

**MODERATING EFFECT OF LEVERAGE ON THE VALUE
RELEVANCE OF ACCOUNTING INFORMATION IN THE NIGERIAN
LISTED OIL AND GAS FIRMS**

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Abstract

The study investigates the moderating effect of leverage on the value relevance of accounting information in the Nigerian listed oil and gas firms. The study used correlational research design and the data was extracted from the published annual financial reports of the firms for the independent variables and the moderator. On the other hand, the data for the dependent variable (share prices) was collected from Nigerian stock exchange website. A sample size of 6 firms were used for a period of eight years (2011-2018). The data was analysed using multiple regression analysis. Findings from the analysis showed that earnings per share, and leverage to be value relevant. Additionally, book value per share moderated with leverage was value relevant in addition to earnings per share moderated with leverage as well. Based on the findings, the study recommends that listed oil and gas firms in Nigeria should strategize to improve their earnings. Moreover, they should also find way of managing their book value, as any unnecessary investment means negative effect on share price. Additionally, listed oil and gas firms should maintain an appropriate level of leverage so that the cheap cost of leverage will reduce the weighted average cost of capital and subsequently increase value to investors. Finally, the explanatory power of the moderated variables are more than the ones not moderated.

Keywords: Value relevance, Earnings per share, Book value per share and Leverage

1. Introduction

Value relevance as an area of research in the field of accounting and finance has drawn the attention of academics for long, which attracted many researches and

made the area to be a centre of debate (Beest & Boelens, 2009). Value relevance is understood to be the ability of financial statement information (quantitative and qualitative) to capture and summarise information that affects share values and empirically tested as a statistical association between market values and accounting values (Hellstrom, 2005), financial information is only termed value relevant if there is an established association between accounting numbers and company share prices. Moreover, accounting information can only assist investors in coming up with the right investment decision that will give them higher returns on investment and minimize risks only if it gives the true and fair view of financial operations (Mamuda, 2015). financial statements achieve that role if they possess certain characteristics which are: reliability, relevance, comparability, timeliness and understandability (IASB, 2014). Bello (2009) also held accounting to be an information system that is used by various economic units to make informed decisions. The bases for all accounting decisions depend on readily available information. In line with this, the Companies And Allied Matters Act (CAMA) 1990 as amended, mandates all listed firms on the Nigerian stock-market to submit their yearly reports to the securities and exchange commission in addition to the shareholders (Companies And Allied Matters Act 1990, 2016).

The study of Ball and Brown (1967) published in 1968 was believed to be the pioneer study conducted in the area of value relevance (Global Asset management, 2014). If market participants consider accounting information to be of high quality, a positive relationship between the information and the share prices is expected, and vice versa (Sabri & Mohd-saleh, 2010). Hence, qualitative information disclosure is not only of benefit to the disclosing firms but to the investors as well. Earning is the most significant determinant of share prices because it is from it that investment rewards (dividend and capital gain) are earned and other business obligations are paid. Other investors consider value of the firm and how the firm gains wide acceptability from within and outside the country: investors of this preference favour long run benefits that accrue to them and therefore look at the firm's book value in their investment decision.

The pump price per litre of premium motor spirit (PMS) widely known as fuel, which the listed oil and gas firms trade in, has been unstable in the last two decades. For instance, former President Olusegun Obasanjo increased the price severally (Dailymedia, 2014). However, former president, late Umaru Musa Yar'adua decreased the price from ₦75 to ₦65. In contrast, former president Good luck Jonathan increased the pump price in the early month of January 2012 from ₦65 to

₦141 per litre, but after monumental pressure from the relevant stakeholders, the price was reduced to ₦97 in the same month. In converse, the administration reduced the price by ₦10 at the beginning of 2015. Moreover, present administration has increased the price severally. The unstableness in the prices of fuel will certainly affect the earnings and finally the market prices of the listed oil and gas firms.

The Nigerian capital market is today faced with numerous challenges ranging from the global financial crisis of 2008 where by many investors incurred some losses, which watered away a great part of their investment, to the recent economic recession of 2016. Premiumtimes, (2016) gave an editorial, where it compared the 2016 economic recession's effect on the Nigeria capital market to that of the global financial meltdown of 2008. A development that made some investors to lose a great part of their investment and some to even withdraw out of the market. The paper described 2016 as a year of wailing and lamentation to the investors in the market. Moreover, analysis of share prices showed that, forte oil emerged as the worst performing stock as it had dropped by 83.72%, having closed the year 2016 at ₦52.71 as against the opening value of ₦330.

Although, the empirical relationship between accounting information and share prices have been carried out by different scholars. However, one cannot find a commonly agreed conclusion. This is because different countries are at different level of development and have different institutional arrangements therefore the following mixed findings, for instance: (Bello, 2009); (Mamuda, 2015); (Alslehat, 2014) and (Publisher, R. I., Shehzad, K., & Ismail, A. 2014) reported that accounting information positively and significantly affect market value while; (Abubakar, 2011) reported that accounting information is not value relevant. As for the foregoing, this study deems it necessary to introduce a moderating variable. Moderator is introduced when there are inconsistencies in findings regarding a particular area of study (Farooq and Vij,2017). Within the context of our study, we expect leverage to moderate the relationship highlighted. In line with the above, the study deems it necessary to use leverage as moderating variable. However, based on the Modigliani and miller's capital structure theory, one may say leverage has no impact on market value. however, the following empirical studies proved otherwise: Lixin and Lin (2008), Buigut et al., (2013), Aghdaei and Ghasemi (2012) and Adetunji et al (2016). Additionally, the assumptions of Modigliani and miller theory of capital structure theory may not be applicable in Nigeria because,

Nigerian capital market is not perfectly efficient and the presence of tax on the market returns.

The broad objective of this study is to examining the moderating effect of leverage on the value relevance of accounting information on the listed oil and gas firms in Nigeria. while the specific objectives are to examine the impact of:

- i. Earnings per share on share prices of listed oil and gas firms in Nigeria.
- ii. Book value per share on share prices of listed oil and gas firms in Nigeria.
- iii. Moderating effect of leverage on the relationship between earnings per share and share prices of listed oil and gas firms in Nigeria.
- iv. Moderating effect of leverage on the relationship between book value per share and share prices of listed oil and gas firms in Nigeria.

In line with the objectives of the study, the following null hypotheses were formulated in:

H₀₁: Earnings per share have no significant impact on the share prices of listed oil and gas firms in Nigeria.

H₀₂: Book value per share has no significant impact on the share prices of listed oil and gas firms in Nigeria.

H₀₃: leverage has no significant impact on the share price of listed oil and gas firms in Nigeria.

H₀₄: leverage has no significant moderating effect on the relationship between earnings per share and share prices of listed oil and gas firms in Nigeria.

H₀₅: leverage has no significant moderating effect on the relationship between book value per share and the share prices of listed oil and gas firms in Nigeria.

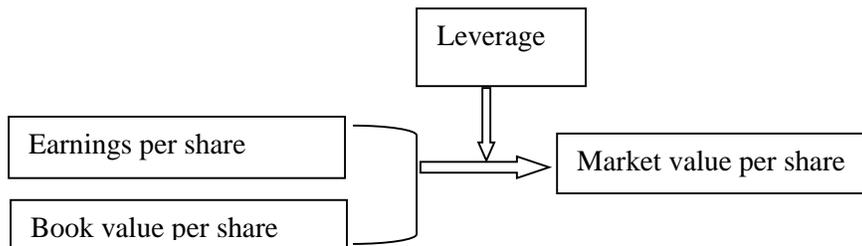
It is believed that the results of this study are beneficial to investors as it will provide information of the determinants of market value so that they can maximize their wealth, it will also increase to the available literature in the area of value relevance and serve as a guide to further researches.

The remaining part of this study is structured as follows: Section two provides the review of the relevant literature concerning the subject matter and the theoretical framework. Section three dealt with the methodology adopted for the purpose of this study. Section four centered on the discussion of the results. While conclusion and recommendations are presented in section five.

2. Literature Review and Frameworks

Value relevance is an ability of financial statements information to capture and summarize firm value. Value relevance is measured as the statistical association between financial statement information and stock market values or returns. Earnings and book value are regarded as the basis for firm valuation.

Below is the pictorial graph of the relationship between the variables



The theoretical framework that best underpins this study is efficient market hypotheses (EMH) theory developed by Eugene Fama in 1960s. The EMH states that in an efficient market there is large number of rational, profit maximisers competing with one another trying to predict future market values and this study uses predictability model of earnings.

Review of Related Empirical Studies

Amir and Lev (2008) examined value relevance in the wireless communication industry in the USA between 2003-2007 using OLS technique of data analysis and found that accounting information such as: book value and earnings have no value relevance. However, Nonfinancial indicators such as: POPS (a growth proxy) and Market Penetration (an operating performance measure), are highly value-relevant. But combined with nonfinancial information, earnings do contribute to the explanation of share prices. However, the period covered by this study is not current.

Bello (2009) studied value relevance of accounting information in the Nigerian listed cement firms using the whole population as the sample of the study. The study used a time frame of ten years between 1996 and 2005 using OLS technique of data analysis. In his comparative analysis of historical cost accounting information and inflation adjusted one; he found both the information to be of value relevant. However, the latter was found to be more value relevant. Yet, the study is

deficient as the data used in the study is old which may not reflect the current reality.

Sabri and Mohd-saleh (2010) investigated value relevance of Financial Instruments Disclosure in Malaysian Firms Listed in the Main Board of Bursa Malaysia, using a population of 812 firms and a sample size of 484. The study did a comparative analysis before and after financial instrument disclosure and presentation (MASB 24) compulsory adoption. The year 1999 and 2000 were used for pre while; 2002 and 2003 for the post implementation, using OLS technique of data analysis. The study found financial instrument disclosure to be less value relevant in the period when the standard becomes mandatory. However, as applicable to Bello (2009), a new study of this nature is needed because, the data of the study ended in 2003.

Buigut et al., (2013) investigated the relationship between capital structure and share prices in the Nairobi Stock Exchange. The study used panel data of listed energy sector between the period of 2006 and 2011 and employed multiple regression. The results indicated that leverage and equity among other variables are significant determinants of share prices for the sector under consideration.

Similarly, Ernest and Oscar (2014) examined value relevance of accounting information in the listed banking and oil & gas firms in Nigeria between 2007 and 2011, using OLS tool of data analysis. The study randomly selected 10 firms from each of the industries as samples. Finally, the comparative results revealed that accounting information revealed by the listed oil & gas firms to be of more value relevance to the one revealed by the listed banking firms. The study further revealed that earning is the most value relevant accounting information followed by leverage.

Additionally, Shehzad and Ismail (2014) researched value relevance in the listed banks in Pakistan using a time frame of 5 years between 2008 and 2012, the study used OLS tool of analysis and the results revealed that earnings and book value to be statistically and positively related to share prices. Besides the two variables used, this study introduced another variable.

Additionally, Mamuda (2015) studied value relevance in the listed industrial good firms in Nigeria, between the year 2007 and 2013, with a sample size of sixteen firms out of the twenty five listed firms, using OLS technique of data analysis, the study found earnings per share, dividend per share, book value per share to be

statistically and significantly correlated with market value. Despite the study reported mix findings by previous studies reviewed, however it made no effort to tackle the problem.

Omokhudu and Ibadin (2015) examined value relevance between the year 1994 and 2013. The study used OLS technique of analysis and a sample size of 47 firms out of the listed firms in the Nigeria stock market and found that earnings and dividends to be statistically and significantly associated with market value. But book value was related but not statistically significant.

Mulenga (2015) conducted an empirical study of value relevance in the Bombay listed banks, between 2007 and 2012 using a sample of 20 banks and the study adopted OLS as tool of analysis, the result shows that earnings is positively and significantly related to share prices while book value was found to be negatively but insignificantly related to share prices.

Adetunji et al., (2016) studied the relationship between leverage and firms' value in the listed Nigerian manufacturing firms using a sample of 5 firms for a period of 6 years between 2007 and 2012. Data were sourced from annual reports of selected firms. The Ordinary Least Square (OLS) statistical technique was used for data analysis. The study revealed that there is significant relationship between financial leverage and firms. However, the data used by the study is not current.

Altahtamouni and Alslehat (2014) conducted a study of value relevance of all the Jordan listed banks between 2002 and 2011 using OLS tool of data analysis and found that book value and earnings per share are positively and statistically significant with share prices.

3. Methodology, Measurement and Model Specification

The research design employed in this study is correlational; The choice of the design was informed by the effectiveness of the design in revealing the association of two or more variables and the impact of one variable on another. Data was collected from secondary sources through the use of Nigeria Stock Exchange fact book and audited financial reports and accounts of the study firms for a period of eight (8) years (2011– 2018), the choice of this period has been influenced by the abysmal performance of Nigerian stock exchange and government policy of deregulating the oil and gas industry. The population of the study consist of all the listed oil and gas firms on the floor of Nigerian stock exchange as at 31st December,

2016. The study employs census strategy. However, the following filters were used to arrive at the sample;

- i. a firm should not have been delisted within the last eight years
- ii. a company's data must be available throughout the period of the study.

Having applied the above filters, the following companies have made the sample; Conoil plc, Forte oil plc, Mobil plc, MRS Nigeria PLC, Oando Nigeria plc and Total Nigeria plc.

This study relies upon Ohlson model (1995) which has its root from the work of Edward and ball. It states that, market value is a function of book value and earnings. Beyond that, this study extends the model to incorporate leverage as moderating variable as follows:

$$MPS_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 BPS_{it} + \epsilon_{it} \text{-----} (1)$$

When the moderator is introduced into the model it becomes:

$$MPS_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 BPS_{it} + \beta_3 LEV_{it} + \beta_4 EPSLEV_{it} + \beta_5 BPSLEV_{it} + \epsilon_{it} \text{----} (2)$$

Where:

MPS = Market value per share of firm i during period t.

EPS = Earnings per Share of firm i during period t.

BPS = Book Value per Share of firm i during period t.

LEV = Leverage of firm i during period t.

EPSLEV= Earnings per Share moderated by leverage of firm i during period t.

BPSLEV= Book Value per Share moderated by leverage of firm i during period t.

$\beta_1 - \beta_4$ = the coefficients of independent variables

β_0 = intercept

ϵ = error term of firm i during period t.

The variables of the study were measured as follows:

Market share price: this is the market price per share as obtained from the Nigerian stock exchange Website 4 months after the accounting period.

Earnings: this is computed as the profit after tax divided by the weighted average number of shares at the end of the accounting year.

Book value: this is measured as the net value of equity divided by the outstanding number of shares at the end of the accounting period.

Leverage: this is obtained by dividing total liabilities by the book value of equity.

EPSLEV and **BVPSLEV**: are obtained by multiplying the individual **IVs** by leverage

4. Result and Discussions

Under this section the results of the study are presented and discussed, from which conclusions were drawn. it begins by presenting descriptive statistics, followed by correlation matrix, multicollinearity tests, heteroskedasticity test and finally regression results.

Descriptive statistics

The descriptive statistics highlight the basic features of all the regression variables used in the study: The dependent, independent and the moderating variable as reported in the below table.

Table 1: Summary of Descriptive Statistics

Variables	Mean	Minimum	Maximum	Standard deviation
MPS	97.61	4.58	300	96.10
EPS	7.94	-15.97	43.58	11.81
BPS	36.25	1.02	87.26	27.48
LEV	3.81	1.48	8.82	1.52

Source: Output of STATA, 2020

From table 1, the mean value of MPS is 97.61, this means on average the share prices of listed oil and gas firms in Nigerian between 2011 and 2018 stand at 97.61. The minimum value of 4.58 and maximum of 300 means within the period of the study among the firms, the minimum share price was 4.58 and maximum was 300, and standard deviation of 85.40 shows that most market share prices in the Nigerian listed oil and gas companies are above average.

The table also shows the mean value of EPS was 7.94, minimum of -15.97 shows the highest loss per share within the period of the study; the maximum of 43.58 shows the highest earnings per share within the period of the study. The standard deviation of 9.34; signifies that earnings per share of most of the listed companies were above average.

The table also shows the average value of BPS was 36.25, the minimum value of BPS was 1.02 while the maximum was 87.26. the standard deviation of 27.48 shows the dispersion of the data from the mean to be above average. As can also be

observed, the mean value of LEV is 3.81, minimum value stands at 1.48, while maximum value was 8.82 and standard deviation of 1.52 signifies that most of the companies are above average in size.

Correlation matrix

The correlation matrix table shows the relationship between all explanatory variables individually with explained variable and the relationships among the independent variables themselves.

Table 2: Correlation matrix

	MPS	EPS	BPS	LEV
MPS	1.0000			
EPS	0.4500	1.0000		
BPS	0.3156	0.4573	1.0000	
LEV	0.3102	0.4638	0.2635	1.0000

Source: Output of STATA, 2020

Table 2 shows the correlation matrix with the correlation coefficient between all pairs of variables. Checking the pattern of relationships between dependent and independent variables, it is observed that EPS is 45% positively related with market share prices of listed oil and gas firms in Nigeria, while a positive correlation of BPS and market share prices to the turn of 32%. Finally, leverage has a positive relationship with MSP at 31%. From the above table the correlation between the independent variables and the dependent variables all have values less than 0.8 which shows the unlikelihood of multicollinearity. However, it cannot be concluded except a multicollinearity test is conducted. Gujarati (2004) states that a correlation of greater than 0.8 may amount to multicollinearity however it cannot be confirmed until multicollinearity test is conducted. To test for multicollinearity, variance inflation factors (VIF) and tolerance tests were carried out. The results are presented below.

Table 3: multicollinearity test

Variable	VIF	1/VIF
EPS	4.16	0.2402
BPS	3.72	0.2688
LEV	1.86	0.5366
MEAN VIF	3.25	

Source: Output STATA, 2020

From the table 3 above, the tolerance value (1/VIF) of the individual variables are all greater than 10% and less than 1. So also, the highest value of VIFs is 4.16 (less than 10), confirm the absence of multicollinearity among the variables (Gujarati, 2004).

To test for heteroskedasticity, the study employs breusch-pagan/cook-weisberg test. The test shows a chi2 value of 1.18 and the prob> chi2 of 0.2768 (insignificant). This indicates the absence of heteroscedasticity.

Table 4: Regression result

Variables	Coefficient	Z- value	P>(Z)
EPS	0.220115	1.12	0.064
BPS	- 0.212254	-0.19	0.147
LEV	0.9315155	1.75	0.085
EPSLEV	1.759971	2.71	0.009
BPSLEV	11.42192	2.60	0.014
Constant	0.6853939	4.80	0.000
R. Squared	0.3508		
F- Statistics	4.69		
F-Sig	0.0050		

Source: Output of STATA, 2020

Having run the fixed effect and random effect regressions, hausman test for fixed effect was conducted and the probability of the chi2 was not significant. This informed the study to conduct langrangian multiplier test for random effect, it was also not significant, the researcher moved further to run robust regression. Based on the above, the results of robust OLS are interpreted below.

The multiple coefficient of determination (R2) gives the proportion or percentage of the total variation in the dependent variable explained by the explanatory variable jointly. Hence, it signifies that 35.08% of total variation in share prices of listed oil and gas firms in Nigeria is caused by their earnings per share, book value per share and leverage as moderator. The F-Statistics is 4.69, which indicates that the model is fit and the explanatory variable are properly selected, combined and used.

Earnings Per Share and Market Share Prices

The results show that the coefficient of earnings per share is 0.22 and a probability of 0.064 indicating a significant positive relationship between earnings per share and share prices of listed oil and gas firms in Nigeria at 10% level of significance. We therefore reject the null hypothesis. This is in line with the findings of Mamuda (2015), Omokhudu and Ibadin (2015) and Ernest and Oscar (2014). This reveals that a one-naira increase in earnings will result to 0.22-naira increase in the prices. However, the coefficient of moderated earning per share is 1.76 and a probability of 0.009 indicating a significant positive relationship between moderated earnings per share and share prices of listed oil and gas firms in Nigeria at 1% level of significance. We therefore reject the null hypothesis. This reveals that a 1 Naira increase in moderated earnings will result to 1.76 Naira increase in the share prices.

Again, the coefficient of book value per share is -0.21 and a probability is 0.147, indicating negative relationship between book value per share and share prices of listed oil and gas firms in Nigeria. However, it is not significant. We therefore fail to reject the null hypothesis. This is in line with the findings of Mulenga (2015). This pointed out that book value is not a significant determinant of the share prices. Contrarily, the coefficient of moderated book value per share is 11.42 and the probability is 0.014, indicating a positive relationship between moderated book value per share and share prices of listed oil and gas firms in Nigeria at 5% level of significance. With this the researcher rejects the null hypothesis.

Finally, the coefficient of leverage is 0.93 and a probability of 0.085, indicating a significant positive relationship between leverage and share prices of listed oil and gas firms in Nigeria at 10% level of significance. We therefore reject the null hypothesis. This is in line with the findings of Omokhudu and Ibadin (2015) and Mamuda (2015). This means that, a naira increase in leverage will result to 0.93 Naira increase in share prices.

5. Conclusion and Recommendations

The study focused on the moderating effect of leverage on the value relevance of accounting information in the listed oil and gas firms in Nigeria. In other to achieve this, the study made use of secondary data sourced from the firms' annual reports and accounts. The study considered share prices as proxy for firm value, while earnings per share and book value per share as accounting information. Additionally, leverage was used as moderating variable. Data were analysed using multiple regression (OLS). The study concluded that earnings per share and

leverage to be value relevant; while book value per share was not. However, the moderated book value was value relevant as well as moderated earnings per share. Based on the findings, the study hereby recommended that listed oil and gas firms in Nigeria should strategize to increase their earnings, as any increase means increase in value (higher value for investors). Moreover, they should appropriately manage their book value, because any unnecessary investment means negative effect on share price. Additionally, listed oil and gas firms should maintain an appropriate level of leverage so that the cheap cost of leverage will reduce the weighted average cost of capital and subsequently increase value to investors.

Finally, the explanatory power of the moderated variables are more than the ones not moderated; as such investors should invest in firms with the higher earnings per share and appropriate leverage.

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