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Nwosa, Philip Ifeakachukwu

## Article

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## Kontakt/Contact

ZBW – Leibniz-Informationszentrum Wirtschaft/Leibniz Information Centre for Economics  
Düsternbrooker Weg 120  
24105 Kiel (Germany)  
E-Mail: [rights\[at\]zbw.eu](mailto:rights[at]zbw.eu)  
<https://www.zbw.eu/econis-archiv/>

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## The Impact of Financial Development on Capital Structure of Firms in Nigeria

Philip Ifeakachukwu Nwosa<sup>1</sup>

**Abstract:** This paper analyzed the relative contribution of financial development on capital structure of ten selected manufacturing firms' on the Nigerian Stock Exchange for the period 2002 to 2015. The financial sector of any economy plays an indispensable role in the growth firms; it is therefore important to examine the contribution of financial development towards capital structure of firms in Nigeria; given that the capital structure of a firm contributes significantly to its performance. This paper builds on previous studies by examining the significance of financial development in determining the capital structure of listed firms on the Nigerian Stock Exchange, which has not been considered by previous indigenous studies. The study employed panel ordinary least square technique. The regression estimate showed that the ratio of stock market capitalization to gross domestic product (a measure of stock market development) had positive and insignificant effect on firms' capital structure while the ratio of credit to the private sector to gross domestic product (a measure of banking sector development) had positive and significant effect on firms' capital structure. This implies that financial development (proxy by banking sector development) contributes to the growth of capital structure of firms in Nigeria. The contribution of this paper is that in addition to other factors identified in the literature, financial development strongly influences firms' capital structure in Nigeria.

**Keywords:** banking sector development; stock market development; panel ordinary least square

**JEL Classification:** E44

### 1. Introduction

Capital structure refers to ways firms finance their assets through some combination of sources. The first choice is internal financing which is the use of profit or retained earnings as a source of capital for new investment. The second choice is external financing which is the usage of new money such as equity, debt, hybrid securities and funds from outside the firm brought in for investment (Muhammad et al., 2013; Glen & Pinto, 1994). The financial system of a country, provides an avenue for firms to raise debt or/and equity capital. A well developed stock market provides liquidity, diversification, information acquisition, resource mobilisation for corporate finance, investment and growth (Grossman & Stiglitz, 1980). An active and liquid stock market makes it easy and relatively cheaper for firms to finance their operations through equity capital. According to Grossman (1976) and Grossman and Stiglitz (1980), the stock market provides essential information about listed firms and helps creditors make lending to listed firms less risky. Further, Demirguc-Kunt and Maksimovic (1996) added that the stock market provides incentives for investors' acquisition of information. As the market for publicly traded stocks grows in size, it becomes more lucrative for investors to invest in.

Besides the role of stock market in enhancing firms' capital structure, empirical evidence indicates that bank-firm relationship is crucial in firms' financing decision. Most theoretical and empirical

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<sup>1</sup> E-mail: philipnzagi@yahoo.co.uk.

analyses in the banking literature indicate that banks simply help in minimising problems arising from information asymmetries between firms and debt holders through monitoring. Diamond (1984) noted that banks act as delegated monitors of borrowers on behalf of depositors. Drawing from the above, financial market development is necessary to bring about adequate capital formation in an organization or firm. Without financial development, firms are greatly constrained in their investment behaviour and business firms that lacked sufficient savings are unable to undertake worthwhile investment opportunities (Simon-Oke & Afolabi, 2011).

Although capital structure literature is replete with studies from the developed and developing countries, the findings of these studies have been inconclusive (see Demirguc-Kunt & Maksimovic, 1996; Agarwal & Mohtadi, 2004; Abor & Biekpe, 2005). With respect to Nigeria, there is a dearth of knowledge on how the financial development affects capital structure of listed firms in Nigeria. Also, this study viewed financial development from two perspectives – the banking sector development and the stock market development. Thus, this study seeks to examine the relationship between financial development and capital structure of selected listed firms in Nigeria for the period 2002 to 2015.

## **2. Review of Empirical Literature**

As noted above, few studies have examined the relationship between financial development and capital structure in the developed and developing countries. Some of these studies are reviewed here in. Saad (2015) analysed the impact of capital structure on the financial performance of firms in Pakistan. The study covered twenty-eight firms in Chemical sector over the period 2009 to 2013. Utilizing correlation and panel least square regression techniques, the study observed that total debt ratio (TDR) and the ratio of short term debt to total assets (STDA) had negative and significant influence on the financial performance while times interest earned ratio (TIE) had positive and significant effect of firms' financial performance. However, debt to equity ratio (DER) and the ratio of long term debt to total asset (LTDA) had negative but insignificant effect firms' financial performance. Mba and Mba (2014) examined the impact of firms' profitability, liquidity, tangibility, size and earning variability on the capital structure of KSE listed automobile companies in Pakistan. The study covered ten companies for the period 2008 to 2012. Employing a panel data analysis, the study observed that profitability, liquidity, size and tangibility had negative impact on capital structure while earning variability had positive impact on the capital structure of KSE listed automobile companies in Pakistan. The impacts of profitability and liquidity were found to be statistically significant while that of size, tangibility and earning variability were statistically insignificant.

Atseye, Edim and Eke (2014) examined the determinants of financial structure of Nigerian quoted firms for the period 1999 to 2012. The study covered twenty five firms and also utilized both the Pecking order and Static Trade-off Theories as its theoretical framework. The Ordinary Least Squares regression estimate showed that profitability, tangibility, volatility (operating risk), growth opportunities and firm size were significant determinants of the choice of financial mix among Nigerian firms. Nwankwo and Oddi (2014) analysed the effect of firms' capital structure on economic growth. The study employed an ordinary least square and observed that capital structure of firms in Nigeria has a long run relationship with the growth and development of Nigerian economy. Nirajini and Priya (2013) analyzed the relationship between capital structure and financial performance during 2006 to 2010 for listed trading companies in Sri Lanka. Using correlation and multiple regression technique, the study observed a positive relationship between capital structure and financial

performance. In Pakistan, Mumtaz, Rauf, Ahmed and Noreen (2013) examined the relationship between capital structure and financial performance. The study observed that capital structure had a negative but significant effect on financial performance of firms in Pakistan.

Tharmila and Arulvel (2013) examined the relationship between capital structure and financial performance of the listed companies traded in Colombo stock exchange (CSE). Employing correlation analysis technique, it was observed that there exist a negative relationship between the capital structure and financial performance. Nawin (2013) examined the role of financial development toward capital structure choice under different macroeconomic condition in Bangkok. The study employed fixed effect panel regression to estimate the association of macroeconomic condition and financial development toward leverage. The findings of the study showed that the relationship between firm's leverage and macroeconomic condition is similar in high and low financial development. Muhammad, Ammar and Rasheed (2013) examined the impact of capital structure on performance of Pakistan banks. Employing multiple regression model, the study observed a positive relationship between determinants of capital structure and performance of banking industry.

Chandrasekharan (2012) examined the determinants of capital structure in Nigerian listed firms for the period 2007 to 2011. The study examined the impact of firms' tangibility, size, growth, profitability and age on the leverage of the sampled firms. Employing a panel ordinary least square technique, the study observed that size, age, growth, profitability and tangibility are strong determinants of leverage in the Nigerian firms. Osuji and Odita (2012) examined the impact of capital structure on the financial performance of Nigerian firms in Delta state. The study used a sample of thirty non-financial firms listed on the Nigerian Stock Exchange during the four year period 2000 to 2003. Using panel ordinary least square technique, the study observed that firms' capital structure surrogated by debt ratio had a significantly negative impact on the firm's financial measures.

Soumadi and Hayajneh (2012) analysed the effect of capital structure on the performance of the public Jordanian firms listed in Amman stock market. Utilizing the ordinary least square technique, study observed that there was no significant difference with the impact of the financial leverage between high financial leverage firms and low financial leverage firms on their performance. Umar, Tanveer, Aslam and Muhammad (2012) examined the impact of capital structure on firms' financial performance in Pakistan. The study covered one hundred (100) top companies in Karachi Stock Exchange for the period 2006 to 2009. Employing exponential generalized least square regression technique, the study observed that all the three measures of capital structure (current liabilities to total asset; long term liabilities to total asset and total liabilities to total assets) had negative impact on earnings while price earnings ratio showed a negative relationship with current liabilities to total asset.

Doku et al. (2011) examined the relationship between financial market development and capital structure of listed firms in Ghana. Also, the study examined whether debt and equity are complements or substitutes. Using panel data, the study observed that debt and equity financing are important complements that increases firms access to finance. Nguyen, Rainey and Gregoriou (2011) investigated the capital structure of listed Vietnamese companies in the broader context of financial development. The study employed a panel GMM (Generalized Method of Moments) system estimator to analyse the determinants of the capital structure of 116 non-financial firms listed on either the Ho Chi Minh Stock Exchange or the Hanoi Stock Exchange for the period 2007 to 2010. The study observed that the capital structures of Vietnamese enterprises are still dominated by the use of short-term financing sources. Simon and Babatunde (2011) examined the impact of capital structure on industrial performance in Nigeria for a group of five (5) quoted firms from 1999 to 2007. Using panel

data regression technique, the study observed a positive relationship between firms' performance and equity financing and also observed a positive relationship between firms' performance and debt-equity ratio. However, a negative relationship between firms' performance and debt financing was observed by the study. Degryse, Goeij and Kappert (2009) examined the impact of firm and industry characteristics on small firms' capital structure from 2003 to 2005. Employing panel data analysis, it was observed that inter- and intra industry effects are important factors explaining small firms' capital structure. Rao, Al-yahyaee, Syed and lateef (2007) examined the relationship between capital structure and financial performance in Omani companies. The study observed that contrary to the trade-off theory of capital structure, there is a negative relationship between the level of debt and financial performance.

A critical assessment of the above literatures showed that most of the studies focused on the determinants capital structure of firms. These studies failed to take in account the potential impact of financial development on capital structure of firms. Also, other studies which focused on the relationship between capital structure and firms' performance also failed to include financial development variables in their estimating model. Over the years, financial development had been found to play important role in financing the financial structure of firms, thereby influencing the performance of these firms. The omission of financial development variables such models might limit the policy recommendations of such studies, hence the need for this study.

### 3. Research Methodology

To examine the relationship between financial development and firms' capital structure, this study adopted the model by Demircuc-Kunt and Maksimovic (1999) and was subsequently used by Doku et al. (2005); Abor and Biekpe (2005); and Agarwal and Mohtadi (2004). This model is adopted with little modification to suit the need of this research work. This model assumed that a firm's capital structure (CS), is a function of financial development (FD). This model is specified below as:

$$CS = f(FD) \dots\dots\dots (1)$$

The estimation form of equation (1) with the introduction of a constant and other controlled macro variables which have identified in the literature to influence firms capital structure, we have:

$$CS = \alpha + \beta_1 FD_t + \beta_2 INF_t + \beta_3 INT_t + \varepsilon_t \dots\dots\dots (2)$$

From equation (2) CS is capital structure measured by the ratio of total debt to equity; FD is financial development measured by two proxies - bank and stock market development indicators. The banking sector development indicator is measured by the ratio of credit to the private sector to gross domestic product (CPS) while the stock market development indicator is measured by the ratio stock market capitalization to gross domestic product (MC). Inflation rate (INF) is measured by annual inflation rate while short term interest rate (INT) is measured by monetary policy rate.

Given the classification of financial development into bank and stock market development indicators, equation (2) is written more explicitly as:

$$CS = \alpha + \beta_1 CPS_t + \beta_2 MC_t + \beta_3 INF_t + \beta_4 INT_t + \varepsilon_t \dots\dots\dots (3)$$

Theoretically, it is expected that the banking sector indicator (CPS) and stock market indicator (MC) are expected to have a positive impact on the firms' capital structure while inflation rate and interest

rate are expected to have a negative impact on firms' capital structure. Symbolically, it is expected that  $\beta_1 > 0$ ,  $\beta_2 > 0$ ,  $\beta_3 < 0$  and  $\beta_4 < 0$ . The data on firms' capital structure are sourced from the Nigerian Stock Exchange Fact book while data on credit to the private sector, stock market capitalization, gross domestic product, inflation rate and short term interest rate are sourced from the Central Bank of Nigeria Statistical Bulletin. Equation (3) is analysed using panel ordinary least square regression method.

#### 4. Empirical Estimate on the Impact of Financial Development on Firms' Capital Structure

The empirical estimate on the relationship between financial development and capital structure of the selected firms via the panel ordinary least square estimate is presented on table 1 below. From table 1, the coefficient of determination (that is R-Squared) showed that the explanatory variables jointly explained about 73 percent of variations in firms' capital structure while the remaining 27 percent of variation in firms' capital structure is explained by variables not included in the model. The F-statistics showed that the model estimated is appropriate. This is because the F-stat is significant at five percent (F Stat = 33.77;  $p < 0.00$ ). Furthermore, the Durbin-Watson Statistics (1.83) is appropriate, indicating that the model is free from the problem of serial autocorrelation and that the regression estimate can be used for policy references.

With respect to the contribution of individual variables to firms' capital structure, it was observed from the regression estimate that market capitalization (*MC*) (a measure of stock market development) and inflation rate (*INF*) had positive but insignificant effect on firms' capital structure at five percent critical level. In contrast, short term interest rate (*INT*) and credit to the private sector (*CPS*) (a measure of banking sector development) had positive and significant effects on firms' capital structure. This suggests that a one percent increase in short term interest rate enhances firms' capital structure by about 5.6 percent while a one percent increase in credit to the private sector promotes firms' capital structure by about 55.6 percent. With respect to the focus of this study, the panel regression estimate showed that the impact of financial development on firms' capital structure depends on the measurement of financial development. Thus, the result showed that banking sector development (as a measure of financial development) strongly affected firms' capital structure compared to stock market development (as a measure of financial development).

**Table 1. Financial Development and Firms' Capital Structure in Nigeria**

Variables	Coefficient	Std. Error	t-Statistic	Prob.
C	3.175470	1.359938	2.335011	0.0236
LOG(MC)	0.061712	0.111454	0.553705	0.5822
INF	0.069495	0.035102	1.979819	0.0532
INT	0.055644	0.023052	2.413822	0.0195
LOG(CPS)	0.567665	0.092991	6.104544	0.0000
R-Squared: 0.7298		Adjusted R-Squared: 0.7082		
F-statistics 33.77 (0.0000)		Durbin-Watson Stat. 1.8355		

Source: Author's Computation using E-Views, 2017

#### 5. Conclusion and Policy Recommendation

This study examined the relationship between financial development and capital structure for ten selected manufacturing firms listed on the Nigerian Stock Exchange for the period 2002 to 2015. The

regression estimate showed that market capitalization (*MC*) (a measure of stock market development) had positive but insignificant effect on firms' capital structure while credit to the private sector (*CPS*) (a measure of banking sector development) had positive and significant effect on firms' capital structure. Thus, the study concluded that banking sector development as a measure of financial development strongly affected firms' capital structure positively compared stock market development as a measure of financial development. Based on the panel regression estimate, this study offers the following policy recommendation: first, there is the need for government to put in place appropriate policies that can enhance the performance of the sector market to facilitate the provision of financial assistance to firms. Secondly, there is the need to monitor and maintain an adequate volume of credit to the private sector in order to maintain the positive influence of banking sector on firms' capital structure. Finally, there is the need for effective management of the interest rate that would enhance investment level of firms and thus contribute positively to firms' capital structure.

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