International Journal of Intellectual Discourse (IJID)
ISSN: 2636-4832 Volume 7, Issue 2. June, 2024

The impact of CEO attributes on firm value: Moderating role of firm size

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Abstract
This study used panel data analysis to examine the relationships between cash flow from operating to asset, CEO ownership, CEO duality (as the independent variables) and firm value proxied by Tobin's Q (as the dependent variable) and firm size (as the moderator). A longitudinal approach was used to examine secondary Data which were collected from 50 non-financial firms listed on the Nigerian Exchange Group between 2011 and 2021. The data for the study were analysed using STATA 14 software. Financial metrics and ratios were used to estimate the relationships between the variables while diagnostic tests such as the Hausman test was conducted to select the appropriate panel data model. Based on the results of the test statistic of 5.11, with a p-value of 0.2764, which indicates that the p-value (Prob>chi2) is greater than the significance level (typically 0.05), therefore, we fail to reject the null hypothesis. The findings suggest a weak positive relationship between Tobin's Q and CFOA, a weak negative relationship between Tobin's Q and CEO Ownership, a very weak positive relationship between Tobin's Q and CEO Duality, and a very weak negative relationship between Tobin's Q and Firm Size. Consequently, we recommend that Policymakers should encourage firms to improve transparency and disclosure practices, promote and enforce financial literacy advocacy to increase stakeholder awareness, strengthen corporate governance practices to address concerns related to CEO ownership and CEO duality, and also initiate strategic planning and growth initiatives in a bid to drive long-term value creation.

Keywords: CEO Ownership, CEO Duality, Cash Flow, Firm Value, Tobin's Q

1. Introduction

When a company decides to maintain asurplus of cash beyond a desired minimum,whether it be for the purpose of conducting transactions, taking precautions, or speculating, it always ends up eroding its opportunity cost. The allocation of these internal funds for projected financial activities is one of the critical causes of conflict between shareholders and managers as the cost of retaining cash includes the reduced rate of return on assets and perhaps increased taxation by the government (Sinebe et al. 2023). Companies with high risk of cash flow prefer to keep more cash on hand, while companies with good investment prospects also tend to maintain less cash as investments are always a better was to save cash. The presence of poor governance mechanisms in situations like this can lead to over-investment, such as extravagant procurement which ultimately has adverse effects on shareholders' wealth (Okeke, et al. 2021).

The primary objective of a business is to optimize the shareholders' wealth and prioritize the interests of all investors. To achieve this objective, the corporate governance mechanism must be deployed to ensure that the management of the company operates in the optimal interest for the benefit of all stakeholders. The inadequacy of a good corporate governance mechanism has been noted to lead to a loss of confidence in the ability of managements and creditors to monitor cash holdings (Salaudeen, 2020) as managers tend to keep larger amounts of cash in places where the value of enterprises is lower and the level of external shareholder protection is greater. Prior research has given

significant attention to cash holding in recent times, with three primary reasons for holding cash: transactional motive, precautionary motive, and speculative motive (Appah, et al. 2021; Sinebe et al. 2022; Iyoha et al. 2024). As observed by Aksar, et al. (2022) and Jeroh, (2020), the quality of corporate governance system can influence management effectiveness, as evidenced by optimal decision making. The justication for using firm size is to therefore provide valuable insights into the role of firm size as a moderator between cash flow, CEO characteristics, CEO Duality and firm value in the Nigerian non-financial sector over the specified time period.

Motivation for the study

The relationship between CEO attributes and firm value has been a topic of interest for researchers, investors, and policymakers. CEOs are believed to play a crucial role in guiding a company towards achieving its strategic objectives. Understanding how specific CEO attributes, such as ownership, duality, and their influence on cash flow management, affect firm value has gained importance. However, literature on this topic often presents mixed results, depending on the context, industry, and market conditions. The study aims to address these issues in the Nigerian market, which presents unique circumstances due to emerging market dynamics, evolving corporate governance practices, and variations in ownership structures.

Gaps that this study aims to fill

Despite extensive research on CEO attributes and firm value, several gaps persist, particularly in the context of emerging markets like Nigeria. This study aims to address the following gaps:

(i)Context-Specific Insights: Existing literature predominantly focuses on developed markets, leaving a gap in understanding how CEO attributes impact firm value in emerging markets like in Nigeria. This study aims to provide context-specific insights for Nigerian non-financial firms.

(ii)Role of Firm Size as a Moderator: While many studies have examined the direct relationship between CEO attributes and firm value, fewer have considered the moderating role of firm size. This study will explore how firm size influences the relationship between CEO attributes (ownership, duality, and cash flow management) and firm value, offering a more nuanced understanding of these dynamics.

(iii)Longitudinal Analysis: Cross-sectional studies are common in this field, but they often fail to capture the dynamic nature of the relationships over time. By employing a longitudinal approach, this study will analyze data from 2011 to 2021, allowing for the examination of how changes in CEO attributes and firm size over a decade impact firm value.

The objectives of the study are to therefore;

(i)to examine the relationship between cash flow from operating activities, CEO ownership, CEO duality, and firm value and to investigate how these variables are related and how they impact a firm's value.

(ii)to understand the role of firm size in moderating these relationships and to explore how firm size affects the relationships between the independent variables and firm value.

(iii)the study also aims to add to the existing body of knowledge on factors that impact firm value, providing insights for researchers, investors, and managers.

(iv)And to identify factors that drive firm value which can inform corporate decision-making and investment strategies.

The structure of the study is; the conceptual review of prior literatures on the variables used for the study, the theoretical framework, the review of empirical literature, the research methodology and design, data analysis and discussion of results, summary of the findings, contribution to literature and knowledge and conclusion and recommendation.

2. Conceptual Review

2.1 Concepts of Firm Value

The value of a firm is described as the ability of an organisation to effectively utilise all of its resources in order to provide a profitable outcome through the production of goods or services. It is

the combination of the company's stocks and outstanding debt in the market including the ability to convert the firm's human resources, materials and natural resources, and technology to achieve its organizational goals (Sinebe et al. 2023). According to Nugroho et al. (2022), shareholders benefit when the share price of a corporation rises as the increase is a good sign to their return on investments. Various factors are known to influence the value of a corporation, with leverage or debt being the primary determinant which serves as a means of financing for the organisation (Tonye et al. 2020). The value of firms can also be determined by the investors' assessment of the firm's success rate, which is typically linked to the stock prices (Abujassar, 2024; Sinebe, 2020). Conversely, the firm value serves as the performance metric for financial managers as indicated in studies by Duru, Iyengar and Zampelli, (2016) and Sinebe (2023a).

2.1.1 Cashflow from operating to asset (CFOA) and firm value

Cash flow from operating to asset (CFOA), often referred to as Operating Cash Flow to Total Assets (OCFTA), is a financial metric which is used to evaluate a company's ability to generate sufficient cash from its core operations relative to the total assets it holds (Idehen et al. 2021). It provides insights into the efficiency of a company's asset utilization and its operational performance which is crucial for assessing a company's financial health and performance (Nangih, et al. 2020). While profitability metrics such as net income, cashflows from investing and other financial activities are also as important to the operations of the firm, they don't provide a complete picture of a company's financial viability (Nnubia et al. 2019). Operating cashflow from tangible Asset, such as property, plant and equipment as well as intangible assets like patents and trademarks offers a more holistic view by focusing majorly on the cash, such as proceeds from sale of goods, payment for operating expenses and taxes, generated from core operations in relation to the assets employed to generate that cash Jeroh, et al. 2022).

The formula for calculating Operating to Asset cash flow is as follows:

OCFTA = frac {Operating\ Cash\ Flow}
{Average\ Total\ Assets}

Where:

- Operating Cash Flow (OCF) is the cash generated from core operations.
- Average Total Assets represent the average value of assets over a specific period, calculated as the sum of beginning and ending total assets divided by two.

Note that, a ratio greater than 1 indicates that the company is generating sufficient and sustainable cash from its core operations than the average value of its total assets, while a ratio less than 1 implies that the company is generating less cash from operations relative to its total assets.

***Ho$_1$**: There is no significant relationship between Cashflow from operating to asset and Firm Value*

2.1.2 Chief Executive Officer Ownership and Firm Value

Research has shown that the value of a firm is positively correlated with managerial ownership, which confirms the role of managers and shareholders in aligning the interests of stock ownership management through decisions that are compatible with maximising shareholders' wealth, this ultimately leads to the maximisation of firm value (Ozah, et al. 2023; Sinebe, 2022; Abujassar, 2024). However, numerous additional research supports the idea that CEO ownership has a detrimental impact on firm value as Directors may prioritize their own interests over the firm's worth due to the ownership and the benefits they receive as managers, regardless of the impact of shareholders (Ukolobi, et al. 2020; Mbate, 2023). They argue that when directors have significant ownership stakes, they are more likely to abuse their positions of power, ultimately impacting the firm's value. CEO ownership is considered the central point of corporate governance, and there is a direct correlation, positive or negative, between the proportion of CEO share ownership and the level of authority and performance they command within the organization, that the CEO ownership

equity in the company aligns with those of other capital owners (Sinebe et al. 2023).

***Ho₂**: There is no significant relationship between Chief Executive Officer Ownership and Firm Value*

2.1.3 CEO Duality and Firm Value

Historically, both positions have been separated, with the CEO handling daily operations and the chairman supervising the board's actions, however, in cases of CEO duality, a single person holds considerable power over both management and governance aspects (Cambrea, et al. 2022). Proponents of CEO duality argue that centralising leadership under one person improves organizational efficiency and adaptability, believing that it leads to increased supervision, performance monitoring and financial profit (Abujassar, 2024). However, some other school of thoughts, Duru, e al. (2016) and Mbate, (2023), cautions against the risks associated with concentrated power in the hands of a single individual and that by serving as both CEO and chairman, there may be issues conflicts of interest, emphasizing management interests above those of shareholders or disregarding crucial oversight obligations.

In contrast, CEO duality may encourage a culture of uniformity, suppressing dissent and innovation within the boardroom highlighting the complexity of this phenomenon particularly in smaller, entrepreneurial firms where adaptability and unified leadership are paramount (Sinebe, 2023b). However, in larger, more complicated companies, the hazards of concentrated authority may outweigh any possible benefits, leading to value degradation over time

***Ho₃**: There is no significant relationship between* CEO Duality *and Firm Value.*

2.2 Tobin's Q

Tobin's Q is a crucial indicator in corporate finance and investment analysis, indicating the ratio of a firm's market value to its replacement cost or book value. It captures whether a corporation is valued above or below the cost of reproducing its assets from scratch. A Q value greater than 1 indicates positive market sentiment and probable overvaluation, while a Q value below 1 denotes undervaluation or inefficiency in resource distribution. Tobin's Q has broad applications across various sectors of finance and economics, including investment analysis, corporate finance, mergers and acquisitions, and macroeconomic analysis (Nnadi, et al. 2022). However, it has some limitations and criticisms, such as subjective estimation errors, changes in accounting systems and valuation approaches, and potential failure to reflect key aspects that determine business value (Bereprebofa et al. 2022). Despite its limitations, Tobin's Q remains a cornerstone indicator in the toolset of investors, managers, and economists, helping them navigate the intricacies of modern finance and corporate governance. This study employed Tobin's Q as a metric for assessing firms' value which is defined as the product of the number of ordinary shares and the market value per share, divided by the value of ordinary shares.

2.3 Firm Size

The size of a firm can significantly impact its operations and cash holding levels. Older companies in the stock market may have a longer history in capital market transactions due to productive operations and experience, giving them a better standing and enhanced market information (Sinebe, 2021; Nugroho, et al. 2022). This leads to a lesser level of information asymmetry, allowing them to enhance their cash point and maintain profitable investment levels. Also, older firms are known to the market compared to smaller firms, which may negatively affect their size. The level of cash holding of a firm can have a significant influence on its operation and the number of firm years. In relation to this study, firm size is included because larger companies tend to be more diversified in their operations, which may impact their cash flows, CEO ownership, and CEO duality. Also, larger companies tend to have greater visibility in the market, which can impact their valuation and cash flows. Our understanding of how firm size moderates these relationships can provide important insights into

the unique factors affecting value creation in large firms.

2.4 Theoretical framework

2.4.1 Financial Slack Theory

Financial slack theory as propounded by John Linther (an American Economist) in 1965, is a concept in corporate management that suggests firms should allocate resources beyond what is immediately necessary for operational demands to navigate uncertainty, capitalize on opportunities, and retain competitiveness in the long run. It acknowledges the inherent unpredictability and volatility in the business world and argues that firms should maintain a surplus of resources, such as cash reserves, unused borrowing capacity, or excess inventory, to cushion against shocks or capitalize on strategic projects. It aims to balance operational efficiency and organizational resilience, enabling a pragmatic approach to risk management and strategic decision-making. However, it also faces challenges such as the cost of holding slack, agency difficulties, and subjective measurement and evaluation. Despite these challenges, financial slack theory presents a sophisticated perspective on resource allocation and risk management, arguing for a sensible balance between efficiency and resilience. In examining the impact of CEO attributes on firm value, Financial Slack Theory provides a relevant theoretical framework for understanding how these attributes influence the firm's resource management and strategic decisions. Specifically, by applying the Financial Slack Theory, the study aims to provide insights into how CEO attributes and firm size interact to affect the availability and utilization of financial slack, ultimately influencing firm value. This theoretical framework helps to contextualize the importance of CEO characteristics in managing resources efficiently to achieve strategic objectives and enhance firm performance

2.5 Review of Empirical Literature

Iyoha, et al. (2024) examined the correlation between corporate governance (CG) and cash reserves among non-financial firms listed on the Nigerian Exchange Group from 2011 to 2020. The study involved 88 firms, with 133 enterprises in the population. The analysis revealed that target cash holdings only partially change over a period of one year, three months, and four days, with a speed of adjustment (SOA) of 0.75. The quantile estimation indicated a tendency towards low levels of cash holdings and high levels of SOA dynamics, with statistical significance at the 5% level. The results align with dynamic trade-off and agency theories, suggesting that management should develop strategic financial policies based on a firm's specific Statement of Activities (SOA).

Akinadewo, et al. (2023) exploring a sample of 40 manufacturing firms listed on the Nigerian Exchange Group, evaluated determinants impacting corporate cash holdings from 2012 to 2021. The sampled companies' annual reports served as the source for secondary data. To determine the important variables influencing cash holdings, panel regression analysis was undertaken. Findings reveal that leverage, liquidity, return on asset and business size had substantial positive effect on cash holdings whereas growth opportunities exhibited negative significant effects on cash holdings. The study suggested that both pecking order and trade-off theory played a crucial role in explaining the factors influencing the corporate cash holding.

Amahalu et al. (2023) examined the correlation between business characteristics and cash holdings of Nigerian listed conglomerates. Six conglomerates were sampled between 2002 and 2021, using an ex-post facto research design. Secondary data was gathered from annual reports and accounts, and analysed using E-Views 9.0 statistical software. Cash holding was measured using cash ratio, while firm characteristics were measured using firm size, research and development, and leverage. Three hypotheses were established and tested at 5% significance using Panel Least Square Regression (PLS) analysis, granger causality test, and hausman test. The results showed a significant negative relationship between firm size cash ratio, research and development, and leverage for conglomerates listed on the Nigeria Stock

Exchange. The study suggests that conglomerates should fund themselves using internal resources before entering the market to avoid potential losses from forced asset sales.

3. Research Methodology

3.1 Research Design

The Panel data analysis was employed examining the relationships between the independent variables (cash flow from operating to asset, CEO ownership, CEO duality), the moderator (firm size), and the dependent variable (firm value proxied by Tobin's Q). A longitudinal approach will be utilized as it allows for the examination of changes in firm value and its determinants between (2011 to 2021). The study population consists of data collected from 50 non-financial firms listed on the Nigerian Exchange Group covering the period. The collected data was measured using appropriate financial metrics and ratios such as fixed effects, random effects, or pooled OLS regression to estimate the relationships between the independent variables, the moderator, and the dependent variable. Also, Diagnostic tests such as Hausman test will be conducted to select the appropriate panel data model. The data was tested using STATA 14 software.

3.2 Model Specification

The following panel data model will be estimated as follows;

FV=f(CFOA,CEOO,CEOD,FSZ)……eqn. (i)

TOBIN'S Q = $\alpha_0 + \alpha_1 CFOA_{it} + \alpha_2 CEOO_{it} + \alpha_3 CEOD_{it} + \alpha_4 FSZ_{it} + U_{it}$……eqn. (ii)

Where:

CFOA = Cashflow from operating to Asset (measured as net operating cash flow divided by total asset)

CEOO = CEO Ownership = (measured as number of CEO shares divided by total numbers of shares (%)

CEOD = CEO Duality (measured as a dummy where "1" is assigned to companies that have a CEO that is separated from the chairman and "0" for otherwise)

FV = Firm value = Tobin's Q (measured as market capitalization plus total liabilities minus cash divided by total asset)

FSZ = Firm Size (measures as natural log of total assets)

i= Cross section; and

t = Firm Time;

a_0= intercept;

α_1 α_2 α_3 α_4 = coefficients;

μ_{it} = Error term

4. Analysis and discussion of results

4.1 Descriptive Analysis

Table 1: Summary of Descriptive

stats	tobinsq	cfoa	ceoo	ceod	fsize
mean	1.535	.0929	5.7721	.974	7.1089
min	-.31	-.914	0	0	5.2394
max	11.3	.5895	63.684	1	9.2409
sd	1.448	.1551	13.198	.1593	.80297
p50	1.01	.0929	.00115	1	7.0002
n	500	500	500	500	500

Source: Regression Output, 2024.

Table 1 above is a descriptive summary of the regression output. It shows that Tobin's q, CFOA, CEOO, CEOD and FSIZE has a corresponding mean of 1.53534, 0.092999, 5.772087, 0.974 and 7.108878 respectively. Tobin's q, CFOA, CEOO, CEOD and FSIZE also has a corresponding minimum value of -0.31, -0.9141, 0%, 0 and 5.2394 respectively. Tobin's q, CFOA, CEOO, CEOD and FSIZE shows a maximum value of 11.3, 0.5895, 63.6844, 1 and 9.2409 respectively and a corresponding standard deviation of 1.448169, 0.1550822, 13.19845, .1592945 and 0.8029784 respectively.

4.2 Correlation Analysis

Table 2: Summary of Correlation analysis

	Tobin's q	cfoa	ceoo	ceod	fsize
Tobin's q	1.0000				
cfoa	0.2386	1.000			
ceoo	-0.0885	-0.020	1.000		
ceod	0.0254	-0.076	0.053	1.000	

fsize	-0.0418	0.015	0.0029	-0.083	1.000

Source: Regression Output, 2024.

The correlation table in Table 2 shows the relationships between the variables; The result for the correlation tests shows that there is a weak positive correlation of 0.2386 between Tobin's q and CFOA, which represents the relationship between the market value of the company (Tobin's q) and its cash flow from operations. It implies that companies with higher cash flows from operations tend to have higher market values. The result also shows that there is a weak negative correlation of -0.0885 between Tobin's q and CEO Ownership, which suggests that there is a slight tendency for companies with higher CEO ownership percentages to have lower Tobin's q values, indicating lower market valuations. The table also shows that there is a very weak positive correlation of 0.0254 between Tobin's q and CEO Duality. This suggests a minimal tendency for companies where the CEO holds the dual role of CEO and Chairman of the Board to have slightly higher Tobin's q values. The table further shows that there is a very weak negative correlation of -0.0418 between Tobin's q and Firm Size. This suggests a minimal tendency for smaller companies to have slightly higher Tobin's q values, indicating higher market valuations.

4.3 Result for Multicollinearity Test

Table 3: VIF Test Result

VARIABLE	VIF	1/VIF
CEOD	1.02	0.984618
FSIZE	1.01	0.992896
CFOA	1.01	0.993767
CEOO	1.00	0.996814
Mean VIF	1.01	

Source: Regression Output, 2024.

The Variance Inflation Factor (VIF) measures the extent to which the variance of an estimated regression coefficient is increased due to multicollinearity among the predictor variables. From Table 3 above, the VIF for CEOD is 1.02, which is very close to 1, which indicates that there is almost no multicollinearity between CEOD and the other independent variables. Also, the VIF for fsize is 1.01, also very close to 1, suggesting that there is almost no multicollinearity between fsize and the other independent variables. Additionally, the VIF for CFOA is 1.01, indicating that there is almost no multicollinearity between CFOA and the other independent variables, and the VIF for CEOO is 1.00, suggesting that there is no multicollinearity between CEOO and the other independent variables. In summary, all the VIF values are very close to 1, indicating that multicollinearity is not a significant issue among the predictor variables in the regression model. This means that each independent variable can be considered to be relatively independent of the others, and the estimates of the regression coefficients are likely to be stable and reliable.

4.4 Breusch and Pagan Lagrangian Multiplier test

Table 4: Other Diagnostic Tests

Breusch and Pagan Lagrangian Multiplier test for random effect	
Decision rule	If p-value is statistically significant, then reject Ho and accept HA
Result	chi2(1) = 0.00; Prob>chi2= 1.0000
Hausman Test	
Decision rule	If p-value is statistically significant, then reject Ho and accept HA
Result	chi2(3) = 5.11; Prob>chi2= 0.2764

Source: Regression Output, 2024.

Table 4 show the results for the Hausman test which is used to determine whether the fixed-effects (FE) or random-effects (RE) model is more appropriate for panel data analysis. As shown by the table, the test statistic for the Hausman test is 5.11, with a p-value of 0.2764, indicates that the p-value (Prob>chi2) is greater than the significance level (typically 0.05), therefore, we fail to reject the null hypothesis. Based on the Hausman test results above in the

panel data, we opt to use the Random Effect (RE) for this study.

4.5 Hypotheses Testing

Table 5: Summary of Random Effect Result

Tobinsq	Coef.	Std. Err.	z	P>|z|
cfoa	2.25041	.40646	5.54	0.000
ceoo	-.00941	.00476	-1.98	0.048
ceod	.408861	.39755	1.03	0.304
fsize	-.07494	.07853	-0.95	0.340
_cons	1.51497	.70996	2.13	0.033
n				500
wald chi2 (3)				36.11
prob > chi2				0.000

Source: Regression Output, 2024.

Table 5 shows the analysis of the Random Effect generalized least squares (GLS) regression with panel data for individual-specific effects, capturing unobserved heterogeneity across the entities being studied (in this case, fiscal years), it indicates that the Wald chi-square test statistic for the overall model is 36.11, with a p-value of 0.0000, indicating that the model is statistically significant at conventional significance levels. The coefficient for CFOA is 2.2504, with a standard error of 0.4065 and is statistically significant ($p < 0.0001$), suggesting that there is a positive relationship between CFOA and Tobin's q. The coefficient for CEOO is -0.0094, with a standard error of 0.0048 and it is marginally statistically significant ($p = 0.048$), indicating a weak negative relationship between CEO ownership and Tobin's q. The coefficient for CEOD is 0.4089, with a standard error of 0.3976 shows that it is not statistically significant ($p = 0.304$), suggesting that there is no significant relationship between CEO duality and Tobin's q at the conventional significance level. The coefficient for firm size is -0.0749, with a standard error of 0.0785, which is not statistically significant ($p = 0.340$), indicating that there is no significant relationship between firm size and Tobin's q at the conventional significance level. In conclusion, the overall model is statistically significant, indicating that the included independent variables collectively have a significant impact on Tobin's q.

4.6 Summary of findings

The summary of the findings of the study suggests that;

i. there is a weak positive relationship between Tobin's q and CFOA.
ii. there is a weak negative relationship between Tobin's q and CEO Ownership.
iii. there is a very weak positive relationship between Tobin's q and CEO Duality.
iv. there is a very weak negative relationship between Tobin's q and Firm Size.

In summary, based on the correlations provided, there are only weak relationships between Tobin's q and the other variables which suggests that Tobin's q is not strongly influenced by CFOA, CEO Ownership, CEO Duality, or Firm Size.

4.7 Contribution to Literature and knowledge

The findings from this study have contributed to both academic literature and practical applications:

(i)Academic Contribution: By filling the identified gaps, this study has enhanced the understanding of the interplay between CEO attributes, firm size, and firm value in an emerging market context. It has provided a basis for further research in similar markets and inform theoretical frameworks related to corporate governance and firm performance.

(ii)Practical Implications: The insights gained can guide policymakers and corporate boards in Nigeria and other emerging markets in making informed decisions about CEO appointments, ownership structures, and governance practices. Investors can also benefit from understanding how CEO characteristics influence firm value, aiding in better investment decisions.

5. Conclusion and Recommendation.

Overall, this study provided a comprehensive analysis of the impact of CEO attributes on firm value, moderated by firm size, within the specific context of Nigerian non-financial firms over a decade. It has not only filled significant gaps in the existing literature but also offered actionable

insights for various stakeholders. Based on the findings of the study, we recommend that;

i. Policymakers can encourage firms to improve transparency and disclosure practices, particularly regarding CEO ownership and duality.
ii. Promoting Financial Literacy could increase awareness among stakeholders about the significance of cash flow metrics can lead to more informed decision-making.
iii. Strengthening of Corporate Governance Practices can address concerns related to CEO ownership and duality so as to enhance transparency in decision-making processes that could help mitigate governance-related risks.
iv. Initiate Strategic Planning and Growth Initiatives that could involve diversifying revenue streams, expanding into new markets, or investing in innovation to drive long-term value creation.

In conclusion, the findings of the study suggest that Tobin's Q, as a proxy for firm value, is not strongly influenced by CFOA, CEO ownership, CEO duality, or firm size in the context of the Nigerian non-financial sector. While some weak relationships were observed, they may not be statistically or economically significant enough to drive meaningful changes in firm value.

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APPENDIX
Data regression outputs

1. Descriptive Analysis

```
. tabstat tobinsq cfoa ceoo ceod fsize, statistics( mean min max sd median count
> )
```

stats	tobinsq	cfoa	ceoo	ceod	fsize
mean	1.53534	.092999	5.772087	.974	7.108878
min	-.31	-.9141	0	0	5.2394
max	11.3	.5895	63.6844	1	9.2409
sd	1.448169	.1550822	13.19845	.1592945	.8029784
p50	1.01	.0929	.00115	1	7.00015
N	500	500	500	500	500

2. Correlation Analysis

```
. correlate tobinsq cfoa ceoo ceod fsize
(obs=500)
```

	tobinsq	cfoa	ceoo	ceod	fsize
tobinsq	1.0000				
cfoa	0.2386	1.0000			
ceoo	-0.0885	-0.0203	1.0000		
ceod	0.0254	-0.0767	0.0535	1.0000	
fsize	-0.0418	0.0154	0.0029	-0.0835	1.0000

3. VIF Test Result

```
. estat vif
```

Variable	VIF	1/VIF
ceod	1.02	0.984618
fsize	1.01	0.992896
cfoa	1.01	0.993767
ceoo	1.00	0.996814
Mean VIF	1.01	

4. Breusch and Pagan Lagrangian Multiplier test result

```
Breusch and Pagan Lagrangian multiplier test for random effects

        tobinsq[fiscalyear,t] = Xb + u[fiscalyear] + e[fiscalyear,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                ---------+------------------------------
                tobinsq  |   2.097195       1.448169
                       e |   1.943228       1.393997
                       u |          0              0

        Test:   Var(u) = 0
                                 chibar2(01) =      0.00
                              Prob > chibar2 =      1.0000
```

5. Random Effect Test Result

```
. xtreg tobinsq cfoa ceoo ceod fsize, re

Random-effects GLS regression                   Number of obs     =
Group variable: fiscalyear                      Number of groups  =

R-sq:                                           Obs per group:
     within  = 0.0627                                         min =
     between = 0.3787                                         avg =
     overall = 0.0680                                         max =

                                                Wald chi2(4)      =      3
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =     0.
```

tobinsq	Coef.	Std. Err.	z	P>|z|	[95% Conf. Inter
cfoa	2.250416	.4064655	5.54	0.000	1.453758 3.04
ceoo	-.0094192	.0047687	-1.98	0.048	-.0187656 -.000
ceod	.4088615	.3975513	1.03	0.304	-.3703247 1.18
fsize	-.0749458	.0785366	-0.95	0.340	-.2288748 .078
_cons	1.514972	.7099656	2.13	0.033	.1234645 2.90
sigma_u	0				
sigma_e	1.393997				
rho	0	(fraction of variance due to u_i)			

```
. estimates store RE
```

```
. hausman FE RE
```

	Coefficients (b) FE	(B) RE	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
cfoa	2.099679	2.250416	-.1507368	.0578986
ceoo	-.0104616	-.0094192	-.0010424	.
ceod	.5448998	.4088615	.1360383	.0303929
fsize	-.0463233	-.0749458	.0286225	.

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 5.11
Prob>chi2 = 0.2764
(V_b-V_B is not positive definite)

6. Hausman Test Result