



Research Article

The Effect of Female CEO Presence and CEO Education on Earnings Quality

(Empirical Study on All Companies Listed on the Indonesia Stock Exchange for the 2019–2022 Period)

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Abstract: Earnings quality refers to the accuracy of a company in presenting its earnings information. It reflects the quality of the company's financial statements, indicating whether the reported earnings can be considered reliable or not. Earnings quality is influenced by several factors, one of which is the decision-making of the board of directors (CEO). The CEO is regarded as the most powerful individual within a company, exercising authority over corporate decisions, including the disclosure of financial information. In recent times, many women have taken on the role of CEO, and their presence is no longer underestimated. The purpose of this study is to provide empirical evidence on the effect of female CEO presence and CEO education on earnings quality. The research was conducted on all companies listed on the Indonesia Stock Exchange (IDX) for the 2019–2022 period. The sample size was determined using a saturated sampling method, resulting in 2,792 observations. Data were collected using a non-participant observation method, and the analysis technique employed was multiple linear regression analysis. The results of this study show that female CEO presence and CEO education have no significant relationship with earnings quality.

Keywords: CEO Education; Earnings Quality; Female CEO Presence; Firm Age; Firm Size.

1. Introduction

High-quality financial information, in the form of financial reporting and earnings quality, is crucial for making investment decisions. Such information contributes to stable business growth and development. As external interest in a company increases, it enhances consumer and government trust in the company's operations. Earnings quality is an important factor in minimizing information asymmetry, thereby promoting the development of financial markets (Dang et al., 2020). Earnings quality reflects the extent to which financial statements represent the company's actual performance and sustainability. High-quality financial reports provide a solid foundation for decision-making by investors and other stakeholders. Additionally, earnings quality indicates how well a company manages its assets and liabilities, which helps evaluate operational efficiency and the company's ability to generate consistent earnings.

Earnings quality is influenced by several internal factors that determine its quality, such as operational management, cost efficiency, marketing strategy, profitability, leverage, liquidity, and firm size. External factors influencing earnings quality include economic conditions, market competition, government regulations, changing consumer trends, and decisions made by the board of directors (CEO). The Chief Executive Officer (CEO) is generally regarded as the most powerful individual in an organization. They exercise authority over corporate decisions, including the issuance of financial information and board formation, and they are ultimately responsible for company decisions (Chou & Chan, 2018).

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One phenomenon that has been widely discussed in recent years regarding corporate governance is the issue of gender diversity, particularly among members of a company's board of directors. It has been stated that women are more cautious than men in many decision-making contexts (Barua et al., 2010). In Indonesia, there is still a perception that men are more suitable for holding key positions in companies. Thus, female representation on boards of directors remains an important and interesting issue.

Today, women are not only homemakers but also play significant roles across various sectors in Indonesia. For example, the Indonesian Democratic Party of Struggle (PDI-P) has been led by a woman, Megawati Soekarnoputri, since 1999. Moreover, Article 245 of Law No. 7 of 2017 on General Elections states that women must make up at least 30% of election candidates. A global survey conducted by Grant Thornton International showed that the percentage of businesses worldwide with at least one woman in a senior management position increased significantly from 75% in 2018 to 87% in 2019.

A census on women in executive leadership teams analyzed the representation of women in the Executive Leadership Team (ELT) of IDX200 companies those with the largest market capitalization and trading activity on the Indonesia Stock Exchange (IDX) for the period 2019–2021. The proportion of executive roles held by women stood at 15%, a figure that has remained unchanged since 2019. In 2019, eight companies in the IDX200 had female CEOs, as shown below.

Table 1. Companies with Female CEOs on the IDX 2019.

Company	Name
PT Unilever Indonesia Tbk (UNVR)	Ira Novarty
PT Vale Indonesia Tbk (INCO)	Febriany Eddy
PT Prodia Widyasada Tbk (PRDA)	Dewi Muliaty
PT Hasnur International Shipping Tbk (HAIS)	Jayanti Sari
PT Trimitra Prawara Goldland Tbk (ATAP)	Indriati
PT Merck Tbk (MERK)	Evie Yulin
PT XL Axiata Tbk (EXCL)	Dian Siswarini

Source: Women in Executive Leadership Team (ELT) Census, IDX200, 2024

In Indonesia, many women are entering the workforce across social, economic, and cultural sectors. Women are now often considered more competent than men because they tend to be more risk-averse in decision-making (Harakeh et al., 2019). This is evident from the increasing number of women holding high-level positions such as directors, managers, and department heads. Women also tend to analyze problems thoroughly before making decisions and develop alternative solutions with greater caution (Suciani & Purnama, 2017). Research by Zalata et al. (2022) found that female CEOs are more risk-averse than male CEOs and that the presence of a female CEO positively affects earnings quality. However, contrary findings were reported by Pamela & Geraldina (2021), who concluded that female CEOs do not significantly influence earnings quality.

CEO education is another important element of board characteristics that may affect earnings quality. CEOs are responsible for making strategic decisions essential to the company's sustainability. Therefore, the right knowledge and sufficient experience are needed to make decisions accurately and quickly. According to upper echelons theory, education is one of the factors that shape cognitive abilities and decision-making skills (Muhammad & Pribadi, 2020). In the context of economics, CEOs with higher educational backgrounds tend to deliver better company performance than those with lower educational qualifications (Morresi, 2017).

CEOs with degrees such as MBA, MM, MFin, or M.Ak are likely to perform better than those without such qualifications, as these degrees are more relevant to corporate needs (King et al., 2016). Several companies listed on the IDX have CEOs with MM and MBA degrees, as shown below:

Table 2. CEO Education in IDX-Listed Companies (2019).

Company	Name	Education
PT Arwana Citramulia Tbk (ARNA)	Tandean Rustandy	MBA
PT Adhi Karya Tbk (ADHI)	Entus Asnawi Mukhson	MM
PT Matahari Department Store Tbk (LPPF)	Bunjamin Jonatan Mailool	MBA
PT Jakarta Setiabudi International Tbk (JSPT)	Jefri Darmadi	MBA
PT Hero Supermarket Tbk (HERO)	Ingemar Patrik Lindvall	MBA

Source: Indonesia Stock Exchange (IDX) Annual Report, 2024

Master's degree holders generally possess above-average knowledge compared to bachelor's degree holders. A business-related master's education equips CEOs with the knowledge necessary to manage companies successfully, thereby enhancing corporate wealth (Setiawan & Gestanti, 2018). MBA and MM graduates share similar characteristics, as both focus on business education, providing CEOs with additional knowledge to increase company value (Gottesman & Morey, 2010). For instance, Nadiem Makarim, Indonesia's Minister of Education for the 2019–2024 period, previously served as the CEO and founder of Gojek (2010–2019). He earned his Master of Business Administration degree from Harvard Business School in 2006. According to Najwa Shihab's YouTube channel (2019), during his tenure as Gojek's CEO, Nadiem achieved revenues of up to IDR 1.4 trillion.

Furthermore, if a CEO has expertise in finance or accounting, the company's financial reporting tends to be more transparent (Herlina & Mardianto, 2022). Such expertise leads to better decision-making because the CEO has financial experience (Bouaziz et al., 2020). Financially skilled CEOs can also build user trust in accounting information, particularly in emerging markets. They also exhibit more conservative performance (Rezaee et al., 2021) and are more likely to view financial disclosures as a means to reduce information asymmetry between companies and investors. Therefore, master's programs in accounting (M.Ak.) and finance (MFin) are particularly relevant for corporate leadership.

This study employs firm size and firm age as control variables. Control variables are those that are held constant to ensure that the relationship between independent and dependent variables is not influenced by external factors. Firm size refers to the scale of a company's operations. It has a positive effect on earnings quality (Wijaya, 2020). A company with larger total assets is considered large and likely to have better earnings quality. Firm age refers to the length of time a company has been established. It also has a positive effect on earnings quality (Sulianti, 2021). Older companies are generally more proficient at collecting, processing, and producing information due to their accumulated experience (Syarli, 2021).

Based on the phenomena and the differing research findings discussed above, this study focuses on CEO characteristics specifically, female CEO presence and CEO education and their relationship with earnings quality.

2. Method

This research method uses a causal associative approach that aims to determine the relationship between the presence of female CEOs (X1) and CEO education (X2) on the earnings quality (Y) of companies listed on the Indonesia Stock Exchange (IDX) during the 2019–2022 period. This study uses secondary data obtained from annual reports and company financial reports through the official IDX website (www.idx.co.id). The study population included all companies listed on the IDX, with the sampling method using a saturated sampling technique so that the entire population was sampled. The total number of observations in this study was 2,928 over four years of observation (Sugiyono, 2019).

The variables used in this study consist of independent variables (the presence of female CEOs and CEO education), dependent variables (earnings quality), and control variables (firm size and firm age). Earnings quality is measured by the Quality of Income Ratio, while the presence of female CEOs is calculated based on the ratio of the number of female directors to the total number of directors. CEO education is measured using a dummy variable based on specific academic qualifications (MM, MBA, M.Ak, MFin). Firm size is measured using the natural logarithm of total assets, while firm age is calculated as the difference between the year of study and the year the company was founded (Sumertiasih & Yasa, 2022; Zalata et al., 2022; Setiawan & Gestanti, 2018).

Data analysis was carried out using descriptive statistics and classical assumption tests (multicollinearity, heteroscedasticity, and autocorrelation tests) to ensure that the regression model meets the BLUE (Best Linear Unbiased Estimator) criteria. Subsequently, multiple linear regression analysis was performed with the model $Q = \alpha + \beta_1\text{CEO} + \beta_2\text{EDU} + \beta_3\text{SIZE} + \beta_4\text{AGE} + e$. The testing includes the F-test to measure the simultaneous effect, the t-test to examine the partial effect of independent variables on the dependent variable, and the coefficient of determination (R^2) to assess the ability of the independent variables in explaining variations in earnings quality. The analysis was conducted using Stata statistical software with a 5% significance level (Ghozali, 2018; Bahri, 2018; Pek et al., 2018).

3. Results and Discussion

3.1. Research Data Analysis Results

3.1.1. Classical Assumption Test

Regression analysis requires the fulfillment of several assumptions to ensure that the model can serve as a reliable predictive tool. Therefore, a classical linear regression model test (classical assumption test) was conducted. The purpose of this test is to ensure that the model or equation being examined does not violate these assumptions. This verification is necessary to confirm that the results meet the BLUE (Best Linear Unbiased Estimator) criteria. The classical assumption test includes the normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test. Each test is described as follows:

1) Normality Test Results

The normality test aims to determine whether the residuals in the regression model are normally distributed. A good regression model should have a normal or approximately normal distribution (Ghozali, 2012:116). However, this study does not employ a normality test due to the large sample size. Panel data with a large sample size benefits from the Central Limit Theorem, which states that the sampling distribution of the mean approaches a normal distribution as the sample size increases, regardless of the distribution of the underlying data. Therefore, the larger the sample size, the less important the normality assumption becomes in the context of hypothesis testing and confidence interval estimation (Pek et al., 2018).

2) Multicollinearity Test Results

The purpose of the multicollinearity test is to determine whether there is a correlation among the independent variables in the regression model. To detect the presence of multicollinearity, the Variance Inflation Factor (VIF) is used. If the VIF value is less than 10 and the tolerance value is greater than 0.10, then the model is considered free from multicollinearity, and vice versa. The multicollinearity test results are shown in Table 3.

Table 3. Multicollinearity Test Results.

Variables	VIF	1/VIF (tolerance)	Information
			Free from multicollinearity
CEO	1.00	0.9955	Free from multicollinearity
EDU	1.01	0.9894	Free from multicollinearity
SIZE	1.15	0.8663	Free from multicollinearity
AGE	1.15	0.8717	Free from multicollinearity

Source: Data attached to the author's thesis

Based on Table 3, the tolerance value of each variable in the model is greater than 10% (0.10), and the VIF values for all variables are less than 10. Therefore, the regression model in this study is free from multicollinearity.

3) Heteroscedasticity Test Results

This study does not employ a heteroskedasticity test because the dataset with a very large sample size makes the effect of heteroskedasticity on coefficient estimation less significant. A large sample size tends to reduce parameter estimation bias even in the presence of heteroskedasticity. In addition, in panel data analysis, other assumptions may take precedence over normality and heteroskedasticity, such as the presence of endogeneity issues and correlations among variables. These elements can have a more direct and significant impact on the validity of model estimation and are often prioritized in model testing and adjustment (Mansournia et al., 2021).

4) Autocorrelation Test Results

This test aims to determine whether there is a correlation occurring over time between the current period and the previous one. If the results indicate that the regression model is free from autocorrelation, it can be considered a good regression model. The Pearson product-moment correlation test is used to determine the degree of association between variables as indicated by the correlation coefficient. The results of the Pearson product-moment correlation test are presented in Table 4 below.

Table 4. Pearson Product Moment Correlation Test Results.

	Q	CEO	EDU	SIZE	AGE
Q	1,0000				
CEO	0.0233 0.2181	1,0000			
EDU	0.0196 0.3004	0.0617 0.0011	1,0000		
SIZE	0.0741 0.0001	-0.0204 0.2819	0.0809 0.0000	1,0000	
AGE	0.0207 0.2743	-0.0079 0.6774	0.0306 0.1058	0.3581 0.0000	1,0000

Source: Data attached to the author's thesis

Based on Table 4, the Pearson correlation test conducted using the Pearson Correlation shows that:

- The correlation between Q and CEO is 0.0233, indicating a very weak and positive relationship. With a p-value of 0.2181, this relationship is not statistically significant, indicating no significant relationship between Q and CEO.
- The correlation between Q and EDU is 0.0196, indicating a very weak and positive relationship. With a p-value of 0.3004, this relationship is not statistically significant, indicating no significant relationship between Q and EDU.
- The correlation between Q and SIZE is 0.0741, indicating a very weak and positive relationship. With a p-value of 0.001, this relationship is statistically significant, indicating a very weak but significant relationship between Q and SIZE.
- The correlation between Q and AGE is 0.0207, indicating a very weak and positive relationship. With a p-value of 0.2743, this relationship is not statistically significant, indicating insufficient evidence of a significant relationship between Q and AGE.
- The correlation between CEO and EDU is 0.0617, indicating a very weak and positive relationship. With a p-value of 0.0011, this relationship is statistically significant, indicating a very weak but significant relationship between CEO and EDU.
- The correlation between CEO and SIZE is -0.0204, indicating a very weak and negative relationship. With a p-value of 0.2819, this relationship is not statistically significant, indicating no significant relationship between CEO and SIZE.
- The correlation between CEO and AGE is -0.0079, indicating a very weak and negative relationship. With a p-value of 0.6774, this relationship is not statistically significant, indicating insufficient evidence of a significant relationship between CEO and AGE.

- h) The correlation between EDU and SIZE is 0.0809, indicating a very weak and positive relationship. With a p-value of 0.000, this relationship is statistically significant, indicating a very weak but significant relationship between EDU and SIZE.
- i) The correlation between EDU and AGE is 0.0306, indicating a very weak and positive relationship. With a p-value of 0.1058, this relationship is not statistically significant, indicating insufficient evidence of a significant relationship between EDU and AGE.
- j) The correlation between SIZE and AGE is 0.3581, indicating a moderately strong and positive relationship. With a p-value of 0.000, this relationship is statistically significant, indicating a significant and moderately strong relationship between SIZE and AGE.

3.1.2. Multiple Linear Regression Analysis

This multiple linear regression analysis is used to examine the effect of female CEO presence and CEO education on earnings quality, with two control variables: firm size and firm age. The results of the multiple linear regression test are presented in Table 5 below.

Table 5. Multiple Linear Regression Results.

CEO				
EDU	1,350	1,062	1.27	0.204
SIZE	0.270	0.421	0.64	0.521
AGE	0.392	0.104	3.75	0,000
(Coef.	-0.003	0.011	-0.33	0.740
Constant)	-10,208	2,876	-3.55	0,000

Source: Data attached to the author's thesis

Based on the results of the multiple linear regression analysis in Table 5, the constant (β_0) is -10.208; the coefficient of CEO presence (β_1) is 1.350; the regression coefficient of CEO education (β_2) is 0.270; the regression coefficient of the control variable firm size (β_3) is 0.392; and the regression coefficient of the control variable firm age (β_4) is -0.003. Thus, the multiple linear regression equation can be written as follows:

$$Q = -10,208 + 1,350\text{CEO} + 0,270\text{EDU} + 0,392\text{SIZE} - 0,003\text{AGE} \dots\dots\dots (6)$$

The equation above can be interpreted as follows.

- 1) The constant value indicates the value of the dependent variable when all independent variables are equal to 0. The constant (α) of -10.208 means that if female CEO presence, CEO education, firm size, and firm age are all equal to 0, then the earnings quality is -10.208.
- 2) The positive regression coefficient of female CEO presence indicates that the presence of a female CEO in a company tends to result in lower or poorer earnings quality, assuming other variables remain constant.
- 3) The positive regression coefficient of CEO education indicates that higher CEO education in a company tends to increase earnings quality, assuming other variables remain constant.
- 4) The positive regression coefficient of firm size indicates that an increase in firm size tends to be followed by improved earnings quality, assuming other independent variables remain constant.
- 5) The negative regression coefficient of firm age indicates that an increase in firm age tends to be followed by deteriorating earnings quality, assuming other independent variables remain constant.

3.1.3. Model Feasibility Test (F Test)

The F-statistical test in this study was conducted by examining the significance value in the ANOVA table, aiming to determine the simultaneous effect of the variables Female CEO Presence, CEO Education, Firm Size, and Firm Age on Earnings Quality. The results of the F test are presented in Table 6 below.

Table 6. F-Test Results (Simultaneous Test).

F (4, 2787)	4.42
Prob > F	0.0015

Source: Data attached to the author's thesis

The results of the F test indicate that the calculated F-value is 4.42 with a significance level of 0.0015, which is smaller than $\alpha = 0.05$. This means that the model used in this study is feasible. This result implies that the four independent variables are capable of predicting or explaining the phenomenon of earnings quality.

3.1.4. Coefficient of Determination Test (R²)

The coefficient of determination (R²) is used to measure the model's ability to explain the variation in the independent variables. The researcher used the adjusted R² value when evaluating the best regression model because, unlike R², the adjusted R² can increase or decrease when an independent variable is added to the model. The results of the coefficient of determination test in this study are shown in Table 7 below:

Table 7. Results of the Determination Coefficient Test.

R-squared	0.0063
Adjusted R-squared	0.0049

Source: Data attached to the author's thesis

The results in Table 7 show that the adjusted R² (adjusted coefficient of determination) is 0.0049, which means that 0.49% of the variation in earnings quality is associated with female CEO presence and CEO education (with firm size and firm age as control variables). The remaining 99.51% is influenced by other variables outside the regression model.

3.1.5. Hypothesis Test (t-Test)

The partial effect test between the independent variables and the dependent variable was conducted using the t-test. The results of the coefficient determination test in this study can be seen in Table 7.

The results of the t-test analysis are as follows:

1) The Effect of Female CEO Presence on Earnings Quality

The $P > |t|$ value is 0.204, indicating that female CEO presence has a negative relationship with earnings quality, or in other words, the first hypothesis is rejected.

2) The Effect of CEO Education on Earnings Quality

The $P > |t|$ value is 0.521, indicating that CEO education has a negative relationship with earnings quality, or in other words, the second hypothesis is rejected.

3.2. Discussion and Research Results

3.2.1. The Effect of Female CEO Presence on Earnings Quality

The first hypothesis (H1) states that the presence of a female CEO has a positive effect on earnings quality. Based on the statistical test results, the presence of a female CEO is negatively associated with earnings quality. This finding indicates that the presence of a female CEO in a company does not contribute significantly to the company's earnings quality. In other words, there is no evidence supporting a relationship between the presence of a female CEO and earnings quality.

This study aligns with the Nurture Theory, which suggests that the differences between women and men are fundamentally the result of social and cultural constructs, leading to different roles and responsibilities. Due to these differences, women's roles have historically been marginalized and overlooked. According to nurture theory, gender differences are inherent and universal, thus unchangeable. Descriptive statistical analysis shows that the average proportion of companies with a female CEO is still relatively low, at around 0.14 (14%), with the majority still dominated by male CEOs. This indicates that companies still tend to trust men more to hold the CEO position. However, in the modern era, women are no longer underestimated as they were in the past, when they had very limited opportunities to hold high-level positions. Research by Zalata et al. (2022) found that

companies led by female CEOs tend to have higher earnings quality than those without a female CEO. This is because diversity can enhance problem-solving capabilities by incorporating broader perspectives, thereby improving understanding of complex business environments and ultimately increasing performance. However, the results of this study are consistent with Pamela & Geraldina (2021), who found that the presence of a female CEO is negatively associated with earnings quality. The discrepancy between previous studies and this one may be due to differences in sample size, data analysis techniques, and variable indicatorse.

3.2.2. The Relationship Between CEO Education and Earnings Quality

The second hypothesis (H2) states that CEO education has a positive effect on earnings quality. Based on the statistical test results, CEO education is negatively associated with earnings quality. This finding indicates that the educational background of a CEO is not significantly related to earnings quality.

This result does not support the Upper Echelons Theory proposed by Hambrick and Mason (1984), which suggests that the background of top managers significantly influences company decisions and performance. Descriptive statistics show that the average percentage of CEOs with relevant educational backgrounds is about 0.36 (36%), indicating that CEO education is still not widely implemented across companies. The findings suggest that a CEO's educational background is not necessarily considered an important factor within a company. Moreover, a CEO with a financial background is not guaranteed to improve earnings quality. This result aligns with Saidu (2019), who also found a negative relationship between CEO education and earnings quality. Differences from previous studies may be attributed to variations in sample size, data analysis techniques, and measurement indicators for each variable.

3.2.3. Discussion of Control Variables

Control variables are variables deliberately held constant or regulated by researchers to minimize or eliminate the influence of factors other than the independent variables that could affect the dependent variable. In this study, firm size and firm age were used as control variables. Based on the analysis, firm size is positively associated with earnings quality. This means that larger companies tend to have higher earnings quality. The larger the company's assets, the larger its size (Wijaya, 2020). More profitable companies tend to disclose more information to stakeholders about their performance, leading to higher profits or earnings (Azizah & Asrori, 2022). Investors also believe that larger companies are more likely to generate higher earnings compared to smaller firms because larger companies generally exhibit better performance (Sumertiasih & Yasa, 2022).

On the other hand, firm age is not associated with earnings quality. This means that as a company ages, its earnings quality tends to decline. Older companies often already have strong reputations and easier access to financing, so they may feel less pressure to aggressively manipulate financial statements. Additionally, older companies are typically subject to more regulations and financial reporting requirements, which can make it difficult to distinguish between high- and low-quality earnings. In some cases, older firms may even engage in minor accounting manipulations to make financial results appear stable, which reduces earnings quality since reported earnings no longer reflect actual economic performance.

4. Conclusion

Based on the results of the analysis and discussion presented above, the following conclusions can be drawn.

- 1) The presence of a female CEO is not associated with earnings quality. A higher proportion of female CEOs in a company tends to be followed by lower earnings quality.
- 2) CEO education is not associated with earnings quality. CEOs with educational backgrounds in economics, such as M.M., MBA, M.Fin., or M.Ak., are not necessarily able to improve earnings quality.

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