>-2.574870</td>
<td>0.0178</td>
</tr>
<tr>
<td>C</td>
<td>2.040531</td>
<td>0.487027</td>
<td>4.189777</td>
<td>0.0005</td>
</tr>
<tr>
<td>e TREND</td>
<td>0.050801</td>
<td>0.015755</td>
<td>3.351919</td>
<td>0.0030</td>
</tr>
</tbody>
</table>

R-Squared       | 0.463313    | mean dependent var | 0.117831|
adj. R-Squared   | 0.386643    | S.D dependent var  | 0.149944|
S.E. of regression | 0.117431   | Akaike info criterion | -1.300289|
sum squared resid | 0.289591   | schwert criterion  | -1.105268|
log likelihood | 20.25359    | Hannan – Quian. Criter | -1.246198|
f-statistic  | 6.042956    | Durbin-watson stet | 1.752159|
prob (F-statistic) | 0.003924

From the results above, the multiple coefficient of determination adjusted R-square of 38.66% is not faovourable to test the overall significant of whether there is no significant effect of debt financing on return on asset of manufacturing companies in Nigeria. However, the f-statistics is an alternative and equivalent test for the overall significance of the variables. Based on the p-value of .003924 or 0.39% of the f-statistic obtained which is significantly low, we would reject the null hypothesis and conclude that there is significant effect of debt financing on return on asset of manufacturing companies in Nigeria. This implies that there is relationship between working capital and financial performance of manufacturing companies in Nigeria. Also, from the result of the p-value of 0.3% at trend implies that an increase in working capital will result in an increase the ROA and a decrease will also result in decrease he working capital of manufacturing companies in Nigeria.

H0: Equity financing does not have any significant effect on return on equity of manufacturing companies in Nigeria.
H0: β1 = 0
H1: β1 ≠ 0

The first step is to test the null root of the variable. In their log form and below is the empirical results

Table 2. Unit Root Test Result

<table>
<thead>
<tr>
<th>Variable</th>
<th>t-statistic</th>
<th>Prob</th>
<th>t-statistic (first difference)</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log ROA</td>
<td>-1.447735</td>
<td>0.5429</td>
<td>-4.707265</td>
<td>0.0012</td>
</tr>
<tr>
<td>log ROE</td>
<td>-1.840234</td>
<td>0.3536</td>
<td>-4.383119</td>
<td>0.0024</td>
</tr>
</tbody>
</table>

The result shows that the variables are stationary at first difference, and hence we also conducted unit root test of the residual to confirm the existence of a long-run relationship.
From the result of the residual unit root test, it is stationaty at 4.66% level of significance and we therefore conclude that there long run relationship ROE and Equity financing. In other words, on the long-run, equity financing effect ROE. With a negative coefficient 't' statistics and p value of
4.66% of the residual, it implies that there is short run relationship between working capital and ROE of manufacturing companies in Nigeria.

And hence we can run an ECM. The result of ECM is shown below:

**Table 3 Error correction model (ECM) Result of Equity financing on ROE manufacturing companies in Nigeria**

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-statistic</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>D(log ROE)</td>
<td>0.088747</td>
<td>0.016118</td>
<td>5.506286</td>
<td>0.000</td>
</tr>
<tr>
<td>RES (-1)</td>
<td>-0.563784</td>
<td>0.194019</td>
<td>-2.905822</td>
<td>0.0083</td>
</tr>
<tr>
<td>C</td>
<td>-0.000378</td>
<td>0.003017</td>
<td>-0.125647</td>
<td>0.9013</td>
</tr>
</tbody>
</table>

R-Squared: 0.668362
adjusted R-squared: 0.636031
S.E. of regression: 0.011729
sum squared resid: 0.003027
log likelihood: 77.26741
f-statistic: 21.96979
prob (F-statistic): 0.000006

From the empirical result above, adjusted $R^2$ that is the coefficient of multiple determination indicated that 63.6% of the total variation in the ROE is explained by the working capital which implies that there is goodness of fit of the model, in other words, 63.6% of the total variation in the ROE (Financial performance) the dependent variable, is as a result of variation in working capital.

Again, the p-value 0.0006% of the f-statistic is sufficiently low we therefore reject the null hypothesis and conclude that equity financing have significant effect on ROE of manufacturing companies of Nigeria not only on the long run but also at short run.

**CONCLUSION AND RECOMMENDATIONS**

Our study contributes to more holistic and comprehensive picture of working capital characteristic and financial performance indicators. We have gone well beyond previous work that conceptualizes and operationalises working capital characteristic very generally by identifying particular dimensions within the work (Nwaiwu, 2014). This finer specification adds richness and depth to the previously very broadly defined category of antecedents to working capital conflict. Therefore, our empirical results conclude that the exist a positive and significant effect of debt financing, equity financing with return on equity and return on assets of manufacturing companies in Nigeria.

Based on the concluding remark above, we strongly recommend that:

(i) Managers and indeed organizations should concentrate on the proper management of each working capital characteristics and keep them at optimal levels, as this will go a long way to enhance profitability and create value for their companies.

(ii) Organizations; whether small, medium or large should consciously formulate policies geared towards effective management of working capital, in view of its inherent value – adding role.

(iii) The manufacturing companies in Nigeria should sustain and improve on their capital structure so as continue to boost their performance.

(iv) Debt and equity financing should be seen as an important source of funding by other manufacturing firms.
Limitation and suggestion for further studies:
Despite this study being based on well-established theoretical perspective and our use of a multi-source a limitation should be noted. We are limited in our conclusions to only developmental dimensions of working capital characteristic and financial performance. Further additional variables despite debt financing, equity financing, return on assets and return on equity are required to further advance a theory of working capital development.

REFERENCES
EViews 7 User’s Guide 1 Quantitative Micro Software
Okeye M.S. (2013): Managers and Dividend Payment, Best Brain Publisher, Umuahia.