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FIRM SPECIFIC CHARACTERISTICS AND STOCK MARKET RETURNS OF LISTED MANUFACTURING COMPANIES IN NIGERIA.

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Abstract

This study investigated the influence of firm-specific characteristics on stock market returns measured by stock price appreciation among listed manufacturing companies in Nigeria over a nine-year period (2015–2023). Adopting an ex post facto research design, the study used panel data regression analysis was conducted on a selected sample of 10 manufacturing firms listed on the Nigerian Exchange Group. The independent variables included firm size, firm age, leverage, price-earnings ratio, productivity growth rate, and sales growth rate. The random effects regression model revealed that none of the firm-specific characteristics exerted a statistically significant influence on stock price appreciation. Interestingly, the sales growth rate showed a marginal but negative effect on stock returns. The findings shows that the Nigerian stock market may be inefficient, with exogenous or behavioral factors playing a more dominant role than firm-level fundamentals. Investors should integrate macroeconomic and sentiment-driven analyses, while policymakers and regulators should enhance transparency and information flow in the market. This study contributes to the understanding of the disconnect between firm-specific metrics and equity valuation in emerging markets.

Introduction

Stock markets play a vital role in capital allocation and economic development, especially in emerging economies like Nigeria. However, the Nigerian stock market has often been criticized for inefficiency, volatility, and poor depth, raising questions about the extent to which firm-specific fundamentals are accurately priced in securities. Understanding the key drivers of stock market returns is essential for investors, regulators, and company managers. While macroeconomic variables like inflation and interest rates, have traditionally received much

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attention, increasing focus has been placed on firm-specific characteristics factors that reflect internal corporate structures, performance, and strategies.

In developed markets, these firm-level attributes have long been recognized as significant stock return predictors. However, in Nigeria, the empirical evidence remains mixed, inconsistent, and often sector-agnostic. This study focuses specifically on the manufacturing sector, a crucial but underexplored component of the Nigerian economy, to bridge the empirical gap by investigating how firm-specific characteristics influence stock price appreciation (SPA) among listed manufacturing companies.

This study focuses on six key firm-specific characteristics: firm size (FSZ), firm age (FAG), price-earnings ratio (PER), financial leverage (LEV), sales growth rate (SGR), and productivity growth rate (PGR). These variables have been shown in past studies to influence firm valuation, yet their effect on stock returns in Nigeria's manufacturing sector remains insufficiently understood (Jeroh & Ozegbe, 2022).

Firm size is a proxy for stability, diversification, and financing access. Larger firms are often perceived as safer investments because of their resource base and market visibility, but they may also experience slower growth because of bureaucracy (Ayuba, 2018; Kotlar et al., 2018). Conversely, smaller firms may offer higher returns due to agility and growth potential, albeit with increased risk (Sinebe & Jeroh, 2023).

Firm age captures the maturity and survival capability of a firm. Older firms are generally expected to be more established and have reliable earnings and reputational capital. However, age may also imply operational rigidity or slower adaptability to market dynamics (Farouk et al., 2019; Mgeni & Nayak, 2016).

The price-earnings ratio (PER) is a widely used market-based valuation metric. High PER values are often interpreted as investor optimism regarding future earnings, whereas low PERs could signal undervaluation or weak investor confidence. Therefore, the PER plays a critical role in influencing investor behavior and market prices (Kwaltommai, et al., 2019; Ogieh & Jeroh, 2022).

Financial leverage (the LEV), typically measured by debt ratios, influences both firm risk and return. While debt can boost returns via tax shields, excessive leverage heightens financial distress risk. In the Nigerian context, where credit markets are underdeveloped, the role of leverage becomes particularly complex (Jeroh, 2012; Abubakar & Garba, 2019).

Sales growth rate (SGR) and productivity growth rate (PGR) indicate a firm's performance trajectory and operational efficiency. High sales and productivity growth typically attracts investors seeking long-term value and profitability (Demaki & Jeroh, 2016; Etim et al., 2023). These indicators are especially pertinent to Nigeria's manufacturing sector, which must navigate infrastructural challenges and economic policy uncertainties to remain competitive (Bawa et al., 2020).

Although the theoretical link between these firm characteristics and stock market returns has been studied, findings in the Nigerian context remain inconclusive. While some studies suggest that firm size and leverage significantly influence returns (Dioha et al., 2018; Kayode et al., 2020), others report weak or inconsistent effects (Nguavese, 2021; Shittu & Amao, 2022). Moreover, most of these studies analyze data across sectors, failing to capture the unique dynamics within manufacturing firms, such as capital intensity, regulatory exposure, and supply chain complexity.

This study provides a more precise understanding of how firm-specific factors drive stock price appreciation by isolating the manufacturing sector. It uses a panel data regression model to assess how the six variables (FSZ, FAG, PER, LEV, SGR, and PGR) affect SPA while accounting for firm-level heterogeneity and sector-specific realities.

1.2 Statement of the Problem

Despite its potential as a vehicle for capital mobilization and wealth creation, the Nigerian stock market continues to suffer from inefficiencies, volatility, and weak investor confidence. Over the years, investors and stakeholders have increasingly questioned whether firm-specific fundamentals (such as firm size, profitability, leverage, and market valuation) truly reflect stock market returns, particularly in the manufacturing sector (Sinebe, 2022). The uncertainty is further intensified by the lack of consistent empirical evidence on the relationship between firm-specific characteristics and stock returns within Nigeria's complex and underdeveloped financial system.

Although classical financial theory, such as the Efficient Market Hypothesis (EMH) posit that stock returns should align with firm-specific and macroeconomic variables. Empirical findings on this subject remain inconsistent, fragmented, and often contradictory. For instance, Ayuba et al. (2018) found significant effects of firm-level attributes on stock returns in Nigeria, whereas Nguavese (2021) reported only marginal associations in a similar context. These divergent outcomes shows the need for more sector-focused research that considers the heterogeneity of industries such as manufacturing, which operate under distinct regulatory, cost, and operational structures.

The manufacturing sector is particularly vital to Nigeria's economic diversification agenda, contributing significantly to GDP, employment, and export potential. However, firms in this sector often face challenges such as high production costs, unstable macroeconomic conditions, and limited access to credit, and policy inconsistencies (Ukolobi & Jeroh, 2020; Bawa, et al. 2020). These peculiarities may influence how firm-specific attributes like firm size (FSZ), firm age (FAG), price-earnings ratio (PER), financial leverage (LEV), sales growth rate (SGR), and productivity growth rate (PGR) are perceived and priced by investors (Sinebe Jeroh & Ebiaghan, 2025). However, existing studies have focused broadly on either all listed firms or financial performance metrics rather than market returns (Appah & Duoduo, 2024; Farouk, et al. 2019).

Few studies have adopted a comprehensive multivariate approach tailored to the unique dynamics of the manufacturing sector despite the growing interest in firm characteristics and stock performance. Many prior works have failed to adequately control for firm heterogeneity, employ outdated datasets, or generalize findings across dissimilar sectors (Etim, et al. 2023; Aribaba et al., 2020). As such, a significant knowledge gap remains regarding how measures of firm-level affects stock price appreciation (SPA) in the Nigerian manufacturing industry.

This study seeks to address this gap by investigating the extent to which selected firm-specific characteristics influence stock market returns among Nigerian manufacturing companies. By focusing exclusively on this sector and using panel data, the study offers a targeted analysis that can inform investors, corporate managers, and policymakers on the true valuation drivers within Nigeria's manufacturing landscape. The outcome will not only provide empirical clarity and strengthen investment decision-making and regulatory oversight in an otherwise opaque and underperforming market.

Research Hypotheses

H_{01}: Firm size has no significant effect on the stock price appreciation of manufacturing companies listed in Nigeria.

H_{02}: Firm age has no significant effect on the stock price appreciation of manufacturing companies listed in Nigeria.

H_{03}: Price-earnings ratio has no significant effect on the stock price appreciation of listed manufacturing firms.

H_{04}: Financial leverage has no significant effect on the stock price appreciation of listed manufacturing firms.

H_{05}: Sales growth rate has no significant effect on the stock price appreciation of listed manufacturing companies.

H_{06}: Productivity growth rate has no significant effect on Nigerian manufacturing firms' stock price appreciation.

2.0 LITERATURE REVIEW

2.1 Conceptual Review

2.2 Stock market returns

Stock market returns are widely influenced by firm-specific characteristics such as size, leverage, profitability, and growth rates (Jeroh, 2016; Idris & Bala, 2015). Empirical studies in Nigeria show that financial fundamentals significantly impact stock returns, consistent with the semi-strong form of market efficiency (Uwubanmwen & Obayagbona, 2012; Nguavese, 2021). For instance, Olanrewaju (2024) found that firm size and earnings are positively correlated with stock price appreciation, whereas leverage often exhibits a mixed effect (Abubakar et al. 2019). Moreover, behavioral factors and market inefficiencies sometimes distort the relationship between fundamentals and returns, especially in emerging markets like Nigeria (Prombutr & Phengpis, 2019; Etim, et al. 2023). These insights underscore the need to contextualize stock return models by incorporating both financial and non-financial firm attributes to better understand Nigeria's market dynamics (Egbunike & Okerekeoti, 2018).
Theoretically, the stock market return is calculated as follows:

Stock market price in the current year Initial stock market price + Current dividend x 100
Initial stock market price 1

2.3 Firm Size and Returns on Stock Markets

Firm size has been a widely examined determinant of stock market returns, often used to capture the scale, operational capacity, and risk-bearing ability of a firm. Larger firms typically have greater access to capital, broader market influence, and more stable earnings, which may affect their market valuation and returns. However, empirical findings on this relationship are mixed.

Ayuba et al. (2018) found that firm size significantly influences stock returns among Nigerian listed firms, attributed to economies of scale and investor confidence in large firms. Similarly, Etim et al. (2023) and Jeroh, (2020) observed that larger manufacturing firms tend to enjoy higher market value due to enhanced disclosure practices and operational stability, which positively affect their share price performance.

In contrast, Ibrahim and Hussaini (2015) found no significant relationship between firm size and stock price appreciation in the food and beverage sector, suggesting that other firm-specific or external macroeconomic factors may overshadow the size effect. Egbunike et al. (2018) also pointed out that the impact of firm size on returns could be industry-sensitive and contingent on financial performance metrics. Akinyemi et al. (2020) conducted a two-sector comparative analysis and concluded that firm size was more impactful in the industrial goods sector than in the consumer goods sector, indicating sectoral variation in investor perception.

Overall, while larger firms often exhibit stronger market performance, the relationship remains context-specific, depending on industry dynamics, investor behavior, and other firm attributes.

2.4 Firm Age and Returns on Stock Markets

Firm age is a crucial determinant of stock market returns, reflecting a company's maturity, stability, and growth potential (Idris, et al. 2015; Ibrahim, et al. 2015). Older firms often possess established market positions and stable cash flows, which can lead to more predictable stock performance (Akinyemi et al., 2020). However, younger firms may exhibit higher growth prospects and innovation capacity, attracting investors seeking capital appreciation despite elevated risks (Kayode, Oke & Adegboyega, 2020). Empirical evidence from Nigerian markets reveals mixed results: some studies suggest a positive correlation between firm age and stock returns, emphasizing the benefits of experience and operational efficiency (Nguavese, 2021; Tanko, 2025), while others highlight that younger firms outperform older counterparts due to growth opportunities (Etim, Edet & Nduonofit, 2023). These divergent findings underscore the contextual influence of industry dynamics and market conditions,

implying that firm age's impact on stock returns is nuanced and contingent on firm-specific and macroeconomic factors (Egbunike, et al. 2018).

2.5 Price-Earnings Ratio (PER) and Stock Market Returns

The Price-Earnings Ratio (PER) is a widely employed valuation metric that reflects investors' expectations about a firm's future earnings potential. It is often considered a proxy for market sentiment and firm valuation. Several studies have explored the relationship between PER and stock market returns with varied outcomes. Ayuba et al. (2018) found that PER has a significant influence on stock returns in Nigeria, which explains that investors react to PER-embedded earnings signals. Similarly, Ibrahim et al. (2015) and Idris et al. (2015) reported that firms with higher PER tend to attract investor interest, often resulting in increased stock prices.

Conversely, Nguavese (2021) observed a weak and sometimes inverse relationship between PER and stock returns among industrial goods companies, indicating that PER might not be a reliable predictor in all sectors. Prombutr et al. (2019) emphasized that behavioral and firm-specific characteristics, such as investor bias or firm reputation, can moderate the predictive strength of PER on returns. Furthermore, Kotlar et al. (2018) posited that organizational goals and internal dynamics influence how the market perceives and interprets earnings, thus impacting PER's explanatory power.

Overall, while PER offers valuable insights into investor sentiment and valuation, its relevance in predicting stock returns appears to be context-specific and contingent on sectoral dynamics and firm-level attributes.

2.6 Financial Leverage and Returns on Stock Markets

Financial leverage, often measured by debt-to-equity or debt-to-asset ratios, significantly influences stock market returns by amplifying both gains and losses. Several empirical studies have examined this dynamic within the Nigerian context. Abubakar et al. (2019) found a significant negative relationship between financial leverage and the financial performance of quoted service firms in Nigeria, shows that excessive debt undermines investor confidence and suppresses stock returns. Similarly, Ayuba et al. (2018) established that high leverage levels negatively impact listed firms' stock returns, implying market aversion to risky capital structures.

Conversely, some scholars argue that moderate leverage may enhance returns by signaling growth potential. For instance, Nguavese (2021) reported a positive link between leverage and stock returns among industrial goods firms, indicating that investors may reward firms that efficiently use debt for expansion. Ibrahim, et al. (2015) also found that although the effect was sector-specific, leverage influenced stock appreciation in food and beverage firms.

Furthermore, Prombutr et al. (2019) posited that firm-specific behavioral traits, including leverage policies, play a crucial role in return volatility. Overall, the literature shows that the impact of leverage on stock returns is nuanced and varies across sectors, leverage levels, and firm characteristics.

2.7 Sales Growth Rate and Returns on Stock Markets

Sales growth rate, as a dynamic indicator of a firm's market performance and expansion capacity, has drawn significant interest in relation to stock market returns. Firms with consistent sales growth often signal strong product demand, operational efficiency, and market competitiveness, which investors typically reward with higher valuations. Ayuba et al. (2018) and Dioha, et al. (2018) emphasize that firms demonstrating rising sales growth tend to attract more investor confidence, which positively influences their stock returns. Similarly, Etim et al. (2023) provide empirical evidence from listed Nigerian manufacturing companies that sales growth significantly impacts market value and return on equity.

Further supporting this, Prombutr, et al. (2019) highlight that growth-related firm characteristics reduce investor-perceived risk, enhancing returns. Conversely, Nguavese (2021) noted that the effect of sales growth on returns may vary across sectors, particularly where operational costs offset revenue gains. Ibrahim, et al. (2015) found a positive yet non-linear relationship between firm growth and stock price appreciation in the food and beverages sector. Collectively, the literature suggests that while sales growth rate is generally a positive predictor of stock market returns, contextual firm-specific and sectoral factors can moderate this relationship.

2.8 Productivity Growth Rate and Returns on Stock Markets

The productivity growth rate is a critical indicator of a firm's operational efficiency and capacity to generate value from its resources, making it a pivotal factor in influencing stock market returns. Studies such as Obi and Nworie (2024) and Aribaba et al. (2020) demonstrated that firms exhibiting strong productivity growth typically achieve better financial performance, which in turn positively impacts investor confidence and stock returns. Ebiaghan, Jeroh, & Ideh, (2021) further corroborated that productivity improvements are closely linked to enhanced profitability, which is often rewarded by capital markets through higher stock prices.

Kotlar et al. (2018) argue that productivity growth aligns with organizational goals that drive firm competitiveness and shareholder value creation. Similarly, Egbunike et al. (2018) highlighted the role of macroeconomic and firm-specific factors in shaping productivity growth, which subsequently affects market valuation. However, Prombutr et al. (2019) caution that the relationship between productivity growth and stock returns can be moderated by behavioral and risk factors, varying across industries.

In the Nigerian context, Etim et al. (2023) empirically confirm that productivity growth significantly enhances the market value of listed manufacturing firms, reinforcing its importance as a determinant of stock market returns.

2.9 Theoretical Underpinnings

This study is grounded in the Efficient Market Hypothesis (EMH), which asserts that stock prices fully incorporate all available information, including firm-specific financial fundamentals (Uwubanmwen et al. 2012). Under the semi-strong form of EMH, relevant financial indicators, such as profitability, leverage, and productivity growth, should be immediately and accurately reflected in stock returns, making it impossible to achieve consistent abnormal gains through fundamental analysis (Ayuba, 2018; Idris, et al. 2015).

However, emerging markets like Nigeria often exhibit characteristics that challenge the strict application of EMH. Market inefficiencies arising from information asymmetry, limited disclosure, and investor behavioral biases may distort price formation and delay the integration of firm-specific data into stock prices (Egbunike, et al. 2018; Prombutr, et al. 2019). Furthermore, institutional weaknesses and regulatory gaps may exacerbate these inefficiencies, necessitating empirical investigation into the extent to which firm characteristics influence market returns in the Nigerian context (Etim, et al. 2023). Consequently, while EMH provides a foundational framework, contextual nuances require a critical examination of its applicability within the Nigerian capital market.

3.0 Methodology

The study adopted an ex post facto research design to examine firm-specific characteristics and stock market returns (stock price appreciation) of listed manufacturing companies in Nigeria from 2015 to 2023 (nine years) period. The study population consists of manufacturing companies listed in the Nigerian Exchange Group as of December 2023. The study sample consisted of 10 manufacturing companies' Audited Annual Report and Accounts. The multiple regression technique was adopted using the panel data regression technique.

The model for this study is stated in econometrics terms below as;

Model I Stock Market Returns = f(Firm Specific Characteristics)

$SPA_{it} = f(FSIZE + FAGE + LEV + PER + PGR + SGR)$ *eq.i*

$SPA_{it} = \alpha_0 + \beta_1 FSIZE_{it} + \beta_2 FAGE_{it} + \beta_3 LEV_{it} + \beta_4 PER_{it} + \beta_5 PGR_{it} + \beta_6 SGR_{it} + \varepsilon_t$ *eq.ii*

Where:

VARIABLE	ACRONYM	MEASUREMENT
Stock price appreciation (stock market returns)	SPA	refers to the increase in the value of a stock investment over time
FIRM SIZE	**FSIZE**	measured as the natural log of the total asset
FIRM AGE	**FAGE**	measured as the number of years a company has been trading on the stock exchange
Price–Earnings Ratio	**PER**	Measured by dividing the company's stock price by its earnings per share.
Financial Leverage	**LEV**	measured by the total equity/total debt ratio

Sales Growth Rate	**SGR**	Measured as [(Current period sales–Prior period sales) / Prior period sales]*100.
Productivity Growth Rate	**PGR**	divide the number of goods or services produced by the total number of hours worked over a set period

f = Stochastic error term capturing other variables that are explanatory
í = Firm identifier (10 firms)
t = Time variable (9 Years)
ε_t = error term
αo is the regression intercept.
$\beta_1 - \beta_6$ are the coefficients that measure the impact of each explanatory variable on R&D investment.
The Apriori expectation: β_1 - β_6 is lesser or greater than 0.

4.0 RESULTS AND DISCUSSION

4.1 Descriptive statistics

Table 2: Summary of Descriptive for the SPA FSIZE FAGE LEV PER PGR and SGR

VARIABLES	OBS	MEAN	STD. DEV	MIN	MAX
SPA	90	7.001889	43.31153	-71.44	312.73
FSIZE	90	16.81497	2.55114	14.07986	22.09412
FAGE	90	26.84444	13.64881	1	50
LEV	90	.4416285	.2075725	-136.2283	1.399168
PER	90	5.837578	24.64226		106.3557
PGR	90	.6264313	.1864638	0	1.149327
SGR	90	-19.46391	57.70917	-507.5709	57.60236

Source: Regression Output, 2025.

Table 2 presents the descriptive statistics for SPA (Share Price Appreciation), FSIZE (Firm Size), FAGE (Firm Age), LEV (Leverage), PER (Price-Earnings Ratio), PGR (Profit Growth Rate), and SGR (Sales Growth Rate). The mean SPA is 7.00, indicating modest average share price gains, although its high standard deviation (43.31) and wide range (from -71.44 to 312.73) reflect significant volatility. Firm size and average age were 16.81 and 26.84 years, respectively, showing that the sample comprises relatively mature and large firms. Leverage has a mean of 0.44, but a concerning negative minimum value (−136.23) signals potential data entry errors or extreme outliers, warranting scrutiny. PER shows high variability, indicating inconsistent investor valuation across firms. The SGR has a negative mean (−19.46), which shows decline in sales among many firms, with extreme swings likely due to sectoral or macroeconomic shocks. Firms should focus on stabilizing earnings and enhancing operational efficiency to boost investor confidence and moderate volatility.

4.2 NORMALITY TEST

Table 3: Shapiro-Wilk W test for normal data for the variables

VARIABLES	OBS	W	V	Z	PROB>Z
SPA	90	0.55716	33.496	7.745	0.00000
FSIZE	90	0.83996	12.106	5.500	0.00000
FAGE	90	0.94706	4.004	3.060	0.00111
LEV	90	0.92275	5.843	3.893	0.00005
PER	90	0.66531	25.316	7.127	0.00000
PGR	90	0.90904	6.880	4.254	0.00001

SGR	90	0.43949	42.397	8.264	0.00000

Source: Regression Output, 2025.

The Shapiro-Wilk test results in Table 3 show that all variables have p-values less than 0.05, indicating a significant deviation from the normal distribution. SPA, PER, and SGR display particularly low W-values (0.55716, 0.66531, and 0.43949, respectively), indicating severe non-normality, likely due to outliers or skewed distributions. Even variables such as FSIZE and FAGE, which are typically stable, fail the normality test. These findings imply that parametric analyses assuming normality (e.g., OLS regression) may yield biased results. Applying data transformation, robust regression methods, or non-parametric alternatives is recommended to ensure valid statistical inferences.

4.3 Correlation Analysis

Table 4: Summary of the Spearman correlation matrix for the SPA FSIZE FAGE LEV PER PGR and SGR

	SPA	FSIZE	FAGE	LEV	PER	PGR	SGR
SPA	1.0000						
FSIZE	0.0708 0.5073	1.0000					
FAGE	0.0625 0.5581	-0.0858 0.4212	1.0000				
LEV	0.0471 0.6592	0.2308* 0.0286	-0.0254 0.8118	1.0000			
PER	0.0328 0.7590	0.3323* 0.0014	-0.1807 0.0883	0.0996 0.3501	1.0000		
PGR	0.1146 0.2823	-0.3111* 0.0028	0.2051 0.0525	-0.1445 0.1741	-0.2509* 0.0171	1.0000	
SGR	-0.2470* 0.0190	-0.3037* 0.0036	0.0063 0.9533	-0.0931 0.3827	-0.1104 0.3002	0.0585 0.5840	1.0000

Source: Regression Output, 2025.

The Spearman correlation matrix reveals weak associations among variables, with only a few significant correlations at the 5% level. SPA shows a negative but significant correlation with SGR ($\rho = -0.2470$, $p = 0.0190$), indicating that higher stock returns may be associated with lower sales growth. FSIZE and PER ($\rho = 0.3323$, $p = 0.0014$), as well as FSIZE and LEV ($\rho = 0.2308$, $p = 0.0286$), exhibited moderate positive relationships. Conversely, PGR is negatively correlated with FSIZE and PER. The overall low correlations indicating minimal multicollinearity.

4.4 Result of Multicollinearity Test Using Variance Inflation Factor (VIF)

Table 3: Results of the VIF test

VARIABLE	VIF	1/VIF
PER	1.36	0.734675
SGR	1.32	0.757800
FSIZE	1.22	0.818752
FAGE	1.17	0.851699
PGR	1.12	0.890585
LEV	1.09	0.913851
Mean VIF	1.22	

Source: Regression Output, 2025.

The VIF test assesses multicollinearity among explanatory variables. All variables have VIF values well below the critical threshold of 10, with the highest being 1.36 (PER) and the mean VIF being 1.22. This indicates that multicollinearity is not a concern in the model because the predictors are sufficiently independent of one another. Such low VIF values enhance the credibility and interpretability of the regression coefficients. Therefore, the result permits to proceed with regression.

4.6 Hadri LM Unit Root Test

Table 7: Diagnostic Tests Results for all variables

VARIABLE	STATISTICS	P-VALUE
FSIZE	11.6983	0.0000
FAGE	10.7194	0.0000
LEV	4.5312	0.0000
PER	-1.0825	0.8605
PGR	5.7726	0.0000
SGR	-0.8953	0.8147

Source: Regression Output, 2025.

4.5 Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Table 5: Diagnostic Tests fitted values of the SPA

The Breusch and Pagan Lagrangian Multiplier test	
Decision rule	If the p-value is statistically significant, then Ho is rejected and HA is accepted
Result	chi2(1) = 56.95; Prob> chi2 = 0.0000
Hausman Test	
Decision rule	If the p-value is statistically significant, then Ho is rejected and HA is accepted
Result	chi2(6) = 4.05; Prob> chi2 = 0.6703

Source: Regression Output, 2025.

The LM test result ($\chi^2(1) = 56.95$, $p = 0.0000$) was statistically significant at the 1% level. This leads to the rejection of the null hypothesis (H_0: no panel effect) in favor of the alternative (H_1: presence of panel effects). Given the significance, a random-effects model is more appropriate than pooled OLS for analyzing the determinants of Share Price Appreciation (SPA), as it accounts for unobserved heterogeneity across firms.

	HAUSMAN FE RE			
	(b)	**(a)**	**(b-B)**	**sqrt(diag(V_b-V_B))**
	FE	**RE**	**Difference**	**S.E.**
FSIZE	8.011751	-1.029456	9.041207	8.319279
FAGE	1.277239	.2666743	1.010565	1.2774
LEV	-25.30583	7.863335	-33.16917	26.6824
PER	-.1696931	-.1447762	-.0249169	.1648215
PGR	14.57473	9.776262	4.798468	14.82547
SGR	-.0951691	-.1555755	.0604064	.06053

Source: Regression Output, 2025.

The Hausman test compares the fixed effects (FE) and random effects (RE) estimators to determine the most appropriate model. In this case, the test yields a chi-square statistic of 4.05 with a *p*-value of 0.6703. Because the *p*-value is significantly greater than the conventional thresholds (0.05 or 0.01), we fail to reject the null hypothesis (H_0) that the difference in coefficients is not systematic. This implies that the random effects estimator is efficient and consistent. Based on the result, the random effects (RE) model is preferred for the analysis because it accounts for variation across entities while assuming no correlation between individual effects and regressors.

Table 6: Summary of the Random-effect GLS regression Result

SPA	COEF.	STD.ERR.	Z	P>|Z|
FSIZE	-1.029456	2.010902	-0.51	0.609
FAGE	.2666743	.3685218	0.72	0.469
LEV	7.863335	23.39342	0.34	0.737
PER	-.1447762	.2197723	-0.66	0.510
PGR	9.776262	26.37965	0.37	0.711
SGR	-.1555755	.0924015	-1.68	0.092
_CONS	5.373648	42.12374	0.13	0.898
OBS				90
WALD CHI2(6)				4.06
PROB > CHI2				0.6689

Source: Regression Output, 2025.

The random effects GLS regression evaluates the influence of firm-specific characteristics on Share Price Appreciation (SPA). The model reports a Wald chi-square statistic of 4.06 with a *p*-value of 0.6689, indicating that the joint explanatory power of the regressors is statistically insignificant. None of the predictors, including firm size (FSIZE), firm age (FAGE), leverage (LEV), price-earnings ratio (PER), productivity growth rate (PGR), and sales growth rate (SGR), show statistically significant effects on SPA at the 5% level. However, SGR is marginally significant ($p = 0.092$), indicating a weak negative relationship with SPA. The insignificance across variables may indicate omitted variable bias, short time span, or sector-specific factors not captured in the model.

4.10 Discussion of the Findings

The findings from the random effects regression model reveal that firm-specific characteristics (including firm size, firm age, leverage, price-earnings ratio, productivity growth rate, and sales growth rate) exhibit no statistically significant effect on stock price appreciation (SPA) among listed manufacturing firms in Nigeria. This aligns with earlier studies by Ikechukwu and Ogbodo, (2024) and Aribaba et al. (2020), who also observed weak or insignificant relationships between firm fundamentals and market-based outcomes in the Nigerian context. Notably, sales growth rate (SGR) showed a marginal negative influence, which means that aggressive sales expansion may not always translate to stock gains, corroborating insights from Egbunike and Okerekeoti (2018). The insignificance of leverage and the price-earnings ratio contradicts prior findings by Abubakar and Garba (2019) and Ibrahim and Hussaini (2015), who reported that these variables have a strong predictive power on firm value. This inconsistency may be due to differences in sample composition, sectoral dynamics, or macroeconomic volatility, as highlighted by Amtiram et al. (2017).

Overall, the results point to market inefficiencies or the dominance of exogenous factors over firm fundamentals in determining stock returns, as proposed by Uwubanmwen and Obayagbona (2012). Future research should integrate macroeconomic indicators or investor sentiment to improve explanatory power.

5.0 Summary, Conclusion and Recommendations

5.1 Summary

This study examined the influence of firm-specific characteristics on stock price appreciation (SPA) among listed manufacturing companies in Nigeria. The key variables included firm size, firm age, leverage, price-earnings ratio, productivity growth rate, and sales growth rate. Using a panel data regression framework, the study employed both random and fixed effects models, with model selection guided by the Hausman test. Findings revealed that none of the explanatory variables had a statistically significant impact on stock price appreciation.

The Breusch-Pagan Lagrangian Multiplier test justified the use of a panel model, while the variance inflation factors (VIF) confirmed the absence of multicollinearity.

5.2 Conclusion

Empirical evidence shows that although widely theorized as drivers of firm value, firm-specific characteristics do not significantly predict stock price appreciation in Nigeria's manufacturing sector. This may be attributed to market inefficiencies, investor irrationality, or external macroeconomic disruptions that override internal firm fundamentals. Consequently, reliance on these internal indicators alone may not offer investors or managers reliable guidance on short-term share performance.

5.3 Recommendations

1. For better investment decisions, investors should complement firm-level analysis with macroeconomic and behavioral indicators.
2. Policymakers should promote transparency, efficiency, and investor education to strengthen the market response to firm fundamentals.
3. Firms should focus not only on improving internal metrics but also on enhancing investor confidence through strategic disclosures.
4. Regulators like SEC and NSE should intensify reforms aimed at minimizing information asymmetry and promoting market efficiency.
5. While the RE model is appropriate, future studies should consider incorporating macroeconomic indicators, industry dummies, or firm-specific qualitative metrics and enhancing model robustness through a larger panel dataset or dynamic panel estimators like GMM is also advised.

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