**THE IMPACT OF CHIEF EXECUTIVE OFFICER CHARACTERISTICS ON PERFORMANCE: THE CASE OF VIETNAMESE REAL ESTATE ENTERPRISES**

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*Abstract*.

This study examines the impact of CEO characteristics, including education level, gender, ownership, and age, on the performance of real estate companies in Vietnam. The findings highlight the positive correlation between CEO education, particularly PhD holders, and financial performance, suggesting that advanced education enhances decision-making and profitability. This study introduces a novel method of assessing CEO education by calculating total years of professional training, offering a more detailed measure than previous research. Additionally, the study provides valuable insights for policymakers and businesses on the importance of CEO qualifications in recruitment and governance practices. These findings contribute to the ongoing discourse on leadership and corporate success in Vietnam’s real estate industry*.*

Keywords: CEO characteristics; CEO education; firm performance; real estate

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# Introduction

The real estate market, a key pillar of the economy, is vital in concentrating resources and creating fixed assets for the country. Its development drives growth in related industries (Ricciotti et al., 2022). In 2022, major financial scandals involving real estate corporations have highlighted the urgent need for immediate regulatory reform and improved governance practices. The lack of transparency and deliberate misconduct have raised concerns among investors. The underperformance of real estate businesses has prompted questions about how executives impact the company's performance. This research, however, offers a beacon of hope for a brighter future, with the potential to significantly impact the real estate market and bring about positive change.

Upper Echelons Theory posits that senior executives' leadership behavior is influenced by their demographic characteristics, psychological traits, and personality attributes. The unique combination of a CEO's attributes shapes their approach to leadership, strategy, and operations, ultimately impacting the company's performance and success. (Hambrick & Mason, 1984). Moreover, numerous studies have examined the relationship between performance and CEO characteristics, including gender (Lam et al., 2013; Jadiyappa et al., 2019), tenure (Simsek, 2007; Shakir, 2009), political relations (Liu et al., 2020; Sun & Zou, 2021), educational level, work experience, foreign factors, and internal CEO status (Ali et al., 2022; Saidu, 2019; Adams et al., 2009; Ishak & Latif, 2012).

Many researchers take a unique approach by focusing on CEO attributes’ impact on real estate businesses. For instance, Saleh et al. (2017) identified management ownership as a critical factor influencing performance in the real estate sector. Alshimmiri (2004) discovered a negative relationship between cash management compensation and firm performance in REITs. Ricciotti et al. stated that gender, age, and tenure do not represent a catalyst for listed European real estate service firms' performance differentials; in contrast, advanced education and past industry experiences outside real estate can positively count. In Vietnam, numerous studies have also explored the relationship between CEO characteristics and performance in the real estate sector. Le et al. (2020) examined the impact of CEO age and education level on the earnings management of listed Vietnamese real estate companies from 2007 to 2016, revealing a negative correlation between CEO age and earnings management. The findings suggest that older CEOs tend to be more conservative and ethical, while firms led by highly educated CEOs are less prone to earnings management, and investors should consider CEO age when making investment decisions. Nguyen and Nguyen (2024) suggested that listed construction and real estate companies with highly educated CEOs do not show higher profitability, and companies with CFOs holding master's or doctorate degrees are less likely to be profitable. Nguyen et al. (2020) concluded that managerial ownership negatively impacts earnings management based on an analysis of 36 listed real estate companies from 2016 to 2018. Regarding CEO educational backgrounds, existing research typically categorizes educational levels using dummy variables distinguishing between qualifications such as undergraduate, bachelor's, master's, and doctoral degrees (King et al., 2016; Urquhart & Zhang, 2022; Kallias et al., 2023) or compares CEOs with postgraduate degrees to those without (Kaur & Singh, 2019; Lin et al., 2011), other studies emphasize specialized expertise in areas like MBA programs, law, or engineering (Saidu, 2019; Frydman, 2019; Andreou et al., 2017; King et al., 2016; Gottesman & Morey, 2006; Ghardallou, 2022), the number of degrees held (Gounopoulos et al., 2021), or the reputation of educational institutions (Morresi, 2017; Bhagat et al., 2010; Jalbert et al., 2002). Some studies also measure education by how many years a CEO has spent in school (Amore et al., 2019; Zhou et al., 2021). In Vietnam, most studies use dummy variables to classify CEO education (Vo et al., 2020; Pham, 2023; Khuong et al., 2024)) or categorize education levels, as seen in. Tran (2022) ranks CEO education levels on a scale from 1 to 7, with higher numbers indicating higher education. Similarly, Phuong (2020) measures CEO education by the highest degree obtained, assigning values from 0 to 5, with 5 representing a PhD. Tran and Pham (2020) use a five-point scale to reflect basic education levels and an eight-point scale to measure professional educational attainment.

This study focuses on CEO characteristics, including education level, gender, ownership, and age. These characteristics are not just theoretical constructs; they have real-world implications for the performance of real estate enterprises. With its unique focus on specific executive chief characteristics and real estate enterprises, our study aims to build upon and expand these insights, potentially uncovering new and impactful findings that could significantly influence the real estate industry. This paper offers several vital contributions.

Firstly, it bridges the gap in the empirical literature on Vietnam's real estate sector by exploring the impact of the current corporate governance regime on firm performance, mainly focusing on CEO characteristics. Previous studies have primarily neglected CEO traits within Vietnam’s real estate sector, and the corporate governance literature has overlooked this sector's importance to economic growth.

Secondly, the study investigates the positive impact of a CEO's educational level on the financial performance of real estate companies in Vietnam. This study introduces a new method for calculating the total years of professional training from university to postgraduate levels, based on guidelines from Decision No. 1981/QD-TTg by the Prime Minister, which defines the structure of the national education system. This approach offers an additional metric for assessing CEO education beyond those used in previous studies.

Finally, the research reveals that while CEOs with master's degrees may not significantly impact company performance, those with the highest level of education (PhD) can be instrumental in enhancing profitability and driving business success.

The remainder of the paper is structured rigorously to ensure the validity and reliability of our findings. Section 2 reviews the literature and develops the hypotheses, providing a solid theoretical foundation. Section 3 describes the methodology, which includes a quantitative analysis of financial data and a qualitative analysis of CEO characteristics. The quantitative analysis utilizes robust statistical tools, while the qualitative analysis involves interviews and document analysis, ensuring a comprehensive understanding of corporate governance practices. Section 4 presents the empirical results and discussion, and Section 5 concludes the study, providing a confident and extensive overview of our research.

# LITERATURE REVIEW

1. *THEORETICAL FRAMEWORK*

The Upper Echelon theory offers a framework for understanding how managerial attributes (education, age, gender) influence behavior and actions, ultimately affecting performance. According to this theory, a CEO's characteristics and background equip them with the knowledge and values they apply when making decisions and judgments that influence firm strategy (Wang et al., 2016).

According to Eagly's (1987) social role theory, gender stereotypes encompass beliefs about the qualities of women and men that prescribe the most desirable traits for each gender. Women are often perceived as having communal traits (e.g., compassion, supportiveness, warmth), while men are often seen as having agentic traits (e.g., dominance, powerfulness) (Pillemer et al., 2014). Such differences in judgment and decision-making based on these characteristics impact corporate performance.

Jensen and Meckling (1976) suggest that as managerial ownership increases, owner-managers interests align more closely with those of shareholders, creating a stronger incentive for owner-managers to maximize the firm's value. According to agency theory, however, managers are inherently self-interested. They may pursue personal goals, leading to the potential for concentrated power to result in abusive behavior that harms the company (Meckling & Jensen, 1976).

1. *HYPOTHESIS DEVELOPMENT*

***CEO ownership***

Ownership is fundamental to agency theory, and today, CEOs, who play a crucial role as principals in this theory, often hold ownership stakes in the business (Saidu, 2019). Means (2017) highlighted that when control rights are separated from ownership rights and shareholders are too dispersed to enforce wealth maximization, those in control might use assets for their benefit rather than the owners.

Meckling and Jensen (1976) propose that as managerial ownership increases, owners' interests align more closely with those of shareholders, incentivizing the owner-manager to maximize the firm's value. For instance, Li et al. (2007) found that firms with higher managerial share ownership significantly outperform those with lower managerial share ownership by 2–3% in operating and net return on assets and experience up to 70% higher growth in real operating and net profits.

However, some argue that excessive managerial shareholdings may lead to disengagement and self-interest, reducing profits. At low ownership ratios, controls and constraints compel managers to maximize shareholder wealth, but as power increases, managers may neglect company development (Griffith, 1999). Some studies indicate no substantive relationship between ownership and firm performance, suggesting that advocating for increased executive ownership or institutional investment may be premature (Sundaramurthy et al., 2005; Saidu, 2019).

Other research supports the idea that increases in managerial ownership create countervailing interest alignment and entrenchment effects, leading to a nonlinear relationship between managerial ownership and firm performance. Cui and Mak (2002) examined high R&D firms listed on the NYSE, AMEX, and NASDAQ, finding that Tobin’s Q initially declines with managerial ownership, then increases, then decreases again, and finally increases once more, resulting in a W-shaped relationship. Griffith et al. (2002), using economic value added (EVA) as a performance measure, showed a significantly positive nonlinear relation between CEO ownership and performance, with performance rising until the CEO's holdings reach approximately 12%, then declining until ownership reaches 67%. Based on previous research findings, the following hypothesis is proposed:

*H1: A higher CEO share ownership ratio positively impacts company performance.*

***CEO gender***

One significant CEO trait is gender. Including minority groups on the board, such as female directors, can help represent and protect shareholder interests by providing objective and critical assessments in the decision-making process, potentially leading to higher company performance (Pucheta-Martínez & Gallego-Álvarez, 2020). The attributes align with the interests of shareholders, indicating that female directors can play a role in mitigating conflicts and making advantageous decisions that enhance company value for shareholders. Gender diversity positively impacts performance, especially in countries with less developed external mechanisms, where the presence of women in executive positions can moderate the intensity of relationships that generate an economic surplus (Phan & Duong, 2021). Kang et al. (1997) state that investors often react positively to appointing female directors.

However, female CEOs may sometimes make decisions and adopt strategies that impact corporate performance differently. For instance, women are often perceived as more emotional, less focused on financial performance, and more people-oriented than men (Rosa et al., 1996; Bernardi & Arnold, 1997). Additionally, women are generally seen as more risk-averse than men (Watson & Newby, 2005; Barber & Odean, 2001). This risk aversion can lead female CEOs to avoid making risky decisions or to use lower financial leverage, potentially missing opportunities for success (Faccio et al., 2016). Other studies have indicated the same negative impact of female CEOs on corporate performance (Adams & Ferreira, 2009; Inmyxai & Takahashi, 2010), while others have found no significant link between gender and firm performance (Lam et al., 2013; Liu et al., 2010). The research hypotheses are proposed as follows:

*H2: Female CEO negatively affects firm performance.*

***CEO age***

CEO characteristics can change with age (Yim, 2013). Hambrick and Fukutomi (1991) argue that CEO age often correlates with their level of risk aversion, time horizon, and career aspirations. Research by Huang et al. (2012) shows a relationship between CEO age and financial reporting quality. In their Upper Echelons theory, Hambrick and Mason (1984) stated that CEO age is an important indicator because it reflects the CEO's life experience. Companies led by younger CEOs tend to take more risks, evident in more extensive or numerous strategic actions. Having fewer opportunities to accumulate assets and knowledge, young CEOs may be more impatient and attracted by financial gains, leading to risky decisions that affect the company (Yim, 2013). Additionally, younger CEOs may struggle to foresee, understand, and appreciate the potential for their strategic choices to yield lower-than-expected profits (Hambrick & Fukutomi, 1991).

Contrary to the above statements, Hambrick and Mason (1984) found that young CEOs contribute more to the growth and development of businesses than older CEOs. Older CEOs invest less in research and development, diversify acquisitions, manage companies with more diverse operations, and maintain lower operating leverage (Huang et al., 2012). Similarly, Cline and Yore (2016) suggested that CEO age negatively affects firm value, operating performance, and corporate deal-making activity. At the same time, older CEOs may promote their interests and goals and enjoy a peaceful life, which may lead to a decline in the performance of companies headed by older CEOs (Pham, 2023).

Some studies found a nonlinear relationship between CEO age and performance (Yeoh & Hooy, 2020; Richard & Shelor, 2002). Richard & Shelor (2002) show that Top management team age heterogeneity is positively related to sales growth at low and medium levels and negatively related to sales growth at high levels. Yeoh & Hooy (2020) used a sample of 6,169 firm-year observations of publicly listed companies in Malaysia to study CEO risk-taking behavior from 2009 to 2017. They found that CEO age exhibits an inverse U-shaped relationship with risk-taking, where risk-taking increases with age up to a certain point and decreases beyond that threshold. The research hypotheses are as follows:

*H3: CEO age positively impacts company performance.*

***CEO education level***

Education encompasses two primary dimensions: the level of attainment and the quality of the education received. These dimensions emphasize different aspects and characteristics, equipping individuals with various skills and knowledge (Gottesman & Morey, 2006; King et al., 2016; Urquhart & Zhang, 2022).

Some perspectives advocate for the positive influence of educational attainment on firm performance. For instance, King et al. (2016) found that CEOs with higher levels of MBA education demonstrate improved company performance, particularly regarding Return on Assets (ROA). However, this association weakens when considering university and doctoral degrees. Saidu (2019) examined the impact of CEOs with MBA degrees on company performance from 2011 to 2016, revealing that CEO education enhances company profitability (ROA). Koyuncu et al. (2010) supported the hypothesis that companies led by CEOs with educational backgrounds in operation-related fields, such as engineering, tended to perform better than those led by CEOs from other functional backgrounds. Urquhart and Zhang (2022) found limited evidence for the impact of graduate and MBA degrees on company performance, but they noted a significant positive effect associated with PhD degrees. Kallias et al. (2023) affirmed that companies led by CEOs with PhDs or MBAs achieve profits 12% and 11% higher three years after listing, attributed to their more complex thought processes and ability to generate innovative ideas. Amore et al. (2019) proposed that education influences managerial styles, thereby enhancing the sustainability of corporate practices. Their analysis of a unique dataset of Danish firms from 1996 to 2012 classified education into distinct categories: undergraduate, graduate, and postgraduate (including master's and doctorate), measured by the duration of professional training. Zhou et al. (2021) provided compelling evidence that Chinese companies led by highly educated CEOs are more likely to pursue environmental innovation, particularly in regions with stringent environmental regulations.

On the other hand, there is a prevailing belief that CEO education has little impact on firm performance. Gottesman and Morey (2006) presented mixed findings regarding the correlation between CEO education level and firm performance, discovering that CEOs with MBAs or law degrees did not outperform those without graduate degrees. Morresi (2017) concluded that graduating from top-ranked universities and obtaining multiple degrees did not significantly improve a CEO's ability to enhance European company performance, regardless of the measure used (Tobin’s Q, ROA, ROE, or stock return). Bhagat et al. (2010) found that while CEOs with MBA degrees contributed to short-term performance improvements, they had minimal impact on long-term company performance. The research hypotheses are as follows:

*H4: A higher level of CEO education will have a more positive effect on firm performance.*

# METHODOLOGY

1. DATA

The study examines real estate firms listed on the Vietnamese stock exchange. Of the 1,597 listed companies, 82 firms operate in the real estate sector, with 58 firms on the HOSE (Ho Chi Minh City Stock Exchange). However, the analysis is limited to companies from 2018 to 2022, requiring complete data for this period. After excluding companies listed after 2018 and those with missing data (8 companies), the final sample consists of 50 companies over five years, totaling 250 firm-year observations. The collected data is secondary and divided into financial and non-financial data. Financial data is sourced from FinPro and financial reports, including balance sheets and loss and profit reports. In contrast, non-financial data related to corporate governance is collected by hand from publicly listed financial reports, management reports, and annual reports.

1. *MODEL*

Drawing on the theoretical background and hypothesis development, the study is structured using the following models:

ROAi,t = β0 + β1 GENi,t + β2 AGEi,t + β3 OWNi,t + β4 EDUi,t + θ1 FSi,t + θ2 LEVi,t + θ3 BSi,t + εi,t (1)

Where ROAi,t denotes firm performance; GENi,t; AGEi,t; OWNi,t; EDUi,t denote CEO gender; CEO age; CEO ownership; CEO education perspectively; BSi,t; FSi,t; LEVi,t are control variables denoting board size, firm size, and leverage perspectively.

1. *MEASURES*

***Firm performance***

Building upon prior research by Saidu (2019), this study utilizes return on assets (ROA) to assess operational efficiency. ROA is computed as the profit after tax to assets ratio. Research frequently adopts this measure because it considers the company's operating history (Saidu, 2019).

***CEO characteristics***

CEO Ownership (OWN): When a CEO holds a significant portion of the company’s stock, they gain considerable influence over the selection of other directors, giving them an advantage over other board members. This significant ownership allows the CEO to influence board member remuneration, resist their dismissal if needed, and dominate most board decisions (Hambrick & Fukutomi, 1991). CEO ownership is measured by the percentage of total outstanding shares owned by the CEO (Zhang et al., 2016).

CEO Age (AGE): Companies led by younger CEOs often experience higher average growth through internal development, R&D, and mergers and acquisitions (Belenzon et al., 2019). The CEO defines the CEO's age (Peni, 2014).

CEO Gender (GEN): In many Asian countries, women still face significant disadvantages and inequalities due to persistent male-dominated attitudes (Singhathep & Pholphirul, 2015). Companies led by female CEOs often show less financial success for various reasons. Fairlie and Robb (2009) suggest that female owners and leaders tend to have less economic and human capital. Women are also often perceived as more risk-averse than men, making female CEOs more cautious about bold decisions or using high financial leverage, potentially leading to missed opportunities for success (Barber & Odean, 2001; Faccioet al., 2016). CEO gender is a binary variable, with 1 assigned to male CEOs and 0 to female CEOs (Fairlie & Robb, 2009).

CEO Education (EDU): Following the educational specifications of Amore et al. (2019), Hamori & Koyuncu (2015), and Zhou et al. (2021), CEO education levels are categorized into undergraduate, graduate, master’s, and doctoral degrees, and are measured by years of schooling. According to Decision No. 1981/QD-TTg dated October 18th, 2016, by the Prime Minister, one must spend 12 years to graduate from high school or secondary vocational school and 16-17 years to complete a bachelor’s degree. Bachelor’s programs typically span four years, while specialized programs such as engineering, pharmacy, and medicine may require five years. A traditional master’s degree takes an additional two years after university graduation. A doctoral degree, the highest level of education, requires at least 22 years of schooling. Unlike other studies, we focus only on CEOs' years of professional training from university or higher. Our baseline analysis identifies the minimum years of schooling based on the highest degree obtained: 4 - 5 years for an undergraduate or graduate degree, 6 - 7 years for a master’s degree, and 10 -11 years for a doctoral degree.

***Control variables***

Control variables encompass measurable factors within a study, such as board size (BS), firm size (FS), and financial leverage (LEV), which are sourced from prior research and are believed to impact performance. Board size is calculated by the number of members on the board (Tang et al., 2020); Firm size is gauged by the natural logarithm of total assets (Jayaraman et al., 2000), while financial leverage (LEV) is calculated as total debt divided by total assets (Zhou et al., 2021).

**Table 1. Variable Measures**

|  |  |  |
| --- | --- | --- |
| **Variables** | **Measurements** | **Sources** |
| Return on assets (ROA) | The profit after tax to assets ratio | Saidu (2019) |
| CEO ownership (OWN) | The CEO's ownership percentage relative to total outstanding shares | McClelland et al. (2012) |
| CEO education (EDU) | Years of schooling A bachelor’s degree in engineering, medicine, or pharmacy typically lasts 5 years, while other bachelor’s degrees typically last 4 years. Pursuing a Master's degree adds 2 years, and obtaining a Ph.D. adds 4 years per the respective bachelor’s degree. | Zhou, Chen & Chen (2021) Hamori & Koyuncu (2015), Amore et al ([2019](https://onlinelibrary.wiley.com/doi/full/10.1111/corg.12338#corg12338-bib-0006)) |
| CEO age (AGE) | The number of CEO's age | Peni (2014) |
| CEO gender (GEN) | The dummy variable equaled 1 if the CEO is male and 0 if otherwise | Fairlie & Robb (2009) |
| Firm size (FS) | The logarithm of total assets | Jayaraman et al. (2000) |
| Leverage (LEV) | Total debt over total assets | Zhou et al. (2021) |
| Board size (BS) | The count of board members | Tang et al. (2020) |

*(Source: compiled from author)*

# RESULTS AND DISCUSSION

# *DESCRIPTIVE STATISTICS*

 The study conducted descriptive statistics to provide an overview of the variables used. Table 2 presents these descriptive statistics. For managerial trait variables, the CEO ownership ratio averages 0.04. Male CEOs make up 88% of the sample, reflecting the ongoing gender discrimination in Vietnam. The average age of the CEOs is 48.15 years, with the oldest being 70 and the youngest 27, indicating a significant age range within the sample. On average, the ROA ratio for firms stands at 0.04.

**Table 2: Summary statistics**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | N | Mean | Std. dev. | Min | Max |
| ROA | 250 | 0.04 | 0.06 | -0.48 | 0.21 |
| AGE | 250 | 48.15 | 7.90 | 27 | 70 |
| GEN | 250 | 0.88 | 0.32 | 0 | 1 |
| OWN | 250 | 0.04 | 0.09 | 0 | 0.55 |
| EDU | 250 | 5.62 | 1.73 | 4 | 11 |
| FS | 250 | 28.86 | 1.53 | 26.22 | 33.99 |
| LEV | 250 | 0.49 | 0.18 | 0.08 | 0.86 |
| BS | 250 | 5.58 | 1.32 | 2 | 11 |

*(Source: author's analysis)*

 Table 3 presents the distribution of CEO education levels. Undergraduate degrees, which require 4-5 years of study depending on the field, comprise more than 51% of the total sample. Master’s degrees, typically taking 6-7 years, represent 30% of the sample, while the remaining portion consists of doctoral degrees.

**Table 3: Detail of the CEO's year of schooling**

|  |  |  |
| --- | --- | --- |
| EDU | Freq. | Percent |
| 4 | 86 | 34.40 |
| 5 | 42 | 16.80 |
| 6 | 70 | 28.00 |
| 7 | 31 | 12.40 |
| 10 | 18 | 7.20 |
| 11 | 3 | 1.20 |
| Total | 250 | 100 |

*(Source: author's analysis)*

 Table 4 shows the variable correlations, revealing that CEO age and ownership positively correlate with ROA, while other CEO characteristics negatively correlate with ROA. Additionally, since no correlation coefficient exceeds 0.8, it can be concluded that multicollinearity is not present among the variables (Tabachnick et al., 2001).

**Table 4: Variable correlations**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | ROA | GEN | AGE | OWN | EDU | FS | LEV | BS |
| ROA | 1 |  |  |  |  |  |  |  |
| GEN | -0.02 | 1 |  |  |  |  |  |  |
| AGE | 0.07 | 0.03 | 1 |  |  |  |  |  |
| OWN | 0.03 | 0.05 | -0.06 | 1 |  |  |  |  |
| EDU | -0.11 | 0.00 | -0.02 | 0.11 | 1 |  |  |  |
| FS | 0.04 | -0.18 | 0.18 | -0.14 | 0.11 | 1 |  |  |
| LEV | -0.05 | 0.29 | 0.08 | -0.07 | -0.01 | 0.30 | 1 |  |
| BS | 0.06 | 0.17 | 0.14 | -0.13 | -0.09 | 0.31 | 0.21 | 1 |

*(Source: author's analysis)*

1. *CEO CHARACTERISTICS AND FIRM PERFORMANCE*

Panel data techniques are employed to estimate the models because pooled regression cannot account for CEO characteristics' unobservable heterogeneity and endogeneity. The most commonly used static panel data models for this purpose are fixed-effect and random-effect models (Adams & Mehran, 2008). The study conducted regressions using the data and equation (1) to test the impact of chief executive factors on performance. Ordinary Least Squares (OLS), Fixed Effects Model (FEM), and Random Effects Model (REM) regressions were performed, followed by F-tests and Hausman tests to determine the most suitable model (Gupta & Mahakud, 2020). Finally, the FEM model was selected as the optimal model.

Table 5 presents the regression results of the FEM model, indicating that only CEO education significantly impacts performance at a 5% significance level. This result supports hypothesis 4 that the higher education background a CEO obtains, the more efficient profit gains. Theories and empirical studies have also demonstrated this positive relationship. Wally and Baum (1994) suggested that a CEO's formal education reflects their cognitive ability, enabling them to gather and process complex information more effectively and make quicker decisions. CEOs with higher education levels are likely to employ more sophisticated methods to enhance firm performance and may have stronger social connections with other CEOs and government officials, further boosting company performance (Gottesman & Morey, 2006; Graham & Harvey, 2002). As CEOs advance their education, they may become more inclined to pursue innovative, complex, and significant corporate strategies, fostering the development of strategic actions within the company (Wang et al., 2016; Tran & Pham, 2020). Contrary to expectations, the findings show that the relationship between CEO gender, age, ownership, and performance is not statistically significant.

**Table 5. CEO characteristics and firm performance**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Coef | Std | t | P>t |
| ROA |  |  |  |  |
| EDU | 0.028 | 0.006 | 5.020 | 0.000\*\*\* |
| GEN | 0.003 | 0.034 | 0.100 | 0.922 |
| AGE | 0.002 | 0.039 | 0.050 | 0.962 |
| OWN | 0.002 | 0.002 | 1.240 | 0.218 |
| FS | 0.004 | 0.014 | 0.320 | 0.750 |
| LEV | -0.057 | 0.051 | -1.130 | 0.262 |
| BS | -0.001 | 0.006 | -0.090 | 0.930 |
| \_cons | -0.212 | 0.392 | -0.540 | 0.590 |

*(Source: author's analysis)*

1. *REGRESSION DIAGNOSTICS*

 The study employs appropriate diagnostic tests to identify model defects such as multicollinearity, heteroskedasticity, and autocorrelation. First, the study utilizes the Variance Inflation Factor (VIF) coefficient to check for multicollinearity. Typically, a VIF coefficient greater than 10 indicates the presence of multicollinearity. However, as shown in Table 6, all VIF coefficients are below 2, confirming that the model does not suffer from multicollinearity.

**Table 6. Multicollinearity**

|  |  |  |
| --- | --- | --- |
| Variable | VIF | 1/VIF |
| BS | 1.57 | 0.636 |
| OWN | 1.41 | 0.708 |
| FS | 1.33 | 0.750 |
| LEV | 1.24 | 0.807 |
| GEN | 1.17 | 0.853 |
| AGE | 1.06 | 0.944 |
| EDU | 1.05 | 0.948 |
| Mean VIF | 1.26 |  |

*(Source: author's analysis)*

 Second, the Wooldridge test is used to check for serial autocorrelation. The test results show that Prob > F = 0.0034, more diminutive than 0.05, indicating that the model has serial autocorrelation. Third, the Wald test is conducted to assess heteroscedasticity. The result, Prob > chi2 = 0.0000, is less than 0.05, indicating the presence of heteroscedasticity in the model. The study uses a robust model to address this issue, as shown in Table 7. After applying the robust model, the results indicate that CEO education positively impacts ROA at a 10% significance level.

**Table 7. Robust FE model with ROA**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Coef | std | t | P>t |
| GEN | 0.003 | 0.019 | 0.18 | 0.860 |
| EDU | 0.028 | 0.016 | 1.72 | 0.092\* |
| AGE | 0.002 | 0.053 | 0.03 | 0.972 |
| OWN | 0.002 | 0.001 | 1.39 | 0.173 |
| BS | -0.001 | 0.007 | -0.07 | 0.943 |
| FS | 0.004 | 0.033 | 0.13 | 0.894 |
| LEV | -0.057 | 0.076 | -0.76 | 0.453 |
| \_cons | -0.212 | 0.957 | -0.22 | 0.826 |

*T-statistics are in parentheses. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10%*

*(Source: author's analysis)*

1. *ROBUSTNESS*

 To assess the model's stability, the study substituted ROE as the dependent variable to determine the impact of corporate governance variables on performance changes. ROE (Return on Equity) is a crucial financial ratio that measures a company's profitability relative to its equity. It is calculated by dividing profit after tax by the company's equity. The revised research model (2) is as follows:

ROEi,t = β0 + β1 GENi,t + β2 AGEi,t + β3 OWNi,t + β4 EDUi,t + θ1 FSi,t + θ2 LEVi,t + θ3 BSi,t

+ εi,t (2)

 ROE (Return on Equity) is a crucial indicator of interest to researchers and investors because it demonstrates a company's ability to create shareholder value. Beyond being a mere financial metric, ROE represents the book value of a business and reflects the efficiency with which equity capital is used to generate profits. A high ROE typically indicates that the company can produce substantial profits from each unit of capital shareholders invest. Specifically, ROE provides insight into the rate of return shareholders can expect from their investment in the business, representing the profit level obtainable in exchange for the risk of investing in the company. It signifies the potential return shareholders hope to receive from their investment. Detailed results of the regression model are presented in Table 8.

**Table 8. Regression of models with ROE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Coef | Std | t | P>t |
| ROE |  |  |  |  |
| GEN | 0.014 | 0.086 | 0.16 | 0.872 |
| EDU | 0.068 | 0.014 | 4.82 | 0.000\*\*\* |
| AGE | -0.010 | 0.100 | -0.1 | 0.923 |
| OWN | 0.005 | 0.004 | 1.31 | 0.192 |
| BS | -0.008 | 0.015 | -0.55 | 0.581 |
| FS | 0.045 | 0.036 | 1.24 | 0.217 |
| LEV | 0.019 | 0.130 | 0.15 | 0.883 |
| \_cons | -1.490 | 0.999 | -1.49 | 0.138 |

*T-statistics are in parentheses. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10%*

*(Source: author's analysis)*

 The regression analysis for model (2) shows results consistent with model (1). Notably, the CEO's educational background continues to have a significant positive effect on ROE at the 1% significance level, while the other variables remain insignificant in their impact on ROE.

 Furthermore, this study incorporates alternative educational variables to test the model. Drawing on the work of Kaur & Singh (2019), Lin et al. (2011), and Kallias et al. (2023), it is recognized that advanced professional education, such as master's and doctoral degrees, can impact firm performance. Therefore, dummy variables for master's and doctoral degrees are used as proxies for CEO education. The master's degree (MAS) variable is coded as 1 if the CEO holds a master's degree and 0 otherwise, following the methodology of Kaur & Singh (2019) and Lin et al. (2011). Similarly, the doctoral degree (DR) variable is coded as 1 if the CEO holds a doctoral degree and 0 otherwise, based on Kallias et al. (2023). Table 9 presents two models that use master's degrees (Model 3) and doctoral degrees (Model 4) as alternative variables. The results reveal that CEOs with master's degrees do not significantly influence firm performance, aligning with the findings of Gottesman and Morey (2006), who also noted that CEOs with master's degrees did not outperform those led by CEOs without such qualifications. In contrast, CEOs with PhDs positively impact firm performance, with a significance level of 1%. This finding is supported by Kallias et al. (2023), who suggest that higher valuations are associated with companies led by CEOs holding PhDs in specific industries.

**Table 9. Regression of models with alternative variables and ROA**

|  |  |  |
| --- | --- | --- |
|  | **(3)** | **(4)** |
| GEN | -0.001 | -0.002 |
|  | (0.979) | (0.955) |
| MAS | 0.026 |  |
|  | (0.142) |  |
| AGE | 0.031 | 0.015 |
|  | (0.468) | (0.697) |
| OWN | 0.001 | 0.001 |
|  | (0.400) | (0.684) |
| BS | -0.009 | -0.005 |
|  | (0.133) | (0.418) |
| FS | 0.01 | -0.006 |
|  | (0.535) | (0.660) |
| LEV | -0.08 | -0.038 |
|  | (0.147) | (0.457) |
| DR |  | **0.166\*\*\*** |
|  |  | 0.000 |
| \_cons | -0.267 | 0.193 |
|  | (0.538) | (0.622) |
| N | 191 | 191 |
| R-sq | 0.07 | 0.225 |

*T-statistics are in parentheses. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10%*

*(Source: author's analysis)*

# CONCLUSION

This study investigates the influence of CEO characteristics on the performance of real estate firms listed on the Ho Chi Minh City Stock Exchange (HOSE) from 2018 to 2022. The regression analysis reveals that CEO education positively impacts company performance, whereas CEO gender, age, and ownership show no significant effects. Return on Equity (ROE) was also used as an alternative dependent variable to test the model's robustness, with the Fixed Effects Model (FEM) regression results for ROE aligning with the initial findings, thereby confirming the model's reliability. Moreover, the findings also suggest that a CEO with a PhD can enhance accounting performance while possessing a master's degree has a minimal effect on company performance. This research provides valuable policy and managerial insights.

First, the positive correlation between educational attainment and company performance implies that CEOs with advanced knowledge and expertise are more effective in decision-making and contribute to the company’s survival and growth. This emphasizes the importance of considering CEO qualifications during recruitment. Companies and the government should also adopt policies to attract and retain high-quality talent to prevent brain drain.

Second, earning a PhD reflects deep expertise in a specific field, which can be particularly beneficial in business operations. The findings suggest that having senior managers with specialized knowledge is a significant advantage, especially in real estate businesses. Therefore, it is crucial to consider recruiting and incentivizing highly qualified CEOs to lead the company.

While this research has yielded significant results, some limitations persist. Model errors were not eliminated despite using a Fixed-Effects regression model and robust methods. Future research should aim to identify and address endogenous variables to mitigate these errors fully.

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1. JEL codes can be found at: <https://www.aeaweb.org/econlit/jelCodes.php?view=jel>

*Note:* ***8,000 words limit*** [↑](#footnote-ref-1)