
Corporate Characteristics and Value Creation: A Panel Data Evidence of Nigerian Quoted Manufacturing Firms.

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Abstract

This study examined corporate characteristics and value creation of quoted manufacturing firms in Nigeria. The objective was to examine if factors within the control of management affects corporate value. Cross sectional data was sourced from financial statement of twenty quoted manufacturing firms. Market value was proxy for dependent variable while asset tangibility, return on investment, risk, liquidity, firm size, debt equity ratio, dividend payout ratio, retention ratio, corporate governance, management efficiency and cost of capital was proxy for independent variables. After cross examination of the validity of the pooled effect, fixed effect and the random effect, the study accepts the fixed effect model. Findings reveals that assets tangibility, return on investment, debt equity ratio, retention ratio, management efficiency and cost of capital have positive effect on the market value of the quoted manufacturing firms while risk, liquidity, firm size and corporate governance have negative effect on the market value. We recommend that management should formulate strategic and tactical measures to manage risks that affect the market value of the firms and optimal liquidity management policy that balance liquidity and corporate investment should be formulated. There is need for management to ensure optimal capital structure. Corporate governance codes should be complied by management and retention funds should be well invested to maximize shareholder's value.

Keywords: corporate characteristics, value creation, panel data, manufacturing firms

SECTION I: INTRODUCTION

The objective of shareholders wealth maximization is an appropriate and operationally feasible criterion to choose among the alternative financial actions. It provides an unambiguous measure of what financial management should seek to maximize in making investment decisions on behalf of shareholders. Financial goals are quantitative expression of corporate missions and strategies and are set by its long-term planning system as a trade off among conflicting and competing interest. These financial goals guides the maximization of book value of net worth, market value per share, cash flow, operating profit before interest and tax, maximizing the ratio of price earning, market rate of return, return on investment, net profit to net worth, net profit margin, market share and maximization of the growth in earnings per share, total assets, sales and ensuring availability of fund (Pandey, 2015). A firm's value is equal to the net present value of all expected future cash flows. The theory of shareholders value has traditionally suggested that the primary objective of every corporate organization is to maximize the wealth of its shareholders. This is a simplified and theoretical illustration that sometimes conflict with real word event as noted by the agency theory formulated by Jensen and Meckling in 1973.

Value determinants are the variables that can affect the value creation of a firm. The value based planning models suggests that management of a firm aims to create shareholder wealth by maximizing market value of the equity thereby creating excess value over the book value of the firm (Rajeash, 2015). Creating value for a firm's shareholders is widely accepted objective for corporate existence and has been incorporated into the strategic management. This approach provides a conceptual and operational framework for evaluating corporate strategy. From the economists view point, value is created when management makes revenue over expenses. This opinion lacks credibility in the concept of value creation and the relevant to shareholders.

Factors that determines value creation can be categorized in terms of growth, size, management efficiency, capital structure, profitability, cost of capital, corporate governance, liquidity, dividend policy and corporate size which are factors that are within the control of management. For instance management adopts operational strategy such as low cost of capital, optimal capital structure, optimal liquidity and avoids risk to create value for shareholders. These factors are the function of identifying and managing value drivers which have the greatest impact on value creation. Determinants of value creation of firms are important tool in strategic planning analysis and therefore, the effect of these factors ought to be examined for policy direction and management strategies that can enhance corporate value creation.

Theoretically, the neoclassical assumptions of irrelevance of these factors such as the perfect market in determining value creation of corporate organization is not attainable in financial markets most especially in the developing economies whose degree of market imperfection is close to unitary. It is therefore relevant to examine the effect of these factors on value creation of firms in the developing economies like Nigeria. Despite the growing literature on factors that determines corporate value creation in the advanced financial market, there is limited studies of citable significance that dealt with corporate factors that determines value creation of quoted firms in Nigeria. Existing studies such as Lucky, Akani and Anyamobi (2015) examined prudential determinants of stock prices of commercial banks in Nigeria, Akani and Lucky (2016) examined capital structure and shareholder's value of commercial banks in Nigeria. These studies failed to incorporate all corporate characteristics that can affect value creation of the banking sector and these studies focused on commercial banks without consideration of the manufacturing sector. From the above, this study intends to examine corporate characteristics that determine value creation of quoted manufacturing firms using cross sectional data. Apart from section one above, section two focuses on both theoretical and empirical review of related literature, section three deals with the research methodology. Section four deals with the data analysis and presentation and the fifth section contain the conclusion and recommendations from the findings.

SECTION II: LITERATURE REVIEW

Conceptual Framework

Corporate Value Creation provides an operations framework that management can use to optimize the impact decisions have on creating value by growing revenue and profitability. The value of firm is the market value of its assets which is reflected in the capital market (Pandey, 2005). The agency theory formulated by Jensen and Meckling (1973) laid more emphases on the relationship between management and shareholders. The Miller and Modigliani argument on the effect of capital on shareholder's wealth has remain one of the challenging features on corporate management decision such as financing. However, the operational philosophy of every business is to add value or create value to the shareholders.

The followings are the ways management can create values for the shareholders.

Through the market value of equity and debt, thus

Shareholders value = Market Value of Firms - Market Value of Debt

The market value of shareholders equity is directly observable from the capital market. In theory, market value is equal the warranted economic value of the firm.

If $M/B > 1$ the firm is creating value 1

If $M/B = 1$ the firm is not creating value for shareholders 2

If $M/B < 1$ the firm is destroying value 3

The basic valuation model that can be used to make predictions about the determinants of shareholder value creation is the constant growth dividend valuation model (Gordons, 1962). The model predicts that changes in shareholder value depend not only on the changes in dividends but also on the discount rate. We can then express this as follows;

$$MV = \frac{DPS}{K_e - g} = \frac{EPS(1-b)}{K_e - g} \quad 4$$

From the above equation, the market value (MV) of firms is the present value of the expected stream of dividends per share (DPS). DPS depends on the firms' payout ratio (1-b) and the earnings growth (g). Earnings growth depends on the retention ratio (b) and on the return on equity (ROE) [$g=b \times ROE$].

The model assumes that dividends grow at a constant rate in perpetuity. Dividend per share (DPS) is equal to earnings per share (EPS) multiplied by one minus retention ratio (b). ESP depends on the firm return on equity (ROE) and the equity investment, expressed as book value per equity share (BV). ($EPS = ROE \times BV$).

We can now re-write equation 4 as follows;

$$MV = \frac{BV \times ROE(1-b)}{K_e - g} = \frac{BV(ROE - b \times ROE)}{K_e - g} \quad 5$$

$$\frac{MV}{BV} = 1 + \frac{ROE - g}{K_e - g} \quad 6$$

Market Value

Market value is based on supply and demand. It is used to refer to a company's market capitalization value. It is calculated by multiplying the number of shares issued by the price of the company's share. A company's share price is determined by daily trading between buyers and sellers on the relevant stock exchange. Market prices are easy to determine for assets as the constituent values, such as stock and futures prices, are readily available. A valuation would have to be prepared using a different method (Ngerebo-a, 2007).

Market value is the value of an asset/security as determined by the forces of demand for and

supply of the assets. It is the perceived or observed value of an asset on the market. It is also known as current value. It is in fact the mutually accepted worth (cost or price depending on the individual) of the asset after negotiation. Most assets that have market values have their values determined by specialized markets such as the stock exchange. The acceptance of any asset depends on the perception of the potential investor after comparing the market value to the intrinsic value. An asset is undervalued or under-price or favorably priced if the market value of the asset is less than the intrinsic value. If the intrinsic value of the asset is less the market value, then the asset is overvalued, over-priced or favorably priced. Where the latter occurs, the investor would ordinarily be acquiring an asset at more expensive value than he would ordinarily have paid. An investor would acquire an overpriced asset if he expects the asset to record a bullish price movement such that if the anticipated price movement crystallizes, the investor can make capital gain.

THEORETICAL FRAMEWORK

The Agency Problem

In corporate finance theory, the principal- agency problem is explains the co-existence of two parties with difference interest, for instance, two individuals who operate in an uncertain environment and for whom risk sharing is desirable. Suppose that one of the individuals known as the agent is to take an action which the other individual known as the principal cannot observe. The problem arises when the principal cannot monitor the agent's behavior, leading to the agent acts in his self- interest at the expense of the principal (Grossman & Hart, 1983). In general, the action, which is optimal for the agent will depend on the extent of risk sharing between the principal and the agent. To see this, let assume that shareholders hire managers for their specialized resources, but in the absence of monitoring shareholders will not know if the mangers really do their best in order to maximize the shareholders' value. One solution to the principal and agent problem is that the compensation contract must be designed so that when managers increase the value of the firm, they also increase their expected utility. When the compensation ties to the manager's performance in term of the stock price movements, for the most part, stock price- related compensation schemes might consist of company stock or stock option programs. If the future's stock price can affect management's compensation, then the potential decline in stock price will intensify the risk aversion if undiversified managers. As a result, strong incentives are created for managers to reduce their risk aversion and to boost the stock price (Bartram, 2000).

Nonetheless, corporate value does not depend only on the managers' performance but other determinants as well for example investment decision, capital structure, dividend policy, cost of capital and liquidity. As a result, due to the external influences unrelated to managers' performance on share price, management compensation plans are less effective (Aretz, Bartram & Dufey, 2007). If managers and shareholders have different risk preferences, the firm may not be able to achieve its maximum value since the managers will be less like take risky investments.

Capital Structure Policy

Classic corporate finance theory tells opined that while high leverage increase firm's value through the tax advantage of debt (Modigliani & Miller, 1958) since it also puts pressure on the firm for a risk- averse investor will think twice before he puts money on a high leverage firm. Furthermore, in case firm does not meet its obligations to debt holders promptly, the firm may encounter financial distress and ultimately, bankruptcy (Aretz, Bartram & Dufey, 2007). Financial distress costs consist of two forms: direct and indirect costs. Direct costs refer to a situation when in the case of bankruptcy; firms need to pay fees for lawyers, expert

witnesses and administrative and accounting fees, while indirect costs relate to the situation when firms lose valuable contact with customers, suppliers or skillful employees.

Investment Policy

The neoclassical investment models (Hayashi, 1982) suggest that the firm faces frictionless capital markets and the Modigliani and Miller (1958) theorem holds. In reality, however, firms often face important external financing cost due to asymmetric information and managerial incentive problems (Gay & Nam, 1998; Bolton, Chen & Wang, 2011). This happens because the decline in a firm's stock price depends on the fact that the demand curve for shares is downward sloping, meaning that when the firm increases the amount of its shares will have to be sold at discount from existing market prices in order to attract new buyers.

The magnitude of the discount is an increasing function of the size of the issue (Scholes, 1972). There are a number of previous researches that try to measure these external financing costs. For instance, Asquith and Mullins (1986) find that the average stock price reaction to the announcement of a common stock issue is -3% and the loss in equity value is -31 %. One of the reasons why firms choose to hedge depends on the fact that they want to avoid underinvestment problem. This means that firms might have some promising future's investments, but those investments require significant funding and firms need plenty cash. Froot, Scharfstein and Stein (1993) argue that if external financing is more costly than internal financing, hedging can be a value increasing activity if it more costly matches fund inflows with outflows, thereby lowering the probability that a firm needs faces costs of external funds, it can reduce future financing costs by holding cash to finance its future investments such as lowering the probability that a firm needs to access to the capital market.

Modigliani and Miller Hypothesis

The basic idea of the Modigliani and Miller (M&M) theorem is that under certain assumptions such as if the CAPM holds, then it does not matter how the firm chooses to finance its investment: either by issuing shares, borrowing debts or spending its cash. The financing method will not affect the value of a firm since firm value is determined by its earning power and by the risk of its underlying assets. For the theorem to hold, there are some criteria must be satisfied such as there are no taxes, no transaction costs and no bankruptcy cost (Ogden, Jen & O'Connor, 2003).

Conclusion, drawn from the MM proposition I & II, is that in an efficient market when a firm value is not affected by the taxes, bankruptcy costs, agency costs and information asymmetry. It will not matter how a firm choose to invest in some projects, the value will be completely unaffected by the type of security firm used to finance the investment. In other word, regardless of the financing used, the marginal cost of capital to a firm equal to the average cost of capital, which is in turn equal to the capitalization rate for an unlevered stream in the class to which the firm belongs (M&M, 1958).

Empirical Literature

Lucky et al (2015) examined the prudential determinant of stock prices of commercial banks in the Nigeria: application of the fundamentalists and macroeconomic view from 1980 – 2014. The study used aggregate value of end of the year stock prices of the commercial banks as dependent variables. The micro prudential variables are ratio of retain earnings, ratio of dividend payout, profitability, and commercial banks capital to total assets, lending rate and bank size while the macro prudential variables are monetary policy rate, inflation rate, all

share price index to gross domestic product, real gross domestic product, exchange rate and broad money supply. The Ordinary Least Square Method of Co-integration test, Augmented Dickey Fuller Unit Root Test, Granger Causality test and Vector Error Correction Model was used to examine the nature of relationship that exist between the dependent and the independent variables in the regression models. The study found that all the micro prudential variables have positive effects on the stock prices of the commercial banks except lending rate. The model summary shows a strong relationship between the dependent and the independent variables with an R^2 : 69.4% explained variation, 12.43051 overall significant and the probability of 0.000004, from the micro prudential variables while the macro prudential variables revealed an R^2 of 52.0% explained variation, 8.788310 over significant and probability of 0.000004, this proved that the micro prudential variables have positive and significant relationship while macro prudential variables exhibits positive average and significant relationship with stock prices in Nigeria. The findings validate fundamentalist and macroeconomic view.

Akani and Lucky (2016) examined the effects of capital structure on shareholders' value of quoted Nigerian commercial banks from 1981 – 2014. The model built for the study proxy Return on Investment (ROI), Equity Price (EQP) and Earnings per Share (EPS) as dependent variables measuring shareholder's value as the function of percentage in Debt Capital to Total Capital (DC/TC), percentage of Equity Capital to Total Capital (EQC/TC), percentage of Preference Share Capital to Total Capital (PSC/TC as independent variables). Annual time series data were sourced from stock exchange factbook and financial statement of quoted commercial banks. The Econometrics Techniques of Ordinary Least Square (OLS), Augmented Dickey Fuller (ADF), Unit Root Test, Johansen co-integration test and pair wise Granger Causality test were employed in the empirical analysis. R^2 , Regression coefficient, probability value, t-statistics and f-statistics were used to determine the extent to which the independent variables can affect the dependent variable. The co-integration result shows that long run equilibrium exists among the variables except preference share capital. In model I, the study found that all the independent variables have positive relationship with the Return on Investment. Model II found that equity capital and preference share capital have positive effects but insignificant relationship with Return on Investment while short term borrowings and preference share capital have positive relationship and debt capital have negative relationship with Equity Price of quoted commercial banks. Model III found that Equity Capital has positive relationship while debt and preference share capital have negative relationship with Earnings per Share. From the regression summary, Model I can explain 79% variation on Return on Investment, Model II explains 48% variation on Equity Prices while Model III explains only 11% variation on Earnings per Share.

Rajesh (2015) proposes a model for value creation through the application of Partial Least Square Structural Equation Modeling (PLS-SEM). The model proposes value creation of a firm as a function of critical drivers like size of firm, dividend policy, investment policy, capital structure and risk characteristics. Higher the leverage for the firm, lesser will be the value creation for the firm. Investors are skeptical about whether firms with high leverage would create value. Firm size is negatively related to value creation.

Banz (1981) advocates size effects (measured by market capitalization) as a significant determinant of average returns provided by market beta. This study finds that average returns on small size (low market capitalization) stocks are too high given their beta estimates and average returns on large size (high market capitalization) stocks are low.

Bhandari (1988) documents positive relationship between leverage and average returns. Studies by Stattman (1980) and Rosenberg et al (1985) finds that average returns on stocks are positively related to the ratio of firm's book value of equity to market value of equity. Chan et al (1991) finds that the ratio of book value to market value of equity is a significant determinant in explaining the cross section of average returns on Japanese stocks.

Chen et al (1991) postulate that the earning prospects of firms are associated with a risk factor in returns. Firms with low stock prices and high ratio of book to market equity which are characterized having poor prospects by market are considered risky and have higher expected stock returns than firms with strong prospects.

Sam Ben et al (2002) uses random probit model estimation procedure to estimate the determinants of value creation among companies listed in Tunisia stock exchange. The study finds that probability of creating future value is significantly correlated with profitability.

Imad (2016) investigated the main determinants of the industrial firms' value in developing countries namely Jordan. To achieve this goal all 77 ASE listed industrial firms for the period from 2000 to 2014 were utilized resulting in 974 firm-year observations. Twelve firm specific variables, namely, firm's size; firm's age; firm's risk level; firm's sales revenue; firm's operating cost; firm's tax rate; firm's net margin; firm's capital expenditure; firm's book value; firm's earning per share; firm's dividend per share and firm's pay-out ratio, were tested as a possible determinates of the firm's value. After testing for Multicollinearity and Heteroscedasticity the result of the unbalanced panel data Multi-regression model approach shows that the joint effect of the twelve potential determinants interprets about 37% of the variation in the value of the Jordanian industrial firms listed at ASE (R-squares = 0.3682).

Michaely and Roberts (2007) concluded that since the profits generated by the firm have an impact on share prices and the growth of the firm, any determinant that affects dividend pay - out ratio will have an automatic impact on the firm's share price and thus the firm's value, and the analysis and identification of these factors accurately are considered as the basis for appropriate action by firm.

Kamunde, (2011) carried out a study that aims at analyzing the determinants of firm's value in Kenya and which included earnings, operating costs and cost of capital, dividend payout and gearing ratio. This study has concluded that there was a significant negative effect of the dividend payout and gearing ratio on the firm's value. Gary et el. (2006) investigated the U.S. firms during the 90s and found that corporate venture capital was significantly related with Tobin's q a proxy of the firm's value.

Noor and Ayoub (2009) concluded that corporate governance mechanisms play a role in influencing the firm's value in Malaysia. In spite of that board size and leadership structure affect the firm value for all companies but not all of the elements of corporate governance had a statistically significant effect, and the impact of the variables of corporate governance varies depending on the nature of the firm.

Samuel, et el. (2012) carried out a study examining the impact of capital structure on the value of the firms listed in Ghana Stock Exchange (GSE) and concluded that in developing economies such as Ghana's economy, the capital structure and Long term debt had a statistically significant impact on the value of the firms under study.

Damodaran (2006) concluded that individual characteristics of firm's such as cash flows, expected growth rate and discount rate are the determinants the most influential on the firm's value. Kazlauskienė and Christauskas (2008) suggested that sorting of worth determinants is liable to the deterioration of company's quality built up by the strategy of discounted cash flows, due to the fact that all the elements that have an impact on the firm's value are included in the rates of free cash flows and discount rate. They have sort the determinants into five classification and proposed to set up the effect of determinants on association's worth through a basic system for economic factor analysis.

Boyd (2010) built on his previous experiences recognized six elements value determinants include: management team, operating system, customer base, facilities and equipment's, growth strategy and financial controls. Chandra (2011) conceptualized the critical pedals that existing to a firm to create value in a 'value octagon' that incorporates strategy and business model, capital allocation, strategic financial decisions, corporate risk management, and corporate governance. The empirical literature above failed to establish valid results on factors that determine value creation.

SECTION III: RESEARCH METHODOLOGY

Descriptive and longitudinal design was employed with a view to making statistical inferences on factors that determine corporate value of quoted manufacturing firms. A Sampling frame of 20 quoted manufacturing firms was selected using random sampling techniques. The required cross-sectional data was sourced from annual reports of the firms and Stock Exchange Factbook from 2011-2016.

Analytical Framework and Empirical Model Specification

This analysis is carried out within a panel data estimation framework. The preference of this estimation method is not only because it enables a cross-sectional time series analysis which usually makes provision for broader set of data points, but also because of its ability to control for heterogeneity and endogeneity issues. Hence panel data estimation allows for the control of individual-specific effects usually unobservable which may be correlated with other explanatory variables included in the specification of the relationship between dependent and explanatory variables (Hausman and Taylor, 1981). The basic framework for panel data regression takes the form:

$$Y_{it} = \beta X'_{it} + \alpha Z'_i + \varepsilon_{it} \quad 7$$

In the equation above, the heterogeneity or individual effect is Z^i which may represent a constant term and a set of observable and unobservable variables. When the individual effect Z'_i contains only a constant term, OLS estimation provides a consistent and efficient estimates of the underlying parameters (Kyeremboah-Coleman, 2007); hut if Z'_i is unobservable and correlated with X_{it} , then emerges the need to use other estimation method because OLS will give rise to biased and inconsistent estimates.

Similarly for endogeneity issues, it is generally assumed that the explanatory variables located on the right hand side of the regression equation are statistically independent of the disturbance ε_{it} such that the disturbance term ε_{it} is assumed to be uncorrelated with columns of the parameters X_{it} and Z_{it} as stated in equation (1), and has zero mean and constant variance $\sigma^2\eta$ (Hausman and Taylor, 198). If this assumption is violated, then OLS estimation

will yield biased estimates of the underlying parameters of β (Mayston, 2002). Hence, endogeneity problems arise when the explanatory variables are correlated with the disturbance term ε_{it} (Mayston, 2002; Hausman and Taylor, 1981). In order to circumvent these problems, panel estimation techniques of fixed and random effects will be adopted in this study, in addition to the traditional pooled regression estimation. Decisions will be made between the fixed and random effect models using the Hausman specification test. The panel model for the study is specified based on the modified model of Akeem, Edwin, Kiyanjui and Kayode (2014).

$$Y_{it} = \beta X'_{it} + \alpha Z'_i + \varepsilon_{it}$$

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Where:

- Y = dependent variable
- D = independent variable
- β_o = intercept
- β_i = coefficient of the explanatory variable
- e = error term
- I = cross-sectional variable
- T = time series variable

Model Specification

Pooled regression specification

$$MV_i = \alpha_0 + \alpha_1 DER_i + \alpha_2 CG_{2i} + \alpha_3 ROI_{3i} + \alpha_4 TAB_{4i} + \alpha_5 CC_{5i} + \alpha_6 ME_6 + \alpha_7 LIQR_8 + \alpha_8 RISK_9 + \alpha_9 FS_{10} + \alpha_{10} DP_{11} + \alpha_{11} RR_6 + \varepsilon_{1i} \quad 9$$

Fixed Effect Model Specification

$$MV_{it} = \alpha_0 + \alpha_1 DER_{it} + \alpha_2 CG_{2it} + \alpha_3 ROI_{3it} + \alpha_{3it} + \alpha_4 TAB_{4it} + \alpha_4 CC + \alpha_5 ME + \alpha_6 LIQR + \alpha_5 RISK_6 + \alpha_5 FS_6 + \alpha_5 DP_6 + \alpha_5 RR \sum_i^9 = 1 \alpha_i idum + \varepsilon_{1i} \quad 10$$

Random effect model specification

$$MV_{it} = \alpha_0 + \alpha_1 DER_{it} + \alpha_2 CG_{2it} + \alpha_3 ROI_{3it} + \alpha_{4it} TAB_4 + \alpha_5 CC_{5it} + \alpha_6 ME + \alpha_7 LIQR_{7it} + \alpha_8 RISK_{8it} + \alpha_9 FS_{9it} + \alpha_{10} DP_{10it} + \alpha_{11} RR_{11it} + \mu_i + \varepsilon_{1i} \quad 11$$

Where

- MV = Market Value of the Quoted Manufacturing Firms
 DER = Debt Equity Ratio
 CG = Corporate Governance
 ROI = Return on Investment as Proxy for Profitability
 TAB = Assets Tangibility measures as Fixed Assets to Total Assets
 CC = Cost of Capital measures as Weighted Average Cost of Capital
 ME = Management Efficiency measures as Total Cost to Total Revenue
 LIQR = Liquidity Measures as Total Current Assets to Current Liability
 RISK = Risk measures as Sensitivity of Earnings to Macro Economic Factor
 FS = Firm Size measures as the Log of Total Assets
 RR = Retention Ratio
 DP = Dividend Payout Ratio
 ε_1 = Stochastic or disturbance/error term.
 t = Time dimension of the variables
 α_0 = Constant or intercept.

Variable	Notation	Effect
Market Value of the Quoted Manufacturing Firms	MV	Dependent Variable
Debt Equity Ratio	DER	+
Corporate Governance	CG	+
Return on Investment as Proxy for Profitability	ROI	+
Assets Tangibility measures as Fixed Assets to Total Assets	TAB	+
Cost of Capital measures as Weighted Average Cost of Capital	CC	-
Management Efficiency measures as Total Cost to Total Revenue	ME	+
Liquidity Measures as Total Current Assets to Current Liability	LIQR	+
Risk measures as Sensitivity of Earnings to Macro Economic Factor	RISK	-
Firm Size measures as the Log of Total Assets	FS	+
Retention Ratio	RR	+
Dividend Payout Ratio	DP	-

Estimation Techniques

Panel unit root test result

The data were checked for the presence of unit root using the ADF Fisher Chi-Square and Philiperon Fisher Chi-Square, which is based on the well-known Dickey–Fuller procedure. The null hypothesis for these tests is that there is a presence of non-stationary series against the alternative hypothesis of stationary series. The unit root test is important because non-stationary series regression estimation leads to spurious regression estimations with the wrong magnitude and sign of the parameter of the regressors, with wrongly inferred implications. The study assumes an absence of a time trend; hence it is tested for stationarity allowing for constant only. Stationarity denotes the non existence of unit root. We shall therefore subject all the variables to unit root test using the augmented Dickey Fuller (ADF) test specified in Gujarati (2004) as follows.

$$\Delta y_t = \beta_1 + \beta_2 + \delta y_{t-1} + \alpha \sum_{i=1}^m \Delta y_{t-i} + \epsilon_t \quad 12$$

Where:

$$\Delta y_t = \text{change time } t$$

$$\Delta y_{t-1} = \text{the lagged value of the dependent variables}$$

$$\sum_t = \text{White noise error term}$$

If in the above $\delta = 0$, then we conclude that there is a unit root. Otherwise there is no unit root, meaning that it is stationary. The choice of lag will be determined by Akaike information criteria.

Decision Rule

t-ADF (absolute value) > t-ADF (critical value) : Reject H_0 (otherwise accept H_1)

Note that each variable will have its own ADF test value. If the variables are stationary at level, then they are integrated of order zero i.e 1(0). The unit root problem earlier mentioned can be explained using the model:

$$Y_t = Y_{t-1} + \mu_t \quad 13$$

Where Y_t is the variable in question; μ_t is stochastic error term. Equation (a) is termed first order regression because we regress the value Y at time “t” on its value at time (t- 1). If the coefficient of Y_{t-1} is equal to 1, then we have a unit root problem (non stationary situation). This means that if the regression.

$$Y_t = Y_{t-1} + \mu_t \quad 14$$

Is run and L is found to be equal to 1 then the variable Y_t has a unit root (random walk in time series econometrics).

If a time series has a unit root, the first difference of such time series are usually stationary. Therefore to solve the problem, take the first difference of the time series. The first difference operation is shown in the following model:

$$\Delta Y_t = (L-1) Y_{t-1} + \mu_t \quad 15$$

$$\delta Y_{t-1} + \mu_t \quad 16$$

(Note: $\delta = 1-1 = 0$; where $L = 1$; $\Delta Y_t = Y_t - Y_{t-1}$) 17

Integrated Of Order 1 Or I(1)

Given that the original (random walk) series is differenced once and the differenced series becomes stationary, then the original series is said to be integrated of order I or I (1).

Integrated of Order 2 Or I (2)

Given that the original series is differenced twice before it becomes stationary (the first difference of the first difference), then the original series is integrated of order 2 or 1(2).

Therefore, given a time series has to be differenced Q times before becoming stationary it said to be integrated of order Q or I (q). Hence, non stationary time series are those that are integrated of order 1 or greater.

The null hypothesis for the unit root is: $H_0: a = 1$;

The alternative hypothesis is $H_1: a < 1$.

We shall test the stationarity of our data using the ADF test.

Granger Causality Test

Thus, Granger causality test helps in adequate specification of model. In Granger causality, test, the null hypothesis is that no causality between two variables. The null hypotheses is rejected if the probability of F^* statistics given in the Granger causality result is less than 0.05.

The pair-wise granger causality test is mathematically expressed as:

$$Y_t \pi_o + \sum_{i=1}^n x_{1t}^y Y_{t-1} \sum_{i=1}^n \pi_{1t}^x x_{t-1} + u_t \quad 18$$

and

$$x_t dp_o + \sum_{i=1}^n dp_{1t}^y Y_{t-1} \sum_{i=1}^n dp_{1t}^x x_{y-1} + V_1 \quad 19$$

Where x_t and y_t are the variables to be tested while u_t and v_t are the white noise disturbance terms. The null hypothesis $\pi_1^y = dp_1^y = 0$, for all I's is tested against the alternative hypothesis $\pi_1^x \neq 0$ and $dp_1^y \neq 0$. if the co-efficient of π_1^x are statistically significant but that of dp_1^y are not, then x causes y. If the reverse is true then y causes x. however, where both co-efficient of π_1^x and dp_1^y are significant then causality is bi-directional.

SECTION IV: PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

The following tables explain the dynamic relationship between corporate characteristics and value creation of manufacturing firms in Nigeria.

Table I: Presentation of Level Series Result

Variable	Pooled Effect			Fixed effect			Random effect		
	β coefficient	T. stat	p. value	β coefficient	T. stat	p. value	β coefficient	T. stat	p. value
TAB	0.318878	1.577038	0.1218	0.071010	0.285979	0.7765	0.197823	0.912854	0.3660
ROI	0.096807	1.502665	0.1399	0.056960	0.827128	0.4136	0.123227	2.008365	0.0504
RISK	0.004815	0.031772	0.9748	-0.162370	-0.687898	0.4959	0.214581	1.558157	0.1259
LIQ	-0.000536	-0.810500	0.4219	-8.60E-06	-0.012492	0.9901	-0.000105	-0.155567	0.8770
FS	-0.007224	-0.303205	0.7631	-0.024401	-0.980068	0.3336	-0.004110	-0.172712	0.8636
DER	-0.007110	-0.312812	0.7559	0.001332	0.056528	0.9552	-0.002966	-0.127356	0.8992
DPR	-0.070573	-2.612645	0.0122	-0.055844	-1.986333	0.0547	-0.058122	-2.096472	0.0414
CG	-0.092564	-0.398569	0.8634	-0.573890	-0.266286	0.4876	-0.550871	-0.731084	0.4098
RR	0.011122	0.994693	0.3252	0.003094	0.228438	0.8206	0.012965	1.078434	0.2863
ME	0.047036	0.118745	0.2309	0.010853	0.156289	0.3901	0.002674	0.953790	0.1670
CC	0.376997	2.137436	0.0380	0.531295	2.043518	0.0484	0.197823	0.912854	0.3660
C	6.009014	2.154833	0.0366	9.540232	2.984623	0.0051	0.123227	2.008365	0.0504
R-squared	0.396693			0.576518			0.233236		
AdjR ²	0.262624			0.353014			0.102723		
F-statistic	2.958884			2.579452			1.787068		
F- Prob	0.006082			0.007012			0.103600		
D W	1.981396			2.472462			2.372098		

Source: extract from E-view 9.0

The objective of this study is to examine the effect of corporate characteristics on the value creation of quoted manufacturing firms using cross sectional panel data. Results in the above table prove the evidence on the effects of corporate characteristics on value creation of a manufacturing firm. From the pool regression results, the independent variables can explain 39.6% and 26.2% variation on the dependent variable. The F-Statistics and Probability shows that the model is significant in affecting changes on the dependent variable. The Durbin Watson statistics is greater than 1.50 but less than 2.00 which prove the presence of positive serial auto correlation. The β coefficient shows that assets tangibility, return on investment, risk, retention ratio, management efficiency and cost of capital have positive relationship with value creation while liquidity, firm size, debt equity ratio, dividend payout ratio and corporate governance have negative relationship with market value of the firms. The T-Statistics and probability value prove that the independent variables are statistically not significant except cost of capital and dividend payout ratio.

The fixed effect model shows that the independent variable explains 57.6% and 35.3% variation on the dependent variable. The F-statistics and the F-Probability validates that the model is significant. The β coefficient of the variables shows that assets tangibility, return on investment, debt equity ratio, retention ratio, management efficiency and cost of capital have positive effect on the market value of the quoted manufacturing firms while risk, liquidity, firm size and corporate governance have negative effect on the market value. The T-Statistics and the probability value justify that cost of capital and dividend payout ratio is statistically significant while other variables are statistically not significant.

From the random effect model, the independent variables can explain 23.3% and 10.2% variation on the dependent variable. The F-Statistics and F-Probability rejects significant of the model. The β coefficient shows that assets tangibility, return on investment, risk, retention ratio, management efficiency and cost of capital have positive relationship with value creation while liquidity, firm size, debt equity ratio, dividend payout ratio and corporate governance have negative relationship with market value of the firms. The T-Statistics and probability value prove that the independent variables are statistically not significant except cost of capital, Dividend payout ratio and return on investment.

Table II: Testing the Significance of the Models

TEST: Redundant	CHI –SQ STAT	DF	PROB
Cross-section F	1.698546	(9,36)	0.0054
Cross-section Chi-square	19.819335	9	0.0091
TEST: Hausman	CHI –SQ STAT	DF	PROB
Cross-section random	4.397498	8	0.0000

Source: Extract from E-view (9.0)

In testing the validity of the models, the fixed effects on the cross section Redundant Fixed Effect- Likelihood Ratio, the P- value is 0.000 indicating that the effects are significant. Select the random effect and perform the Correlated Random Effects- Hausman test, testing the random effects model against the fixed effects model. The null hypothesis in that case is that both tests are consistent estimators and the random effects model is efficient. Under the alternative hypothesis, only the fixed effect is consistent. Since the p- value is 0.000, the null hypothesis is rejected and, therefore, the fixed effects model is to be preferred.

Table III: Test for Stationarity

Variables	ADF - Fisher Chi-square/ PP - Fisher Chi-square	Statistics	Probability	REMARK	DECISION
MV	ADF - Fisher Chi-square	23.5883	0.0000	Stationary	Reject H0
	PP - Fisher Chi-square	28.0580	0.0000	Stationary	Reject H0
CC	ADF - Fisher Chi-square	49.2693	0.0000	Stationary	Reject H0
	PP - Fisher Chi-square	16.0994	0.0000	Stationary	Reject H0
CG	ADF - Fisher Chi-square	13.2187	0.0000	Stationary	Reject H0
	PP - Fisher Chi-square	23.5324	0.0000	Stationary	Reject H0
RR	ADF - Fisher Chi-square	14.4712	0.0000	Stationary	Reject H0
	PP - Fisher Chi-square	19.3481	0.0000	Stationary	Reject H0
DP	ADF - Fisher Chi-square	8.40177	0.0000	Stationary	Reject H0
	PP - Fisher Chi-square	10.6970	0.0000	Stationary	Reject H0
DER	ADF - Fisher Chi-square	11.0065	0.0000	Stationary	Reject H0
	PP - Fisher Chi-square	11.5061	0.0000	Stationary	Reject H0
FS	ADF - Fisher Chi-square	10.3202	0.0000	Stationary	Reject H0
	PP - Fisher Chi-square	11.8649	0.0000	Stationary	Reject H0
LIQR	ADF - Fisher Chi-square	11.3261	0.0000	Stationary	Reject H0
	PP - Fisher Chi-square	25.2237	0.0000	Stationary	Reject H0
ME	ADF - Fisher Chi-square	11.0716	0.0000	Stationary	Reject H0
	PP - Fisher Chi-square	11.9923	0.0000	Stationary	Reject H0
RISK	ADF - Fisher Chi-square	35.4182	0.0000	Stationary	Reject H0
	PP - Fisher Chi-square	11.6859	0.0000	Stationary	Reject H0
ROI	ADF - Fisher Chi-square	16.2391	0.0000	Stationary	Reject H0
	PP - Fisher Chi-square	8.96495	0.0000	Stationary	Reject H0

Source: Extract from E-view 9.0

The table above presents the summary results of the ADF and PP panel unit root tests. The results show that the null hypotheses of a unit root test for first difference series for all the variables can be rejected at all the critical values indicating that the level series which is largely time-dependent and non-stationary can be made stationary at the first difference and maximum lag of one. Thus, the reduced form model follows an integrating order of 1(1) process and is therefore a stationary process. It also reveals that the test of stationarity in the residuals from the level series regression is significant at all lags. Furthermore, this indicates that the regression is no more spurious but real. That is to say, all the variables are individually stationary and stable. At this level, all the t-statistic became significant at 5 percent.

Table IV: Test for Causality

Hypotheses	Obs	F. Stat	Prob.	DECISION
TAB does not Granger Cause MV	40	0.45552	0.6378	Accept H0
MV does not Granger Cause TAB		4.54026	0.0177	Reject H0
ROI does not Granger Cause MV	34	0.41334	0.6653	Accept H0
MV does not Granger Cause ROI		0.02559	0.9748	Accept H0
RISK does not Granger Cause MV	40	1.19122	0.3159	Accept H0
MV does not Granger Cause RISK		0.78676	0.4632	Accept H0
LIQ does not Granger Cause MV	40	3.66833	0.0358	Reject H0
MV does not Granger Cause LIQ		2.67390	0.0831	Reject H0
FS does not Granger Cause MV	40	0.02196	0.9783	Accept H0
MV does not Granger Cause FS		1.69682	0.1980	Accept H0
DER does not Granger Cause MV	40	0.76793	0.4716	Accept H0
MV does not Granger Cause DER		0.44057	0.6472	Accept H0
DP does not Granger Cause MV	37	0.22955	0.7962	Accept H0
ME does not Granger Cause MV	40	0.13479	0.7967	Accept H0
MV does not Granger Cause ME		0.48034	0.5952	Accept H0
MV does not Granger Cause RR		0.22463	0.8001	Accept H0
CG does not Granger Cause MV	40	0.20526	0.8154	Accept H0
MV does not Granger Cause CG		0.14066	0.8693	Accept H0
CC does not Granger Cause MV	40	0.45346	0.6391	Accept H0
MV does not Granger Cause CC		0.51481	0.6021	Accept H0

Source: extract from E-view 9.0

The objective of causality test is to examine if past variation in on the variables can affect significantly the present condition. From table IV above, the probability coefficient of the variables are greater than 0.05 at 5% level of significance, we therefore conclude there is no causal relationship between the independent to the dependent and the dependent to the independent. This means that past variation have no significant effect on the present changes on the variables, except a unidirectional relationship from market value to asset tangibility and a bio directional relationships from liquidity to market value and from market value to liquidity.

Discussions of Findings

Having tested the significant the model, discussions of findings is based on the result of the fixed effect model. The model explains 57.6% and 35.3% variation on the dependent variable. Variable such as assets tangibility, return on investment, liquidity, firm size, debt equity ratio, retention ratio and corporate governance are expected to have a positive impact on the market value of the quoted firms while risk, dividend payout ratio and cost of capital are expected to have a negative effect on the dependent variable. However, the fixed affect model shows that assets tangibility, return on investment, debt equity ratio, retention ratio, management efficiency and cost of capital have positive effect on the market value of the quoted manufacturing firms. The positive effect of the variables confirm the a-priori expectation of the result and justifies various management policies formulated using the variables to achieve increase in the value of the firms. It confirms the findings of Akani and Lucky (2016) on the positive impact of capital structure on the shareholder's value of commercial banks in Nigeria. It also confirms the findings of Rajesh (2015) on the determinants of GCC firms. The positive effect of cost of capital is contrary to the expectation and can be traced to the management strategies device to leverage the negative effect of cost of capital on the market value of the quoted firms. It could also be traced that the firms are not highly levered.

However, the model also found that risk, liquidity, firm size, retention ratio and corporate governance have negative effect on the market value. The negative effect of the variables such as risk, confirm the a-priori expectation but the negative effect of firm size, retention ratio and corporate governance is contrary to expectation. This could be traced to the inability of the management to formulate policies that will enhance the effective management of the variables.

SECTION V: CONCLUSION AND RECOMMENDATIONS

This study aimed to investigate corporate characteristics that determine value creation of manufacturing firms in Nigeria. To achieve this objective, a cross sectional panel data were sourced from financial statement of 10 manufacturing firms quoted on the floor of Nigerian Stock exchange from 2011-2016. After testing the significant of the model, the study adopts the fixed effect model which found that 57.6% and 35.3% variation on market value of the selected manufacturing firms can be traced to the independent variables. It shows that assets that assets tangibility, return on investment, debt equity ratio, retention ratio management efficiency and cost of capital have positive effect on the market value of the quoted manufacturing firms while risk, liquidity, firm size and corporate governance have negative effect on the market value. The T-Statistics and the probability value justify that cost of capital and dividend payout ratio is statistically significant while other variables are statistically not significant. From the findings, we make the following recommendations:

1. The management should formulate strategic and tactical measures to manage risks that affect the market value of the firms and optimal liquidity management policy that

balance liquidity and corporate investment should be formulated.

2. There is need for management to ensure optimal capital structure and the corporate governance code should be complied by the management.
3. Dividend policy should be harmonized with the objective of value creation and retention form should be well invested to maximize shareholder's value creation.
4. The corporate operating environment such as the investment climate should be well examined and factors that effects negatively value creation of the firms should be properly managed.
5. Investment in fixed assets should be incorporated with the objective of value creation for the manufacturing firms.

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