

**THE ROLE OF ECONOMIC UNCERTAINTY ON CORPORATE INVESTMENT DECISION:
AN EMPIRICAL STUDY OF LISTED NIGERIAN MANUFACTURING FIRMS****BY****Opaleke Jeremiah Babajide: Department of Business Education, Kwara state college of education,
Oro, Nigeria; E-mail: jopaleke@gmail.com****Abstract**

In consideration of the challenges facing corporate executives in the area of investment decision and the implication (i.e., effect) of these challenges on corporate survival and growth, majorly in the face of global pandemic, this study is conducted to specifically verify the role(s) of economic factor: economic uncertainty, amongst other investment factors, on a growing firm's investment decisions. But prior to the description of the methodology adopted for achieving this objective, some conceptual issues, theoretical expositions and empirical contributions that are most relevant to corporate investment decision were first reviewed in the quest to align the findings of this study with those in existence, and then highlight major gaps found in those studies. The methodologies adopted, in the main, are anchored on the Tobin's Q theoretical framework while its coverage is the 35 listed Nigerian manufacturing firms on the Nigerian Stock Exchange (NSE) between the years 1990 and 2019 (which is a total of 29 years). All variables examined in this study were selected on the premise of a three economic logic that most empirical studies of recent times ignored viz: firm-specific factors, industrial-wide factors and economic factors. And being a quantitative type of study that focuses on a developing economy (Nigeria), the data employed are of unbalanced panel type, which is mainly secondary. To get the very best of results and un-biased inferences, these data are scientifically scrutinized and analyzed using the 3-Stage Least Square regression approach. Accordingly, capital investment is the study's dependent variables, which is measured by the sample firm's fixed assets data. Other variables tested on capital investment are: finance, dividend payout, firm's share market value (Q), the net cash flow, change in corporate product' sales and stock market volatility (SMV), which is an economic uncertainty indicator. In the quest to avoid spurious regression result, a multivariate econometric model is specified to capture all the study's intended joint variables. On the premise of this findings, the study then recommend that corporate executives and concerned government authorities should develop and/or adopt the economists' suggested mechanisms as a scientific approach to managing the multiplier effect of the economic uncertainty in particular, when considering capital investment projects.

Keywords: Economic uncertainty, Finance, Capital investment and Decision making**Introduction**

One of the major reasons why firms stays competitive and contributes significantly to economic growth is anchored on its investment decisions and on the manner at which it predicts correctly, what the business future will bring in relation to its financial resources investment (Smith, 2019). This then implies that the role of decision making cannot be undermined if a firm will achieve its corporate goals, which is because, running a firm is a sensitive task that requires taking sensitive decisions, and for the managerial and corporate intentions to be actualized, managers must have extensive knowledge of what decisions to take, time to take it, what informs such decisions, and how eventualities that such decisions could bring could be efficiently managed (Baker, 2017).

Since the Modigliani and Miller's (1963) adjustment of the separation and irrelevance theorems that actually relaxed some of the issues raised by scholars regarding their earlier submissions of 1958 as it concerns the role of a firm's finance and dividend decisions on its investment decision, most finance

scholars' attention has shifted to how notable factors could affect a firm's business sustainability and exposes a firm to high level of risk. However, despite all efforts in this area, to a large extent, little or nothing can be said to have been documented at the empirical study level on the specific role (effect) of the economic uncertainty on a firm's investment (Olowe, 2018). But, for a firm to achieve the very best of its potential, it will require adequate understanding of what impact an economic factor like the economic uncertainty, which is an exogenous factor to corporate financing decision, will have on its investment decision, given the fact that businesses growth decisions revolves around its investment choices, its funds and money management, and its dividend decisions, which scholars tagged as the trilogy of financing decisions (Smith, 2019). At such a crisis period like the current global economic pandemic that the world is experiencing, it will be a logical idea that all companies begin to plan and anticipate all possible effect(s) of the economic and financial uncertainty on their corporate activities, and how their decisions could be thoroughly managed to avoid money losses that could limit corporate chances of surviving trying times, and as well infuriates other corporate surviving challenges.

In as much as any capital investment decision made by a firm remains its long-term decision that could influence its other financing decisions just as argued by Hassan (2017), the role(s) of the economic and financial uncertainty in most firms' quest to store its monetary value in productive assets, and as well increase its shareholders' wealth will remain undoubted (Hassan, 2017).

Statement of the Problem

Given the challenges of deciding what best investment opportunity is out there to take by a firm seeking growth, and notable numbers of factors militating against corporate investment decision, extant literature have fallen short of information on the role(s) of economic uncertainty amongst several other factors that are influencing capital investment, thereby calling for more empirical evidence in this area (Baker, 2017). Capital investment is a corporate decision relating to the selection of assets (mostly fixed) upon which firm's fund are carefully spent and later used to finance other corporate needs as situation may demand. When money is invested on a financial project, corporate investors' expectation is that such investment will yield impressive return that will add value to their equity and project their company well in the sight of the public (Baker, 2017). Without doubt, prior studies identify some firm-specific and industrial-wide factors such as the firm's profitability and industrial rules to just mention a few, as the major influencers of corporate investment decisions. However, their studies' approaches were faulty given the fact that the study is only conducted on the basis of the firms' and industry-specific factors, thereby neglecting exogenous factors, particularly those that involves the state of the economy and risk. The fact that an investment process is an economic-wide decision, factors relating to economic activities and projections supposed to be included.

Given the lapses found in the Smith's (2019); Dada and Ghazali (2017) and Paseda (2016), to just name a few from most extant empirical studies on the investment management, specifically, theoretical gap, joint variable gap, study methodical gap and coverage or geographical gaps were profound, which this current study is preoccupied to fill. This attempt will be a scientific means of furnishing corporate information users with useful information that is lacking on the role of economic uncertainty amongst other notable investment factors, thereby solving one of the key challenges facing growing firms, especially in Africa. To test which variables impact the dependent variable of the study, the 3-Stage Least Squares (3-SLS) estimation method is adopted. To make this study eclectic, the study's coverage is firm-specific factors; industry-specific factors; and most importantly, the economic factor. To achieve this, the study introduces economic uncertainty, net cash flow, stock market value of shares (Q), change in corporate product' sales and other hitherto ignored variables in the existing empirical studies.

Research Objective

The study has the main objective of verifying the role (effect) of economic uncertainty, amongst other investment factors.

Research Question

What effect does economic uncertainty, amongst other factors, have on firms' capital investment decision?

Research Hypothesis

Ho₁: Economic uncertainty does not inform capital investment decision negatively.

Literature Review**Conceptual Review**

Scholars' interpretation and the stand of this study on what capital investment and the economic uncertainty are, amongst other study's explanatory variables, are discussed in this sub-section, in order to aid quick comprehension of concepts used and the study in entirety.

Olowe (2018) describes *capital investment* as a firm's acquisition of some fixed or productive long-term assets, such as: real estate, manufacturing plants, machinery or other valuables that can generate much income (if possible more than the cost of acquisition), and cater for firms' other financial obligations. Hassan (2017) describes *corporate financing* as the ability of a firm to raise funds to finance a working capital or acquisitions through borrowing (secured and unsecured loan) that is meant to be paid back at future date with interest. Paseda (2016) describes *dividend payout* as the distribution of profits earned from a firm's productive/investment activities over a period of time to the firm's shareholders, majorly on a yearly basis. *Economic uncertainty* is unpredictable occurrences in the economic situation of a nation or global markets (e.g., inflation, persistent changes in governmental, economic and financial policies, stock market volatility, pandemics, and more), whereby there is insufficient knowledge of the consequences of such a sudden event on the economy, its magnitude and probability of its occurrence (IMF, 2018). *Net cash flow* is the difference between a firm's cash inflows and outflows in a given period, that is, margin change in a firm's cash balance as stated in its cash flow statement (Frank & Shen, 2017; Paseda, 2016 & Adelegan, 2015). *Change in sales* means the marginal increases or decreases in a firm's product turnover (Dada & Ghazali, 2017). *Firm's other financial need* means other firm's commitments and expenditures (apart from dividend payout), which requires the disbursement of cash in order to ensure a smooth running of the firm (Rasool, 2020 & Gordon 2015). All of these definitions are what this study means by those words

Theoretical Review

First, Tobin's Q theory is an economic theory of investment behaviour that was developed by Tobin (1969). The rationale is to provide a model that will explain the relationship between stock market and corporate investment activities. Q denotes the ratio of the market value of a firm's existing shares (share capital) to the current replacement cost of those assets (replacement cost of the share capital). The theory states that the marginal Q should be measured as the ratio of the capitalized value to the replacement cost of the marginal investment which summarizes the effects of all the factors relevant to a company's investment decisions. This means that all the information relevant to the expected future profitability of a company affects its investment activities, and must be considered when deciding on what investment project a firm would execute, judging by their multiplier effects on firm's marginal Q. The decision rule is that companies with Q ratios greater than one have incentive to invest than those below or equal to one, since the market value of the reproducible assets is greater than the replacement cost (Ascioglu, 2017; Aggarwal & Zong, 2016; & Erickson & Whited, 2015). It can be said that the strength of the Q theory lies in its explanation of the role of an average Q ratio of greater, equal or less than one as an indicator of wise investment decision, particularly as it relates to corporate assets' replacement cost and stock market activities. However, this theory failed in considering that stock market fluctuations do not usually reflect the true state of fundamentals of firms and that of the larger economy.

Second, *Agency* theory is a corporate theory propounded in the early 70's from two independent theories of economics and management, the result of the combined efforts of Ross and Mitnick (1973 & 1975), which is designed as a template to address managerial conflicts between agents and their principals (Hassan, 2017). The theory is considered in this study due to its explicit analysis of the corporate structure, following how it explicitly address issue relating to business-contractual relationship, financing decisions and corporate control and conflicts of interest. Its prediction is that, most shareholders desire high investment returns but at no or most minimum risk level, of which such shareholders would object corporate management on investment or financing decisions relating to risky portfolios, high cost of debt, or any form of financial distress approaches a manager may prefer due to fear of loss of business control, bankruptcy and uncertainties (Jindrichovska & Korner, 2010).

And finally, the *Trade-off* theory of capital structure is a corporate finance theory, propounded by Kraus and Litzenberger (1973), who considers a balance between the dead-weight costs of bankruptcy and tax saving benefits of debt financing. This finance postulate explicitly explains how wise it is for a company seeking growth to balance its financing decision with equity financing and debt, in prosecuting investment and other corporate growth projects. This theory is explicit in describing ideal corporate financing methodology, which most studies documented to be preferred by both big and smaller firms operating within developed and the developing economies (Baker, 2017). The rationale behind trade-off theory is to project companies to weigh the cost and benefits associated with both equity financing and debt financing before deciding corporate financing standards. Accordingly, the theory posited that equity financing option alone might not be enough or most efficient option under some economic situations (uncertainty) to execute corporate projects, and when debt is considered alongside equity financing, it is wise that corporations must first consider the tax involved, firms' financial obligations, and the associated costs of such debt so as to focus more on trade-off (Baker, 2017).

Empirical Review

Rossi (2016) examined the relationship between the capital investment, share price volatility and, dividend policy. Rossi's focus was on consumer products' companies as listed on the Italian stock market. A sample of eighty-four companies from one hundred and forty-two consumer products' firms that are listed on the main market was covered, and the relationship between investment, share price volatility and two other measurements of dividend policy (dividend yield and payout) were examined through single regression modeling approach, covering a period of 2005 to 2010. It was revealed that dividend yield and size have most impact on investment than share price volatility, among other variables. The strength of this work lies on its use of primary regression model that is expanded by adding control variables such as firm size, earning volatility, and leverage. The study, however, failed to consider firm's net cash flow as a possible explanatory variable.

Gill (2017) studies what informs investment decision from firm-specific factors' perspective. American service and manufacturing firms were covered. The Q theory was tested and data were analyzed using OLS regression technique. Gill's finding shows that cost of reproducible assets (Q) is a determinant of investment decision, alongside price-to-earnings ratio, earnings growth, and other, which is consistent with Meng (2012) and contradicts Hashemijoo (2015). The strength of the study lies on the fact that it combines two major industries to make the study robust against the famous single industrial evaluation in practice. But the study failed to examine beyond firm-specific factors, which makes the study relatively inconclusive.

Annamalah (2019) examined the impact of firms' investment decisions on setting of dividend policy, testing firms in Germany. Seventy-five companies were sampled using secondary data that were analyzed using the OLS regression method. Market-timing was tested and it was hypothesized that both non-stakeholders and capital suppliers have influence on firm's investments and dividend decisions. The result from this study shows that investment is both positively related to dividend payout decision, and firms

with fewer lines of business tend to have lower payout ratios than the larger firms. This finding is consistent with Meng (2012) and contradicts Gill's (2017) findings. The strength of the study lies with the inclusion of firm's lines of business and market-timing which most prior studies ignored as a measure of investment choice. However, the study failed to be explicit on how market-timing influences investment decision.

Finally, Jing (2020) examined what investment and financing decision of companies will be after COVID-19 pandemic, using China as a case study. It is a predictive research seeking to know how large and medium-sized companies will react to investment and financing decision when Corona Virus pandemic is gone. Jing opined that large and medium-sized firms has a role to play in the recovery of economic growth, and therefore uses network level; number of neurons in each level; determination of the initial weight and other related parameters to set up network structure for the evaluation of investment and financing single model specified. Eighty listed firms were sampled, using the python estimation technique to process and train the employed data. Market-timing theory of investment was tested and it was hypothesized that corporate investment and financing decision will be low after COVID-19 pandemic is over. The strength of this work lies in the fact that it opens financial stakeholders and researchers eyes to the impact of environmental factors on investment decisions which most prior researchers have failed to address. However, Jing (2020) failed to consider that the shareholder's interest on dividend payout is a factor, which his suggested classified networks cannot handle.

From the studies appraised in the section above, it can be deduced generally that none of those studies (including several not reported in this text), tested the Q theory; considered a study on the manufacturing sector of a growing economy nor adopts 3-stage least square estimation method that can assist in verifying multiple interrelated variables.

Methodology

Tobin's Q of investment decision is adopted as the theoretical framework for this study due to its wide acceptance in practice and for its extensive descriptions of corporate investment behaviour. It is a theory developed by Tobin in year 1969. The rationale is to provide a model that will explain the relationship between stock market and corporate investment activities. Q denotes the ratio of the market value of a firm's existing shares (share capital) to the current replacement cost of those assets (replacement cost of the share capital). The theory states that the marginal Q should be measured as the ratio of the capitalized value to the replacement cost of the marginal investment which summarizes the effects of all the factors relevant to a company's investment decisions. This simply means that all the information relevant to the expected future profitability of a firm affects its investment activities, and must be considered when deciding on what investment project a firm would execute, judging by their multiplier effects on firm's marginal Q. The decision rule is that companies with Q ratios greater than one have incentive to invest than those below or equal to one, since the market value of the reproducible assets is greater than the replacement cost (Ascioglu, 2017; Aggarwal & Zong, 2016; & Erickson & Whited, 2015). It can be said that the strength of the Q theory lies in its explanation of the role of an average Q ratio of greater, equal or less than one as an indicator of wise investment decision, particularly as it relates to corporate assets' replacement cost and stock market activities. However, this theory failed in considering that stock market fluctuations do not usually reflect the true state of fundamentals of firms and that of the larger economy.

Model Specification and Justification for the Inclusion of the Explanatory Variables

A variant with the list of explanatory variables are specified, based on whether they are normalized by the initial capital stock. The adoption of the equation normalization is inevitable as a way of addressing heteroskedasticity issues. That is why all variables (with the only exceptions of the Q ratio and the indicator of economic uncertainty) of the model specification are normalized with the initial period capital stocks: The study specifies the following panel econometric equations and thereafter explains why those variables are included:

$$\left(\frac{INV}{K}\right)_{it} = \alpha_0 + \alpha_1 \left(\frac{FIN}{K}\right)_{it} + \alpha_2 \left(\frac{DIVP}{K}\right)_{it} + \alpha_3 \left(\frac{CF}{K}\right)_{it} + \alpha_4 Q_{it} + \alpha_5 \left(\frac{\Delta Sales}{K}\right)_{it} + \alpha_6 EUNC_{it-1} + \varepsilon_{it} \quad (3.1)$$

where:

- INV:** Investment
K: Capital stock at the initial period
i, t: Subscripts for the manufacturing firm i' and time period t' respectively
ΔS: Change in Sales
α₀: Intercept term
FIN: Finance (the mix of corporate equity and debts)
DIVP: Dividend Payout
CF: Cash Flow
Q: Ratio of firm's value in the Stock Market to its net assets' replacement cost
EUNC: Economic Uncertainty indicator (equity market volatility)
ε: Error term
α₁ - α₆: Parameters of the explanatory variables

Note: All the variables (except the Q ratio and EUNC) are normalized with either K or S while the study's adoption of a two-equation approach is an econometric means of ascertaining which of the two specified equations better explains the investment behaviour of the listed Nigerian manufacturing firms.

Justification for the Inclusion of the Explanatory Variables

a. Finance (FIN): Finance is included in the specified capital investment models on the basis of the Trade-off theory of finance, whose prediction of the mixed funding method of equity and debt to fund investment projects. More so, the economic logic that if a firm's liquidity strengths are high and sustainable, such a firm will be motivated to take capital investment opportunities influence the inclusion of finance so as to ascertain if these predictions are true or not. At the empirical level, the findings are mixed. For instance, Annamalah (2019) and Wang (2016), who have tested this variable on firms' investment opportunities, reported contradictory submissions. Despite this, in the present study, the a priori expectation regarding the impact of finance (mix of equity and debt) on the capital investment decision of firms is a positive effect (that is, α_1 is assumed to be positive and statistically significant in the capital investment equations).

b. Dividend Payout (DIVP): Dividend payout is included in the capital investment models because it is a competing use of firms' funds. As the amount used in paying dividends cannot be available for capital investment, a negative effect of dividend payment on investment spending is implied. At the empirical study level, the findings are mixed, which therefore justifies further verifications. For instance, Uwuigbe (2018); Gordon (2015) and Adelegan (2015), who have tested for the effect of dividend payout as a factor on corporate investment decisions, reported contradictory submissions. But in view of the fact that firm's dividend payments compete with investment spending in the use of a firm's given amount of funds and, in the present study, the a priori expectation regarding the impact of dividend payouts on firm's capital investment decision is negative (i.e., α_2 is assumed to be negative and statistically significant in capital investment equations).

c. Net Cash Flow (CF): Net cash flow is another variable included in the models for capital investment, which is based on the economic logic that firms with a high net inflow of cash should be motivated to invest in capital projects. But, again, at the empirical level, findings are of mixed type. For instance, Pinto (2019) and McDonald (2015), just to name but few, have tested for the effects of corporate cash flow on firms' investment decision and reported contradictory findings. Despite such contradictory empirical findings, the present study's a priori expectation is that the impact of net cash flow on capital investment

decision of firms should be positive (i.e., α_3 is posited to be positive and statistically significant in the capital investment equations).

d. Ratio of Firm's Value in the Stock Market to its Net Assets' Replacement Cost (Q): Q is a ratio added to the investment models specified, which is meant to verify Tobin's Q theory of investment (with Q being the ratio of market value of reproducible real capital assets to its current replacement cost). The standard Q summarizes the effect of all the factors relevant to a company's investment decisions and thereby makes capital investment of companies be on an increasing function of its marginal Q. The theoretical basis and justification for the relevance of Q are as discussed earlier in Sub-sub-section 3.1. But at the empirical level, the preponderance of evidence available from previous studies is that its effect is mixed on the dependent variable (investment). For instance, Asciglu (2017); Aggarwal and Zong (2016); and Meng (2012), who have tested for the effect of Q on investment decision, reported contradictory findings. In view of what the theory predicts as reviewed earlier, in the present study, the a priori expectation regarding the impact of firm's Q factor on its capital investment decision is positive (i.e. α_4 is expected to be positive and statistically significant in the capital investment equations).

e. Change in Sales (Δ Sales): Change in sales is another variable included in the models to test the prediction of the Accelerator theory of investment that was discussed earlier in Sub-section 3.1.2, where the reason for its expected positive effect on investment spending is fully discussed. But since not many empirical studies have tested for the effect of this factor, doing so in this study is going to be one of the study's major contribution to knowledge and a priori expectation on the impact of a firm's increase in turnover (i.e. sales) on its capital investment decision is positive (i.e. α_5 is anticipated to be positive and statistically significant in the capital investment equations).

f. Economic Uncertainty Indicator (EUNC): An economic uncertainty indicator is added to investment models. This is done on the basis of a couple of economic and finance theories reviewed in Section 2 of this work that espouses the effect of the state of the economy, information asymmetry and some economic policies as part of the factors affecting corporate decisions (particularly, investment decision). Since not many empirical studies have tested for and provided evidence on its effect on capital investment decision, testing for its effect in the present study would be a major contribution by the study to knowledge. The a priori expectation of the impact of this factor on a firm's investment is negative (that is, α_6 is postulated to be negative and statistically significant in the capital investment models).

The Model Estimation Techniques

In the main, inferential statistics were adopted to estimate variables parameters, verify stated hypotheses, and then draw logical inferences on the study. To achieve the study's objective, the study executes conventional panel data regression analysis, using the 3-Stage Least Squares regression type, through the R-systemfit estimation software to assist address the unbalanced nature of the data and also to cater for its zero entries. This regression method was adopted to enable the study verify Baltagi's (2015) submissions on the modeling of some interrelated variables. Using this approach will provide evidence regarding the study's specified interrelated models and presumed relationships between investment and its factors.

In addition to this estimation method, series of diagnostic tests were conducted on data employed in this study and they includes; Linearity and co-linearity tests, Normality and Non-normality tests of the distribution of residuals, Multicollinearity test, Homoskedasticity, Heteroskedaticity, Unit root and Robustness tests amongst others. Data used in this study are mainly secondary, and were collected from the following sources:

The Nigerian Stock Exchange Fact Books of 1990 to 2019;

Annual reports of the sampled listed firms within the period covered and,

The daily official lists of the NSE for the last day of trading in each of the years covered.

A firm is included once it can produce all corporate, financial and other stock market information needed for the study, viz: Profit per Share (Annual reports) Corporate Dividend Policy (Annual reports), Company's Highest and Lowest Share Prices (Daily official lists of the NSE for the last day of trading), Current Share Prices, and other relevant information needed.

And in accordance with the exiting finance literature submissions, the variables of this study are described and measured as follows:

a. Capital Investment (INV/K): Capital investment means total amount of money a firm spends in procuring fixed/real assets (i.e., productive machineries, plants, vans, products' distribution trailers, warehouses, among other real assets). Net investment (whether INV/K) is measured by deducting all depreciation expenses from firms' gross expenditure in procuring real/fixed assets, which this study arrived at by dividing the firms' gross investment (INV) by the initial period (i.e. the beginning-of-the-period value of the) capital stock (i.e. the fixed assets K_{t-1}), with the result being left as pure fractions.

b. Net Finance (FIN/K): Firm's Finance implies the funding method adopted by a firm to prosecute corporate long-term investment projects. This explains how solvent a firm is and its ability to secure external finance. It comprises the change or flow of equity and debt finance. That is, net finance, FIN, is measured by summing up the changes in the book value of firms' equity (i.e., the shareholders' funds) and its borrowings (i.e., corporate liabilities), which is then divided by the firms' initial capital stock (to then arrive at FIN/K), with the results being left as pure fractions instead of percentages.

c. Net Dividend Payout (DIVP/K): Net dividend payout is the reported total periodic payments made by a firm to its shareholders. A dividend payout could include extra or special payments made by firms. In this study, DIVP is measured as the declared firms' dividend payments, with the result being divided by the value of firms' initial capital stock (K), to arrive at DIVP/K and DIVP/S respectively. Again, results obtained are left in pure fractions.

d. Net Cash Flow (CF/K): The net-cash flow is the sum of a firm's net income (that is, the net profit after tax) and its depreciation provisions. In this study, the net cash flow (CF) is measured as the sum of each year's net profit after tax and its yearly depreciation provisions, whose results are divided by the initial period capital stock (K), to arrive at CF/K and CF/S respectively, with the values obtained being left as pure fractions.

e. Capital Stock (K): A firm's capital stock is its book value of its total tangible (i.e. fixed or real) assets, which are procured to create additional wealth. In this study, capital stock (K) is measured as the sum of a firm's fixed assets.

g. Change in sales (ΔS): Change in firm's product sales is the change or first difference in the book value of the yearly turnover (i.e. $\Delta S = S_t - S_{t-1}$). This is then divided by firms' initial period capital stock and sales to arrive at $\Delta S/K$, with the results being left in pure fractions.

h. Average Q (logQ): Average Q is the ratio of a firm's stock market value of its equity to its replacement cost. LogQ is measured as the natural logarithm of the annual sum of the firm's stock market capitalization, which is then divided by the firm's total assets. The result is then reported in pure fractions.

n. Economic Uncertainty (EUNC): Economic uncertainty implies an unpredictable national and/or international economic outlook, where there are lacks of, or insufficient knowledge on, certain/sudden fluctuations in the economy, thereby calling for drastic measures in managing its effects on both the corporate and the economic activities. In this study, the finance-based measurement of Equity Market Volatility (EMV) is adopted as an indicator and measurement of EUNC, using the standard deviation (variance) approach on annual basis, and the Bollinger Bands measurement to gauge stock market's volatility and how quickly and far, a price action will potentially move.

Mathematically, $EMV = \sqrt{252} \times \sqrt{\left\{ \frac{\sum (P_{av} - P_i)^2}{n} \right\}}$...*annualized equation*: where: n is the number of the daily stock prices, 252 is the number of trading days in a year, $\sqrt{\quad}$ is the square root symbol, \sum is the summation symbol, $\{ \}$ and $()$ is the bracket symbol, P_{av} is the mean price (i.e., the difference between each day's stock prices, which is $P_1 - P$) the P_i is the daily price on an i^{th} day while 2 is the square sign.

Results**Regression Equation Estimates on the Role of Economic uncertainty on Investment**

This sub-section presents and evaluates estimates of the regression Equation 3.1 for investment. As pointed out in Section 3, the 3-Stage Least Squares regression approach is adopted, and the reported here are the estimates of the model that is normalized with capital stock (K). Table 1 presents the regression results. The table features coefficients of explanatory variables, their z-statistic values and their corresponding p-values. The significance of each coefficient is evaluated from its p-value, with the decision rule being to reject the test null hypothesis that the coefficient is not statistically significant if its p-value is less than 0.05, critical value, meaning that the coefficient is statistically significant. But, if otherwise, the null hypothesis stands, and the coefficient is adjudged to be statistically insignificant. Also reported in the table are the diagnostic statistics, including the χ^2 and R^2 test statistics as well as the Hausman's specification, Harvey LM and the Jarque-Bera normality test statistics and their respective p-values. Diagnostic statistics of χ^2 and the R^2 tests, Hausman test, Harvey LM test and Jarque-Bera Normality tests are reported towards the end of the table. Accordingly, Chi-squared (χ^2) statistic, tests a model's fitness; R^2 is for the goodness-of-fit test concerning the percentage of variance in the dependent variables, which the explanatory variables explain and the Hausman test statistic is for choosing the more appropriate between the fixed and the random effects estimation methods. The Harvey LM test statistic is an autocorrelation test and its significance means that the model suffers from autocorrelation, while Jarque-Bera test is a normality test for checking the normality of the distribution of the residuals and its significance implies that the residuals are not normally distributed. For all of these tests, the decision rule is that a p-value that is lesser than 0.05 critical value is adjudged statistically significant.

Table 1: 3-Stage Least Squares Regression Results for Capital Investment (Eqtn. 3.1a)

Variables	Coeff.	Z	p-values
FIN/K	0.669	2.44	0.015
DIVP/K	-3.213	-2.99	0.003
CF/K	0.678	2.69	0.014
LogQ	0.776	2.32	0.012
Δ SALES/K	0.998	3.32	0.001
EUNC	-0.385	-2.48	0.013
Constant	-20.62	-1.28	0.199
No. of Observations	299		
R-squared (R^2) Statistic	0.619		
Chi-squared (χ^2) Statistic	176.05		0.000
Hausman Spec. Test	7.48		0.187
Harvey LM test	2.106		0.120
Jarque-Bera Normality	0.38		0.385

Source: Author's Computations, 2020.

Explanatory notes: FIN/K is net finance (i.e. the mix of equity and debt); DIVP/K is net dividend payout; CF/K is net cash flow; logQ is the natural log of firm's shares value on the stock market; EUNC is the economic uncertainty indicator; Δ SALES/K is change in sales; while log is the natural logarithm. Figures next to each regression and test statistics are the coefficients' respective p-values; χ^2 and R^2 tests are used for testing the model's fitness and their significance implies that the model is in good fit. The Hausman's specification test is used to choose between other Stages LS and the adopted 3-SLS and its significance imply that other stages least squares (particularly the 2-SLS) is more suitable than the adopted 3-SLS. An autocorrelation test is the Harvey LM test, and its significance means that the model suffers from autocorrelation; while Jarque-Bera test is a normality test for checking the normality of the distribution of residuals and its significance means that the residuals are not normally distributed. The decision rule on significance is that any p-value with less than 0.05 critical values is adjudged statistically significant.

Discussion of the Findings

Evaluation of the Results of the Diagnostic Tests

From Table 1, it can be seen that R-squared produced a value of 0.619, which implies a 61.9% (that is, approximately 70%) of variations in capital investment are explained by variations in the explanatory variables. However, since the study has adopted 3-Stage Least Squares estimation approach, which assumes that the respective error terms are correlated, R-squared value is not as important as that of overall model fitness (Ascioglu, 2017). Based on the Table 1 results, the overall fitness of this model, which is indicated by the Chi-square statistic, can be gauged by the Chi-square statistic value of 176.05, with a corresponding p-value of 0.000. This signifies that the test statistic is significant and, hence, the test's null hypothesis is supported. This therefore implies that the overall model is in good fit.

The next diagnostic check on this equation is the Hausman's specification test result. One of the basic assumptions behind the three-stage least squares is that, since the OLS estimates are not consistent due to the correlated equation' error terms, 2-stage least squares produces consistent estimates, but that of 3-stage least squares estimates are very consistent and asymptotically more efficient (Ideweke, 2019; Ascioglu, 2017; & Aggarwal & Zong, 2016). However, this efficiency can only be achieved if the equations are correctly specified (Ascioglu, 2017). In addition to this, Hausman's specification test has a null hypothesis that posits that the difference in coefficients is not systematic. This assumption implies that the estimates of the consistent 2-stage least squares and the efficient 3-stage least squares are quite identical and, hence, the estimates from the latter are as consistent as those of the former. The decision rule is to reject the null hypothesis if the p-value is less than 0.05 (i.e. 5%). As presented in Table 4.5, Hausman' specification test produces a statistic value of 7.48 and p-value of 0.187, which shows that the test statistic and the p-value are greater than 0.05 (i.e. 5%) level of significance to mean that the test result is not significant and the test's null hypothesis stands. As a result of this, coefficients of the 3-stage least squares are as consistent as those of the 2-Stage Least Squares and asymptotically more efficient. This therefore justifies the use of the 3-stage least squares estimation approach of this study.

Harvey LM test is also carried out to check if the model is free from the serial correlation and autocorrelation problem. As stated in Chapter three, the test's null hypothesis is that there is no autocorrelation in the model. This hypothesis will be rejected if the test statistic is significant (i.e. has p-value less than 0.1) and be accepted if otherwise. The test result shows a statistic value of 2.106 and p-value of 0.120 indicates that the statistic is not significant and, therefore, there is no evidence that model's residuals suffer any form of serial correlation. In other words, the model is free from autocorrelation problem. Jarque-Bera normality test is as well conducted to verify the normality of the distribution of the residuals. As pointed out in Chapter 3, the test's null hypothesis states that the distribution of the residuals follows normal distribution. This hypothesis would only be rejected if the test statistic has a p-value that is less than 0.1. The result shows a statistic value of 0.38 and p-value of 0.385, which indicates that the test's null hypothesis of normality cannot be rejected due to insignificant normality test statistics. Therefore, the residuals of these models are normally distributed.

Evaluation of the Specific Performance of the Explanatory Variables

Having evaluated the performance of the overall model, the study now proceeds to the evaluation of specific performance of each and every explanatory variable in the model as reported below:

(a) Finance (FIN/K): The mix of equity and debt (finance) has a positive coefficient of 0.669, with a p-value of 0.015, indicating that this coefficient is statistically significant. This therefore means that finance has a positive effect on firm's capital investment spending, with every naira increase in a firm's finance resulting into 66.9 kobo in capital investment. This result is in line with the study's priori expectation as posited in chapter 3 that firms' finance will impact capital investment spending positively. It is also in line with findings reported by a number of previous studies, including Jing (2020); Rasool (2020); Annamalah (2019) and, Rossi (2016).

(b) Dividend Payout (DIVP/K): Dividend payout has a negative coefficient of -3.213, with a p-value of 0.003, indicating that this coefficient is statistically significant. This means that dividend payout has a negative effect on capital investment spending. This finding conforms to the study's priori expectation as postulated in Chapter 3 that dividend payout should have a negative impact on the capital investment spending. This also aligns with the findings reported in a number of previous studies, including Das (2020); Idewele (2019); Roj (2019) and, Gordon (2015).

(c) Net Cash-Flow (CF/K): Net cash flow variable has a positive coefficient of 0.678, with a p-value of 0.014, indicating that this coefficient is statistically significant. This means that net cash flow have a positive effect on investment spending with every naira increase resulting into 67.8 kobo increase in investment spending. This is in line with the study's expectation, as postulated in chapter 3. It is also on line with the findings reported by a number of previous studies including Fatima (2019); Nada (2018) and Awais (2016)

(d) Shares' Market Value Ratio (logQ): The market to book value of a firm's shares has a positive coefficient of 0.776, with a p-value of 0.012, implying that this coefficient is statistically significant. This means that the market to book ratio of the shares has a positive effect on investment spending. This, in turn, suggests that the firms go to the capital market to sell shares in order to finance capital projects when there is an advantage of issuing their shares at higher prices, that is, when stock market is buoyant. This evidence is according to what is postulated in Chapter 3 of this study, just as it is in tandem with what most previous studies, like Jing (2020) and Meng (2012), have reported.

(e) Change in Sales (Δ SALES/K): Change in sales has a positive coefficient of 0.998, with a p-value of 0.001, meaning that the coefficient is statistically significant. This suggests that this variable has a positive influence on investment spending, meaning that the accelerator theory of investment is supported. Accordingly, this finding conforms to what is postulated in chapter 3 that a change in sales should have a positive impact on firm investment spending. Since existing empirical studies are yet to investigate the roles of changes in corporate product' sales on capital investment spending so that this is one of the gaps in extant literature, the fact that this study has now tested for and confirmed its effect makes this study to have contributed to the filling of this gap, thereby adding to the stock of knowledge in corporate finance.

(f) Economic Uncertainty (EUNC): Economic uncertainty indicator has a negative coefficient of -0.385, with a p-value of 0.013, implying that this coefficient is statistically significant. This implies that economic uncertainty has a negative effect on investment spending, in line with and for the reasons adduced in Chapter 3. This finding provides an insight into the role of economic uncertainty on capital investment spending, since no existing empirical studies ever investigated its roles. Again, the fact that this study has investigated its effect has made it contribute to filling of this gap and thereby adding to the stock of knowledge in corporate finance.

Correspondences of the Findings with the Study's Objective

The objective of the study is to verify if economic uncertainty and other factors have significant effect on firms' investment spending or not. Preceding this specific objective is the corresponding research question as to what effect(s) do economic uncertainty and net cash flow (among other factors) have on firms' capital investment spending? To compliment this is was a corresponding research null hypothesis that economic uncertainty amongst other factors do not influence firms' capital investment decisions.

And based on the evidence provided by this study in this section regarding this objective, it has been found that the coefficient of the economic uncertainty indicator is negative and statistically significant, in line with the expectation. This simply implies that the economic uncertainty facing a firm plays negative role(s) on manufacturing firms' investment decision.

Conclusion

Following the general objective of this study that aimed at understanding the role of economic uncertainty on corporate investment decision, the study concluded on the general ground that: Economic uncertainty is a significant factor influencing corporate investment decision and that it plays negative roles on

deciding capital investment spending due to the fear of unknown. Also, the study concluded that all the factors verified in this study are major influencers of firm's investment decision, following all factors' statistically significant positive effect on investment spending, except for the economic uncertainty indicator that has negative effect on investment.

Recommendations

Based on the findings of this study and the conclusions therefrom, the study suggests that it will be logical if corporate authorities can adopt economists' predicting tools, as suggested in extant literature, viz: monitoring all markets' and economic fluctuations through whatever methods that the firms adjudge to be most suitable to their respective circumstances.

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