

## Fundamental Determinants of Share Prices in Nigeria

By

Shiro, A. A. & Oke, B. O

Department of Finance

Faculty of Management Sciences

University of Lagos, Akoka, Lagos, Nigeria

E-mail: [ashiro@unilag.edu.ng](mailto:ashiro@unilag.edu.ng) & [boke@unilag.edu.ng](mailto:boke@unilag.edu.ng)

### **Abstract**

*This study examined the extent to which share prices are determined by changes in fundamental factors (macroeconomic factors, industry factors and firm specific factors). Secondary data on the six macroeconomic factors including exchange rate, inflation rate, interest rate, gross domestic product, broad money supply and oil prices, three industry factors including sensitivity to business cycle of an industry, profit potential of an industry and structure and characteristics of an industry and six firm specific factors including earnings per share, dividend per share, return on assets, liquidity, leverage and size of a firm from year 2010 to 2016 were employed. The stepwise multiple pooled regression method was used to select from the macroeconomic factors, industry factors and firm specific factors the most significant factors that have significant impact on share prices. The findings of the study revealed that only earnings per share has significant impact on share prices in Nigeria. The study concluded that the major fundamental determinant that has impact on share prices in Nigeria stock market is earnings per share. The study then recommended that quoted firms in the Nigeria stock exchange market should be encouraged as a policy to release and submit quarterly figures of their financial position most especially earnings information..*

**Keywords:** Fundamental determinants, Macroeconomic factors, Industry factors, Firm specific factors, Share prices

### **1.0 INTRODUCTION**

The stock exchange market is an investment roller which rides on four wheels – market fundamentals, investors psychology, globalization and the macro-economic factors. Over the decades, investors have found the Nigerian stock exchange a fertile ground to invest their fund. According to Oladipupo (2010), the Nigerian capital market of the pre-crisis period, happened to be one of the most profitable investment havens of the Nigeria economy. This assertion was in consonant with consistent rise in the annual market capitalization of the Nigerian Stock Exchange, especially over the past decades, until a significant decline recorded after the global world recession in year 2008 that leads to stock market crash in nearly all economy. Through this channel of resources mobilization, the stock market promotes economic growth by providing avenues to pool long term capital formation through issuing of shares and debentures for companies in dire need of additional capital to expand their business operations. Thus, the overall performance of stock market has a direct relationship with the overall growth and development of the economy. Asaolu and Ogunmakinwa (2011) have reported that empirical evidences from developed economies have proved that the development of the stock market is sine qua non for economic growth. While developed economies have fully explored the mobilization of resources and capital formation through the capital market, developing countries are yet to fully tap benefited from this of raising capital via the capital market (Adaramola, 2014).

People invest in stocks for an opportunity to make capital gains depending on the intrinsic or potential market prices. The value of a share is reflected in the price for which it is sell in the capital market which either may be overvalue or undervalue. To determine the intrinsic value of an equity, the security analyst must forecast the earnings and dividend expected from the stock and choose a discount rate which reflects the risk of the stock. This is what is involved in fundamental analysis.

The fundamental theory of share prices is a method of share price analysis which posits that the market price of a share will be the discounted present value of all future expected earnings on the share, discounted at shareholders' cost of capital. The fundamentalists apply present value principles to the valuation of corporate stock, using dividends, earnings, assets and interest rate to establish the price of stock. The fundamental approach assumes that every security has an intrinsic value. Basic economic factors about a firm determine the intrinsic values of securities issued by the individual firm (Chandra, 2010).

The focus of the Fundamentalist approach is to examine the impact of macroeconomic factors, the industry factors and individual firms' factors on share prices. Based on the above, a commonly advocated procedure of fundamental analysis involves a three-step examination, which calls for an understanding of the macro-economic environment, the prospects of the industry to which the firms belong and assessing the prospected performance of the individual firms and the intrinsic value of their shares.

Fundamental determinants approach posit that determinant of share prices are in three categories, macroeconomic, industry and companies analysis. Several studies such as Harper (2010) submits that there are numerous factors that contribute to the determination of the price of stocks in the market, among which are the individual firm's fundamentals and some technical factors. Bernard (1994) on his own part, is of the opinion that the value of firm's shares are determined by the its rate of returns on equity (ROE), growth rate of ROE, book value and growth rate of book value. Nwokoma (2002), Maku and Atanda (2009) and Asaolu and Ogunmakinwa (2011) have used macroeconomic factors such as exchange rate, interest rate, inflation rate, oil price level, total money supply and gross domestic product to explain changes in share prices in Nigeria.

These scholars did not looked at the industry and company factors. This study intends to bring into the analysis in addition to macroeconomic factors, industry and company factors.

The focus of the fundamentalist approach is to examine how sensitive are share prices to changes in macroeconomic factors, industry factors and individual firms' factors among others.

## 2.0 LITERATURE REVIEW

Several attempts have been made to identify the fundamental determinants of share prices. Some researchers have also tried to determine the correlation between selected factors such as macroeconomic factors, industry factors and individual firms' factors and share prices (Aurangzeb, 2012). The outcomes of the studies vary depending on the scope of the study, the factors examined. Zhou (1996) developed a multi- index model to determine the effect of industry, country and international factors on asset pricing results. Butler and Mailaikah (1992) defined the asset pricing process as a function of (economic factors) and non-economic factors. Any change in interest rates especially unanticipated change affects growth expectations and the rates for discounting future investment cash flows (Sharma, 2011).

The Arbitrage Pricing Technique/Model (APT), which could be taken as a protest on one factor model of Capital Assets Pricing Model (CAPM) which assumes that asset prices depend only on market factor, believe that asset price is influenced by both the market and non-market factors such as foreign exchange, inflation and unemployment rates. One of the defects of APT in spite of its advancement of asset pricing model is that the factors to be included in asset pricing are unspecified. Ali-Imran, Aysekucuk, Muhammad and Hasan (2010) identified company fundamental factors (performance of the company, a change in board of directors, appointment of new management, and the creation of new assets, dividends, earnings), and external factors (government rules and regulations, inflation, and other economic conditions, investor behaviour, market conditions, money supply, competition, uncontrolled natural or environmental circumstances) as influencers of asset prices. They developed a regression model to measure the relationship between the dependent and independent variables as follows:

$$SP = f(\text{EPS, DPS, OL, GDP, CPI, INT, MS})$$

Where, SP: Share prices; EPS: Earnings per share; DPS: Dividend per share;

OL: Oil price; GDP: Gross domestic product; CPI: Consumer price index;  
INT: Interest rate and MS: Money supply.

They discovered that the firm's fundamental factors exercise greater and significant impact on share prices. EPS was found to be the most influencing factor. Nwokoma (2002) posited that there were several factors affecting asset prices and these were numerous and inexhaustible. One way out is to categorize them into firm, industry, country and international or market and non-market factors, and economic and non-economic factors.

Modigliani and Miller (1961) believe that in a perfect market situation, dividend payout are irrelevant (does not affect the movement of share prices). Prior to the Modigliani and Miller theory, Litner (1956) presented a model that shows that most firms were reluctant to decrease dividend payout so that it will not send a wrong signal to investors. Supporting Litner's position are Sen and Ray (2003), Sharma (2011), Aurangzeb (2012), Adaramola (2012), Motwan (2013) and Malthotra and Tandon (2013) show that dividend announcement convey information about future prospect of the firm which will affect the share prices.

Iyiegbuniwe (1990) in his study on how to determine the validity and relevance of fundamental security analysis in general, and industry analysis in particular for portfolio selection in Nigeria, concluded that fundamental security analysis can be used to uncover industries having above average return performance as a means of improving portfolio risk-return performance.

Chandra (2009) found that changes in share prices can be attributed to the followings factors:

Macroeconomic factors 40%, Industry factors 20% and Company factors 40%.

Motwani (2013) in another study on fundamental determinants of equity investments among small scale investors believed that the stock market plays a pivotal role in the growth of the industry and commerce of a country and that it eventually affects the economy of the country.

Sumoye, Akintoye and Oseni (2009) in their own study determinants of equity prices in the stock market used five variables (GDP, EPS, DPS, interest rate and exchange rate) which is the combination of macroeconomic factor and individual firm's factors. They analyzed using a total of twelve firms with a seven years data running from 2001 to 2007 and using a linear regression. They concluded that the forces of demand and supply had direct effect on share price.

Based on the above evidence, a commonly advocated procedure of fundamental analysis involves a three-step examination, which calls for understanding of the macro-economic environment, the prospects of the industry to which the firm's belong and assessing the prospected performance of the individual company with the intrinsic value of their share. This research work looks at the impact of macroeconomic variables, the industry and the individual firms' factors on changes in share prices

### **3.0 METHODOLOGY**

#### **SAMPLING AND SAMPLING TECHNIQUE**

Nigerian stock exchange (NSE) fact book and reports of year 2016 showed that there were two hundred and three (203) equity stocks in the Nigerian stock market. However, as a result of the various political, social and economic problems and policies, many of the companies have either been acquired or ceased to be in existence. Again some were either not active in the market or lacked consistent data. Therefore, the sample of this study is made up of all the ninety eight firms that were consistent and active in the market throughout the period 2010 to 2016. This technique is purposive as used and applied in the work of Ayadi (1984); quoted in the work of Nweze (2002) and Adaramola (2014). The secondary data as published by the Central Bank of Nigeria (CBN), Nigerian Stock Exchange (NSE) Fact book and individual firm's annual report were used.

#### **Model**

Many schools of thought exist with respect to fundamental determinants of share prices, but for the purpose of this study, we shall adopt the fundamentalist school of thought. The focus of the fundamentalist approach is to examine how sensitive are the share prices to changes in the macroeconomic factors, industry factors and individual firms' factors among others.

The researchers select six macroeconomic factors (broad money supply, interest rate, exchange rate, inflation rate, oil price and gross domestic product), three industry factors (sensitivity to the business cycle of an industry, profit potential of an industry and structure and characteristics of an industry) and six individual firms' factors (EPS, DPS, size of a firm, liquidity, leverage of a firm and return on assets of a firm) the most significant variables that have significant impact on share prices using stepwise regression method, the model specification modified below;

$$SP_{it} = \pi_0 + \pi_1 LBRM_{it} + \pi_2 LINTR_{it} + \pi_3 LECHR_{it} + \pi_4 LINF_{it} + \pi_5 LOIL_{it} + \pi_6 LGDP_{it} + \pi_7 SBC_{it} + \pi_8 PPI_{it} + \pi_{10} SCI_{it} + \pi_{11} DPS_{it} + \pi_{12} TOA_{it} + \pi_{13} LIQ_{it} + \pi_{14} LVR_{it} + \pi_{15} ROA_{it} + \mu_{it} \quad (3.4)$$

Where

$SPI_{it}$  = Dependent variables measure as individual share price of Firm i at year t

$LBRM_{it}$  = Log of Broad Money Supply

$LINT_{it}$  = Log of Interest Rate

$LECH_{it}$  = Log of Exchange Rate

$LINF_{it}$  = Log of Inflation Rate

$LOIL_{it}$  = Log of Oil Price

$GDP_{it}$  = Log of Gross Domestic Product

$SBC_{it}$  = Sensitivity to the business cycle of an industry i at year t measured as average operating leverage of all firms in an industry.

$PPI_{it}$  = Profit potential of an industry i at year t measured as average profit before tax of all firms in an industry.

$SCI_{it}$  = Structure and characteristics of an industry i at year t measured as number of firms in an industry.

$EPS_{it}$  = Earnings per share for Firm i at year t measured as PAT divided by Outstanding Shares

$DPS_{it}$  = Dividend per share for Firm i at year t measured as Gross Dividend divided by Outstanding Shares

$SIZ_{it}$  = Size of Firm i at year t measured as log of total asset

$LIQ_{it}$  = Liquidity of Firm i at year t measured as Current Liabilities divided by Current Assets

$LVR_{it}$  = Leverage of Firm i at year t measured as Total Liabilities divided by Total Assets

$ROA_{it}$  = Return on Assets of Firm i at year t measured as Net Income divided by Total Assets

$\mu_{it}$  = is the stochastic error term.

i = Firm i (1-98) t = period in year (2010 -2016)

$\pi_0$  = is the constant  $\mu_{it}$  = is the stochastic error term.

$\pi_{1-6}$  = are the co-efficients of the macroeconomic factors.

$\pi_{7-9}$  = are the co-efficients of the industry factors.

$\pi_{10-15}$  = are the co-efficients of the individual Firms' factors.

The above Model was estimated using the pooled data stepwise regression method to determine the most significant variables among the macroeconomic factors, industry factors and individual firms' factors.

## 4.0 RESULTS AND DISCUSSION

### MODEL RESULT

The pooled regression was used to access the impact of each of the significant variables in the macroeconomic model, industry model and individual firms' factors model on share prices (SP). We adopted a panel data analysis to identify the possible macroeconomic factors, industry factors and individual firm factors would simultaneously impact on the share price of Nigeria firms. Fixed/random effect panel data regression and the Hausman tests were also used to select between fixed and random effects models. Based on the Hausman p-value of 0.00, the fixed effect would be explained as against the random effect result.

Added to the above, the variables that are selected from both models based on their significance impact on this study include interest rate (INTR), gross domestic product (GDP), sensitivity to business

cycle (SBI), profit potential of an industry (PPI), earnings per share (EPS), liquidity ratio (LIQ) and dividend per share (DPS). The results obtained are presented in Table 4.1 below:

**TABLE 4.1 SIGNIFICANT FACTORS FIXED EFFECT POOLED REGRESSION RESULT**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-21.1061	66.74123	-0.31624	0.752
INT	0.259583	0.845068	0.307174	0.758
GDP	0.000072	0.000009	0.774119	0.439
SBC	-0.000004	0.000003	-1.39991	0.164
EPS	5.794375	1.047424	5.532022	0
DPS	3.561241	2.690746	1.323515	0.185
LIQ	-2.37672	3.170715	-0.74959	0.454
PPI	1.98708	0.899650	2.20892	0.234
R-squared	0.823189	Mean dependent var		25.28748
Adjusted R-squared	0.777878	S.D. dependent var		70.66402
S.E. of regression	33.30382	Akaike info criterion		10.03037
Sum squared resid	398183	Schwarz criterion		10.87677
Log likelihood	-2173.86	Hannan-Quinn criter.		10.3639
F-statistic	18.16756	Durbin-Watson stat		1.934109
Prob(F-statistic)	0			

Source: Computation by researcher (2018)

In Table 4.1, the study revealed that the random effect results show that the R-squared and adjusted R-squared values were (0.82) and (0.77). This indicates that all the independent variables jointly explain about 77% of the systematic variations in Share Prices of our individual firms over the period (2010-2016). The F-statistics show that the Share Price panel random regression model is generally significant at 1% levels. Following the above, it should be noted that fixed effect panel regression models provided the following results:

**Earnings per share (EPS)**, based on the slope coefficient of 5.79 and a p-value of 0.00, EPS was found to have a positive and significant impact on Share Prices within the sample period. This result, therefore, suggests that there is a significant positive relationship between share price and earnings per share. It means that as companies return more profits, there share prices increases.

**Dividend per share (DPS)**, based on the slope coefficient of 3.56 and a p-value of 0.18, dividend per share of our sampled companies was found to have a positive but insignificant impact on share prices (SP) within the sample period. This result, therefore, suggests that there is no significant relationship between dividend per share and share prices of individual firms. This finding goes ahead to say that though the share prices of firms increase with dividend pay, it does not happen in a significant way. This result may be due to the correlation (0.74) of dividend per share with earnings per share

**Liquidity (LIQ)**, the slope coefficient of this *variable* was -2.37 with a p-value of 0.45. This shows a negative relationship between the dependent and independent variable but this relationship does not impact the dependent variable in a significant way. Though liquidity reduces the value of share prices

because the more a company borrows, the riskier it appears before investors, it is not doing so in a significant manner.

**Interest rate (INTR);** the slope coefficient of this variable was 0.25 with a p-value of 0.75 shows a positive relationship between interest rate and share price but this relationship is not a significant one. As the economy witness a rise in interest rate, there is bound to be a rise in the stock prices of companies; but according to this result, such impact would not be a significant one.

**Gross Domestic Product (GDP),** the slope coefficient of this variable was 0.00007 with a p-value of 0.43. This means that the gross domestic product of the Nigerian economy impacts positively on the share prices of our sampled companies. But the result reveals that this relationship is not a significant. This result suggests that as though economic expansion motivates positive price movement, we cannot rely on it alone to impact stock prices.

**Sensitivity to Business Cycle (SBC)** the slope coefficient of this variable was -0.000004 with a p-value of 0.16. This means that the sensitivity to business cycle impacts negatively on the share prices of Nigeria firms. But, this variable is not a significant driver of share prices with p-value of 0.16.

**Profit Potential of an Industry (PPI)** the slope coefficient of this variable was 1.99 with a p-value of 0.23. This means that the profit potential of an industry impacts positively on the share prices of Nigeria firms. But this variable is not a significant driver of share prices with p-value of 0.16.

## 5.0 DISCUSSIONS & CONCLUSIONS

The focal point of this study is to examine the impact of fundamental determinants (macroeconomic, industry and individual firm factors) on share prices in Nigeria. The research work took a new dimension by not only looking at the effect of macroeconomic factors on share prices, but also looked at the industry factors and individual firm factors.

The model tries to access the impact of significant factors in the multilayer factors on individual firm share prices using stepwise pooled regression techniques and Hausman test model. The result show that only earnings per share is statistically significant which is consistent with works of Armstrong (1983), Iyiegbuniwe (1984), Sharma (2011), Aurangreb (2012), Motwan (2013) and Malhatra and Tandon (2013). This study examined the impact of macroeconomic, industry and individual firm factors on share prices in Nigeria which led to dynamic equilibrium relationship between a group of macroeconomic factors, industry factors and individual firms' factors on the changes in Nigerian share prices using stepwise pooled regression techniques and Hausman test model. On the average, the results from the model used in this work suggest that the major fundamental determinant of share prices in Nigeria is earnings per share.

## 6.0 POLICY IMPLICATIONS

Based on the literature and support offered by preponderance of evidence, the following policy recommendation are hereby suggested

1. The Nigeria stock exchange should continually sanction quoted firms that fail to comply with its provision of information. This will ensure that share prices reflect actions and opinion of all (or a wide range) investors (private and institutional) or (local and foreign).
2. Firms quoted in the Nigeria stock market should be encouraged as a policy to release and submit quarterly figures of their financial position most especially earnings information. This will make their share prices more attractive to potential and rational investors.
3. Information disclosure about firms that were quoted should be handy as provided by law. Regular disclosure of information about financial transaction should be provided at regular interval to the general public will make the share prices more attractive to potential investors and general public at large.

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**(APPENDIX) COMBINED FACTORS POOLED RESULT**

Dependent Variable: SP

Method: Panel Least Squares

Date: 07/25/17 Time: 23:33

Sample (adjusted): 2010 2016

Periods included: 7

Cross-sections included: 97

Total panel (unbalanced) observations: 452

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-27.0187	93.29351	-0.28961	0.7722
INTR	0.48578	1.169865	0.415244	0.6782
GDP	5.75E-05	0.00013	0.442053	0.6587
SBC	-3.41E-06	3.91E-06	-0.872506	0.3834
PPI	2.03E-03	2.03E-03	0.871246	0.1324
EPS	7.036332	1.203142	5.848297	0
DPS	16.80447	2.054554	8.179131	0
LIQ	-4.20869	2.495159	-1.686741	0.0924
R-squared	0.556305	Mean dependent var		25.28748
Adjusted R-squared	0.550323	S.D. dependent var		70.66402
S.E. of regression	47.38586	Akaike info criterion		10.56989
Sum squared resid	9.99E+05	Schwarz criterion		10.6336
Log likelihood	-2381.8	Hannan-Quinn criter.		10.595
F-statistic	92.99031	Durbin-Watson stat		0.521166
Prob(F-statistic)	0			

***fixed result***

Dependent Variable: SP

Method: Panel Least Squares

Date: 07/25/17 Time: 23:33

Sample (adjusted): 2010 2016

Periods included: 7

Cross-sections included: 97

Total panel (unbalanced) observations: 452

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-21.1061	66.74123	-0.31624	0.752
INTR	0.259583	0.845068	0.307174	0.758
GDP	7.20E-05	9.30E-05	0.774119	0.439
SBC	-3.97E-06	2.84E-06	-1.39991	0.164
PPI	1.98708	0.89965	2.20892	0.234
EPS	5.794375	1.047424	5.532022	0
DPS	3.561241	2.690746	1.323515	0.185
LIQ	-2.37672	3.170715	-0.74959	0.454

#### Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.823189	Mean dependent var	25.28748
Adjusted R-squared	0.777878	S.D. dependent var	70.66402
S.E. of regression	33.30382	Akaike info criterion	10.03037
Sum squared resid	398183	Schwarz criterion	10.87677
Log likelihood	-2.17E+03	Hannan-Quinn criter.	10.3639
F-statistic	18.16756	Durbin-Watson stat	1.034109
Prob(F-statistic)	0		

#### RANDOM EFFECT RESULT

Dependent Variable: SP

Method: Panel EGLS (Cross-section random effects)

Date: 07/25/17 Time: 23:34

Sample (adjusted): 2010 2016

Periods included: 7

Cross-sections included: 97

Total panel (unbalanced) observations: 452

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-27.4491	66.39921	-0.4134	0.6795
INTR	0.184624	0.836741	0.220647	0.8255
GDP	7.54E-05	9.24E-05	0.816851	0.4145
SBC	-4.12E-06	2.80E-06	-1.47247	0.1416

PPI	2.124367	1.367549	1.55341	0.2132
EPS	7.256111	0.960911	7.55128	0
DPS	12.26966	1.972471	6.220453	0
LIQ	-3.51075	2.574135	-1.36386	0.1733

## Effects Specification

	S.D.	Rho
Cross-section random	32.80737	4.93E-01
Idiosyncratic random	33.30382	0.5075

## Weighted Statistics

R-squared	0.300401	Mean dependent var	10.10493
Adjusted R-squared	0.290968	S.D. dependent var	40.51577
S.E. of regression	3.41E+01	Sum squared resid	518241.6
F-statistic	31.84648	Durbin-Watson stat	0.934218
Prob(F-statistic)	0		

## Unweighted Statistics

R-squared	0.54274	Mean dependent var	25.28748
Sum squared resid	1029761	Durbin-Watson stat	0.470158

## Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary

Cross-section random

Chi-Sq. Statistic

Chi-Sq. d.f.

Prob.

25.44457

6

0.0003

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
INTR	0.259583	0.184624	0.014005	0.5265
GDP	0.000072	0.000075	0	0.7463
SBC	-4E-06	-4E-06	0	0.7399
PPI	1.98708	2.124367	0.002561	0.5432
EPS	5.794375	7.256111	0.173747	0.0005
DPS	3.561241	12.26966	3.34947	0
LIQ	-2.37672	-3.51075	3.427266	0.5402

Cross-section random effects test equation:

Dependent Variable: SP

Method: Panel Least Squares

Date: 07/25/17 Time: 23:36

Sample (adjusted): 2010 2016

Periods included: 7

Cross-sections included: 97

Total panel (unbalanced) observations: 452

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-21.1061	66.74123	-0.31624	0.752
INTR	0.259583	0.845068	0.307174	0.7589

GDP	7.20E-05	9.30E-05	0.774119	0.4394
SBC	-3.97E-06	2.84E-06	-1.39991	0.1624
PPI	1.98708	0.89965	2.20892	0.234
EPS	5.794375	1.047424	5.532022	0
DPS	3.561241	2.690746	1.323515	0.1865
LIQ	-2.37672	3.170715	-0.74959	0.454

## Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.823189	Mean dependent var	25.28748
Adjusted R-squared	0.777878	S.D. dependent var	70.66402
S.E. of regression	33.30382	Akaike info criterion	10.03037
Sum squared resid	398183	Schwarz criterion	10.87677
Log likelihood	-2173.86	Hannan-Quinn criter.	10.3639
F-statistic	18.16756	Durbin-Watson stat	1.034109
Prob(F-statistic)	0		