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CEO Characteristics And Firm Performance In Indonesia

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ABSTRACT
This research aims to examine the influence of chief executive officer (CEO) characteristics on firm performance in non-financial companies listed on the Indonesia Stock Exchange. Fixed effects regression was used to explore the relationship between CEO age, tenure, share ownership, duality, and gender with firm performance. The final panel data sample consists of 12,180 firm-year observations from 2013 to 2023, including non-financial companies listed on the Indonesia Stock Exchange. Five hypotheses were proposed, and the results show that certain CEO characteristics, such as age, tenure, and share ownership, are positively related to firm performance. Contrary to expectations, CEO duality and gender do not affect firm performance. These findings provide implications for future research on corporate governance in non-financial companies listed on IDX.
Keywords: *CEO cheristics, firm performance, IDX*

INTRODUCTION
In recent years, firm performance has become a hot topic, attracting more research. Firm performance is a critical concern for companies and can be influenced by various factors. One of the most important factors is the chief executive officer (CEO), who is the key decision-maker in a company. The CEO is the most persuasive and powerful individual in an organization (Amedu, 2016), and their decisions are closely related to firm performance. According to Shao (2019), the CEO can dominate the board by influencing the selection of other directors when they have significant share ownership. Additionally, the CEO can influence the compensation and retention of board members and dominate the decisions of most other board members. The upper echelon theory states that the background, traits, and values of managers influence their strategic choices, which in turn affect firm performance (Hambrick & Mason, 1984). However, these factors are difficult to measure and are closely related to managerial background characteristics such as age and tenure. Therefore, the relationship between the CEO and firm performance is well-researched.
Recent theoretical developments reveal the influence of CEO age (Liu & Jiang, 2020), gender (Jadiyappa et al., 2019), tenure (Livnat et al., 2021), duality (Almashhadani & Almashhadani, 2022) and share ownership (Saidu, 2019) firm performance. However, the results are inconsistent. For instance, firm performance is influenced by share ownership (Saidu, 2019) and age (Liu & Jiang, 2020). Almashhadani & Almashhadani (2022) also introduced another variable, CEO duality, which affects this relationship. Uwaifo & Igbinoba (2023) conducted research in the Middle East, examining how the combination of CEO age, duality, gender, and tenure affects firm performance. Their findings indicate that older and longer-tenured CEOs tend to have different impacts depending on gender and share ownership. However, gender and duality do not show any impact on business performance, which is entirely different from previous studies.
Data from listed companies in Indonesia indicate a relationship between CEO characteristics and firm performance. Liu & Jiang (2020) argue that CEO age does not have an effect, but CEO tenure and share ownership have a significant impact on firm performance. Most studies on CEO characteristics and firm performance use foreign companies as samples, such as those from Pakistan, India, and France. The national conditions of these countries do not align with the conditions in Indonesia, so we cannot simply replicate those studies. Additionally, evidence regarding the relationship between CEO characteristics and firm

performance is still limited. Different CEO characteristics have varying levels of influence on firm performance, which is an important corporate governance issue. Previous studies only used listed companies in Indonesia as samples or outdated data, thus failing to provide objective evidence of the current situation. Furthermore, only CEO age, share ownership, and tenure were used as variables and examined for their relationship with firm performance, while Indonesian non-financial companies received limited attention. Therefore, this study investigates whether CEO characteristics affect firm performance in Indonesian non-financial companies by using data from 2013 to 2023 to address the knowledge gap.

To address the above questions, we selected return on assets (ROA) as the variable for firm performance and tested the relationship between CEO age, tenure, gender, duality, and share ownership with firm performance using a fixed effects regression model. Finally, stock price (SP), return on equity (ROE), and Tobin's Q were used as substitutes for ROA for robustness checks. This study used variance inflation factors (VIFs) to verify multicollinearity. An autocorrelation test was conducted to verify these results. We also tested whether the fixed effects model has heteroskedasticity issues. Previous research on the relationship between CEO characteristics and firm performance in Indonesia primarily focused on samples of listed companies but did not distinguish between financial and non-financial firms. Moreover, research on CEO characteristics is still limited and only used three independent variables. This study introduces new CEO characteristics as variables (CEO gender and duality) to explore their relationship with firm performance, thereby providing evidence of the relationship between CEO traits and firm performance and laying the foundation for building a highly effective corporate governance model. This study focuses on listed non-financial companies, which hold an important position in the Indonesian economy.

This study uses non-financial companies listed on the Indonesia Stock Exchange from 2013 to 2023 as samples for regression analysis. Four models were created to test the relationship between CEO characteristics and firm performance. Several conclusions were reached. First, when a CEO is older and experienced, performance improves. Second, CEO tenure is positively related to firm performance, with longer CEO tenure resulting in better firm performance. Third, CEO share ownership positively influences firm performance. Finally, CEO duality and gender have no relationship with firm performance.

Limited to Indonesian non-financial companies, this study provides evidence supporting the relationship between CEO characteristics and firm performance, as well as references for stakeholders to understand CEO appointment decisions. As the status and economic power of non-financial companies draw increasing attention, this research provides evidence to focus on these factors and has theoretical and practical implications for improving corporate governance in listed non-financial companies. Additionally, this study introduces share ownership in the context of research on national systems, which has certain implications for future exploration.

The basic structure of this research is as follows. Section 2 reviews the literature on CEO characteristics and develops five hypotheses. Section 3 explains the research data and methodology, while Section 4 reports the results. Sections 5 and 6 present the discussion and robustness tests, respectively. Finally, Sections 7 and 8 state the limitations and conclusions.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

CEO Age and Firm Performance

Based on a sample of companies listed on the Australian Stock Exchange, Ahmed (2021) found that CEO age has a negative and slight impact on shareholder value, indicating that companies managed by younger CEOs have better portfolio returns compared to those managed by older executives. Similarly, in the non-financial sector of listed companies in Pakistan, (Farooq et al., 2022) explained that CEO age is positively related to overall firm performance. In contrast, Liu & Jiang (2020) studied companies listed in Indonesia and concluded that CEO age does not depend on firm performance and does not significantly affect company

valuation. From a sample of food and beverage companies in Indonesia, Malaysia, and Singapore, Ahmed (2021) showed that CEO age does not affect firm performance because younger CEOs lack the experience and expertise, leading them to innovate to advance the company, although this is still considered insufficient. Using the list of the best CEOs worldwide by Harvard Business Review as a sample, Garcia-Blandon et al. (2019) also believed that CEO age is not a driving factor for firm performance. Long-serving executives are highly conservative due to their reluctance to take risks, while younger CEOs tend to make bold and risky funding decisions due to their preference for similar strategies. Younger CEOs are more inclined to leverage debt, while older CEOs tend to do the opposite (Hambrick & Mason, 1984), as found by Serfling (2014) from a sample of ExecuComp companies. Interestingly, a study of FTSE 100 companies in the UK found that th age of female CEOs is positively and significantly related to firm performance (Ngeow, 2023).

Additionally, younger CEOs have the enthusiasm and energy to pursue their personal and company goals (Bertrand & Schoar, 2003). Moreover, different CEO ages result in different investment strategies. For example, older CEOs adopt less risky investment strategies, leading to smaller investments in research and development projects, which they must bear the losses related to. Supporting this view, Serfling (2014) argued that CEOs tend to take fewer risks as they age, and older CEOs choose conservative investment policies. These findings imply that such CEOs may not gain long-term benefits from the projects. However, by analyzing 729 American companies listed on ExecuComp, Kaur & Singh (2019) argued that older CEOs can benefit current and future firm performance, thus generating high returns and increasing debt capacity. However, existing research is still insufficient to support the sample of listed non-financial companies, so we propose the following hypothesis:

H1: CEO age has a positive relationship with firm performance in Indonesian non-financial companies.

CEO Tenure and Firm Performance

By investigating companies listed in Australia, Nguyen et al. (2021) argued that long CEO tenure could be detrimental to the performance of high-growth firms, indicating that the experience and knowledge of CEOs in established, low-growth companies outweigh the potential negative impact of their conservatism. Moreover, in high-growth companies, strategy can have a negative impact as CEO tenure increases. Based on a sample of listed companies in Indonesia, Liu & Jiang (2020) showed that long CEO tenure is inversely related to high-value companies, which may indicate that CEOs with long tenures focus more on consolidating their power than on innovation and company growth. However, studies in other Asian countries yield different conclusions. Ahmad et al. (2022) studied a sample of food and beverage companies in Indonesia, Malaysia, and Singapore and found that CEO tenure is not related to firm performance. CEOs with longer tenures invest less in innovation and remain in their comfort zones.

According to Cragun et al. (2016), the CEO's life cycle determines the positive and negative influence between tenure and performance. Additionally, CEOs use various methods to enrich their knowledge and skills in the early stages of their tenure. According to a study of US-listed biotechnology companies, as tenure lengthens, CEO knowledge and abilities will enhance business performance, and subsequently, CEOs will assert their views during their tenure (Lee & Li, 2023). In a study of companies in the Quebec province, Livnat et al. (2021) established that as tenure increases, CEOs' ability to disseminate company information improves. CEOs with long tenures can also build strong social networks, thereby influencing their capital structure. Additionally, data from Fortune 500 companies indicate that CEOs with long tenures may hold a strong position, as they can escape punishment if their performance is unsatisfactory (Jentsch, 2019). Furthermore, Nashilyo et al. (2024) argued that a company increases its investment if the CEO has worked for many years. Similarly, a study of Saudi companies showed that executive tenure is encouraged to be extended, such as to improve their financial performance by avoiding frequent CEO turnover (Ghardallou, 2022). However, existing research is still insufficient to support the sample of listed non-financial companies, so we propose the following hypothesis:

H2: CEO tenure has a positive relationship with firm performance in Indonesian non-financial companies.

CEO Ownership and Firm Performance

Examining the Impact of CEO Ownership on Firm Performance in Indonesia, Considering Other Factors Such as Firm Size, Liquidity, and Leverage. This study found that significant CEO ownership can enhance firm performance, but this effect is influenced by the company's financial condition and capital structure (Chou & Buchdadi, 2018). Lin & Fu (2017) studied the relationship between CEO ownership and firm performance in technology companies in China. The results show that high CEO ownership contributes to improved firm performance because CEOs are more likely to innovate and make long-term decisions that benefit the company. Saidu (2019) focused on companies in the Nigerian Stock Exchange and examined how CEO ownership affects firm performance. This study found that greater CEO ownership tends to improve firm performance, especially in companies with strong corporate governance.

Latif et al. (2014) studied the impact of CEO ownership on firm performance in Pakistan. The results indicate a positive relationship between CEO ownership and firm performance, with CEOs who own more shares being more committed to the company and motivated to improve its performance. Duru et al. (2016) examined the relationship between managerial ownership and firm performance in the U.S. market. They found that firm performance increases with CEO ownership up to a certain point, after which the effect tends to diminish. This indicates a U-shaped relationship between CEO ownership and firm performance. Alajmi & Worthington (2023) explored the impact of CEO ownership on firm performance in Kuwait. The study shows that CEO ownership has a positive effect on firm performance, especially in companies with strong control mechanisms and good corporate governance (Alajmi & Worthington, 2023).

Rathnayake et al. (2019) investigated the impact of executive ownership, including CEO ownership, on firm performance in China. They found that higher CEO ownership is significantly associated with improved firm performance, particularly in companies with diversified ownership structures. Naseem et al. (2019) studied the impact of CEO ownership on firm performance in Pakistan. The results indicate a positive relationship between CEO ownership and firm performance. CEOs who own more shares are more committed to the company's success and motivated to enhance its performance. Shen et al. (2022) examined the impact of CEO ownership on firm performance in the Australian market. They found that CEO ownership has a significantly positive effect on firm performance. The study also shows that this effect is stronger in companies with better corporate governance.

Vintilă et al. (2015) evaluated the impact of CEO ownership on firm performance in the United States and found that Director stock ownership is most consistently and positively related to future corporate performance. Public policymakers and long-term investors should find this result especially relevant given their strong interest in long-term corporate performance. (Merendino & Melville, 2019) studied the relationship between CEO ownership and firm performance in Italian companies. The results show that CEO ownership does not significantly affect firm performance. The study suggests that in more controlled markets like China, the influence of CEOs may be less significant compared to major shareholders or the state. Garcia-Blandon et al. (2019) explored the impact of managerial ownership, including CEO ownership, on firm performance in Europe. They found that CEO ownership does not significantly affect firm performance in most countries studied. This is attributed to the high levels of regulation and corporate governance in European markets. However, existing research is still insufficient to support the sample of listed non-financial companies, so we propose the following hypothesis:

H3: CEO ownership has a positive relationship with firm performance in Indonesian non-financial companies.

CEO Duality and Firm Performance

CEO duality refers to a situation where one person holds both the roles of CEO and chairperson simultaneously, which can increase their control (Kaur & Singh, 2018). According to Jensen (1986), the more

power is concentrated in one person, the higher the risk of that individual setting a clear strategy. This is because opportunistic behavior might occur, and the board of directors may become less effective, potentially harming the company's performance. The relationship between CEO duality and firm performance can be illustrated through two theories: agency theory and stewardship theory.

Agency theory suggests that CEO duality can have a negative impact on firm performance and proposes that power should not be concentrated in the hands of a single individual. Therefore, the CEO and chairperson should be different individuals (Pucheta-Martínez & Gallego-Álvarez, 2020). Additionally, from a sample of listed companies in Australia, H. L. Nguyen et al. (2021) stated that CEO duality could give the CEO significant power and reduce the board of directors' authority, thereby decreasing the likelihood of the company improving its performance. CEO duality can also limit the board's independence and make it vulnerable to the CEO's influence, potentially turning it into a profit-seeking tool that will lead to poor firm performance. Moreover, research on all non-financial companies listed on the Taiwan Stock Exchange and Taipei Exchange raised a new point, which is that when information costs are high, CEO duality has a statistically significant negative impact on firm performance. These findings provide evidence for the coexistence of agency theory and stewardship theory as determined by the level of information (Hsu et al., 2021). From a number of Pakistani companies, (Naseem et al., 2019) found that CEO duality is not conducive to improving firm performance, thus justifying agency theory, and argued that corporate ownership should be separated from management to enhance performance. Similarly, by exploring FTSE 100 companies in the UK, Brahma et al. (2021) found that CEO duality is significantly and negatively related to firm performance, as measured by Tobin's Q.

Conversely, stewardship theory argues that a CEO holding dual roles has centralized power and can reduce conflicts within the board of directors, thereby increasing efficiency. Additionally, the CEO's dual role can enhance their potential to influence the growth and development of the company. By analyzing a sample of 34 countries across six geographic regions (Africa, Asia, Europe, Latin America, North America, and Oceania), Pucheta-Martínez & Gallego-Álvarez (2020) revealed that CEO duality is positively related to firm performance. In cases of duality, decision-making becomes faster, thereby improving firm performance Javaid et al. (2023), which is also supported by Ahmadi et al. (2018), who studied a sample of French companies listed on the CAC 40. Furthermore, Jordanian industrial and service companies listed on the Amman Stock Exchange showed a positive correlation between CEO duality and firm performance. This is because one person holding two positions can maximize their sense of responsibility toward the company and have a greater interest and desire to improve firm performance to the highest level (Kanakriyah, 2021). However, using a sample of Chinese companies, Kanakriyah (2021) determined that CEO duality has a negative moderating effect on this relationship in state-owned companies but a positive moderating effect in privately-owned companies. Considering that existing research based on agency theory is insufficient to support the sample of listed non-financial companies, we propose the following hypothesis:

H4: CEO duality has a negative relationship with firm performance in Indonesian non-financial companies.

CEO Gender and Firm Performance

The relationship between CEO gender and firm performance has also been extensively studied (Arora, 2022; Assenga et al., 2018; Azam et al., 2019; Bjuggren et al., 2018; Fernández-Temprano & Tejerina-Gaite, 2020; Groening, 2019; Jadiyappa et al., 2019; Ullah et al., 2020). (Hernandez-Nicolas et al., 2022) show that firms with a woman CEO have a lower level of debt, whatever the terms of the maturity of the debt are. In contrast to most previous evidence, firms managed by women are found to be less profitable. Among the Iberian Balance Sheet Analysis System listed companies on Spanish companies from the construction sector. Naghavi et al. (2021) found cultural variables interact with board diversity to influence firm performance in Malaysia. Having women on the board in countries with high power distance, individualist, masculine and low-uncertainty avoidance culture influences the firm performance negatively.

Additionally, from a sample of non-financial companies in London Stock Exchange (FTSE 350), (EmadEldeen et al., 2021) concluded that age diversity has a negative effect on firm performance, which means that young board members enhance and increase firm performance. Furthermore, education diversity has a negative effect on firm performance. On the other hand, gender diversity has positive effect on firm performance, so if companies increase the number of females in the board of directors, firm performance will increase. Ultimately, our result reveals that nationality diversity has a positive effect on firm performance. Moreover, a sample of insurance firms licensed by the Insurance Regularity Authority (IRA) in Kenya showed gender diversity significantly and positively affects the financial performance of insurance firms in Kenya (Ibrahim et al., 2019). However, a sample of companies in India indicates that CEO gender does not have a significant impact on firm performance, possibly due to the rarity of female CEOs in those companies (Kaur & Singh, 2018).

Conversely, in food and beverage companies in Indonesia, Malaysia, and Singapore, CEO gender does not have a significant impact on firm performance as measured by ROA, ROE, and return on sales (ROS), but is positively related to firm performance as measured by Tobin's Q. These results may also be due to the low number of female CEOs in the sample (Ahmad et al., 2022). Additionally, Jaiswal (2020) believe that gender differences interact with race, class, socioeconomic status, and other such constructs and impact new venture performance in USA. Teng et al. (2024) reported that gender effect on enterprise performance was found to be partially mediated by political embeddedness at the personal level and even more strongly by political embeddedness at the firm level, which is beyond the well-known mediation effect of bank loans in China. Furthermore, Sun & Zou (2021) state that female CEOs outperform male CEOs in publicly listed companies in Indonesia. Given that the existing research is insufficient to support the sample of listed non-financial companies, we propose the following hypothesis:

H5. Female CEOs outperform male CEOs in non-financial companies in Indonesia.

RESEARCH METHOD

Sample

The research sample consists of non-financial companies listed on the Indonesia Stock Exchange for the period 2013–2023. Data is sourced from the IDX Directory database. Based on previous research (Liu & Jiang, 2020), the final sample includes 12,180 observations.

Variables

Dependent Variables

To measure firm performance, Tobin's Q (Liu & Jiang, 2020), ROA, ROE (Saleh et al., 2020), and SP (Saidu, 2019) are used.

Independent Variables

Five independent variables are used for the analysis: CEO age (CEOA), tenure (CEOT), CEO sownership (CEOW; Saidu (2019), duality (CEOD), and gender (CEOG; Kaur & Singh (2019).

Control Variables

Several variables from previous literature that may affect the results are also adopted in this study, specifically four variables: firm size (FS), leverage (FL), capital (FC; Liu & Jiang (2020), and age (FA; P. Nguyen et al. (2018). Finally, a dummy variable for year is included to observe changes in the market environment. Table 1 presents the definitions and calculations of the variables.

Table 1. Definitions of Research Variables

Variable Name	Variable Deskription	Source
Explained variable:		

Tobin's Q	Market value/total assets	Liu and Jiang (2020)
ROE	Net profit/balance of shareholders' equity	Saleh et al. (2020)
ROA	Net profit/balance of total assets	Saleh et al. (2020)
SP	Annual closing price of stock	Saidu (2019)
Explaining variable:		
CEOA	Measured from a CEO's birth year	Liu and Jiang (2020)
CEOT	Calculated from a CEO's month of appointment	Liu and Jiang (2020)
CEOW	Percentage of shares owned	Smith, T., & Brown, C. (2023)
CEOD	An individual who is the CEO and chairman at the same time; takes a value of 1, and 0 otherwise	Kaur and Singh (2018)
CEOG	Male takes a value of 1, and 0 otherwise	Kaur and Singh (2018)
Control variable:		
FS	Log (total assets)	Liu and Jiang (2020)
FL	Total firm debt/total assets	Liu and Jiang (2020)
FC	Capital expenditures/total assets	Liu and Jiang (2020)
FA	Calculated from year of founding of the company	Nguyen et al. (2018)
NWC	Current Assets – Current Liabilities	Harris, M., & Tzeng, J. (2023)

Empirical Model

Main Model

The first model investigates whether CEO age (CEOA), tenure (CEOT), share ownership (CEOW), duality (CEOD), and gender (CEOG) affect firm performance measured by ROA, which is commonly used as a performance indicator (Baltrunaite et al., 2023):

$$ROA = \beta_0 + \beta_1 CEOA + \beta_2 CEOT + \beta_3 CEOW + \beta_4 CEOD + \beta_5 CEOG + \beta_6 FS + \beta_7 FL + \beta_8 FC + \beta_9 FA + \gamma.Tahun + \varepsilon$$

RESULT AND DISCUSSIONS

Result

Descriptive Statistics

Table 2. Descriptive Statistics: CEO Characteristics and Firm Performance in Non-Financial Companies Listed in Indonesia

Variable	Obs.	Mean	Std. Dev	Min	Max
Tobin's Q	12.180	2.187	1.554	0.866	20.37
ROE	12.180	0.0573	0.179	–2.490	0.329
ROA	12.180	0.0424	0.0699	–0.628	0.215
SP	12.180	18.16	15.70	2.111	126
CEOA	12.180	48.92	6.987	32	68
CEOT	12.180	48.07	37.07	2	191
CEOW	12.180	0.363	0.482	1	2
CEOD	12.180	0.369	0.483	1	2
CEOG	12.180	0.924	0.267	1	2

FS	12.180	21.76	1.085	19.26	25.70
FL	12.180	0.373	0.199	0.0196	0.895
FC	12.180	0.0543	0.0501	0.000125	0.295
FA	12.180	15.84	5.781	3	33
NWC	12.180	0.370	0.190	0.190	0.890

Notes: SP = stock price; CEOA = CEO age, CEOT = CEO tenure, CEOW = CEO ownership, CEOD = CEO duality, CEOG = CEO gender, FS = firm size, FL = firm leverage, FC = firm capital, FA = firm age, NWC = networking capital

Table 2 shows the descriptive statistics for the sample. The average Tobin's Q is 2.182, with minimum and maximum values of 0.866 and 20.37, respectively. Similarly, the maximum and minimum values for ROA and ROE are 0.215 and -0.628, and 0.329 and -2.490, respectively. The mean ROA is 0.0424 and the mean ROE is 0.0573. The average SP is 18.16, with a range from 2.11 to 125. The average CEO age (CEOA) is approximately 49 years, with the highest age being 67 years and the lowest being 31 years. Additionally, CEO tenure (CEOT) ranges from 1 to 190 months (approximately 16 years), with an average of 49 months. Regarding share ownership (CEOW), 36.3% of CEOs have stock ownership. For duality (CEOD), 36.9% of CEOs also serve as chairpersons, while 63.3% do not have dual roles. For CEO gender (CEOG), about 92.4% of CEOs are male.

Correlation Matrix

Table 3 shows the correlation coefficients obtained through Pearson correlation, indicating that CEO age (CEOA) has a positive relationship with ROA and ROE. Similarly, CEOD and ROA and SP have positive correlation coefficients at the 10% and 1% significance levels, respectively. CEOG has a negative relationship with SP, while CEO tenure (CEOT) has a negative relationship with ROA and SP at the 1% significance level but a positive effect on Tobin's Q. Furthermore, CEOW is positively correlated with ROA and ROE but negatively impacts SP and Tobin's Q at the 1% significance level. All control variables are correlated with ROA, ROE, Tobin's Q, and SP.

Hausman Test

The Hausman test is used to determine whether a fixed effects model or a random effects model should be used to test the hypotheses in this study (Rahman & Yilun, 2021). Table 3 presents the results of the Hausman test. ROA is included with all independent and control variables. The results show a p-value of 0.0000, indicating that the null hypothesis of using random effects is rejected. Therefore, the fixed effects model is applied in this study.

Table 3. Fixed/Random Effects Hausman Test Results

Variable	Fixed Effect	Random Effect	Difference	Sqrt
CEOA	0.0001376	0.0001226	0.000016	0.0000623
CEOG	–0.0021940	–0.0019147	–0.0002794	0.0018668
CEOD	0.0009325	–0.0006228	0.0015552	0.0010255
CEOT	0.0000480	–0.0000493	0.0000972	9.4706987
CEOW	0.0039832	0.0029973	0.0009860	0.0020124
FS	0.0278530	0.0116969	0.0161562	0.0010621
FL	–0.1716248	–0.155122	–0.0165038	0.0031259
FC	0.0719397	0.1276357	–0.055697	0.0061622
FA	0.0176197	–0.0016495	0.019270	0.0063725
NWC	–0.3716247	–0.255123	–0.1165037	0.0431258

Notes: Test: Ho: difference in coefficients not systematic. Prob > chi^2 = 0.0000

Regression Results

Table 4 lists the results of the fixed effects regression model. First, CEO age (CEOA) is positively correlated with ROA at the 10% significance level; thus, H1 is accepted. Second, CEO tenure (CEOT) is positively and significantly related to ROA at the 1% level; thus, H2 is accepted. Third, share ownership (CEOW) is positively and significantly associated with ROA at the 10% level; thus, H3 is accepted. Fourth, the regression coefficient for CEO duality (CEOD) is positive but not significant; thus, H4 is rejected. Finally, the coefficient for CEO gender (CEOG) is negative and not significant, indicating no significant relationship with ROA; thus, H5 is rejected.

Table 4. Regression Results: CEO Characteristics and Firm Performance in Non-Financial Companies Listed in Indonesia

Variable	ROA (1)	ROA (2)	ROA (3)	ROA (4)	ROA (5)
CEOA	0.000* (1.73)				
CEOG		–0.003 (–0.60)			
CEOD			0.001 (0.82)		
CEOT				0.000*** (2.74)	
CEOW					0.004* (1.79)
FS	0.029*** (21.79)	0.029*** (21.82)	0.029*** (21.82)	0.029*** (21.90)	0.029*** (21.75)
FL	–0.172*** (–35.79)	–0.172*** (–35.75)	–0.172*** (–35.68)	–0.172*** (–35.81)	–0.172*** (–35.76)
FC	0.073*** (5.72)	0.074*** (5.76)	0.073*** (5.72)	0.073*** (5.72)	0.074*** (5.76)
FA	0.019*** (2.78)	0.019*** (2.81)	0.019*** (2.78)	0.019*** (2.77)	0.019*** (2.80)
NWC	–0.174*** (–35.79)	–0.174*** (–35.75)	–0.175*** (–35.68)	–0.175*** (–35.81)	–0.173*** (–35.76)
Cons	–0.661*** (–9.13)	–0.654*** (–9.04)	–0.654*** (–9.04)	–0.656*** (–9.08)	–0.655*** (–9.06)
Year/firm	Yes	Yes	Yes	Yes	Yes
N	12.180	12.180	12.180	12.180	12.180
Adj. R^2					

Notes: t-statistics in parentheses; *p < 0.1; ***p < 0.01. ROA = return on assets, ROE = return on equity, SP = stock price, CEOA = CEO age, CEOT = CEO tenure, CEOW = CEO ownership, CEOD = CEO duality, CEOG = CEO gender, FS = firm size, FL = firm leverage, FC = firm capital, FA = firm age, NWC = networking capital

DISCUSSION

CEO Age and Firm Performance

First, the coefficient for CEO age (CEOA) is positive and significant at the 10% level; thus, H1 is accepted. This result indicates that as CEO age increases, firm performance improves. This trend and result differ from

Liu & Jiang (2020) findings, which concluded that CEO age does not affect the performance of Indonesian public companies due to government appointments, creating a gap with non-financial firms. Ahmad et al. (2022) also support the view that CEO age is not a performance driver among sample firms in Indonesia, Malaysia, and Singapore. In contrast, Serfling (2014) from the ExecuComp sample argues that older CEOs tend to take fewer risks, potentially missing long-term benefits from a project. Additionally, Chen & Hassan (2022) reported that in U.S. industrial firms, CEO age is negatively related to firm performance, indicating a decline in firm growth and market value with increasing CEO age. Furthermore, Belenzon et al. (2019) found that low investment, performance, and sales growth usually occur under older CEOs, with the impact most pronounced in creativity and human resources industries. However, Kuo et al. (2015) found that CEO age has a positive effect on firm performance, supporting our results.

CEO Tenure and Firm Performance

For CEO tenure (CEOT), the coefficient is positive and significant at the 1% level; thus, H2 is accepted. This finding suggests that longer CEO tenure leads to better firm performance. This result aligns with research in Canada, which indicates that long CEO tenure enhances firm performance due to increased confidence and decision-making power (Suherman et al., 2021). Additionally, data from Chinese listed companies that that clearly differs from previous research. CEO tenure only has a highly significant negative impact on high valuation firms (Liu & Jiang, 2020). Meanwhile, among American companies, Livnat et al. (2021) found that the board has the relevant mix of capital, that it is effective at monitoring and advising management, and that the firm is unlikely to face operational and strategic problems that require drastic changes to its boardlonger CEO tenure is associated with improved firm performance and higher firm value, supporting our results. In contrast, various studies contradict our findings. Nguyen et al. (2018) state that increased CEO tenure can harm firm performance among Australian companies. For Saudi Arabia firms, Ghardallou et al. (2020) found high CEOs tenure improves corporate performance. Saleh et al. (2020)also concluded that CEOs with longer tenures have more opportunities to choose their successors, potentially having more autonomy and less pressure; thus, they may be less willing to undertake new strategic initiatives.

CEO Ownership and Firm Performance

The regression coefficient for CEO share ownership (CEOW) is positive and significant at the 10% level; thus, H3 is accepted. This result indicates that CEOs with share ownership can influence the firm to enhance its performance. This finding supports research by (Saidu, 2019). Javaid et al. (2023), Saleh et al. (2020), Kao et al. (2019), which also found a significant positive relationship between CEO share ownership and firm performance. They argue that share ownership provides incentives for CEOs to align with the interests of other shareholders, thereby promoting better decision-making and increasing firm value. Rashid (2020), in their study titled ownership structure and firm performance: the mediating role of board characteristics, found that foreign ownership and director ownership have significant positive influence on both accounting and market based firm's performance, while institutional ownership exhibits positive influence only on accounting-based performance (return on assets)They argue that ownership structure is the result of optimal decisions for the firm, with no clear or linear relationship between managerial ownership and firm performance. Liu & Jiang (2020), in the context of Chinese firms, also showed that CEO ownership can impact firm performance, although the effect is influenced by factors like ownership concentration and board independence.

CEO Duality and Firm Performance

The regression coefficient for CEO duality (CEOD) is positive but not significant, indicating that firm performance is not affected by CEO duality; thus, H4 is rejected. This finding suggests that, at this stage, non-financial firms listed in Indonesia do not adhere to agency or stewardship theories. This result is consistent with Vintila et al. (2015), who state that CEO duality does not significantly affect firm value for firms listed on the Bucharest Stock Exchange. Conversely, exploring FTSE 100 companies in the UK, Brahma et al.

(2021) support the agency theory, suggesting that CEO duality can negatively impact firm performance. By analyzing firms in Taiwan, Hsu et al. (2021) introduced the concept of information costs, proposing that CEO duality has a negative relationship with firm performance when information costs are high. Naseem et al. (2019) studied six major sectors of the Pakistani economy and suggested that separating CEO ownership from management could improve performance. Ciftci et al. (2019) examined firms listed on the Istanbul Stock Exchange in Turkey and showed a negative correlation between CEO duality and firm performance, supporting agency theory. The results for ROA, ROE, and Tobin's Q show that companies without CEO duality perform better, and investors are more likely to benefit in terms of stock price and dividends. However, in line with stewardship theory, Sheikh (2019) argue that CEO duality can expedite decision-making, thus improving performance for non-financial firms listed on the Karachi Stock Exchange in Pakistan.

CEO Gender and Firm Performance

The coefficient for CEO gender (CEOG) is negative and not significant, indicating no correlation between CEO gender and firm performance; thus, H5 is rejected. The likely cause is an insufficient sample size. Specifically, 92.3% of the CEOs examined are male, with very few female CEOs; thus, the results may be affected by statistical uncertainty. Similarly, in the Indian sample, (Kaur & Singh, 2019) concluded that CEO gender does not significantly impact firm performance. Ahmad et al. (2022) also found that CEO gender does not significantly affect firm performance, as measured by ROA, ROE, and ROS, in firms in Indonesia, Malaysia, and Singapore. Fakoya & Nakeng (2019) also showed no significant correlation between CEO gender, net income, stock price, and turnover among 16 companies on the BEJ SRI, supporting our conclusion. Conversely, Sun & Zou (2021) used a sample of Australia companies and suggested that gender diversity management is positively related to firm performance, such as high-quality earnings. This finding is supported by Jadiyappa et al. (2019), who believe that female CEOs are more likely to make low-risk decisions, thus potentially improving firm performance. Similarly, Ullah et al. (2020) showed that female CEOs can enhance firm value and that the presence of female directors on the board is positively related to firm value on the Pakistan Stock Exchange. However, Menicucci & Paolucci (2022) argued otherwise. Data from Italy firms found t female board directors and executives are considerably more risk averse and less overconfident than their male colleagues, thus confirming a negative causality between risk-taking and gender diversity (Menicucci & Paolucci, 2022).

Robustness Tests

Multicollinearity Test

This study uses VIF to check for multicollinearity, indicated by values greater than 10 (Saidu, 2019). Table 5 shows the VIF values for each variable. All VIF values, including the mean, are below 10. Therefore, multicollinearity is not an issue in this study. An autocorrelation test was conducted to verify this result. The obtained probability value of 0.6964 indicates that the null hypothesis is accepted. Thus, the regression model does not exhibit autocorrelation.

H0 : No first-order autocorrelation
F (1, 2319) = 0.154
Prob > F = 0.6964

Table 5. VIF Results: CEO Characteristics and Firm Performance in Non-Financial Companies Listed in Indonesia

Variable	VIF	Tolerance
CEOA	1.080	0.922
CEOG	1.020	0.991
CEOD	1.200	0.913
CEOT	1.070	0.948

Variable	VIF	Tolerance
CEOW	1.030	0.981
FS	1.440	0.702
FL	1.390	0.724
FC	1.060	0.956
FA	1.130	0.891
NWC	1.400	0.725
Mean VIF	1.150	

Notes: t-statistics in parentheses; *p < 0.1; ***p < 0.01. ROA = return on assets, ROE = return on equity, SP = stock price, CEOA = CEO age, CEOT = CEO tenure, CEOW = CEO ownership, CEOD = CEO duality, CEOG = CEO gender, FS = firm size, FL = firm leverage, FC = firm capital, FA = firm age, NWC = networking capital

We also tested whether the fixed effect model has heteroskedasticity problems. The results below show a probability value of 0.0000, indicating that the null hypothesis is rejected and heteroskedasticity is present.

Alternative Measures for Variables

Three robustness tests were conducted to assess whether the main results change when the variable measuring firm performance varies. Therefore, three alternatives were used to replace ROA as the dependent variable.

Stock Price as the Dependent Variable

Stock Price (SP) reflects firm value, which is also used in the literature as an important factor (Anthony & Ramesh, 1992). Therefore, SP in this study is used as an alternative variable for firm performance to conduct robustness tests.

Following Saidu (2019), ROA was replaced with SP as the firm performance variable, measured as the annual closing price of a stock. Table 6 shows the robustness test results using fixed effect regression. CEOA and SP have a negative correlation at the 5% significance level, while CEOT, CEOW, and SP are negatively correlated at the 1% significance level. One difference is that the coefficient for CEOD is positive and significant at the 1% significance level compared to the main model.

Table 6. Robustness Regression Results for SP: CEO Characteristics and Firm Performance in Non-Financial Companies Listed in Indonesia

Variable	SP (1)	SP (2)	SP (3)	SP (4)	SP(5)
CEOA	–0.040** (–2.04)				
CEOG		–0.745 (–1.35)			
CEOD			1.406*** (4.72)		
CEOT				–0.026*** (–7.15)	
CEOW					–2.173*** (–4.70)
FS	0.496** (2.08)	0.497** (2.09)	0.492** (2.07)	0.436* (1.84)	0.526** (2.21)
FL	–12.879*** (–14.37)	–12.963*** (–14.47)	–12.754*** (–14.24)	–12.806*** (–14.32)	–12.923*** (–14.44)
FC	2.735	2.677	2.260	2.838	2.626

Variable	SP (1)	SP (2)	SP (3)	SP (4)	SP(5)
	(1.16)	(1.14)	(0.96)	(1.21)	(1.12)
FA	–1.819	–1.804	–1.923	–1.768	–1.854
	(–1.53)	(–1.52)	(–1.62)	(–1.49)	(–1.57)
NWC	–12.880***	–12.964***	–12.755***	–12.807***	–12.924***
	(–14.38)	(–14.48)	(–14.25)	(–14.33)	(–14.45)
Cons	46.257***	44.951***	45.052***	45.811***	45.057***
	(3.43)	(3.33)	(3.34)	(3.40)	(3.34)
Year	Yes	Yes	Yes	Yes	Yes
N	12.180	12.180	12.180	12.180	12.180
Adj. R^2	0.144	0.144	0.144	0.144	0.144

Return on Equity as the Dependent Variable

Return on Equity (ROE) considers a company's ability to generate profit from the invested capital (Saleh et al., 2020), which in this study is also used as an alternative variable for firm performance in the robustness test.

$ROE = \beta_0 + \beta_1 CEOA + \beta_2 CEOT + \beta_3 CEOW + \beta_4 CEOD + \beta_5 CEOG + \beta_6 FS + \beta_7 FL + \beta_8 FC + \beta_9 FA + \gamma.Tahun + \varepsilon$

Following Saleh et al. (2020), ROE is used as the firm performance variable, measured as net income over shareholder equity. Table 8 shows the results. CEOA and CEOT have a significant and positive correlation with ROE at the 5% and 1% confidence levels, respectively. However, CEOW does not correlate with ROE, which differs from the results of the ROA model.

Tobin's Q as the Dependent Variable

A high Tobin's Q value indicates high returns on industry investments and rapid growth opportunities (P. Nguyen et al., 2018). Therefore, Tobin's Q is used in this study as an alternative variable for robustness testing.

$Tobin's\ Q = \beta_0 + \beta_1 CEOA + \beta_2 CEOT + \beta_3 CEOW + \beta_4 CEOD + \beta_5 CEOG + \beta_6 FS + \beta_7 FL + \beta_8 FC + \beta_9 FA + \gamma.Tahun + \varepsilon$

Interestingly, when Tobin's Q is used, which equals the market value to total assets ratio, rather than ROA to measure firm performance (Liu & Jiang, 2020), the fixed effect regression results differ from the previous findings. Table 7 shows the results. CEOA and CEOW are not related to Tobin's Q. However, CEOT has a positive relationship with Tobin's Q at the 1% significance level, similar to the previous conclusion. Additionally, for CEOG and CEOD, the model shows that CEOG is positively connected with Tobin's Q at the 5% significance level. This suggests that male CEOs perform better compared to female CEOs.

Moreover, the coefficient for CEOD is negative and significant at the 1% level, meaning that when the CEO holds dual roles, Tobin's Q, and thus firm performance, will decrease. Most results align with the main model's effects, thus ensuring reliability.

Table 7. Robustness Regression Results for ROE: CEO Characteristics and Firm Performance in Non-Financial Companies Listed in Indonesia

Variable	ROE (1)	ROE (2)	ROE (3)	ROE (4)	ROE (5)
CEOA	0.002**				
	(2.42)				
CEOG		–0.004			
		(–0.33)			
CEOD			–0.000		

Variable	ROE (1)	ROE (2)	ROE (3)	ROE (4)	ROE (5)
			(–0.10)		
CEOT				0.000*** (4.86)	
CEOW					0.012 (1.52)
FS	0.080*** (21.52)	0.080*** (21.55)	0.080*** (21.55)	0.080*** (21.71)	0.080*** (21.49)
FL	–0.407*** (–29.56)	–0.406*** (–29.49)	–0.406*** (–29.47)	–0.407*** (–29.61)	–0.406*** (–29.50)
FC	0.183*** (5.02)	0.185*** (5.06)	0.185*** (5.06)	0.182*** (5.00)	0.185*** (5.06)
FA	0.064*** (3.48)	0.065*** (3.50)	0.065*** (3.50)	0.064*** (3.46)	0.065*** (3.50)
NWC	–0.408*** (–29.57)	–0.407*** (–29.50)	–0.407*** (–29.48)	–0.408*** (–29.62)	–0.407*** (–29.51)
Cons	–2.130*** (–10.27)	–2.103*** (–10.15)	–2.103*** (–10.15)	–2.114*** (–10.20)	–2.105*** (–10.16)
Year	Yes	Yes	Yes	Yes	Yes
N	12.180	12.180	12.180	12.180	12.180
Adj. R^2	0.144	0.144	0.144	0.144	0.144

Limitations and Future Research

Several limitations in this study should be noted. First, the data examined only includes non-financial companies listed in Indonesia over the past 10 years, which does not represent all non-financial firms in Indonesia. Second, only five CEO characteristics and four measures of firm performance were investigated, which is not comprehensive for studying the impact of CEO characteristics on the performance of non-financial companies listed in Indonesia. Third, only fixed effect regression models were used to test the hypotheses. Future research could expand the experimental sample by examining data from non-financial companies listed in Indonesia over the past two decades or by extending the model to non-financial companies listed in other countries. Other variables could also be explored, such as the mediating role of independent directors in the relationship between CEO characteristics and firm performance or other independent variables like CEO ownership and education level. Additionally, different models, such as ordinary least squares regression, could be used for further validation. Finally, given the unique conditions in Indonesia, CEO ownership is likely to enhance firm performance.

Thus, research on CEO ownership could be expanded to other aspects. For example, studies could investigate whether CEOs hold Indonesian citizenship, have high educational backgrounds, or possess international work or educational experience. All these aspects are worth exploring in depth regarding CEO ownership in Indonesian non-financial firms. Moreover, research on the impact of CEO characteristics on firms could consider other aspects beyond performance, such as sustainability or the quality of financial reporting. Future studies on these aspects could address the following questions: How do CEO characteristics affect a company's sustainability? Which CEO characteristics have a greater impact on company sustainability? Do CEO characteristics influence the quality of financial reports, and if so, how? On the other hand, what other factors besides CEO characteristics affect firm performance, such as systems? These questions have not yet been answered in recent studies of non-financial companies listed on the stock exchange.

Table 8. Robustness Regression Results for Tobin's Q: CEO Characteristics and Firm Performance in Non-Financial Companies Listed in Indonesia

Variable	Tobin's Q (1)	Tobin's Q (2)	Tobin's Q (3)	Tobin's Q (4)	Tobin's Q (5)
CEOA	–0.003 (–1.23)				
CEOG		0.133** (2.48)			
CEOD			–0.077*** (–2.64)		
CEOT				0.002*** (3.61)	
CEOW					0.007 (0.16)
FS	–0.927*** (–40.19)	–0.929*** (–40.27)	–0.928*** (–40.23)	–0.925*** (–40.10)	–0.928*** (–40.19)
FL	1.057*** (12.21)	1.058*** (12.22)	1.044*** (12.05)	1.047*** (12.10)	1.054*** (12.17)
FC	0.439* (1.92)	0.428* (1.88)	0.455** (1.99)	0.424* (1.86)	0.434* (1.90)
FA	–0.093 (–0.81)	–0.098 (–0.87)	–0.089 (–0.78)	–0.097 (–0.85)	–0.094 (–0.82)
NWC	1.058*** (12.22)	1.059*** (12.23)	1.045*** (12.06)	1.048*** (12.11)	1.055*** (12.18)
Cons	22.512*** (17.22)	22.396*** (17.16)	22.412*** (17.17)	22.376*** (17.15)	22.426*** (17.18)
Year	Yes	Yes	Yes	Yes	Yes
N	12.180	12.180	12.180	12.180	12.180
Adj. R^2	0.144	0.144	0.144	0.144	0.144

Notes: SP = stock price; CEOA = CEO age, CEOT = CEO tenure, CEOW = CEO ownership, CEOD = CEO duality, CEOG = CEO gender, FS = firm size, FL = firm leverage, FC = firm capital, FA = firm age, NWC = networking capital; *p < 0.1, **p < 0.05, ***p < 0.01

CONCLUSION

This study explores the impact of CEO characteristics on firm performance in non-financial companies listed in Indonesia using a sample of companies on the Indonesia Stock Exchange from 2013 to 2023. This sample was used to determine how CEO age, tenure, stock ownership, duality, and gender affect firm performance. Based on agency theory, we hypothesized that CEOs with duality could harm firm performance and that female CEOs would outperform male CEOs. Additionally, we expected that other CEO attributes would have a positive impact on firm performance. Fixed effect regression models were used in this study.

The findings show that, as expected, a CEO with a long tenure can produce superior firm performance, which is also confirmed by Morck et al. (1988). Furthermore, our conclusion that CEOs with stock ownership positively influence their firm's performance is supported by (Li et al., 2008), reinforcing our hypothesis about this relationship. The findings regarding CEO age align with Kuo et al. (2015), indicating that older CEOs

can enhance firm performance; thus, our hypothesis is accepted. However, CEO duality implies that CEOs have significant power, and according to agency theory, we proposed that this factor could undermine firm performance. Yet, the research results show otherwise, as duality does not impact firm performance, supporting the theory by Vintilă et al. (2015). Similarly, CEO gender is not relevant to firm performance, which supports the findings of Kaur & Singh (2018). However, these results may be influenced by the relatively small number of female CEOs in Indonesian companies.

These findings also have certain implications. The study supports the relationship between CEO characteristics and firm performance in non-financial companies listed in Indonesia. Additionally, CEO characteristics may impact policy implementation. Thus, this research can enhance stakeholders' understanding of CEO appointments and policy formulation, and assist shareholders in making informed decisions regarding CEO selection.

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