# The Role of CEO Characteristics in ESG Risk Assessment: Empirical Evidence from the ESGQ 45 IDX KEHATI Index

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## ABSTRACT

This research examines the characteristics of CEOs, such as age, educational background, and tenure, toward ESG risk assessment. These characteristics influence strategic decisions to reduce ESG risk in order to achieve a green economy and sustainable development. This research used purposively selected sample of 34 companies which listed on the ESGQ 45 IDX KEHATI index based on data from 2024. Data analysis used multiple regression analysis. This research finds that CEOs with a business education background are able to reduce ESG risk. This educational background provides the skills needed for better risk analysis, including identifying potential ESG issues. However, the age and tenure of the CEOs have no effect on ESG risk. Age and tenure of the CEOs are attributes that do not reflect strategic capacity in reducing ESG risk.

**Keywords: CEO Age; CEO Educational Background; CEO Tenure; ESG Risk.**

## INTRODUCTION

Since 2022, Indonesia's Gross Domestic Product (GDP) has grown above 5%, with the manufacturing, trade, agriculture, construction, and mining industries contributing significantly to GDP growth in 2024 (BPS, 2025). However, rapid economic growth has come at a high environmental cost. In order to achieve a greener economy, it is essential to make sustained effort to develop relevant policies, strengthen the institutions responsible for implementing them, and ensure the security of the necessary resources (OECD, 2019). In 2022, the Ministry of National Development Planning/ National Development Planning Agency *(Bappenas)* published a Green Economy Index comprising 15 indicators divided into three main pillars, namely economy, society, and environment, to assess Indonesia's economic transformation towards a green economy and sustainable development, with a GDP growth target is 6,1-6,5% per year until 2050 and a reduction in greenhouse gas emissions by up to 68% by 2045 (Lestari et al., 2022).

Companies play an important role in contributing to Indonesia's economic transformation towards a green economy and sustainable development. Therefore, companies are evaluated beyond their financial performance, but also on their environmental impact, social responsibility, and governance effectiveness. Environmental, social and governance (ESG) factors are now considered by investors and other stakeholders when making investment decisions or assessing company reputation. The Indonesia Stock Exchange (IDX) is collaborating with an ESG rating agency (Morningstar Sustainalytics) to conduct ESG risk assessments on companies listed on the IDX as part of the IDX's commitment to promoting sustainable investment and improving ESG practices in the Indonesian capital market (IDX, 2025a). The concept of risk decomposition is used in this ESG risk assessment, whereby companies are faced with two dimensions of ESG issues, namely exposure and management, where the higher the ESG value, the greater the ESG risk (IDX, 2025b).

The success of companies in mitigating ESG risks is inseparable from the role of the Chief Executive Officer (CEO) as the highest strategic decision maker. CEOs have a major influence on the direction of company policy, including efforts to balance economic interests and sustainability in order to meet stakeholder expectations. Consequently, characteristics of CEOs, such as their age, educational background, and tenure, are believed to play a significant role in shaping policy direction and commitment to ESG practices.

A CEO's age can influence their leadership style and decision-making tendencies, which can impact corporate ESG risk reduction strategies and priorities. The younger the CEO, the higher the ESG disclosure (Yapianto & Dewi, 2023; Triyani & Setyahuni, 2020). However, Rahman et al. (2024) found that CEO age has no effect on ESG risk assessment.

The educational background of CEOs influences their level of awareness of environmental issues. Amore et al. (2019) found that the educational background of CEOs has a positive effect on corporate energy efficiency. Wan et al. (2023) found that the educational background of executives has a positive impact on corporate ESG disclosure. Furthermore, CEOs who studied at top universities are better equipped to mitigate ESG risks (Adhariani et al., 2024). However, Yapianto & Dewi (2023) found that the educational background of CEOs has no effect on ESG disclosure.

The CEO's tenure reflects their level of experience and familiarity with the organizational structure. CEOs with longer tenures typically have a deeper understanding of the company culture and business processes. This enables them to drive long-term change more effectively, including the implementation of sustainability policies (Septiany et al., 2025). In contrast, if a CEO stays in power for too long, it can result in a lack of support for new ideas or the implementation of more advanced ESG policy reforms (Triyani & Setyahuni, 2020). Alrobai & Albaz (2025) found that the CEO's tenure has no effect on ESG disclosure scores.

Previous studies have shown that CEO characteristics can influence corporate policy, including in terms of supporting the realization of a green economy and sustainable development. However, empirical findings remain diverse and inconsistent, especially in the context of developing countries such as Indonesia, where awareness of ESG is still growing. This study examines the influence of CEO characteristics, specifically age, educational background and tenure, on a company's ESG risk assessment. This study uses the ESGQ 45 IDX KEHATI index as a sample, which consists of companies with the best ESG performance in the Indonesian capital market. Therefore, this study is expected to provide relevant empirical findings to describe the role of leadership influenced by CEO characteristics in reducing ESG risk in Indonesia.

## LITERATURE REVIEW
### Upper Echelons Theory

The upper echelons theory states that the characteristics of top managers, including CEOs, influence the organization's strategic decision-making process (Hambrick & Mason, 1984). Understanding organizational behavior and performance requires consideration of the influence of the demographic characteristics of top executives, which becomes stronger when executives have a high level of managerial discretion, i.e., freedom in strategic decision-making (Hambrick, 2007). Therefore, a company's strategic business decisions, including its sustainability strategies to reduce ESG risks, reflect principles, values, and perspectives that are influenced by demographic characteristics, such as age, educational background, and tenure, which are not merely personal attributes of the CEO.

This study examines the effect of CEO demographic characteristics, such as age, educational background, and tenure, on ESG risk scores. The ESG risk scores used in this study were published by the IDX in collaboration with the ESG rating agency Morningstar Sustainalytics. The scores are given on a scale of 0 to 100, with 100 indicating high risk and 0 indicating no risk. Companies are classified into five categories: negligible (score 0–10), low (score 11–20), moderate (score 21–30), high (score 31–40), and severe (score above 40) (IDX, 2025b).

### Hypothesis Development
### The Effect of CEO's Age on ESG Risk Score

A CEO's age can influence their leadership style and decision-making tendencies. Younger CEOs tend to be more open to innovation and sustainability issues and have progressive views, whereas older CEOs are often considered more cautious and oriented towards long-term stability (Oyinlola, 2025; Yapianto & Dewi, 2023; Triyani & Setyahuni, 2020). This difference can have implications for strategies and priorities in reducing corporate ESG risks. According to the ESG scores published by the IDX in collaboration with the ESG rating agency Morningstar Sustainalytics, lower ESG scores are considered to indicate lower ESG risks. Younger CEOs tend to implement policies that address environmental issues more effectively, which can reduce ESG risk scores (Yapianto & Dewi, 2023; Triyani & Setyahuni, 2020).

H1: The age of the CEO has a positive effect on ESG risk score.

### The Effect of CEO's Education Background on ESG Risk Score

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Education also plays a role in shaping the values, critical thinking, and strategic orientation of a leader. A CEO's educational background influences their awareness of environmental issues (Safitri et al., 2024). Triyani & Setyahuni (2020) found that an executive's educational background can enhance a company's ESG disclosure. An educational background in business is considered highly relevant in shaping the values, perspectives, and intellectual capacity of CEOs when they make strategic decisions to reduce ESG risks (Oyinlola, 2025).

H2: The educational background of the CEO has a negative effect on ESG risk score.

**The Effect of CEO's Tenure on ESG Risk Score**

The tenure of CEOs reflects the length of time they have been in top positions, which can indicate with accumulated experience, reputation, networks, and company stability. A long tenure as CEO can increase commitment to ESG because the CEOs have built networks with stakeholders and understand the company's operations, making them better able to drive long-term change, including the implementation of sustainability policies (Septiany et al., 2025). The longer the CEO's tenure, the lower the ESG risk score.

H3: The tenure of the CEO has a negative effect on the ESG risk score.

**RESEARCH METHODS**

This research is a quantitative study that examines the effect of age, educational background, and tenure of CEOs on ESG risk scores. Time dimension of this study was cross-sectional by using 2024 data. This study used secondary data, consisting of information presented in annual reports and on the IDX website. The population in this study consisted of companies included in the ESGQ 45 IDX KEHATI index. The following criteria were applied in the purposive sampling process, namely:

a) The companies listed in the ESGQ 45 IDX KEHATI Index for 2024 which have presented their 2024 annual reports.
b) The companies have ESG risk scores published by the IDX in collaboration with an ESG rating agency (Morningstar Sustainalytics).

**Table 1.** Sample Selection Criteria

| Criteria | Number |
|---|---|
| The companies listed in the ESGQ 45 IDX KEHATI Index for 2024 which have presented their 2024 annual reports. | 45 |
| The companies did not have ESG risk scores published by the IDX in collaboration with an ESG rating agency (Morningstar Sustainalytics). | (11) |
| The total number of companies that meet the criteria | 34 |

**Table 2.** Operational Definitions of Variables

| Variable | Notation | Measurement | Scale |
|---|---|---|---|
| **Dependent Variable** | | | |
| ESG Risk Score | ESG_RISK | ESG risk scores published by the IDX in collaboration with ESG rating agencies (Morningstar Sustainalytics) range from 0 to 100, with 100 indicating high risk and 0 indicating no risk. | Ratio |

**Table 2.** Operational Definitions of Variables (Cont.)

| Variable | Notation | Measurement | Scale |
|---|---|---|---|
| **Independent Variables** | | | |
| CEO's Age | AGE_CEO | The age of the CEO of company i in year t, expressed in years | Ratio |

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| Variable | Notation | Measurement | Scale |
|---|---|---|---|
| CEO's Educational Background | EDU_CEO | Dummy variable, code 1 if the CEO has an educational background in business, code 0 if not | Nominal |
| CEO's Tenure | TENURE_CEO | The tenure of CEO of company i in year t, expressed in months | Ratio |

Source: Author (2025)

Table 2 describes the operational definitions of the variables that were used in this analysis. The analysis of the data was conducted using descriptive statistics, classical assumption tests and multiple regression analysis. The regression model formulated for this study was as follows:

$$\text{ESG\_RISK}_{I,t} = \beta_0 + \beta_1 \text{AGE\_CEO}_{I,t} + \beta_2 \text{EDU\_CEO}_{I,t} + \beta_3 \text{TENURE\_CEO}_{I,t} + \varepsilon$$

**RESULTS AND DISCUSSION**

Based on Table 3, the average value for the ESG_RISK variable is 25,44. The lowest value is 7,11 and the highest value is 42,61. This means that, on average, companies have a moderate ESG risk score. The average value for the AGE_CEO variable is 59,44. The lowest value is 34 and the highest value is 82. This means that the average age of a CEO is 59,44 years. The youngest CEO is 34 years old, while the oldest is 82 years old. The average value for the TENURE_CEO variable is 118,62. The lowest value is 11 and the highest value is 504. This means that the average tenure of CEO is 118,62 months (9 years and 10 months). The shortest CEO tenure is 11 months, while the longest is 504 months (42 years). Based on Table 4, for the EDU_CEO variable, there are 15 CEOs (44,12%) with an educational background in business, while 19 CEOs (55,88%) with an educational background in non-business.

**Table 3.** Statistic Descriptive

|  | ESG_RISK | AGE_CEO | TENURE_CEO |
|---|---|---|---|
| Mean | 25.43794 | 59.44118 | 118.6176 |
| Median | 25.69500 | 60.00000 | 73.50000 |
| Maximum | 42.61000 | 82.00000 | 504.0000 |
| Minimum | 7.110000 | 34.00000 | 11.00000 |
| Std. Dev. | 9.735111 | 10.33145 | 118.3982 |
| Observations | 34 | 34 | 34 |

Source: Processed by the Author (2025)

**Table 4.** Statistic Descriptive for EDU_CEO Variable

|  | EDU_CEO | % |
|---|---|---|
| 1 | 15 | 44,12% |
| 0 | 19 | 55,88% |
| Total | 34 | 100% |

Source: Processed by the Author (2025)



| Series: Residuals | |
|---|---|
| Sample 1 34 | |
| Observations 34 | |
| Mean | 1.52e-15 |
| Median | 1.349650 |
| Maximum | 15.18914 |
| Minimum | -20.71090 |
| Std. Dev. | 9.200571 |
| Skewness | -0.398129 |
| Kurtosis | 2.450297 |
| Jarque-Bera | 1.326283 |
| Probability | 0.515230 |

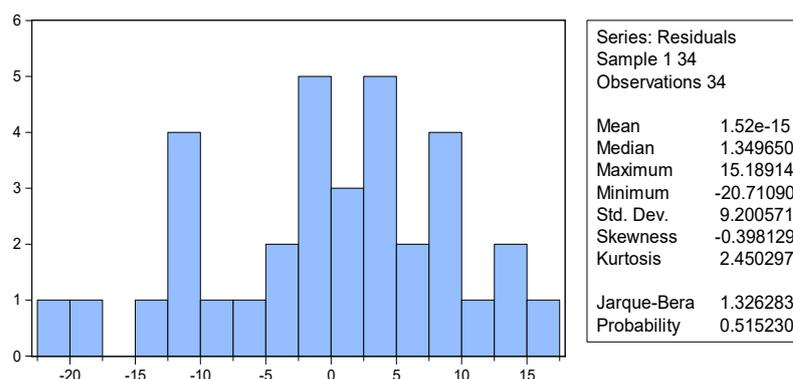**\*corresponding author's email:** adeyuniati@feb.upr.ac.id

**Figure 1.** Normality Test Results
Source: Processed by the Author (2025)

Figure 1 shows that the residual values follow a normal distribution function. This is indicated by a Jarque-Bera p-value greater than 0,05. Therefore, it can be concluded that the regression model does not have a normality problem.

**Table 5.** Multicollinearity Test Results

**Variance Inflation Factors**

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|---|---|---|---|
| C | 134.6900 | 49.18038 | NA |
| AGE_CEO | 0.040065 | 53.20472 | 1.515591 |
| EDU_CEO | 12.18146 | 1.962314 | 1.096587 |
| TENURE_CEO | 0.000285 | 2.884278 | 1.417944 |

Source: Processed by the Author (2025)

The results of the multicollinearity test are shown in Table 5. Based on the centered VIF values, no independent variable has a VIF greater than 10. Therefore, it can be concluded that the regression model does not have multicollinearity issues.

**Table 6.** Heteroscedasticity Test Results

**Heteroskedasticity Test: White**

| | | | |
|---|---|---|---|
| F-statistic | 1.246437 | Prob. F(8,25) | 0.3144 |
| Obs*R-squared | 9.694489 | Prob. Chi-Square(8) | 0.2871 |
| Scaled explained SS | 5.473140 | Prob. Chi-Square(8) | 0.7060 |

Source: Processed by the Author (2025)

The result of the heteroscedasticity test in Table 6 shows that the error variance is homoscedastic. This is indicated by a Prob. Chi-Square p-value greater than 0,05. Therefore, it can be concluded that the regression model does not experience heteroscedasticity problems.

**Table 7.** Multiple Regression Results

Dependent Variable: ESG_RISK
Included observations: 34

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 41.43607 | 11.60560 | 3.570351 | 0.0012 |
| AGE_CEO | -0.236659 | 0.200163 | -1.182330 | 0.2464 |
| EDU_CEO | -6.035196 | 3.490195 | -1.729186 | 0.0941* |
| TENURE_CEO | 0.006169 | 0.016894 | 0.365147 | 0.7176 |
| | | | | |
| R-squared | 0.106802 | Mean dependent var | | 25.43794 |
| Adjusted R-squared | 0.017482 | S.D. dependent var | | 9.735111 |
| S.E. of regression | 9.649641 | Akaike info criterion | | 7.481849 |
| Sum squared resid | 2793.467 | Schwarz criterion | | 7.661421 |
| Log likelihood | -123.1914 | Hannan-Quinn criter. | | 7.543089 |
| F-statistic | 1.195724 | Durbin-Watson stat | | 1.940352 |
| Prob(F-statistic) | 0.328154 | | | |

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*) Significant at 10% alpha

Source: Processed by the Author (2025)

$ESG\_RISK_{I,t} = 41{,}43607 - 0{,}236659\ AGE\_CEO_{I,t} - 6{,}035196\ EDU\_CEO_{I,t} + 0{.}006169\ TENURE\_CEO_{I,t}$

The results of the multiple regression are shown in Table 7. The AGE_CEO variable has a p-value of 0,2464, indicating that it is statistically insignificant. Therefore, hypothesis 1 is not supported, indicating that the age of the CEO does not affect ESG risk score. This result is not in line with upper echelons theory. This finding suggests that while the age of the CEO may influence their leadership style, it does not reduce the organisation's exposure to ESG risk.

The EDU_CEO variable is significant at the 10% alpha level with a p-value of 0,0941 and a negative coefficient ($\beta_2 = -6{,}035196$) as hypothesized. This result indicates that hypothesis 2 is supported. This means the educational background of the CEO has a negative effect on ESG risk score. CEOs with a business education background are able to reduce ESG risk scores. This finding is aligned with the upper echelons theory which states that CEO characteristics affect the organization's strategic decision-making process. The business education background of CEOs shapes their values, perspectives, and intellectual capacity for assessing the business risks and sustainability issues faced by companies, thereby reducing ESG risks.

The TENURE_CEO variable has a p-value of 0,7176, indicating that it is statistically insignificant. Therefore, hypothesis 3 is not supported, indicating that the tenure of CEO does not affect ESG risk score. Although this study shows that the average tenure of a CEO is relative long at 9 years and 10 months, this is insufficient to reduce ESG risk. This could be because CEOs who have been in power for a longer period of time tend to stick to old strategies, thereby discouraging new innovations to reduce ESG risk.

**CONCLUSION**

CEO characteristics influence the organization's strategic decision-making process, including efforts to reduce ESG risk score. This research finds that CEOs with a business education background are able to reduce ESG risk scores. This educational background provides the skills needed for better risk analysis, including identifying potential ESG issues. However, the age and tenure of CEOs do not affect ESG risk scores. The age and tenure of CEOs are demographic attributes that do not directly reflect CEO sensitivity to sustainability issues and strategic capabilities in reducing ESG risk. In addition, policies to reduce ESG risk are generally the result of collective company decisions influenced by governance, organizational culture, and external pressure from stakeholders.

The results of this study highlight the importance of a business education background in reducing ESG risk scores. This underscores the importance of appointing CEOs with relevant educational backgrounds to ensure a strong commitment to sustainable business practices. The results also suggest that shareholders should consider the educational background of CEO candidates when selecting future CEOs.

Further research could encourage a shift in research focus from demographic characteristics to psychological characteristics and moral values of executives, which are more relevant in explaining their commitment to ESG issues and long-term sustainability. Further research could also add governance variables as mediating between CEO characteristics and ESG risk scores.

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