

# Leverage and Profitability of Quoted Health Care Firms in Nigeria

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**Abstract:**-Capital structure and its influence on profitability has been a major point of argument among researchers, since different research come up with divergent views to explain how relevant or irrelevant it is. This study looks at the effect of Leverage on profitability of Quoted Healthcare firms in Nigeria for a period of 10 years (2003-2012). The study employed panel data analysis by using Ordinary Least Square regression model. It was found out that leverage has a significant effect on profitability of quoted healthcare firms in Nigeria. The study concludes that leverage impact return on asset, return on investment and earnings per share negatively while it affect return on equity positively. It is recommended that management should balance the use of equity and debt in a way that will impact positively on firms value, we also added that Central Bank of Nigeria (CBN) should review and lower interest rate on bank loan so that healthcare firms can have access to cheaper capital to develop standard healthcare facilities, create more wealth and employment opportunities which in turn will affect the economy in a positive way.

**Keywords:** Leverage, Return on asset, Return on Investment and Earnings per share.

## I. INTRODUCTION

The term Capital Structure refers to the combination of diverse option and financial framework in which a firm uses to finance its trading, operating and investing activities. It largely consists of external debt, external equity and internal equity. Depending on the need of the firm, the financial manager may chose to use any of the available sources of capital or a combination of all, and that forms the firm's capital structure. The survival, sustenance and profitability of a firm may hinge on its capital structure; hence, it is so crucial and very important to the firm. The capital structure of a firm is a major prerequisite to the firm's ability to succeed by making profit and satisfying its shareholders and other contributor of capital. Improper financing strategy and capital structure has been identified as leading factors to business collapse in developing countries. However, the bane of financial managers in developing and developed countries would be finding the right balance or proportion of capital structure mix that suits their respective economy and businesses. To this effect, capital structure needs a practical approach and understanding for firm to really get the best out of it. Profitability, which is usually regarded as the lifeblood of a business venture, is another key ingredient that affects manager's decisions on the use of leverage in firm's capital

structure. For newly established business enterprise, the use of leverage as a finance option may be for stability and expansion but for old existing firms the need for leverage might be different. Policies on the use of leverage are expected to change in the event where profit is involved. Profitability as a key aspect of business survival may have different types of impact on the firm's capital structure and this effect may range from positive to negative territories. Having said the above, the relevance of leverage to firm's value was questioned in the famous work of Modigliani and Miller of 1958, where they argued that capital structure has no relevance on the value of the firm under the perfect market condition settings. However, many researchers questioned this proposition, and one of those that readily come to mind is the work of Jensen and Meckling (1976). They postulated that the amount of leverage in a firm's capital structure affects the managers' choice of operating activities and that it has a bearing on the overall firm performance and its' total value. Many other researches followed up and concluded that capital structure has an effect on the overall value of firms only that this effect ranges from positive to negative. Pragmatically, the conclusion reached by previous research, which ranges from positive to negative shows the uniqueness of each country's economy in terms of its market size, product, industry, management culture and financial strength. Thus, every economy should be given a closer look in other to understand how capital structure affects them. The importance of capital to firm's sustainability cannot be over emphasized because at every stage of any company, capital is always important. Capital is needed to start a business venture, it is highly important at firm's growth stage and it is a potent killer for business when it is not properly managed. Even after the argument has been laid to rest on if there exist any relationship between leverage and profitability, there is still more to unravel on the capital structure subject. While it is agreed that capital is important to a firm, the argument remains; what should constitute a good capital structure and what components will greatly affect the chances of making profit. In bolstering this point, Modigliani and Miller (1963) posited that a good capital structure should be one formed completely with debt because interest payment on debt will lower tax return and that will form a shield for the firms' profit. Meziane (2007) explained that the gains of using debt to finance the activities of a firm is in the discipline it exerts on the managers and the tax benefit it gets in return. So it is

assumed that the more protection from tax liability the better the profit. Private firms are setup with the objective of providing qualitative services and cater for the need of the growing population; Health care firms are in this area needed as alternative to government establishments. Aside from the objective of qualitative services, the most important objective is to make profit and harmonize all other potentials to maximize shareholders wealth. Profitability is a vital and important aspect of every business venture as it can influence the financial policy of such venture. If profit dwindles, financial managers may jack up firms leverage in order to increase investment for the expectation of more profit. Where the leverage level of an organization is jacked up, bankruptcy risk will increase and this can pose a great risk to the shareholders interest and for the protection of these innocent contributors of capital. There is need to re-examine if there is actual need for a leverage in a firm. On the other hand, a firm enjoying steady profit may employ or increase leverage in order to shield profit from tax or to instill due diligence in its managers as profit can make managers consume more perks, while other firm may decide to reduce the level of leverage due to the level of profit they are enjoying. From the above, profitability is a key reason firms decide to increase or reduce its use of leverage, *ceteris paribus*. With the recent downturn in the global economy, re-shuffling in the Nigerian Stock Exchange (NSE) and reforms and innovations in the entire financial system of the country, one issue that has received attention and great debate in the research parlance is decisions on capital structure and how such decisions affects firms' value. Arguments such as what constitute optimal capital structure, what determines capital structure and impact of capital structure on profitability of firms are leading topics in the research space. More importantly, the attention given to how leverage affects profitability is unequalled but the result and conclusion reached are at logger heads. Based on theories and concepts, it is assumed that the use of leverage will increase profitability and firms' value. The assumption is that there should be evidence in support of leverage having a positive effect on profitability. Hence leverage should be positively related to ROA, ROE, ROI and EPS accordingly. The contention here is that, reality poses an unstable platform for the use of leverage, there is an ever changing market, uncertain economic policies and financial policies and a whole lot of other uncertainties. The crux of the matter is; what effect will leverage have on profitability considering the ever-changing environment in which business ventures operates. Most of the well-articulated works on capital structure controversies have emanated from developed economies with diverse results and conclusions, even local research conducted in this area have also been fraught with inconclusive, inconsistent result as well as divergent conclusion. To adopt the result therein as a working basis for developing or emerging economy like Nigeria could be misleading. Hence, there is need to do more in this area of study, based on this, the proposed domain for this study is Quoted Health Care firms in Nigeria. It is no doubt that one key objective of financial managers is to harmonize resources

in a way to maximize shareholders wealth and in order to achieve this objective, more attention is needed to be focused on how profitability can be affected by the use of leverage. In a situation where there is no enough knowledge, the blind use of leverage could increase bankruptcy risk, thereby putting the going concern of the firm at jeopardy and eventual loss for the owners. On another hand, under utilization of leverage could cause profit to erode due to tax liability, this will also greatly affect overall firm value negatively. With this dilemma in mind one tends to ask, does leverage really affect profitability? If it does, in what ways does it affect profitability; negatively or positively? In addition, what aspect of profitability is affected by leverage? Is leverage a good indicator for investment opportunity? These are questions to be answered by this study. As important as the questions above are, there has been no clear-cut answers regarding them. Although foreign studies have dominated the scenes, their results have been inconsistent. Researchers in Nigeria like Dare and Shola (2010), Onaolapo and Kajola (2010), Omorogie and Erah (2010), Akintoye (2008), Oke and Afolabi (2007) have contributed to the subject but their conclusions are not in congruence too. This result makes it hard for investors to make investment decisions, managements of firms also find task relating to financial judgment more difficult. It is in the wake of these inconsistent results that sprung the idea to revisit the subject matter. Common to previous research, their considered time frame or span of study is considered short. Most of these studies use a time span lesser than ten years which might not be enough for the variables to adequately form a pattern. Previous researches favor the use of multiple sectors or a combination of firms from different sectors of the economy, this could influence the result and conclusion reached by those studies. Every sector of the economy has its own different specifics which could have a significant effect of the result and conclusion reached thereof. Hence, carrying out a study that will focus on specific sector is sure to give a more reliable result and a truer picture of relationship among the variables. In research, time is of paramount importance, a timely research is needed in order to have a close glimpse of recent reality and previous research cannot satisfy that because it will be un-wholly to apply their result, conclusion and recommendation on current state of events. In order to be abreast with recent reality, it is necessary to carry out fresh research on this subject matter of leverage and profitability. Due to the lacuna in dearth of research on this aspect of capital structure issue, this research seeks to fill this gap and add to existing knowledge by using current data to explore the effect of leverage on profitability of quoted Health Care Firms in Nigeria. In order to achieve this, the study will make use of Return on Asset (ROA), Return on Equity (ROE), Return on Investment (ROI) and Earnings per Share (EPS) as measurement of profitability. The Objectives of the Study are: to examine the effect of Leverage on Return on Asset of Quoted Health Care Firm in Nigeria, to investigate the contribution of Leverage on Return on Equity of Quoted Health Care Firm in Nigeria, to evaluate the impact of Leverage on Return on Investment of Quoted

Health Care Firm in Nigeria, to determine the impact of Leverage on Earnings Per Share of Quoted Health Care Firm in Nigeria. In line with the objectives, the following are the Hypothesis was formulated:  $H_{01}$ : Leverage has no significant impact on ROA,  $H_{02}$ : Leverage has no significant effect on ROE,  $H_{03}$ : Leverage has no significant impact on ROI,  $H_{04}$ : Leverage has no significant impact on EPS.

## II. LITERATURE REVIEW

Tian and Zeitun (2007) findings is that firm's capital structure have a significant and negative impact on the firm's performance measures in both the accounting and market measures and that, the short-term debt per total asset has a significant relationship with the market performance measure (Tobin's Q). Huang and Song, (2006) studying China firms, found a negative correlation between leverage and performance. Booth *et al.*, (2001) and Chakraborty (2010) found negative relationship between capital structure and performance. Ebaid (2009), studying the influence capital structure has on performance in Egypt, representing financial performance with Return on asset, Return on equity and Gross margin while representing capital structure with short term debt, long term debt and total debt. The finding shows that capital structure has weak-to-no influence on the financial performance of listed firms in Egypt. While studying Ghanaian firms over the period 1998-2002, Abor (2005) reported that positive relationship, exist between capital structure and performance. Akintoye (2008) investigated sensitivity of performance to capital structure on Food and Beverage Company in Nigeria, the result shows that performance indicators of turnover (Earnings before Interest and Taxes, Earnings Per Share and Dividend Per Share) are significantly sensitive to the measures of leverage (Degree of Operating Leverage, Degree of Financial Leverage and Degree of combined leverage). Osuji and Odita (2012) examined the impact of capital structure on financial performance of Nigerian firms using a sample of thirty non-financial firms listed on the Nigerian Stock Exchange during the seven (7) year period, 2004 – 2010. Panel data for the selected firms were generated and analyzed using ordinary least squares (OLS) as a method of estimation. The fixed and random effect of industry on result was also taken into consideration. The result showed that a firm's capital structure surrogated by Debt Ratio (DR) has a significantly negative impact (1% level of significance) on the firm's financial measures proxy by Return on Asset (ROA) and Return on Equity (ROE). Their findings of the study indicate consistency with prior empirical studies and provide evidence in support of Agency cost theory. They are of the opinion that firms are over leveraged and that impact negatively on financial performance. Uwalomwa and Uadile (2012) investigated the relationship between capital structure and financial performance of listed firms in Nigeria. The study considered a total sample of 31 listed firms on the floor of the Nigerian stock exchange. Analyzing the annual report of the selected firms for five (5) years spanning from 2005 - 2009

with the aid of Ordinary Least Squares (OLS) technique of model estimation. The study observed that two of the explanatory variables in the study (i.e. short-term debt and shareholders' funds) have a significant positive impact on the financial performance (ROA) of the selected firms. This consequently suggested that short-term debt tends to be less expensive; and therefore incremental short-term debt in capital structure will lead to an increase in performance levels of firms. While observing long-term debt and financial performance, the study observed that long-term debt has a significant negative impact on the financial performance of firms. This suggested that long-term debt is relatively more expensive due to certain direct and indirect costs associated with it. The study concluded that employing high proportion of long-term debt in firms' capital structure will invariably result in a low financial performance of a firm and short-term debt is a preferable source of financing for profitable firms. Abdul (2012) studied listed engineering firms on Karachi stock exchange in Pakistan for 2003-2009. The study used pooled least square regression to analyze the data generated from 36 selected firms with the purpose of finding out the relationship existing between capital structure decision and firm performance in the developing market economies. The findings of His study shows that financial leverage measured by short term debt to total assets (STDTA) and total debt to total assets (TDTA) has a significant 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. The study added that firms in the engineering sector of Pakistan are largely dependent on short-term debts, which are attached with strong covenants, which affect the performance of the firm. Muhammad, Zaighum, Saeed and Muhammad (2012) examined the impact of capital structure on firms' financial performance in Pakistan. Their study used Exponential generalized least square regression to test the relationship existing between capital structure represented by Current Liabilities to Total Asset, Long term Liabilities to Total Asset and Total Liabilities to Total Asset and financial performance proxy by Earning before interest and tax, (EBIT), Return on Asset (ROA), Earnings per Share (EPS), Net profit Margin (NPM), Price earnings ratio (PE) and Return on Equity (ROE). Sixty-two (62) companies from the Karachi Stock Exchange were selected for a period of four years spanning from 2006 to 2009. The regression results showed that all the three variables of capital structure, negatively impacts on EBIT, ROA, EPS, and NPM. Price Earnings ratio was found to be negatively related with Current Liabilities to Total Asset and positively related with Long Term Liabilities to Total Asset, while the relationship with Total Liabilities to Total Assets is insignificant. The results also indicated that ROE has an insignificant impact on Current Liabilities to Total Asset and Total Liabilities to Total Assets. While a positive,

relationship exists between ROE and Long Term Liabilities to Total Asset. Ali and Iman (2011) examined the relationship between capital structure and firm performance, with evidence from Iran companies. The study uses four performance measures, which includes return on assets, return on equity, earning per share, and Tobin's Q as dependent variable and three capital structure measures, which includes long-term debt, short-term debt and total debt ratios as independent variable. The investigation is performed using panel data procedure for a sample of 320 listed companies in the Tehran Stock Exchange (TSE) over the period of eight years spanning from 2002-2009. The results indicated that firm performance, measured by EPS and Tobin's Q, is significantly and positively associated with capital structure and a negative relationship exist between capital structure and ROA. Their result also showed that the relationship between ROE and capital structure is insignificant. The conclusion of their study showed a mix relationship between capital structure and firm performance. Chandrakumarmangalam and Govindasamy (2010) studying seven (7) India cement companies for a period of 8 years 2003-2010 with the major objective of understanding and analyzing the impact of leverage on the profitability of selected firms. The study investigated the relationship between leverage (financial leverage, operating leverage and combined leverage) and earnings per share. Selected Cement companies are analyzed using one way ANOVA and t-test. The correlation result of the study showed that there is a negative and positive relationship between financial leverage and EPS among the sampled firms. The result also showed that operating leverage is negatively correlated with EPS for all the sampled firms. The results suggest that the leverage and profitability and growth are related and that leverage is having impact on the profitability of the firm. The study concluded that fixed operating expenses and financing mix decisions of the firm are significantly influential on the earning capacity of the firm and leverage effect is positive when the earnings of the firm is higher than the fixed financial charges to be paid to creditors. The leverage is an important factor which is having impact on the profitability of the firm and the wealth of the shareholders can be maximized when the firm is able to employ more debt. Qasim and Muhammad (2010) studied the impact of leverage on profitability measured by Return on Asset (ROA), Return on Equity (ROE), Return on Investment (ROI) and Earnings per Share (EPS). The study seeks to analyze and understand the effect of leverage on the profitability of the oil and gas sector in Pakistan. Using Correlation analysis and test of significance with one way ANOVA, the study analyzed Eight (8) public limited companies for a period spanning from 2004-2009. The findings of the study showed that negative relationship exist between DFL and EPS, a positive relationship between DOL and EPS. ROA showed a negative relationship with DFL and positive relationship with DOL. ROI is negatively related to both DFL and DOL while ROE showed a positive relationship with both DFL and DOL.

### *Theories of capital structure*

#### *Modigliani and Miller (1958) Irrelevance theory*

Modigliani and Miller (1958) theory is regarded as the modern theory of capital structure, and this work as been a departing point for other capital structure theories. Modigliani and Miller postulated that capital structure of a firm has no impact on the value of such firm where the following assumptions hold that the firm has a particular set of expected cash flow. When the firm chooses certain proportion of debt and equity to finance its assets, all it merely does is divide the cash flows among investors. Potential investors and firms are assumed to have equal access to capital markets and the information they receive are symmetrical, no transactions cost, bankruptcy cost or distortionary taxation exist; equity and debt choice becomes irrelevant and internal and external funds can be perfectly substituted (Xiaoan, 2008). This theory assumes a perfect world economy and market, which does not exist; this had brought numerous criticisms and subsequently led to relaxation of some of the assumptions in the theory. Modigliani and Miller (1963) posited that where investors prefer a different capital structure they could lend or borrow on their own and achieve an equal result to when the firm they invest in borrow or lend. The prerequisite is that investors can borrow and lend at the same interest rate as the firm. This leverage is referred to as homemade leverage and it is a perfect substitute for the use of leverage by the firm. Berk and DeMarzo (2007) further explained that this prerequisite could not stand unless the perfect market assumption holds. Modigliani and Miller (1963) considered corporate taxes as an element that can affect firm value. Alexander and Jonas (2011) perceived that this new findings led to the theory that value could be increased through taking on debt and for this reason firms should be financed entirely by debt as this would aid in maximizing firms value. The surge to provide reasonable reason for the relationship between leverage and firms value has brought about many theory such as Pecking order theory, Agency cost theory, Trade off theory e.t.c.

#### *Pecking Order Theory*

According to Jianmei *et al* (2004) the pecking order theory is regarded as one of the most influential theory of capital structure, the theory was developed by Myers and Majluf (1984), considering the role of information asymmetries between firms and capital markets. They posited that firms use internal funds which are regarded as less costly than external funds and where there is need to raise more capital using outside sources, debt is preferred to equity based on the assumption that debt issuing has a lower information cost to equity. Kyereboah-Coleman (2007) explained that the pecking order theory suggest that firms profitability has an influence on its financial decisions. The study elaborated on the idea that firms not having a planned and determined level of debt and equity mix will prefer to use internal financing to external financing. Chen (2004) argued that the use of external financing, where companies give preference to debt before

equity is resorted to under a forced circumstances. According to Cunning (2006) the use of retained earnings before resulting to external debt and external equity is driven by the general view that retain earnings are cash that belongs to the shareholders and it is not earning as much a return as it could be if invested elsewhere. Although the pecking order theory has influential effect on finance capital structure, it is criticized for its simplified assumptions, where the firm's financing choice is limited to equity and debt only. In as much as there is need to finance organizational operation of a firm and the internal equity or retain earnings of the firm is not adequate for this undertaking, the pecking order theory explains that the use of external debt is much preferred to the use of external equity. According to Xiaoyan (2008), if a firm must use external funds, the preference is to use the following order of financing sources: debt, convertible securities, preferred stock, and common stock. Since only common stocks hold the right in the management, this preference reflects managers' incentives to retain control of the firms and willingness to avoid the negative market reaction to an announcement of a new equity issue. More so leverage is preferred to equity because issuing new equity will only diffuse the ownership structure and control of the firm, in turn this would give much of the project's value to new shareholders at the expense of the old. This means outside equity financing will be more costly than debt (even on a risk-adjusted basis) to the extent that investors have concerns about the incentives of a company's management to maximize operating efficiency and invest only in value adding projects (Myers and Majluf, 1984).

#### *Agency Cost Theory*

According to Copeland *et al* (2005), Agency theory stems from the fact that managers, who are considered agent of the investors makes decisions that, could put the investors at risks that are unprecedented and this could lead to conflicts of interest between managements and investors. Kyereboah-Coleman (2007) further explained that where managers have information regarding future prospects of the company uses such information for interest that suits them, which are different from that of shareholders that it leads to agency cost. Jensen (1986) added that separation of ownership and control of firms usually brings about conflict between stakeholders (equity holders, debt holders and managers). Specific agency costs derived are from conflicts between equity holders and managers, and conflicts between equity holders and debt holders.

#### *Equity holders-Managers Conflicts*

This kind of conflict stems from the separation of ownership and control. If managers do not own 100% of the firm, they can only capture a small fraction of the gain earned from their value enhancement activities while they need to bear the entire costs of these activities. The equity holders-managers conflicts take several forms: Jensen and Meckling (1976) stated that moving from the shareholder's interest of firm

value maximization, managers prefer putting less effort and having greater perquisite levels, such as extravagant office setting and corporate jets, etc. In cases like this, increasing the managers' equity interest will help to align the interests of shareholders and managers. Another way is to keep managers' equity investment constant, increasing the debt level of the company also helps to mitigate the loss of conflicts between shareholders and managers. Since debt will force managers to pay out cash, thereby reducing the free cash flow managers can waste on perk consumptions. Another cause of equity holders-managers conflict as posited by Masulis (1988) is that managers may prefer short-term projects, which tend to produce early results and promote their reputation more quickly, than a more profitable long-term project with slower recognition and result. Garvey and Hanka (1999) stated that managers strive to minimize the risk of termination of employment, and will want to remain in their position as long as possible. Hence, management tends to resist takeovers, irrespective of the benefit on equity holders value. Hunsaker (1999) added that the fear of bankruptcy might force managers to take on less risky investments and lower leverage in other to reduce bankruptcy probability of the company. Harris and Raviv (1990) pointed out that, managers and equity holders may have divergent views regarding operating decisions. Stulz (1991) as cited in Xiaoyan (2008) observed that managers prefer to invest all available funds even if shareholders want to be paid dividends. Jensen (1986) explained that the lust for control could lead managers to overinvest instead of working under shareholders interests to maximize firm's value; managers prefer to increase firm's size to enjoy the benefit of control. In cases like this, managers have incentives to cause their firm to grow beyond the optimal size and they are willing to accept a negative net present value (NPV) projects. Jensen argues that free cash flow, less growth opportunity aggravates overinvestment problem, and that issuing of debt helps to curb agency problems.

#### *Static Trade off Theory*

The theory explains how a firm decides on the debt to equity ratio based on the assumption that an optimal capital structure exists, aiding the firm to operate efficiently and ensuring that external claims on cash flow is reduced (Xiaoyan, 2008). In this framework, the firm is viewed as setting a target debt-equity ratio and gradually moving towards it. With one important advantage debt financing has over equity, which is that the interests that firm pays are tax deductible while equity income is subject to corporate tax. Frank and Goyal (2004) argued that firms decide to trade off the benefit of debt especially that of tax savings and reduced agency problems against the actual cost of debt and bankruptcy risk. Modigliani and Miller (1963) also suggested that firms with higher profits should use more debt, thus substituting debt for equity to take advantage of interest induced tax shields.

The trade-off theory predicts that safe firms, i.e. firms with more tangible assets and more taxable income to shield should

have high debt ratios. While risky firms, i.e. firms with more intangible assets that the value will disappear in case of liquidation, should rely more on equity financing. Although the firm may still ignore the benefit that accrues from the use of leverage, Sokun (2007) argued that the decision not to increase the use of leverage is because of financial flexibility. He posited that debt covenant often carry restrictions on financing and investment decisions that are especially cumbersome for small, growing firms and that equity financing allows small firms to raise cash without impeding financial flexibility. According to Myers (2001), trade-off theory places much significance on taxes. It argued that a firm seeks debt levels that will balance tax advantages of additional debt against the odd of financial distress. While in reality, most profitable firms tend to borrows less in order to retain financial flexibility as Pandey (2004) explained. The original version of the trade-off theory grew out of the debate over the Modigliani- Miller theorem. When corporate income tax was added to the original irrelevance proposition this created a benefit for debt in that it served to shield earnings from taxes This theory claims that a firm’s optimal debt ratio is determined by a trade-off between the losses and gains of borrowing, holding the firm’s assets and investment plans constant. The firm substitute’s debt for equity or equity for debt until the value of the firm is maximized. The gain of debt is primarily the tax-shelter effect, which arises when paid interest on debt is deductible on the profit and loss account. Myers (1984), however, suggested that managers would be reluctant to issue equity if they feel it is undervalued in the market. The consequence is that investors perceive equity issues to occur if equity is either fairly priced or overpriced and because of pricing, investors tend to react negatively to an equity issue and management is reluctant to issue equity. Bevan and Danbolt (2002) suggested that a high level of profit would give rise to a corresponding higher debt capacity and accompanying tax shields and that big firm are seen as too big to fail. Hence, it is expected that a positive relationship should exist between profitability and financial leverage. Firms with high levels of tangible assets like the Healthcare firms will be in a position to provide collateral for debts. On the occurrence of a default on debt repayment, the assets used as collateral may seized but giving the company an opportunity to avoid bankruptcy. Hence, it is expected, that companies with high levels of tangible assets are less likely to default and will take on relatively more debt. This theory of capital structure supports the idea of a firm having a unique capital mix in order to maximize its market value taking into consideration both the bankruptcy costs and tax-shield advantage of debt capital. It predicts a positive relationship between a firm’s choice of capital structure and its market value. Miller (1977) argued that the tax savings seem large and certain while the bankruptcy cost seems to be negligible, implying that many firms should be more highly levered than they really are. Myers (1984) argued that if this theory were key force, then the tax variables should provide an important insight about optimum capital structure decision. The critic of this theory is that in the bid to balance tax benefit against bankruptcy risk, a

firm might move towards more debt and in an unstable economy, it could be disadvantageous. Hence, the trade off theory postulating that firm should use more of debt financing in order to attain an optimum capital structure will crumble in an unstable economy where bankruptcy looms and threatens the going concern of the company. The use of leverage as a financing option is to be treated with utmost caution.

### III. METHODOLOGY

This research adopted correlation research design. The use of this design is to study the effect of Leverage on profitability of quoted Healthcare firms in Nigeria using ROA, ROE, ROI and EPS as proxy for profitability. Secondary sources of data were used for analysis. The data necessary for the study would be extracted from annual financial statements of sampled companies; the data set would cover a period of ten years (2003 to 2012). Data obtained directly from these sources would be in its raw format and will not be meaningful for analysis purpose. Hence, Microsoft Excel applications would be used to refine the data and calculate the necessary financial ratios for proper analysis. The population of the study shall constitute all Healthcare firms quoted on the Nigerian Stock Exchange as at December 2012. While adopting the census strategy, which makes the entire quoted Healthcare firms eligible to be a member of the sample size, for a company to be part of the sample frame, it must have conformed to the following criteria; Company must be quoted on the Nigerian Stock Exchange within the last ten years under study, Companies that have been published financial statements been filed with the NSE for the years under study, It shares must have been traded on the exchange within the period covered by the study, All required data for the study must be available. Ten (10) healthcare firms listed on the Nigerian Stock Exchange and they are as follows; Ekocorps Plc., Evans Medical Plc., Fidson Healthcare Plc., Glaxo Smithkline Consumer Plc., May and Baker Plc., Morison Industries Plc., Neimeth International Pharmaceuticals Plc., Nigeria-German Chemicals Plc., Pharma-Deko Plc. and Union Diagnostic and Clinical services Plc., (NSE Fact Book 2011/2012). To avoid complications in statistical analysis only firms that conform to the above criteria were eligible to form the final sample for this study. This study excludes firms like Ekocorps Plc. and Union Diagnostics and Clinical services Plc. based on criteria two, three and four and Nigeria-German Chemicals Plc. based on criteria one. The final study sample of firms used for the study is seven.

#### *Model Specification*

The study shall estimate the following regression models, one for each to test the hypotheses:

$$ROA_{it} = \beta_0 + \beta_1 Lev_{it} + \varepsilon_{it} \text{-----} (1)$$

$$ROE_{it} = \beta_0 + \beta_1 Lev_{it} + \varepsilon_{it} \text{-----} (2)$$

$$ROI_{it} = \beta_0 + \beta_1 Lev_{it} + \varepsilon_{it} \text{-----} (3)$$

$$EPS_{it} = \beta_0 + \beta_1 Lev_{it} + \varepsilon_{it} \text{-----} (4)$$

Where:

ROA<sub>it</sub> = Return on Asset for firm *i* at a period.

ROE<sub>it</sub> = Return on Equity for firm *i* at a period.

ROI<sub>it</sub> = Return on Investment for firm *i* at a period.

EPS<sub>it</sub> = Earnings per Share for firm *i* at a period.

LEV<sub>it</sub> = Leverage for firm *i* at a period.

ε<sub>it</sub> = Error Term

While, β<sub>1</sub> is parameter estimates and β<sub>0</sub> is the Intercept.

*Variable Measurement*

Variables for this study are Leverage (LEV) and Profitability. Where the dependent variable for the study is profitability.

**LEV** = is calculated as Total Debt divided by Total Asset. (Nour Abu-Rub, 2012; Muhammad *et al*, 2012 and Abdul, 2012).

$$LEV = \frac{\text{Total Debt}}{\text{Total Asset}}$$

Return on Asset (**ROA**) is calculated as net income divided by book value of total assets as represented in the financial report (Chen *et al*, 2005; Abor, 2007 and Michel *et al*, 2011). Net income here is profit after interest and tax deductions while total asset is the addition of fixed asset and current asset.

$$ROA = \frac{\text{Net Income}}{\text{Total Asset}}$$

Return on Equity (**ROE**) is calculated as net income divided by shareholders’ fund as presented in the financial report (Michel *et al* 2011; Elio 2010). Where net income, is income available to shareholder after deductions of interest and tax. Share holder’s fund is derived from the addition of equity share capital, reserves and accumulated profits. It can also be gotten by deducting total debt from total asset.

$$ROE = \frac{\text{Net Income}}{\text{Share Holder’s fund}}$$

Return on Investment (**ROI**) is calculated as Earnings before interest and tax divided by Capital Employed (Qasim and Muhammad, 2010).

$$ROI = \frac{\text{Earnings before Interest and Tax}}{\text{Capital employed}}$$

$$EPS = \frac{\text{Net Income}}{\text{Number of Ordinary shares Outstanding}}$$

IV. DATA PRESENTATION

This section presents the results of data gathered in the course of this research and further discusses the results. The result was discussed in four main part based on specific objectives of the study. Each part of the discussion explains why the result should be accepted and relied upon by detailed explanation of issues that relates to regression. The result thereafter is used to test the formulated hypothesis for the study. In order to examine the effect of leverage on profitability, we will consider the results in table 1 below.

TABLE 1: SUMMARY OF REGRESSION OUTPUT

Sample statistics	Dependent variables			
	ROA	ROE	ROI	EPS
R	0.637	0.476	0.407	0.679
R Square	0.405	0.227	0.165	0.461
Adjusted R <sup>2</sup>	0.397	0.215	0.153	0.453
F. Statistic	46.367	19.937	13.474	58.205
Sig. F change	0.000***	0.000***	0.000***	0.000***
Std. beta- value	-0.637	0.476	-0.407	-0.679
T- Significance	0.000***	0.000***	0.000***	0.000***
Durbin Watson	0.906	0.832	1.801	1.244

Source: SPSS Regression Result                      \*\*\*. Significant at 1%

*Effect of Leverage on Return on Asset of Quoted Healthcare Firms in Nigeria*

Table 1 above shows R, coefficient of correlation which is the linear relation between the dependent variable (ROA) and the independent variable (Leverage). The overall strength of the relationship between the independent variable and the dependent variable is reflected by this R statistic and the value

is 0.637 or 63.7%. This indicates that a strong relationship exist between ROA and Leverage in the healthcare sector. The coefficient of determination or R<sup>2</sup> value provides an indication of the proportion of variance in the dependent variable that is accounted for by the set of independent variable. R square value indicates that 0.405 or 40.5% of the variation in dependent variable (ROA) can be explained by leverage,

while the remaining 59.5% can be explained by other factors. The adjusted  $R^2$  value 0.397 or 39.7% is a conservative indicator of variance of dependent variable measured by the independent variable, it is used when the sample size is small and there are numerous independent variables. This study use a one on one regression format, there is no need of using adjusted  $R^2$  as a measure of variance between the dependent variable (ROA) and independent variable (leverage). Although the Durbin Watson result is weak 0.906, there is no fear of auto correlation among the explanatory variables since the regression is a one on one regression and not a multiple regression. Before inference can be made from the regression result, we will consider the fitness of our regression model using the F statistic and its significance level. The model summary shows the value for F statistics at 46.367 and overall significance (sig. F change) of 0.000, which is less than 0.05 and 0.01, this indicates a significant relationship at all level of significance. These results, therefore, provide evidence that the regression model is fit. Having satisfied that our model is fit, the regression coefficient of the model can now be discussed. From the regression result, ROA of healthcare firms in Nigeria has a negative beta coefficient and can be influenced negatively by Leverage. This indicates that whenever there is a unit increase in leverage, the ROA value will decrease by 63.7%. This negative effect is highly significant considering the t- significance of 0.000, which is lower than 0.05 and 0.01 level of significance. From this result we can deduce that increasing the level of leverage in the Nigeria healthcare sector cannot bring desirable result to the firm value considering the fact that it reduces the return on asset by 63.7%. For every one naira increase in leverage there will be a corresponding decrease of ₦63.7 kobo in return on asset. The null hypothesis stating that leverage has no significant effect on ROA of quoted healthcare firms in Nigeria is rejected. Based on the result of this study we state that leverage has a significant effect on ROA of quoted healthcare firms in Nigeria and the resulting effect is a negative one. This result is in contrast with the assertion of Nour Abu-Rub (2012) but confirms the results of Margaritis and Psillaki (2010) Jong, Kabir and Nguyen (2008), Gaud, Hoesli and Bender (2007) and Osuji and Odita (2012).

#### *Effect of Leverage on Return on Equity of Quoted Healthcare Firm in Nigeria*

Table 1 shows R, coefficient of correlation that is the linear relation between the dependent variable (ROE) and the independent variable (Leverage). The overall strength of the relationship between the independent variable and the dependent variable is reflected by this R statistic and the value is 0.476 or 47.6%. This indicates that an averagely strong relationship exist between ROE and Leverage in the healthcare sector. The coefficient of determination or  $R^2$  value provides an indication of the proportion of variance in the dependent variable that is accounted for by the independent variable. R square value shows that 0.227 or 22.7% of the variation in dependent variable (ROE) can be explained by

leverage, while the remaining 77.3% can be explained by other factors. The adjusted  $R^2$  value 0.215 or 21.5% is a conservative indicator of variance of dependent variable measured by the independent variable, it is used when the sample size is small and there are numerous independent variables. This study use a one on one regression format, there is no need of using adjusted  $R^2$  as a measure of variance between the dependent variable (ROE) and independent variable (leverage). Although the Durbin Watson result is weak 0.832, there is no fear of auto correlation among the explanatory variables since the regression is a one on one regression and not a multiple regression. Before inference can be made from the result of the second regression model, we will consider the fitness of the model using the F statistic and its significance level. The model summary shows the value for F statistics at 46.367 and overall significance (sig. F change) of 0.000, which is less than 0.05 and 0.01, this indicates a high level of significance. These results, therefore, provide evidence that the regression model is fit at all level of significance. Having satisfied that our model is fit, the regression coefficient of the model can now be discussed. From the regression result, ROE of quoted healthcare firms in Nigeria has a positive beta coefficient and can be influenced positively by Leverage. This indicates that whenever there is a unit increase in leverage, the ROE value will increase by 47.6%. This positive effect is highly significant considering the t- significance of 0.000, which is lower than 0.05 and 0.01 levels of significance. From this result we can infer that increasing the level of leverage in the Nigeria healthcare sector should bring desirable result to the firm value considering the fact that it increases the return on equity by 47.6%. Meaning, for every one naira increase in leverage where everything remains constant, there will be a corresponding increase of ₦47.6 kobo in return on equity.

Considering the second null hypothesis stating that leverage has no significant impact on ROE of quoted healthcare firms in Nigeria and based on the evidence gathered, there is enough reason to reject the null hypothesis. We assert that leverage has a significant impact on ROE of quoted healthcare firms in Nigeria and that this impact is a positive one. This result is in line with Nour Abu-Rub (2012), Arbabiyan and Safari (2009), Abor (2005) while it disagrees with Osuji and Odita (2012) whose study finds a negative effect between the variables and Ebaid (2009) and Abdul (2012) whose study states a no significant relationship between the variables.

#### *Effect of Leverage on Return on Investment of Quoted Healthcare Firm in Nigeria*

Table 1 shows R, coefficient of correlation indicates the linear relation between the dependent variable (ROI) and the independent variable (Leverage). The overall strength of the relationship between the independent variable and the dependent variable is reflected by this R statistic and the value is 0.407 or 40.7%. This also indicates that an averagely strong relationship exist between ROI and Leverage in the healthcare sector. The coefficient of determination or  $R^2$  value



provides an indication of the proportion of variance in the dependent variable that is accounted for by the independent variable. R square value reveals that 0.165 or 16.5% of the variation in dependent variable (ROI) can be explained by leverage, while the remaining 83.5% can be explained by other factors. The adjusted  $R^2$  value 0.153 or 15.3% is a conservative indicator of variance of dependent variable measured by the independent variable, it is used when the sample size is small and there are numerous independent variables. Because this study uses a one on one regression format, there is no need of using adjusted  $R^2$  as a measure of variance between the dependent variable (ROI) and independent variable (leverage). Although the Durbin Watson result is not very strong 1.801, there is no fear of auto correlation among the explanatory variables since the regression is a one on one regression and not a multiple regression.

Before inference can be drawn from the result of the third regression model, we will consider the fitness of the model using the F statistic and its significance level. The model summary shows the value for F statistics at 13.474 and overall significance (sig. F change) of 0.000, which is less than 0.05 and 0.01, this indicates a high level of significance. These results, therefore, provide evidence that the regression model is fit at all level of significance. Having satisfied that our model is fit, the regression coefficient of the model can now be discussed. From the regression result, ROI of quoted healthcare firms in Nigeria has a negative beta coefficient and can be influenced negatively by Leverage. This indicates that whenever there is a unit increase in leverage, the ROI value will decrease by 40.7%. This negative effect is highly significant considering the t- significance of 0.000, which is lower than 0.05 and 0.01 levels of significance. From this result we can infer that increasing the level of leverage in the Nigerian healthcare sector would bring adverse result to the firm value considering the fact that it decreases the return on investment by 40.7%. Meaning, for every one naira increase in leverage where everything remains constant, there will be a corresponding decrease of ₦ 40.7 kobo on return on investment.

Based on the result of this study and the inference drawn from it, we have enough evidence to reject the third null hypothesis which stated that leverage has no significant impact on ROI of quoted healthcare firms in Nigeria. The result of this study shows that leverage significantly affect return on investment in a negative way, this is in conformity with the result of Qasim and Muhammad (2010).

#### *Effect of Leverage on Earnings per Share of Quoted Healthcare Firms in Nigeria*

The overall strength of the relationship between the independent variable (leverage) and the dependent variable (EPS) is reflected by R statistic and the value is 0.679 or 67.9%. This indicates that a strong relationship exist between EPS and Leverage in the healthcare sector. The coefficient of

determination or  $R^2$  value provides an indication of the proportion of variance in the dependent variable that is accounted for by the set of independent variable. R square value indicates that 0.461 or 46.1% of the variation in dependent variable (EPS) can be explained by leverage, while the remaining 53.9% can be explained by other factors. The adjusted  $R^2$  value 0.453 or 45.3% is a conservative indicator of variance of dependent variable measured by the independent variable, it is used when the sample size is small and there are numerous independent variables. Since this study used a one on one regression format, we will have no need of explaining adjusted  $R^2$  as a measure of variance between the dependent variable (EPS) and independent variable (leverage). Although the Durbin Watson result is not very strong 1.244, there is no fear of explanatory variables been auto correlated since the regression is a one on one regression and not a multiple regression.

Considering the robustness and fitness of our regression model is paramount before inference can be made from the regression result. We will consider the fitness of our regression model by examining the F statistic and its level of significance. The model summary indicates that the value for F statistics is 58.205 and overall significance (sig. F change) of 0.000, which indicates that the regression model is fit at all level of significance. Having satisfied that our model is fit, the regression coefficient of the model can now be discussed. From the regression result, EPS of quoted healthcare firms in Nigeria has a negative beta coefficient and can be influenced negatively by Leverage. This indicates that whenever there is a unit increase in leverage, the EPS value will decrease by 67.9%. It is observed that this negative effect is highly significant considering the t- significance of 0.000, which is lower than 0.05 and 0.01 significance level. From this result we can deduce that increasing the use of leverage in the Nigerian healthcare sector would generate adverse result for the firm's value considering the fact that it reduces earnings per share by 67.9%. This means that for every one naira increase in leverage, there would be a corresponding decrease of ₦ 67.9 kobo in earnings per share.

Based on the above findings, there is enough evidence to reject the fourth null hypothesis which stated that leverage has no significant impact on earnings per share of quoted healthcare firms in Nigeria. Our result is consistent with findings of Muhammad, Zaighum, Saeed and Muhammad (2012), Dare and Sola (2010) and in disparity with the findings of Nour Abu-Rub (2012), Ali and Iman (2011).

#### *Discussion of Findings*

Quoted healthcare firms in Nigeria employs leverage in order to increase firm's value following the assumption that leverage should increase the value of firm. From the regression result for each of the models tested we can see that leverage had a significant effect on the profitability measure of return on asset, return on equity, return on investment and earnings per share. This result gives us the reason to reject the

earlier stated four null hypotheses. The result reveals that leverage has a significant negative effect on return on asset, return on investment and earnings per share, while a significant positive effect exist with return on equity. This shows that for every one naira increase in leverage there is a corresponding reduction of ₦63.7, ₦ 40.7 and ₦ 67.9 on return on asset, return on investment and earnings per share respectively, while for every one naira increase in leverage there is an increase of ₦47.6 in return on equity. We can also deduce from the regression result that the profitability measure that received the most impact from leverage is earnings per share, followed by return on asset, return on equity and return on investment. Giving that this result largely shows a negative effect of leverage on profitability measures, we can deduce that quoted healthcare firm in Nigeria during the period of study might have over stretched the balance of debt to equity capital of their firm. Where this abounds the cost of capital increases and have a negative impact on firm's value. Myers and Majluf (1984) and Iorpev and Kwanum (2012), opined that increasing the proportion of debt in the company's capital structure, would increase firms value up to a point after which a further increase in leverage, would increase the company's overall cost of capital and will cause a decline its total market value. The result gives us reason to believe that the sector have not been doing great over the last ten years and one of the reasons might be due to the economic meltdown witnessed during the study period and the two digit interest rate (12%) on bank loan stipulated by the Central Bank of Nigeria (CBN).

## V. CONCLUSION

In relation to the result of this study and based on the hypotheses tested, the study has the following conclusions:

Firstly, the study concludes that leverage has a significant negative effect on ROA of quoted healthcare firms in Nigeria.

Secondly, leverage has a significant positive impact on ROE of quoted healthcare firms in Nigeria.

Thirdly, the study concludes that leverage significantly affect ROI of quoted healthcare firms in Nigeria in a negative way.

Lastly our study concludes that leverage significantly impact EPS of quoted healthcare firms in Nigeria negatively.

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