

How Do Profitability and Institutional Ownership Drive Value through Dividend Policy? Evidence from Nigeria

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Abstract

This study examines how dividend policy, profitability, and institutional ownership affect the value of a company. This study also examines how dividend policy affects the paths of profitability, institutional ownership, and firm value in the Nigerian Exchange Group (NGX). The study used a longitudinal research design with 46 purposively sampled firms and a dataset spanning from 2012 to 2022, yielding 417 observations. We used multiple path analyses with bootstrap mediation and 2000 replications to examine the manufacturing sector and five subsectors. This helped us understand how exogenous variables affect endogenous variables in a more complex way by showing their direct, indirect, and total effects. The most important results showed that 1) DPS, which stands for dividend policy, did not have a significant mediating effect on profitability at the aggregate or subsector level; 2) DPS did have a significant positive mediating effect on institutional ownership at the aggregate level; and 3) DPS had a significant negative mediating effect on consumer staples. This study covered the manufacturing firms listed on the NGX, which limits the outcome's applicability to other sectors and geographic regions. Some implications for investors and regulators are that institutional ownership and dividend policy (DPS) are potent tools for mitigating agency costs and that dividend payments send signals and help reduce information asymmetry, which ultimately positively impacts value. This study contributes to the literature on mediation analysis in a novel manner by applying bootstrap mediation analysis within the geographic context of Nigeria, which brings a new perspective to financial analysis methodology in emerging markets.

Keywords: path analysis, bootstrap mediation, dividend policy, firm value, NGX

1. Introduction

Finance managers of corporations must make decisions on what to invest in, how to raise funds to finance identified investment opportunities, and how to reward shareholders through dividends. Profitability is the direct result of sound investment decisions, and selecting an appropriate dividend policy is critical, even though Modigliani and Miller (1958) argued that such decisions are irrelevant under certain theoretical conditions. However, in the practical world where transaction costs, bankruptcy costs, and information asymmetry exist, their arguments become less tenable.

At the corporate governance level, the separation of ownership and management in today's corporations leads to information asymmetry and potential agency problems. According to Jensen and Meckling (1976), managers of corporations are self-seeking in nature, and they tend to pursue personal interests to the detriment of the interests of their principals, the shareholders. To tame this agency problem, they proposed that free cash flow should be paid out to shareholders in the form of dividends as a way of reducing cash that might be used in suboptimal investments and ensuring the strong presence of institutional shareholders for closer monitoring of managers. Empirical studies have found support for these propositions in various markets and regions (Hardjopranoto, 2006; Mazlan et al. 2019; Sadewa & Yasa, 2016), whereas others have found no significant evidence supporting these propositions (Hamill & AlShattarat, 2012; Nurmalarasi & Baskara, 2019; Zhen et al., 2015).

The signalling theory of dividends suggests that they serve as a means of communicating information, thereby reducing the information asymmetry between managers and shareholders. Changes in dividend policy might reflect management's private insights about the firm's future performance and growth opportunities (Bhattacharya, 1979). Based on signalling theory, we could hypothesise that dividend policy mediates the effects of some variables that impact firm value, but we need empirical testing before drawing conclusions. Empirical studies conducted in some regions and sectors have found support for the mediating effect of dividend policy (Hunjra, 2018; Santoso et al., 2020; Setyabudi, 2021; Surwanti & Pamungkas, 2021).

Despite the significant impact of dividend policy on institutional ownership, profitability, and firm value (Handayani & Ibrani, 2023; Setyabudi, 2021; Suprayoga & Setiyono, 2022), there is a dearth of research on the Nigerian manufacturing sector. This indicates a significant gap in understanding how dividend policy mediates the relationship between profitability, institutional ownership, and firm value. This study also fills in methodological gaps in earlier studies by using the bootstrapped standard error approach for path analysis (Preacher & Hayes, 2004). Earlier studies mostly used the Sobel method, which assumed that the data were normal, which was not the case in this study. The application of bootstrap methods in finance research is particularly pertinent because of the unique characteristics of financial data and the specific challenges of financial modeling. Financial returns often exhibit non-normal distributions, skewness, and heavy tails, making bootstrap methods ideal because they do not rely on normality assumptions (Efron, 1979; Chernick, 2007). These methods are especially useful in small-sample scenarios, which are common in studies of emerging markets or niche financial products, enhancing the reliability and accuracy of statistical estimates (Horowitz, 2001). Bootstrap techniques also support complex model validation and stress testing, which are crucial for risk management tasks like estimating Value at Risk and Conditional Value at Risk, where traditional parametric methods fall short due to strict distributional assumptions (Efron, 1979; Chernick, 2007). Consequently, bootstrap methods have become indispensable in financial econometrics, providing robust tools for analyzing and interpreting complex relationships within financial markets and improving the rigor and credibility of financial research outcomes.

The main objective of this study is to examine the impact of profitability and institutional ownership on firm value within the Nigerian Exchange Group (NGX). Furthermore, this study analyzes the role of dividend policy as a mediator in the connection between profitability, institutional ownership, and firm value. In addition, this study investigates these effects at five specific subsector levels. Finally, this study builds on the current body of research on this topic and provides recommendations to stakeholders based on its findings.

2. Literature Review

2.1 Conceptual Framework

Mediation analysis evaluates the direct effect of an independent variable on a dependent variable and the indirect effect through a mediating variable. This analysis assesses not only the direct influence but also the total effect, which combines both direct and indirect effects. Understanding these dynamics helps researchers and practitioners make informed decisions about the relationships between variables (Fairchild et al., 2009; González & MacKinnon, 2016; Vansteelandt & Daniel, 2017). The Preacher and Hayes bootstrap method is used in this study because of its robustness in handling non-normality in the distribution of the indirect effects and small sample sizes. This method is preferred over others like the Sobel test and Baron and Kenny approach because it provides greater statistical power and accuracy in estimating mediation effects, regardless of data size (Baron & Kenny, 1986; Preacher & Hayes, 2004; Preacher & Kelley, 2011).

2.2 Empirical Review

Research has consistently shown a positive and significant effect of profitability, measured by Return on Assets (ROA), on firm value, indicated by Tobin's Q (Hill & Jones, 1992; Jonnius & Marsudi, 2021; Kurniati et al., 2022; Sutrisno & Panuntun, 2020). However, Return on Equity (ROE) has been found to either negatively impact or have no significant effect on Tobin's Q (Jonnius & Marsudi, 2021; Siti Fatimah, 2022; Nguyen et al., 2022). The role of dividend policy in mediating the relationship between profitability and firm value has also been explored. Studies like Dewi and Abundanti (2020) and Astuti and Yadnya (2019) found significant mediation by dividend policy in the Indonesia Stock Exchange, whereas Fitriani et al. (2017) and Mahirun et al. (2023) found no significant mediation effect, highlighting that this relationship can vary by period and geography.

H01 = ROA does not significantly affect Tobin's Q

H02 = ROE does not significantly affect Tobin's Q

H03 = DPS is not able to significantly mediate the ROA-Tobin's Q relationship

H04 = DPS is not able to significantly mediate the ROE-Tobin's Q relationship

2.3 Institutional Ownership and Tobin's Q Mediated by the Dividend Policy

The impact of institutional ownership on firm performance has been documented across different regions. Bosniak (2023) found a positive effect of institutional ownership on Tobin's Q in Saudi Arabian firms, whereas Attarit (2023) observed similar outcomes in Thai firms. Conversely, Almusattar and Teker (2023) noted an inverse relationship in UK banks. Research by Setyabudi (2021) and Handayani et al. (2018) explored the mediating effect of dividend policy on the relationship between institutional ownership and firm value. Their findings indicated that dividend policy did not significantly mediate this relationship, suggesting complexities in how dividend policies influence firm value under different governance structures.

H_{05} = Institutional ownership does not significantly affect Tobin's Q

H_{06} = DPS is not able to significantly mediate Institutional Ownership -Tobin's Q relationship

2.4 Theoretical Framework

The theoretical underpinnings of this study are rooted in agency theory and the signaling theory of dividends. Agency theory, as described by Jensen and Meckling (1976), addresses conflicts of interest between managers and shareholders, suggesting that dividend payments can mitigate agency conflicts by reducing the free cash flow available to managers, thereby aligning their interests with those of shareholders.

The signaling theory, proposed by Bhattacharya (1979) and expanded by Miller and Rock (1985), posits that dividends act as a signal of a firm's future prospects and financial health, reducing information asymmetry between insiders and external stakeholders. In markets like Nigeria, where transparency may not be optimal, dividends can play a crucial role in signaling financial strength.

This framework facilitates an empirical investigation into how dividends mediate the effects of profitability and institutional ownership on firm value in Nigeria. It combines both theories to examine the roles of institutional ownership and dividend policy in signaling value and controlling managerial behavior, highlighting the relevance of these theories in the context of emerging markets.

3. Method

This study employs a longitudinal quantitative research design. We employ path analysis with a bootstrapping option to examine the dynamic relationship among profitability, institutional ownership, dividend policy, and firm value, while controlling for firm size and liquidity.

The econometric model in this study is based on the structural equation modelling (SEM) framework. Specifically, path analysis using the bootstrap approach is in line with the proposition of Preacher and Hayes' (2004) proposition. We carefully considered this methodological choice because it allows the assessment of indirect impact without the restrictive assumption of data normality required by traditional approaches, such as those given by Baron and Kenny (1986). The multivariate normality tests conducted on the datasets for this study showed a significant departure from normality, which justified the methodological choice.

The MachameRatios database provided the secondary data for this study, which came from the published financial statements of manufacturing firms quoted on the NGX. Mensah and Onumah (2023) and Yahaya (2023) attest to the reliability of the MachameRatios database, a financial database service company. We selected 46 listed manufacturing companies on the NGX for the study using purposive sampling, and their financial data from 2012 to 2022 provided 417 firm-year observations for the SEM analysis. We stratified the 46 firms into five sub-industries for a robust and nuanced analysis.

Table 1. Subsector Classification

	Subsectors	Obs
1	Healthcare	50
2	Consumer Staples	100
3	Consumer Discretionary	50
4	Industrials	98
5	Material	119
	Total Observations	417

Source: Authos' processed data (2024)

The variables in this study are grouped into exogenous, endogenous, mediating, and control variables and are operationally defined in Table 2:

Table 2. Operationalized Variables

Variable Type	Variable	Operational Definition	Role in the Study	Citation
Exogeneous	Return on Assets (ROA)	Calculated by dividing a firm’s annual net income by its total assets.	Used to gauge profitability from assets.	(Rizka, 2022)
Exogeneous	Return on Equity (ROE)	Calculated by dividing net income by shareholder equity.	Used to measure profitability from equity.	(Rizka, 2022)
Exogeneous	Institutional Ownership (Instown)	Percentage of shares held by institutional shareholders relative to total shareholdings	Indication of the influence of institutional ownership on firm	Akpadaka et al., 2023)
Endogenous	Tobin’s Q	A measure of firm value, which is the market value of equity and debt dividends by the costs of asset replacement	An indication of firm value relative to asset replacement costs.	(Listiadi, 2023)
Mediating variable	Dividend per share (DPS)	Computed as total dividend declared divided by total number of outstanding shares	A proxy for dividend policy and the mediator variable	(Purbawangsa & Rahyuda, 2022)
Control variable	Firm Size (fsize)	Measured by the logarithm of total annual sales.	Accounts for the potential size effect on other variables.	(Dang et al., 2018)
Control variable	Current Ratio (CR)	Calculated by dividing current assets by current liabilities.	Financial measure of liquidity.	(Novyarni & Permana, 2020)

Figure 1 depicts the path diagram for the SEM. The SEM includes direct paths connecting five exogenous variables to two endogenous variables, with DPS mediating the indirect paths. We employed a Structural Equation Modeling (SEM) with bootstrapping and 2000 replications to estimate bootstrapped standard errors and confidence intervals for the direct, indirect, and total effects. This approach enables more accurate inference, even in the presence of non-normal data distributions. We analyze relationships using Stata 18.0 BE—Basic Edition, a statistical and data science software.

To determine the mediating effects of DPS on the relationship between the exogenous variables and the dependent variable, Tobin’s Q, the following path equations were used to specify the model:

(1) Direct Paths to Mediator (DPS) exhibit the following hierarchy:

$$ROA \longrightarrow DPS = \beta_1 roa + \epsilon_1;$$

$$ROE \longrightarrow DPS = \beta_2 roe + \epsilon_2;$$

$$Instown \longrightarrow DPS = \beta_3 Instown + \epsilon_3;$$

The remaining predictors follow this sequence.

The direct paths leading to Tobin’s Q are as follows:

$$firm\ size \longrightarrow Tobin's\ Q = \gamma_1 fsize + \zeta_1$$

$$ROA \longrightarrow Tobin's\ Q = \gamma_2 roa + \zeta_2$$

$$ROE \longrightarrow Tobin's\ Q = \gamma_3 dps + \zeta_3$$

$$Instown \longrightarrow Tobin's\ Q = \gamma_4 dps + \zeta_4$$

The remaining predictors follow the same sequence.

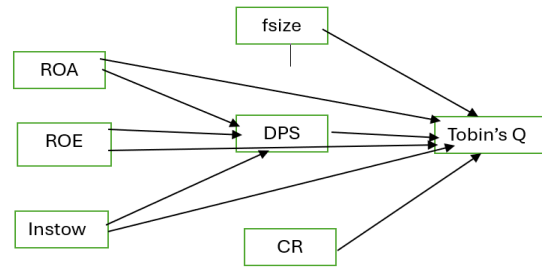


Figure 1. Authors' Path Diagram (2024)

(2) Using Preacher & Hayes (2004) approach, the indirect effect on Tobin's Q through DPS is represented by the following path diagram:

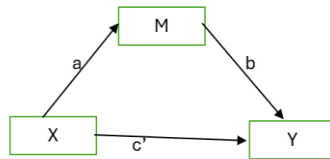


Figure 2. Mediation Path Diagram

The impact of exogenous variable X on endogenous variable Y through the mediating variable M is as follows:

The indirect effect is equal to 'a' plus 'b'.

Where the influence of the independent variable X on mediator M is represented by the letter a.

After adjusting for X, b represents the mediator M's impact on the dependent variable Y.

In this case, Tobin's Q through DPS would be indirectly affected by ROA, which is written as follows:

The impact of ROA on Tobin's Q via indirect DPS is as follows:

$$ROA = \beta ROA \rightarrow DPS \times \gamma DPS \rightarrow \text{Tobin's Q}$$

The path coefficient from ROA to DPS (path a) is represented by β , and the path coefficient from DPS to Tobin's Q is represented by γ (path b). The indirect impact of ROA on Tobin's Q via DPS is given by the product of these two coefficients ($a \times b$).

4. Results

4.1 Descriptive Statistics

The study used a dataset from 46 manufacturing firms listed on the Nigerian Exchange (NGX) for a period spanning 2012–2022, which generated 417 observations after adjusting for missing data. We further subdivided this industry dataset into five subsectors: consumer staples, materials, industrials, healthcare, and consumer discretionary. The average value of a firm in the sector is approximately three times its book value, as measured by Tobin's Q, with a mean value of 3.03. The DPS has a mean value of 1.46, indicating that the sector, on average, distributes the sum of 1.45 Naira per share. ROE and ROA have average returns on equity of 5% and 3%, respectively. Institutional ownership has a mean value of 56%, indicating the strong presence of institutional ownership in the sector. Finally, the control variables CR and firm size had a mean value of 2.89 and a mean log value of 16.42, respectively.

Table 3. Descriptive Statistics

Sectors and Sub-Sectors	Observations	Tobin's Q (Mean, SD, Min, Max)	DPS (Mean, SD, Min, Max)	ROA (Mean, SD, Min, Max)	ROE (Mean, SD, Min, Max)	Inst. Ownership (Mean, SD, Min, Max)	Current Ratio (Mean, SD, Min, Max)	Firm Size (Mean, SD, Min, Max)
Manufacturing (Aggregate)	417	3.05, 10.68, 0.39, 159.31	1.46, 6.04, 0, 68.20	0.03, 0.36, -2.56, 6.17	0.05, 0.75, -9.89, 2.56	0.56, 0.23, 0, 0.95	2.89, 12.32, 0.05, 173.14	16.42, 2.21, 10.96, 21.68
Consumer Staples	100	6.51, 20.28, 0.41, 159.31	0.81, 1.44, 0, 9.54	0.06, 0.62, -2.36, 6.17	-0.001, 0.98, -9.89, 0.46	0.64, 0.18, 0, 0.95	6.96, 23.35, 0.28, 173.14	17.07, 2.57, 10.96, 20.32
Materials	119	2.16, 3.50, 0.47, 35.73	1.35, 3.29, 0, 19.99	0.05, 0.23, -1.80, 1.09	0.09, 0.89, -7.08, 2.56	0.61, 0.20, 0.11, 0.95	1.98, 4.45, 0.05, 41.84	15.73, 2.53, 12.06, 21.68
Industrials	98	1.24, 0.56, 0.58, 3.06	0.20, 0.57, 0, 3.39	0.004, 0.10, -0.58, 0.17	-0.057, 0.54, -4.27, 0.34	0.51, 0.28, 0, 0.95	1.00, 1.03, 0.07, 8.17	16.11, 1.82, 12.66, 19.91
Consumer Discretionary	50	2.75, 2.40, 0.71, 9.41	7.03, 15.89, 0.003, 68.20	0.07, 0.08, -0.09, 0.26	0.29, 0.41, -0.21, 1.87	0.60, 0.22, 0.09, 0.81	0.85, 0.32, 0.41, and 1.72	17.85, 0.89, 16.11, 19.84
Health Care	50	1.01, 0.47, 0.39, 3.01	0.32, 1.04, 0, 7.50	0.03, 0.08, -0.18, 0.27	0.07, 0.19, -0.51, 0.79	0.35, 0.17, 0, 0.60	0.97, 0.69, 0.39, 3.46	15.97, 1.02, 14.52, 18.19

Source: processed data 2024

4.2 Correlation Matrix

Table 4 provides an overview of the correlation between the study endogenous variable, Tobin's Q, and exogenous variables for the aggregate and five subsector models. The correlation coefficients range from -1 to 1, indicating a strong positive or negative relationship, respectively, and values near zero (0) suggest that there is no linear correlation. At the aggregate level, for instance, Tobin's and CR have the highest positive correlation of 0.6365, which indicates a possible association with Tobin's Q (firm value). In the consumer discretionary subsector, the pair of ROA and Tobin's Q showed the highest positive correlations across the models, with a correlation value of 0.7893.

Table 4. Correlation Coefficients Between Tobin's Q and Independent Variables

Variable	Aggregate	Consumer Staples	Materials	Industrials	Consumer Discretionary	Health Care
DPS	0.3223	0.4884	0.0550	-0.1902	0.6767	0.4014
ROA	0.1211	0.3677	0.0194	-0.1265	0.7893	0.2245
ROE	0.1236	0.1131	0.0639	0.0058	0.6919	0.1999
InstOwn	0.1129	0.1081	-0.0095	0.0642	0.2105	0.4040
CR	0.6365	0.2368	0.7762	-0.0896	0.4839	-0.2289
FSize	-0.0257	0.1136	-0.1414	-0.5940	0.5357	0.4617

Source: processed data 2024

4.3 Multivariate Normality Tests

The study performed multivariate normality tests on the dataset, and Table 5's results demonstrate a significant departure from normality, as indicated by Mardia's skewness and kurtosis, as well as the Henze-Zikler and Doornik-Hansen tests. The non-normality of the dataset and small sample sizes at the subsector level of the manufacturing industry necessitated bootstrapping in path analysis (Preacher & Hayes, 2004).

Table 5. Multivariate normality test

Test	Statistic	df	Prob > Chi2
Mardia Skewness	706.8166	120	0.0000
Mardia Kurtosis	946.8433	1	0.0000
Henze-Zirkler	23.83929	1	0.0000
Doornik-Hansen		16	0.0000

Source: processed data 2024

4.4 Unmediated Path Analysis Results

Table 6. Direct Path Results

Variable	Effect Type	Aggregate Coeff. (s.e.)	Consumer Staples Coeff. (s.e.)	Materials Coeff. (s.e.)	Industrials Coeff. (s.e.)	Healthcare Coeff. (s.e.)	Consumer Discretionary Coeff. (s.e.)
Instown -> Tobin's Q	Direct	0.938*** (0.189)	1.542** (0.495)	0.957 (0.854)	-0.377* (0.162)	1.021* (0.507)	1.970* (0.975)
Roa -> Tobin's Q	Direct	3.398 (2.505)	7.719** (2.230)	2.843 (3.943)	-1.318 (1.118)	-0.054 (2.903)	20.642*** (5.469)
Roe -> Tobin's Q	Direct	0.049 (0.294)	-0.027 (0.826)	0.024 (0.748)	0.093 (0.354)	0.055 (1.268)	-0.803 (2.118)
Dps -> Tobin's Q	Direct	0.107*** (0.030)	0.327*** (0.0723)	0.134 (0.117)	0.036 (0.090)	0.106 (0.564)	0.007 (0.030)
CR -> Tobin's Q	Direct	0.576** (0.200)	0.296 (0.239)	0.641** (0.246)	-0.041 (0.071)	0.029 (0.080)	2.857*** (0.479)
Fsize -> Tobin's Q	Direct	-0.065 (0.038)	-0.109** (0.043)	-0.090 (0.118)	-0.208*** (0.038)	0.189 (0.116)	0.703* (0.288)

Source: processed data 2024 Significance levels: *** : p< 0.001, ** : p< 0.01, * : p< 0.05

4.4.1 Hypothesized Direct Paths (H₀₁, H₀₂, and H₀₅)

Tobin's Q is directly affected by profitability path variables, such as return on assets (ROA) and return on equity (ROE). The profitability path variables in consumer staples and consumer discretionary subsectors strongly affect Tobin's Q. However, the influence's statistical significance is not evident in the overall aggregate and the three remaining subsectors. All subsectors, including the aggregate, showed no statistically significant influence on Tobin's Q for the return on equity (ROE) path. Therefore, we did not reject the null hypotheses H₀₁, H₀₂, and H₀₃ for ROA and ROE, except for ROA in the consumer staples and consumer discretionary subsectors, at both the aggregate and subsectors levels.

The study further reveals that institutional ownership's direct path had a positive and statistically significant impact on Tobin's Q across all subsectors and aggregate levels, except for the industrial subsector, where it had a negative and statistically significant effect. In addition, the material subsector showed a positive but statistically insignificant effect. Consequently, we generally reject the null hypothesis H₀₅, except for the material subsectors. For dividend policy, DPS had a generally positive effect on Tobin's Q, but it was only statistically significant at the aggregate and consumer staples levels.

4.4.2 Control Variable Path (Firm Size and Current Ratio)

The research findings also indicate that the current ratio (CR) and firm size have notable direct impacts on Tobin’s Q. The study revealed that CR exhibited noteworthy beneficial impacts on Tobin’s Q across various levels, including aggregate, material, and consumer discretionary. However, firm size significantly impacted Tobin’s Q in consumer staples and industrial subsectors. Conversely, the firm's size had a notable and favorable impact on Tobin's Q within the consumer discretionary subsector. The outcomes of this study suggest that the effects of the current ratio and company size on Tobin’s Q are contingent on the subsector within the manufacturing sector.

4.5 Mediated Path Analysis Results

Table 7. Mediated Path Results

Variable	Effect Type	Aggregate	Consumer Staple	Materials	Industrials	Health	Consumer Discretionary
ROA	Indirect	0.480 (0.386)	1.844 (1.015)	0.021 (0.121)	0.004 (0.026)	0.164 (0.758)	0.098 (0.530)
ROE	Indirect	0.121 (0.137)	-0.017 (0.481)	0.018 (0.048)	0.000 (0.007)	-0.085 (0.386)	0.207 (0.885)
Instown	Indirect	0.227** (0.073)	-0.833** (0.304)	0.161 (0.141)	-0.024 (0.057)	0.108 (0.542)	0.031 (0.131)
Fsize	Indirect	0.076*** (0.019)	0.132*** (0.032)	0.096 (0.075)	0.004 (0.010)	0.030 (0.152)	0.028 (0.115)

Source: processed data 2024 Significance levels: *** : p< 0.001, ** : p< 0.01, * : p< 0.05

4.5.1 ROA -> DPS -> Tobin’s Q(H₀₁)

At both the aggregate and subsector levels, the mediation path coefficient of ROA on Tobin's through DPS had a small positive value of 0.480 and a strong standard error of [0.386]. There were similar, insignificant positive coefficients. Given these results, we cannot reject the null hypothesis, which posits that DPS is not able to significantly mediate the ROA-Tobin’s Q relationship.

4.5.2 ROE -> DPS -> Tobin’s Q(H₀₂)

Similar to the ROA path, the ROE effect on Tobin’s Q through DPS did not exhibit any significant effect at the aggregate and subsector levels. path. The path coefficient at the aggregate level is 0.121, with a robust standard error of [0.137]. In the Consumer Staple model, the effect is negative and insignificant (-0.017 [0.481]), reinforcing the weak or potentially adverse impact of ROE on Tobin’s Q through DPS in this sector. In addition, the health subsector exhibited a negative coefficient of 0.085 and a robust standard error of 0.386. Materials and consumer discretionary exhibited positive and insignificant coefficient values. With these results, we are unable to reject the null hypothesis, which posits that DPS is not able to significantly mediate ROE-Tobin’s Q relationship.

4.5.3 Institutional Ownership -> DPS -> Tobin’s Q (H₀₃)

The paths of institutional ownership (instown) to Tobin’s Q through DPS exhibited mixed outcomes. The aggregate outcome indicates that DPS can mediate the effect of intown on Tobin's Q in a positive and significant manner. However, in the Consumer Staples subsector, DPS exhibited a significant negative mediation (-0.833 [0.304]), suggesting that higher institutional ownership might reduce Tobin’s Q through DPS. This could be due to the different dividend distribution policies influenced by institutional investors. The Materials, Industrial Health, and Consumer Discretionary subsector mediation paths did not yield any significant results. Therefore, we reject the null hypothesis that DPS cannot significantly mediate the Institution Ownership-Tobin's Q relationship at the aggregate and consumer staples levels. Conversely, we are unable to reject the null hypothesis in the other four subsectors.

4.5.4 Control Variable Path: size > DPS > Tobin’s Q

The aggregate and consumer staple levels of the path of firm size to Tobin’s Q through DPS exhibited positive mediation coefficients of 0.076 and 0.132, respectively, and were both significant, suggesting that as firm size increases, DPS can positively mediate the relationship with firm value in a positive manner.

4.6 Model Fitness Tests

Table 8. Goodness-of-Fit Statistics for SEM Analysis

Fit Index	Aggregate	Consumer Staple	Materials	Industrials	HealthCare	Consumer Discretionary
Chi2_ms (p-value)	0.965 (0.326)	2.794 (0.095)	2.249 (0.134)	1.223 (0.269)	0.001 (0.981)	1.421 (0.233)
RMSEA (90% CI)	0.000 (0.000-0.129)	0.135 (0.000-0.333)	0.103 (0.000-0.289)	0.048 (0.000-0.279)	0.000 (0.000-)	0.093 (0.000-0.405)
CFI	1.000	0.983	0.993	0.997	1.000	0.997
TLI	1.001	0.810	0.926	0.967	1.514	0.969
SRMR	0.011	0.028	0.024	0.016	0.001	0.017
CD	0.583	0.573	0.801	0.554	0.376	0.928

Source: processed data 2024 Significance levels: *** : $p < 0.001$, ** : $p < 0.01$, * : $p < 0.05$

Notes:

Chi2_ms and Chi2_bs: Chi² statistics for model vs. saturated and baseline vs. Saturated, respectively. The p values are in parentheses.

RMSEA (the 90% CI) is the Root mean squared error of approximation at 90% confidence interval.

CFI is the Comparative fit index.

SRMR is the standard root mean squared residual.

CD is the coefficient of determination.

The aggregate model demonstrated an excellent fit, as evidenced by a non-significant chi² value of 0.965 and a p-value of 0.326, which suggests that the model is not significantly different from the saturated model. RMSEA (0.00), CFI (1.00), TLI (1.00), and SRMR (0.01) further qualify the model as an excellent fit for the analysis. CD shows that the model has moderate explanatory power (58.3%) for the factors that affect the endogenous variables. The consumer staple model demonstrated a moderate fit with a non-significant chi² value of 2.794 (p-value of 0.095). The CFI (0.98) and SRMR (0.03) for the subsector indicated an excellent fit, but the RMSEA of 0.135 and TLI of 0.81 performed poorly, which suggests a limitation in the ability of the model to address the model complexity and manage the degree of freedom. The CD for the subsector is 57.3%, which suggests that the model has moderate explanatory power for the factors that affect the exogenous variables.

The fit indices for the Materials subsector look excellent across the board, except for the RMSEA, which shows a poor fit. The CFI, TLI, and SRMR reported respective values of 0.99, 0.93, and 0.02, which indicate a good fit, and the CD of 80% shows that the model has excellent explanatory power. In the industrial subsector, the fit indices show excellent fit and are all within the range proposed by Hu and Bentler (1999). The RMSEA, CFI, TLI, and SRMR reported respective values of 0.05, 0.99, 0.97, and 0.02, which indicate a good fit, and the CD of 55% is at a moderate level for the predictive power of the model. The healthcare subsector has exceptional fit indices across the board, whereas the sector CD has a low predictive power of 38%. The subsector recorded RMSEA, CFI, TLI, and SRMR values of 0.00, 1.00, 1.51, and 0.00, indicating an excellent fit. The consumer discretionary subsector exhibited a strong fit across several indices, which suggests that the model is effective at analysing the data. The subsector recorded RMSEA, CFI, TLI, and SRMR values of 0.09, 1.00, 0.97, and 0.02, respectively, indicating an excellent fit. The subsector provided the highest comparative explanatory power for CD, at 93%.

Finally, the chi-squared p-values for the models were all non-significant, reinforcing their overall fitness for the datasets. This is broadly consistent with the recorded RMSEA, CFI, TLI, and SRMR values, which together indicate that the models performed across metrics.

5. Discussion

This study examined how profitability, institutional ownership, and dividend policy affect the value of a company. This study also examined how dividend policy affects the relationship among profitability, institutional ownership, and firm value in the listed manufacturing sector on the NGX and its subsectors. Our research on the direct influence

of profitability on firm value revealed a mixed impact of ROA and ROE on Tobin's Q at all levels. While ROA exhibited a significant positive effect within consumer staples and consumer discretionary, it was not significant in the rest of the subsector or at the aggregate level. In general, institutional ownership had a positive and significant direct effect on Tobin's Q, which highlights the role of institutional ownership in aligning managers' interests with those of the firm. Although there was a notable exception in the industrial subsector, where the relationship between institutional ownership and Tobin's Q produced a statistically negative significance, this calls for further examination.

Contrary to our a priori expectation based on the signaling theory of dividends, the path analysis produced mixed outcomes. The aggregate result shows that the institutional ownership-Tobin's Q path has a significant positive mediation effect. At the consumer staples level, this path has a significant negative mediation effect. On the other hand, other paths did not show any significant mediating effects. The results at the aggregate and consumer staple levels conflict with the findings of Setyabudi (2021) and Handayani et al. (2018). The mediating effect of DPS on profitability, as proxied by ROA, ROE, and Tobin's Q paths, was not significant. These outcomes support the work of Fitriani et al. (2017), Mahirun et al. (2023), Putri and Wiksuana (2021), Astuti and Yadnya (2019), Dewi and Abundanti (2020), and Putri et al. (2023) found evidence to the contrary. Finally, DPS had a positive and statistically significant mediating effect on the relationship between firm size and Tobin's Q at both aggregate and consumer staples levels. In the remaining subsector, the coefficient of firm size was positive but not statistically significant, indicating that economies of scale might not be universally applicable.

We recommend that the Securities and Exchange Commission (SEC) and the Nigerian Exchange Group (NGX) implement policies that actively encourage increased institutional ownership within the manufacturing sector. Such policies could include incentives for institutional investments and clearer regulatory frameworks that attract and protect institutional shareholders. In addition, it is advisable for manufacturing firms to strategically use their dividend policies as tools for signaling financial robustness and operational efficiency. This approach can effectively reduce information asymmetry, thereby potentially boosting market valuation. Firms should consider adopting transparent dividend payout policies that reflect their true financial state, which can help in building investor trust and confidence. Given the diverse nature of the manufacturing industry, it is crucial for firms to customize their financial communication strategies to align with the unique demands and characteristics of their respective subsectors. This tailored communication should address specific investor concerns and highlight subsector strengths, thereby enhancing investor relations and attracting targeted investments. Lastly, manufacturing firms should prioritize strengthening their corporate governance frameworks. Enhancements should focus on increasing transparency and accountability, with the goal of fostering an attractive environment for institutional investors. Strengthened governance can lead to better management practices, reduced risks, and ultimately, a positive impact on the firm's market valuation.

Given the limitations of this study, future research should focus on the following areas: Future studies could expand the scope to include other sectors outside of manufacturing and other emerging markets beyond Nigeria to generalise the findings more broadly. In addition, incorporating other variables like leverage and liquidity into the equation will provide a more comprehensive understanding of the factors influencing the mediating effect of dividend policy on firm value. Furthermore, comparative studies between emerging and developed markets regarding the impact of dividend policies and institutional ownership on firm value highlight contextual differences and similarities.

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References

- Akpadaka, O. S., Falolu, M. K., & Farouk, M. A. (2023). Which Firm Characteristics Drive Dividend Policy and Firm Value in the Consumer Goods Sector of the Nigerian Exchange Group? *Research Journal of Finance and Accounting*, 14(20), 51-65. <https://doi.org/10.7176/RJFA/14-20-06>
- Almusattar, I., & Teker, D. (2023). Interaction between corporate governance and financial performance: an Implementation for the UK Banks. *Pressacademia*. <https://doi.org/10.17261/pressacademia.2023.1712>
- Astuti, N. K. B., & Yadnya, I. P. (2019). Pengaruh Profitabilitas, Likuiditas, Dan Ukuran Perusahaan Terhadap Nilai Perusahaan Melalui Kebijakan Dividen. *E-Jurnal Manajemen Universitas Udayana*, 8(5). <https://doi.org/10.24843/ejmunud.2019.v08.i05.p25>

- Attarit, T. (2023). The impact of ownership structure on firm value: New evidence from Thai listed firms. *International Journal of Scientific Research and Management (IJSRM)*, 11(10). <https://doi.org/10.18535/ijrm/v11i10.sh01>
- Ayu Ria Paramita Handayani, I., Ariyanto, D., Ketut Rasmini, N., & Agung Gde Putu Widanaputra, A. (2018). Effect of Profitability, Institutional Ownership on the Value of the Company with Dividend Policy as a Mediation. *International Journal of Sciences: Basic and Applied Research*, 41(1). Retrieved from <https://www.gssr.org/index.php/JournalOfBasicAndApplied/article/view/9282>
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. <https://doi.org/10.1037/0022-3514.51.6.1173>
- Bhattacharya, S. (1979). Imperfect information, dividend policy, and "the bird in the hand" fallacy. *The Bell Journal of Economics*, 259–270. <https://doi.org/10.2307/3003330>
- Boshnak, H. A. (2023). Ownership structure and firm performance: evidence from Saudi Arabia. *Journal of Financial Reporting and Accounting*. <https://doi.org/10.1108/JFRA-11-2022-0422>
- Chernick, M. R. (2007). *Bootstrap Methods: A Guide for Practitioners and Researchers*. Wiley-Interscience. <https://doi.org/10.1002/9780470192573>
- Dang, C., Li, Z. F., & Yang, C. (2018). Measuring firm size in empirical corporate finance. *Journal of Banking & Finance*, 86, 159–176. <https://doi.org/10.1016/j.jbankfin.2017.09.006>
- Dewi, G., & Abundanti, N. (2020). Effect Of Profitability On Firm ValueWith Dividend Policy As A Mediation Variables In Manufacturing Companies. *American Journal of Humanities and Social Sciences Research (AJHSSR)*, 4(11), 330–335. Retrieved from <https://www.ajhssr.com/wp-content/uploads/2020/11/ZM20411330335.pdf>
- Efron, B. (1979). Bootstrap methods: Another look at the jackknife. *Annals of Statistics*, 7(1), 1–26. <https://doi.org/10.1214/aos/1176344552>
- Fairchild, A. J., MacKinnon, D. P., Taborga, M. P., & Taylor, A. (2009). R² Effect-Size Measures for Mediation Analysis. *Behavior Research Methods*. <https://doi.org/10.3758/BRM.41.2.486>
- Fitriani, K. L., Sanusi, F., & Widyaningsih, I. U. (2017). Peran Kebijakan Dividen Dalam Memediasi Nilai Perusahaan Pada Perusahaan Manufaktur Yang Terdaftar di Bursa Efek Indonesia Periode 2010–2015. *Tirtayasa Ekonomika*, 12(1). <https://doi.org/10.35448/jte.v12i1.4439>
- González, O., & MacKinnon, D. P. (2016). A Bifactor Approach to Model Multifaceted Constructs in Statistical Mediation Analysis. *Educational and Psychological Measurement*. <https://doi.org/10.1177/0013164416673689>
- Hamill, P., & AlShattarat, W. K. (2012). What Determines the Dividend Payout Ratio for Jordanian Industrial Firms? *Journal of Emerging Market Finance*. <https://doi.org/10.1177/0972652712454515>
- Handayani, Y. D., & Ibrani, E. Y. (2023). The Role of Dividend Policy in Explaining Corporate Governance and Profitability on Firm Value. *Ekulibrium: Jurnal Ilmiah Bidang Ilmu Ekonomi*, 18(1). <https://doi.org/10.24269/ekulibrium.v18i1.2023.pp22-36>
- Hardjopranoto, W. (2006). Interdependent Analysis of Leverage, Dividend, and Managerial Ownership Policies: Agencies Perspectives. *Gadjah Mada International Journal of Business*. <https://doi.org/10.22146/gamaijb.5619>
- Hill, C. W. L., & Jones, T. M. (1992). Stakeholder-agency Theory. *Journal of Management Studies*. <https://doi.org/10.1111/j.1467-6486.1992.tb00657.x>
- Horowitz, J. L. (2001). The Bootstrap. In R. F. Engle & D. L. McFadden (Eds.), *Handbook of Econometrics* (Vol. 5, pp. 3159–3228). Elsevier Science, North Holland. [https://doi.org/10.1016/S1573-4412\(01\)05005-X](https://doi.org/10.1016/S1573-4412(01)05005-X)
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Hunjra, A. I. (2018). Mediating role of dividend policy among its determinants and organizational financial performance. *Cogent Economics & Finance*, 6(1), Article 1558714. <https://doi.org/10.1080/23322039.2018.1558714>
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics*, 3(4), 305–360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)

- Jonnius, J., & Marsudi, A. S. (2021). Profitability and the firm's value. *Dinasti International Journal of Management Science*, 3(1), 23-47. <https://doi.org/10.31933/dijms.v3i1.977>
- Kurniati, D., Fadhilah, N. N., & Suherman, S. (2022). Firm Value Determinants: Empirical Evidence from Manufacturing Firms Listed on the Indonesia Stock Exchange. *Interdisciplinary Social Studies*, 1. <https://doi.org/10.55324/iss.v1i6.136>
- Listiadi, A. (2023). The effect of financial performance on the Tobin's Q value of company investment. *Valley International Journal Digital Library*. <https://doi.org/10.18535/ijdrm/v11i12.em07>
- Mahirun, M., Jannati, A., Kushermanto, A., & Prasetyani, T. R. (2023). Impact of dividend policy on stock prices. *Acta Logistica*, 10(2). <https://doi.org/10.22306/al.v10i2.375>
- Mazlan, A. R., Tapa, A., Yusoff, N. M., & Mokhtar, A. (2019). The Relationship Between Agency Cost and Corporate Performance Among Manufacturing Companies in Malaysia. *Indian-Pacific Journal of Accounting and Finance*. <https://doi.org/10.52962/ipjaf.2019.3.3.81>
- Mensah, E., & Onumah, J. M. (2023). Women on boards, firm earnings management (EM) and performance nexus: does gender diversity moderate the EM-performance relationship? *Corporate Governance: The International Journal of Business in Society*, 23(5), 945-976. <https://doi.org/10.1108/CG-06-2022-0262>
- Miller, M. H., & Rock, K. (1985). Dividend Policy Under Asymmetric Information. *The Journal of Finance*. <https://doi.org/10.1111/j.1540-6261.1985.tb02362.x>
- Modigliani, F., & Miller, M. H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review*, 48(3), 261-297. <http://www.jstor.org/stable/1809766>
- Nguyen, D. T., Hoang, T. G., & Tran, H. G. (2022). Help or Hurt? The Impact of ESG on Firm Performance in S&P 500 Non-Financial Firms. *Australasian Accounting, Business and Finance Journal*, 16(2). <https://doi.org/10.14453/aabfj.v16i2.7>
- Novyarni, N., & Permana, R. Y. (2020). Effect of Current Ratio, Return on Asset, Net Profit Margin and Debt to Equity Ratio on Dividend Pay Out Ratio (For company listed in the LQ45 on Indonesian Stock Exchange). *Proceedings of the Annual International Conference on Accounting Research (AICAR 2019)*. <https://doi.org/10.2991/aebmr.k.200309.010>
- Nurmalasari, M. R., & Baskara, I. G. K. (2019). Dividend Policy, Leverage, and Institutional Ownership as Agency Problem Control Mechanisms in Privatized Indonesian State-Owned Enterprises. *International Research Journal of Management It and Social Sciences*. <https://doi.org/10.21744/irjmis.v6n5.708>
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. In *Behavior Research Methods, Instruments, & Computers* (Vol. 36, Issue 4). <https://doi.org/10.3758/BF03206553>
- Preacher, K. J., & Kelley, K. (2011). Effect Size Measures for Mediation Models: Quantitative Strategies for Communicating Indirect Effects. *Psychological Methods*. <https://doi.org/10.1037/a0022658>
- Purbawangsa, I. B. A., & Rahyuda, H. (2022). The effect of ownership structure, dividend policy, composition of the board of directors on financial performance and share return. *Accounting*, 8(1), 1-8. <https://doi.org/10.5267/j.ac.2021.6.012>
- Putri, Z. B., Khuzaini, K., & Suhermin, S. (2023). Dividend Policy Mediates the Effect of Financial Performance on Firm Value. *Kontigensi : Jurnal Ilmiah Manajemen*, 11(2). <https://doi.org/10.56457/jimk.v11i2.364>
- Rizka, N. R. (2022). Financial Performance in Predicting Stock Return: Study on Non-Financial Companies Listed on IDX. *E-Jurnal Akuntansi*, 32(9), 27-87. <https://doi.org/10.24843/EJA.2022.v32.i09.p12>
- Sadewa, N., & Yasa, G. W. (2016). Pengaruh Corporate Governance Dan Leverage Pada Agency Cost. *Jurnal Ilmiah Akuntansi Dan Bisnis*. <https://doi.org/10.24843/JIAB.2016.v11.i01.p03>
- Santoso, P. W., Aprilia, O., & Tambunan, M. E. (2020). The intervening effect of the dividend policy on financial performance and firm value in large Indonesian firms. *International Journal of Financial Research*, 11(4), 408-420. <https://doi.org/10.5430/ijfr.v11n4p408>
- Setyabudi, T. (2021). The Effect of Institutional Ownership, Leverage, and Profitability on Firm Value with Dividend Policy as an Intervening Variable. *Journal of Business and Management Review*, 2(7), 457-469. <https://doi.org/10.47153/jbmr27.1632021>

- Siti Fatimah. (2022). Pengaruh Struktur Modal, Profitabilitas, dan Ukuran Perusahaan Terhadap Nilai Perusahaan Pada Perusahaan Indeks BUMN20 yang Terdaftar di Bursa Efek Indonesia Tahun 2018-2019. *Jurnal Riset Manajemen Dan Bisnis*, 1(2), 95-103. <https://doi.org/10.29313/jrmb.v1i2.456>
- Suprayoga, D. S. M., & Setiyono, W. P. (2022). Effect of Capital Structure, Firm Size and Dividend Policy on Firm Value in Manufacturing Companies. *Indonesian Journal of Law and Economics Review*, 15. <https://doi.org/10.21070/ijler.v15i0.778>
- Surwanti, A., & Pamungkas, W. S. (2021). *Dividend Policy, Firms' Characteristics and the Impact on the Southeast Asian Firms' Value*. <https://doi.org/10.2991/aer.k.210121.021>
- Sutrisno, S., & Panuntun, B. (2020). Profitability and Liquidity on Corporate Value through Dividend Policy as an Intervening Variable: An Empirical Study on Islamic Capital Market. *Buletin Studi Ekonomi*. <https://doi.org/10.24843/BSE.2020.v25.i02.p05>
- Vansteelandt, S., & Daniel, R. (2017). Interventional Effects for Mediation Analysis With Multiple Mediators. *Epidemiology*. <https://doi.org/10.1097/EDE.0000000000000596>
- Yahaya, A. (2023). Capital Structure and Dividend Policy of Listed Manufacturing Firms in Nigeria. *Nigerian Journal of Management Sciences*, 24(2a). Retrieved from <https://nigerianjournalofmanagementsciences.com/wp-content/uploads/2023/08/7.-CAPITAL-STRUCTURE-ON-DIVIDEND-POLICY-OF-LISTED-MANUFACTURING-FIRMS.pdf>
- Zhen, H., Li, W., & Gao, W. (2015). Does Zero-Leverage Policy Increase Inefficient Investment? - From the Perspective of Lack of Bank Creditors. *Journal of Applied Business Research (Jabr)*. <https://doi.org/10.19030/jabr.v31i6.9480>

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