IMPACT OF CEO CHARACTERISTICS ON THE PERFORMANCE OF LISTED COMPANIES IN VIETNAM

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Abstract

This study investigates how CEO characteristics influence firm performance in the context of Vietnam, an emerging market. The dataset comprises 30 publicly listed companies on the Ho Chi Minh City Stock Exchange (HOSE) over the period 2010–2023. The Ordinary Least Squares (OLS) and quantile regression methods are employed as the primary estimation technique. The findings indicate that CEO age and tenure, have a statistically significant and positive impact on firm performance when measured by Return on Assets (ROA) as well as Return on Equity (ROE), underscoring the importance of managerial experience and qualifications in enhancing shareholder value. Conversely, CEO ownership is found to be negatively associated with ROE, suggesting that concentrated control may reduce governance efficiency, potentially due to weakened oversight or entrenchment effects.

Research purpose:
This study aims to empirically examine the effects of various CEO characteristics—including age, tenure, duality, educational background, gender, and ownership stake—on the financial performance of publicly listed companies in Vietnam, specifically those in the VN30 index. The research intends to uncover both average and distributional impacts of these CEO traits on firm profitability, measured by ROA and ROE, to provide a nuanced understanding of leadership influence in an emerging market context.

Research motivation:
The motivation stems from the growing recognition that CEOs' personal attributes significantly shape firms' strategic directions and outcomes, yet empirical evidence in emerging markets like Vietnam remains sparse. Prior research has predominantly focused on developed economies, leaving a gap concerning how CEO characteristics manifest impacts under the dynamic and evolving corporate governance environment of Vietnam's stock market. Addressing this gap offers important insights for both academia and practitioners navigating leadership selection and corporate governance in transitional economies.

Research design, approach, and method:
This study adopts a quantitative research design using a panel dataset of 30 VN30 companies listed on the Ho Chi Minh City Stock Exchange over the period 2010 to 2023. The empirical analysis applies two main econometric methods: Pooled Ordinary Least Squares (OLS) regression to estimate the average effects of CEO characteristics on firm performance indicators (ROA and ROE), and Quantile Regression to explore heterogeneous impacts across different levels of financial performance. CEO characteristics examined include duality, age, gender, educational background, ownership, and tenure, while firm-level control variables account for size and age. This combination of methods allows for a comprehensive assessment of both mean and distributional relationships between leadership traits and corporate outcomes.

Main findings:
The findings demonstrate that CEO age and tenure possess strong, positive, and statistically significant impacts on firm performance indicators ROA and ROE, confirming the critical role of experience and leadership stability in enhancing profitability. CEO duality is found to positively influence ROA, especially in high-performing firms, while CEO ownership shows a negative association with ROE, indicating governance risks associated with concentrated control. Educational background and gender reveal mixed effects, highlighting contextual nuances in Vietnam's corporate landscape. The quantile regression results emphasize heterogeneity, with CEO characteristics impacting firms differently depending on their performance strata.

Practical/managerial implications:
These results suggest that firms should carefully consider CEO experience and tenure in succession planning and

leadership development to foster sustainable financial performance. The positive role of duality in asset efficiency calls for balancing centralized authority with adequate governance safeguards to optimize decision-making. Moreover, the negative implications of concentrated CEO ownership underscore the need for strengthened supervisory mechanisms. The nuanced effects of education and gender imply that supplementary managerial training and inclusive policies could further enhance leadership effectiveness in Vietnam's evolving market environment.

Keywords: CEO characteristics, firm performance, VN30 firms, corporate governance, Upper Echelons Theory

1. INTRODUCTION

Chief Executive Officers (CEOs) play a central role in shaping firm strategies and outcomes. As the highest decision-makers, their personal characteristics—including age, gender, education, tenure, ownership stakes, and whether they hold both the CEO and chairperson role (duality)—can influence how they evaluate risks, allocate resources, and guide firms toward growth or stability. Firm performance, captured through accounting-based indicators such as return on assets (ROA) and return on equity (ROE), and market-based measures such as Tobin's Q, is thus often a reflection of the decisions and orientations of CEOs. In transitional economies like Vietnam, where institutions are evolving and governance structures are still maturing, understanding how CEO characteristics affect firm outcomes is particularly important.

The relationship between CEO attributes and firm performance has been explored extensively in the international literature, but results remain inconclusive. Some studies suggest that older and longer-tenured CEOs provide valuable experience and stability, while others caution that these traits may lead to conservatism or entrenchment (Rahman & Chen, 2022). Evidence on gender and education is also mixed: while female leadership and higher education levels are sometimes linked to improved governance and innovation (Suherman et al., 2023). CEO ownership and duality similarly present a paradox. While ownership may align incentives between managers and shareholders, excessive ownership or duality can reduce accountability, resulting in managerial opportunism (Khan et al., 2020).

In Vietnam, a growing body of research has begun to assess these dynamics. Nguyen et al. (2023) found that age, gender, and education are positively associated with performance in listed firms, but that prolonged tenure and higher ownership stakes may reduce effectiveness. Nguyen et al. (2024) similarly emphasized the positive role of female and highly educated CEOs. Meanwhile, Nguyen and Vu (2023) highlighted the importance of tenure in moderating the effect of CEO experience on firm outcomes. While these studies provide valuable insights, they often focus on a subset of traits or rely solely on mean-based estimations such as OLS, leaving unanswered whether the effects of CEO characteristics differ across high-performing and low-performing firms.

This paper addresses several important research gaps. While prior studies in Vietnam have explored the relationship between CEO traits and firm outcomes, most have been limited in scope, typically examining one or two characteristics in isolation (e.g., Nguyen et al., 2023; Pham, 2023; Nguyen et al., 2024). Moreover, these studies have largely relied on mean-based models such as OLS, which overlook heterogeneity across the distribution of firm performance. This study provides a comprehensive analysis by simultaneously investigating six CEO characteristics—age, gender, education, duality, tenure, and ownership—within the same empirical framework. It introduces quantile regression to Vietnamese corporate governance research, allowing us to uncover distributional effects that traditional models cannot detect. Moreover, it employs a longitudinal dataset from 2010 to 2023, which is more recent and extensive than those used in earlier studies and captures significant structural changes in the Vietnamese economy, including the COVID-19 period. Collectively, these contributions differentiate this study from existing Vietnamese research and extend the international literature by offering new insights into how CEO attributes shape firm performance in an emerging market context.

This study contributes in multiple ways. Empirically, it offers one of the most comprehensive analyses of CEO characteristics and firm performance in Vietnam, using a large panel of non-financial listed firms over more than a decade. Methodologically, the application of quantile regression provides new insights into performance-dependent effects, moving beyond conventional mean-based analyses. Theoretically, the study refines the application of Upper Echelons Theory and Agency Theory in an emerging market, showing how institutional context shapes the impact of CEO traits. Practically, the findings generate implications for boards, investors, and policymakers by identifying which CEO traits may enhance performance and under what conditions. In doing so, the study provides an evidence-based perspective on leadership selection, succession planning, and governance reform in Vietnam.

The remainder of this paper is structured as follows. Section 2 reviews relevant literature and develops hypotheses. Section 3 presents the data, variables, and methodology. Section 4 reports empirical results and discusses key implications for theory and practice. Section 6 concludes with contributions, limitations, and avenues for future research.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Literature review

2.1.1 Theoretical background

Understanding the link between CEO characteristics and firm performance requires grounding in established theories of management and corporate governance. The Upper Echelons Theory (UET), first articulated by Hambrick and Mason (1984), posits that organizational outcomes are partly predicted by managerial background characteristics. CEOs' observable traits such as age, gender, education, and tenure serve as proxies for deeper cognitive and psychological processes, which in turn shape strategic choices. Recent research continues to validate this theory, showing that demographic and experiential factors of top executives influence firm strategies ranging from innovation to risk management (Rahman & Chen, 2022; Suherman et al., 2023).

Complementing this perspective, Agency Theory emphasizes the conflict of interest between managers and shareholders. CEOs may pursue personal objectives rather than maximizing shareholder value, particularly when monitoring mechanisms are weak (Jensen & Meckling, 1976). CEO ownership, tenure, and duality are governance-related traits that directly relate to this problem. For example, CEO ownership can align incentives with shareholders, but excessive control may entrench managers (Khan et al., 2020). Similarly, CEO duality may improve strategic coherence but could also reduce board independence and accountability (Nguyen et al., 2023). Agency Theory therefore provides a lens to examine both the positive and negative implications of CEO power.

A further lens is the Resource-Based View (RBV), which highlights the role of unique and inimitable resources in driving firm performance (Barney, 1991). CEO human capital—such as education level, international experience, and accumulated knowledge—can be seen as strategic resources that shape firm competitiveness. Recent studies suggest that firms led by more educated or globally exposed CEOs are better positioned to innovate and adapt to rapidly changing markets (Nguyen et al., 2024; Nguyen & Vu, 2023).

Together, these perspectives offer a comprehensive foundation. UET explains how demographic characteristics influence decision-making; Agency Theory illuminates the governance implications of CEO power; and RBV highlights the strategic value of CEO knowledge and skills. Applying these theories to Vietnam, where corporate governance institutions are still developing, allows for a richer understanding of how CEO traits interact with firm performance in a transitional economy.

2.1.2 CEO Characteristics and Firm Performance

In Vietnam, research on the relationship between CEO characteristics and firm performance has grown significantly over the last decade, reflecting the country's rapid economic transition and evolving corporate governance system. Several studies provide evidence that demographic and governance-related CEO traits shape firm outcomes, though the findings remain mixed. Nguyen et al. (2023) examined companies listed on the Ho Chi Minh Stock Exchange and found that CEO gender, age, and education positively influence performance, while prolonged tenure and higher ownership stakes appear to reduce effectiveness. This aligns with Upper Echelons Theory, suggesting that observable CEO attributes shape strategic choices and outcomes in transitional markets. Similarly, Nguyen et al. (2024) reported that firms led by female and highly educated CEOs achieved superior financial results. Their study highlights the potential value of diversity and human capital in executive roles, especially in contexts where governance structures are still maturing.

Other Vietnamese research emphasizes the role of CEO experience and tenure. Nguyen and Vu (2023) found that CEOs with foreign experience improve firm outcomes, particularly when they have accumulated longer tenure, suggesting that international knowledge and local adaptation complement each other. Conversely, Pham (2023), focusing on the banking sector, reported that longer tenure may foster conservatism, potentially constraining performance. These studies collectively demonstrate that CEO characteristics matter in Vietnam, but their effects are context-dependent. Institutional features, governance quality, and industry conditions all appear to moderate the relationship, leaving room for further investigation using broader datasets and more advanced analytical techniques.

- Dual Role as Board Chairperson and CEO

CEO duality—when one individual serves as both Board Chair and CEO—is a notable topic in corporate governance. Empirical research strongly emphasizes that the effect of CEO duality on firm performance is contextual: studies typically report conditional results that depend on information environment, governance strength, firm size, life-cycle stage, or crisis periods.

Hsu et al. (2019) analyze Taiwanese listed firms and explicitly examine information costs as a moderator. Using a panel of Taiwanese firms over period 2000–2012 and analyst forecast dispersion and coverage as proxies for information costs, they estimate fixed-effects and interaction models to test whether duality's effect depends on information asymmetry. Their principal finding is that CEO duality tends to harm performance when information costs are high, consistent with agency theory; when analyst coverage is extensive (lower information costs), the negative effect attenuates (Hsu et al., 2019).

Mubeen et al. (2021) use a large Chinese sample drawn from the CSMAR database consists of 417 listed firms with 2,502 firm-year observations for 2010–2014 and apply GMM and other panel techniques to examine moderating roles of firm size and CSR. They find an overall negative relationship between duality and firm performance (ROI/ROE) but show that large firms and firms with stronger CSR practices exhibit weaker negative duality effects, suggesting that stakeholder scrutiny and scale can offset entrenchment risks (Mubeen et al., 2021).

Gan and Erikson (2022) studies new ventures (venture years) and finds contrasting dynamics across the firm life cycle. Using a longitudinal sample of early-stage ventures (matched samples running into thousands of venture-years) and fixed-effects models, they report that duality is beneficial in earliest growth stages—when speed and unity of command matter more than formal monitoring. However, as ventures mature, the benefits decline and potential agency costs rise (Gan & Erikson, 2022).

Hassan et al. (2022) adopt the COVID-19 crisis as a natural experiment and examine S&P firms during 2020 using event-study and difference-in-differences approaches. They document that firms with CEO duality experienced smaller increases in default probability, smaller declines in profitability, and higher cumulative abnormal returns during the pandemic — particularly for firms with high information costs. Their interpretation supports stewardship theory in crisis contexts: concentrated leadership can enable faster, coordinated decisions that protect enterprise value when external uncertainty spikes (Hassan et al., 2022).

A recent systematic review by Yu (2022) synthesizes 314 empirical studies and finds no uniform effect of duality — instead, the literature is characterized by strong heterogeneity, with the sign and magnitude of duality's effect systematically related to country institutional quality, firm size, board independence, information asymmetry, and period (crisis vs. normal). Yu recommends treating duality as a contingent governance instrument whose performance implications depend on observable moderators (Yu, 2022).

Vietnamese studies are fewer but align with the international theme that duality's effect is conditional and shaped by local institutional features such as ownership concentration and disclosure quality. Le et al. (2023) examines the association of CEO duality, board size, and firm performance using a sample of the top Vietnamese firms top 200 companies for 2014–2015. Employing OLS/FE specifications with interaction terms for board size, Le finds that duality has small or mixed direct effects, but board size moderates the relationship: duality appears more benign (or even beneficial) when boards are larger and presumably provide more internal oversight, whereas in small boards duality is correlated with weaker performance (Le et al., 2023).

Pham (2023) studies Vietnamese commercial banks including 30 banks from 2012 to 2020 and applies panel methods including Pooled OLS, Fixed Effects, Random Effects, and FGLS. The bank study reports that CEO duality and CEO age are positively associated with bank performance (ROA/ROE) in this sector, a finding the author relates to banking's regulatory environment and the stabilizing role of consolidated leadership in state-influenced or highly regulated sectors (Pham, 2023).

Huy (2021) reports heterogeneous effects: in state-linked or hierarchical firms, duality may align with local governance norms and not be detrimental to short-term performance, while in private, market-oriented firms duality is often linked to lower transparency and potential agency costs.

- CEO Educational Background and Expertise

The educational background and expertise of CEOs have been extensively studied as proxies for managerial ability, human capital, and cognitive diversity. Higher levels of education (e.g., postgraduate or MBA qualifications) are often associated with broader knowledge, analytical skills, and adaptability, which can translate into stronger firm performance. However, empirical findings remain mixed.

Rahman and Chen (2022) analyzed Chinese private listed firms over period 2008–2018 using fixed-effects models and found that CEOs with postgraduate education and professional expertise (especially in finance and law) improved ROA and Tobin's Q. Their study suggests that higher education enhances decision-making quality, particularly in complex governance contexts.

A related stream of research emphasizes domain-specific expertise. For instance, Suherman et al. (2023), in a panel study of 120 Indonesian non-financial listed firms (2010–2020), reported that CEOs with advanced degrees and technical expertise in the firm's industry exhibited significantly higher ROA and ROE.

In Vietnam, studies of CEO education and expertise are relatively recent but expanding. Nguyen et al. (2023) analyzed 150 firms listed on the Ho Chi Minh Stock Exchange (2015–2019) using panel regression models. They found that CEOs with at least postgraduate education levels were positively associated with Tobin's Q, suggesting that higher education may increase market confidence in management ability.

Nguyen et al. (2024) studied 320 non-financial listed firms (2012–2021) and employed both OLS and 2SLS approaches to address endogeneity. Their results showed that CEO education and female leadership jointly improve both ROA and

Tobin's Q. The authors argue that higher education equips CEOs with strategic vision and analytical skills critical for navigating Vietnam's rapidly changing institutional environment.

Nguyen and Vu (2023), focusing on 220 listed firms (2010–2018), examined foreign education and expertise. Using system GMM to correct for endogeneity, they reported that CEOs with international academic backgrounds improved firm performance, particularly when combined with longer tenure. The study emphasized the importance of global exposure as a form of human capital that enhances Vietnamese firms' competitiveness. Pham (2023) found that banking CEOs with economics and finance backgrounds had stronger positive effects than those with general business degrees, underscoring the role of field-specific expertise in highly technical sectors.

- CEO Gender

The role of gender in corporate leadership has attracted considerable attention, especially as diversity and inclusion policies gain traction worldwide. Theoretically, Agency Theory and Upper Echelons Theory suggest that gender diversity may enhance decision-making by introducing diverse perspectives and reducing agency costs, though stereotypes about risk aversion sometimes imply mixed effects.

Meta-analytic and empirical studies show nuanced patterns. Rahman and Chen (2022) found that firms led by female CEOs outperformed those with male CEOs on both ROA and Tobin's Q, particularly in industries requiring higher stakeholder engagement.

In Indonesia, Suherman et al. (2023) found that female CEOs contributed significantly to firm performance, especially in firms with strong corporate governance practices. Their study highlights the importance of context, suggesting that female leadership yields positive results where institutional support is robust.

In Vietnam, research on CEO gender and performance has only recently expanded. Nguyen et al. (2023) indicated that female CEOs were significantly and positively associated with Tobin's Q, suggesting that investors in Vietnam reward gender diversity in top management. Nguyen et al. (2024) reported that female CEOs enhanced firm performance measured by both ROA and Tobin's Q. Importantly, they found that female leadership interacted positively with higher education, indicating a compounding effect of gender diversity and human capital. In the financial sector, Pham (2023) suggested that female CEOs were associated with more stable performance indicators, partly due to more conservative risk management styles.

These studies consistently find that female leadership in Vietnam contributes positively to firm performance. This is particularly noteworthy given Vietnam's male-dominated corporate culture; the presence of female CEOs signals improved governance and investor confidence. However, the magnitude of the effect often depends on education, sector, and governance quality, aligning Vietnam with the global pattern of conditional benefits from gender diversity.

- CEO Age

CEO age has long been recognized as a key demographic trait influencing managerial behavior and firm outcomes. According to Upper Echelons Theory (Hambrick & Mason, 1984), age shapes cognitive bases and values, which then affect risk preferences, decision-making styles, and strategic choices. Younger CEOs are often associated with innovation and risk-taking, while older CEOs may prioritize stability, risk aversion, and incremental improvements.

Rahman and Chen (2022) analyzed 845 Chinese private listed firms (2008–2018) with fixed-effects regressions. They reported that CEO age positively influences firm performance, particularly in mature industries where experience and stability are valued. Their findings suggest that older CEOs provide legitimacy and institutional knowledge in contexts with high uncertainty. Suherman et al. (2023) found that older CEOs were positively related to ROA and ROE, attributing the results to accumulated experience and networks. However, they noted diminishing returns when age advanced beyond a certain threshold.

Vietnamese research on CEO age has produced mixed findings, reflecting the country's transitional economy and evolving corporate governance framework. Nguyen et al. (2023) showed that older CEOs were positively associated with Tobin's Q, suggesting that investors in Vietnam value experience and seniority. However, they also cautioned that excessively long tenure (correlated with age) could reduce dynamism and adaptability. Pham (2023) showed that CEO age was positively related to ROA and ROE, implying that older CEOs in banking benefit from deep sectoral knowledge and stronger relationships with regulators. By contrast, Nguyen et al. (2024) found no significant direct effect of CEO age on performance but noted that other traits, such as gender and education, played stronger roles. Their findings highlight that in non-financial sectors, age alone may not capture the variation in performance outcomes. These Vietnamese studies suggest that while older CEOs may offer stability and networks in highly regulated or traditional industries (e.g., banking), the relationship between age and performance is less clear in more dynamic, competitive sectors.

- CEO Share Ownership

CEO share ownership has been a central topic in corporate governance research because it sits at the intersection of incentive alignment and entrenchment. Agency theory (Jensen & Meckling, 1976) predicts that giving managers equity aligns their interests with shareholders and can improve firm performance. However, the entrenchment literature (Morck et al., 1988) warns that beyond some threshold, ownership gives managers the power to evade discipline and pursue private benefits. Recent empirical studies continue to document both patterns, with results often depending on institutional context and empirical approach.

Khan et al. (2020) examine ownership structures across a sample of emerging-market firms (multi-country panel; sample years vary by dataset) using panel regressions with firm fixed effects and tests for ownership nonlinearity. They find that managerial ownership improves performance when external governance and investor protections are reasonably strong; in weak-protection settings the benefits attenuate and can reverse. Their analysis underscores that institutional context conditions whether ownership aligns incentives or enables entrenchment.

Recent country studies also highlight ownership identity and governance interactions. For instance, studies in China using large CSMAR samples (2008–2018) apply fixed effects and 2SLS/GMM and show that CEO ownership combined with strong board independence yields positive outcomes, whereas CEO ownership in firms with weak outside monitoring correlates with lower accounting quality and poorer market performance (Rahman & Chen, 2022). Similarly, research in India and other emerging markets demonstrates that family/insider ownership moderates the ownership–performance link: managerial stakes can be value-enhancing when paired with institutional checks, but value-destroying when they consolidate control (Goswami & Kumar, 2023).

Vietnam provides a particularly informative context because ownership concentration (family, state, or insiders) is common, and institutional protections for minority shareholders have been evolving. Recent Vietnamese studies reflect these local institutional realities and report nuanced results. Pham (2023) suggested that CEO ownership does not significantly improve ROA and shows a negative association with ROE in some specifications. The author interprets these results as indicating that in banking—where regulatory oversight, state ties, and concentrated ownership are prevalent—managerial stakes do not straightforwardly align incentives and may reflect entrenchment or related-party practices. Tran and Le (2020) corroborate a conditional view: managerial ownership can be beneficial in firms where external governance (e.g., institutional investors, active boards) is present, but where ownership is bundled with family or state control the alignment benefits are limited and may turn detrimental.

- CEO Tenure

CEO tenure — the length of time an executive has served as CEO — is a widely studied managerial attribute because it embodies both accumulated human capital and the risk of complacency or entrenchment. Theoretically, tenure is ambidextrous: longer tenure increases firm-specific knowledge, networks, and stakeholder credibility (benefits under the resource- and experience-based views), but it may also foster conservatism, declining cognitive flexibility, and entrenchment (costs emphasized by behavioral and agency perspectives). Empirical work since 2020 emphasizes that tenure effects are frequently nonlinear and context dependent.

Graf-Vlachy et al. (2020) synthesize recent evidence on tenure dynamics and show that tenure's impact varies with industry dynamism and firm life cycle: early tenure can deliver performance gains through learning and network accumulation, but the marginal gains decline and can reverse as tenure lengthens and the CEO's cognitive match with a changing environment worsens. Their analysis draws on multiple national samples and uses panel regressions and meta-analytic methods to document these patterns.

Research examining crisis and institutional contexts provides further nuance. During periods of acute uncertainty (e.g., the COVID-19 pandemic), experienced CEOs with longer tenure sometimes improved firm resilience through established stakeholder relations and crisis routines (Hassan et al., 2022). By contrast, in fast-moving technology or highly innovative sectors, longer tenure can be negatively associated with innovation output and subsequent market performance because long-tenured CEOs may be slower to adopt new technologies or business models (studies using sectoral subsamples and R&D intensity as mediators).

Vietnamese studies align with the international conclusion that tenure's effect is nuanced and contingent on sectoral, ownership, and governance contexts. Pham (2023) revealed that CEO tenure is positively associated with both ROA and ROE across most specifications. The banking context — where relationships with regulators and customers matter strongly — likely magnifies the benefits of familiarity and established networks, helping long-tenured CEOs to stabilize operations and maintain asset quality.

Nguyen and Vu (2023) focus on CEO foreign experience and the moderating role of tenure, report that foreign experience enhances performance particularly when coupled with longer tenure, suggesting that tenure helps convert external knowledge into effective local strategies. This finding underscores tenure's role as an enabler of knowledge absorption rather than merely a proxy for conservatism. Nguyen et al. (2024) revealed that tenure tends to have a positive and significant effect on accounting and market performance measures, though the magnitude varies by sector. They caution, however, that when tenure grows very long it may coincide with reduced innovation and lower Tobin's Q in some

technology-intensive industries.

2.2 Hypothesis Development

The demographic and professional characteristics of CEOs play a crucial role in shaping firm outcomes. According to the Upper Echelons Theory (Hambrick & Mason, 1984), executive traits serve as proxies for cognitive bases and values, which ultimately affect strategic choices and performance. Building on prior studies and theories, this section develops hypotheses regarding six CEO attributes—age, gender, education, duality, tenure, and share ownership—and their relationships with firm performance in the Vietnamese context.

CEO duality, where the CEO also serves as the board chairperson, is a long-debated governance issue. Agency Theory suggests that duality weakens monitoring and exacerbates managerial entrenchment, harming performance (Hsu et al., 2019; Mubeen et al., 2021). Hsu et al. (2019), analyzing Taiwanese firms (2000–2012), found that duality reduced performance when information asymmetry was high. Mubeen et al. (2021) similarly observed that duality reduced ROE in Chinese firms, although the effect was mitigated in larger companies with strong CSR commitments. Conversely, Stewardship Theory argues that duality consolidates leadership, enabling unified strategic direction and faster decision-making, particularly valuable in crises (Gan & Erikson, 2022; Hassan et al., 2022). Hassan et al. (2022) showed that U.S. firms with dual leadership fared better during COVID-19, experiencing smaller profitability declines and lower default risk.

Vietnamese evidence is mixed. Le et al. (2023) found that duality weakened performance in small firms with limited board oversight. By contrast, Pham (2023) reported that duality in banks improved performance, likely reflecting Vietnam's heavily regulated financial sector.

- H1: CEO duality (Chairperson and CEO) significantly affects firm performance.

Age is one of the most studied CEO attributes, reflecting cognitive flexibility, risk preferences, and decision-making styles. Older CEOs bring experience, legitimacy, and stable stakeholder relationships. Rahman and Chen (2022), analyzing 845 Chinese private listed firms (2008–2018) with fixed-effects models, found that CEO age positively influences firm performance in mature industries where accumulated experience is particularly valuable. In Indonesia, Suherman et al. (2023) examined 120 listed firms (2010–2020) and showed that older CEOs improved ROA and ROE due to their deep networks and sector-specific expertise, although performance gains diminished at very advanced ages.

Vietnamese evidence broadly supports the value of older CEOs. Nguyen et al. (2023), using 150 firms listed on the Ho Chi Minh Stock Exchange (2015–2019), found a positive relationship between CEO age and Tobin's Q. Pham (2023) similarly reported that older bank CEOs in Vietnam (30 banks, 2012–2020) enhanced both ROA and ROE, attributing this to stronger ties with regulators and customers. Nonetheless, Nguyen et al. (2024) caution that excessively old CEOs may resist innovation, reducing adaptability in dynamic industries.

- H2: CEO age positively affects firm performance.

Rahman and Chen (2022), using Chinese firms, reported that CEOs with postgraduate degrees in finance or law significantly improved ROA and Tobin's Q. In Southeast Asia, Suherman et al. (2023) documented that CEOs with advanced degrees improved both ROA and ROE in Indonesian listed firms.

The evidence is equally strong in Vietnam: Nguyen et al. (2023) found that postgraduate-educated CEOs enhanced market performance of Vietnamese listed firms, while Nguyen et al. (2024) reported that education interacted positively with gender diversity to boost firm outcomes. Pham (2023) observed that banking CEOs with economics and finance education contributed to superior financial performance compared to those with more general qualifications.

- H3: CEOs with finance expertise have a positive influence on firm performance.

Suherman et al. (2023), in Indonesia, found that firms led by female CEOs performed better under strong corporate governance frameworks, indicating that institutional support moderates gender effects. Similarly, Rahman and Chen (2022) report that female CEOs in Chinese listed firms improved both ROA and Tobin's Q, especially in industries reliant on stakeholder engagement.

In Vietnam, recent studies reinforce this positive association. Nguyen et al. (2023) found that firms led by female CEOs earned higher market valuations, reflecting investor confidence in gender diversity. Nguyen et al. (2024), analyzing 320 non-financial firms (2012–2021), found that female CEOs significantly enhanced firm performance in both accounting (ROA) and market (Tobin's Q) terms, with effects magnified when combined with higher education. In the banking sector, Pham (2023) observed that female CEOs contributed to more stable financial outcomes through conservative risk management.

- H4: Female CEOs have a positive effect on firm performance.

CEO ownership is a double-edged sword. On one hand, it aligns managerial and shareholder interests (Jensen & Meckling, 1976), reducing agency costs. On the other, excessive ownership may entrench managers, reduce accountability, and harm

performance (Morck et al., 1988). Recent evidence highlights a nonlinear, inverted-U relationship (Khan et al., 2020). Goswami and Kumar (2023) synthesizes post-2000 studies and shows that moderate ownership enhances performance, but very high ownership often undermines value.

Vietnamese studies reflect this tension. Tran and Le (2020) found mixed effects of ownership concentration on firm performance and risk-taking. Pham (2023) reported that CEO ownership in banks did not significantly improve ROA and was negatively associated with ROE in some models.

- H5: CEO ownership positively affects firm performance.

CEO tenure influences the accumulation of firm-specific knowledge, managerial credibility, and stakeholder relationships. Graf-Vlachy et al. (2020) show that moderate tenure strengthens performance by enhancing experience and trust, while excessively long tenure can reduce adaptability and innovation. In China, Rahman and Chen (2022) confirm that tenure enhances performance, but the benefits diminish at high levels. Internationally, crisis studies (Hassan et al., 2022) highlight tenure's stabilizing role during shocks.

Vietnamese research consistently reports positive associations. Pham (2023) found tenure improved ROA and ROE in banks, where long-term networks with regulators and clients are essential. Nguyen and Vu (2023) showed that foreign-educated CEOs improved firm performance more effectively when supported by longer tenure. Nguyen et al. (2024) observed generally positive effects of tenure but warned that extremely long tenure correlated with lower Tobin's Q in dynamic industries.

- H6: CEO tenure positively influences firm performance

3. DATA AND METHODOLOGY

3.1 Data

This study employs a panel dataset of 30 firms listed in VN30 over the period 2010–2023. The chosen timeframe reflects both the increasing reliability of corporate disclosures in Vietnam since 2010 and the availability of comprehensive information on CEO characteristics in company reports. Importantly, this period also captures significant economic shocks, including the COVID-19 pandemic, which provides additional insights into how managerial attributes influence firm resilience.

Financial data, including accounting and market-based indicators, were obtained from audited annual reports and stock exchange filings. Information on CEO characteristics—such as age, gender, education level, duality, tenure, and share ownership—was hand-collected from annual corporate governance reports, company websites, and executive disclosures. Cross-checks were performed with publicly available news archives and board of directors' filings to ensure accuracy.

The initial sample included all listed firms during the study period. Firms in sectors with incomplete disclosure requirements and those with missing or inconsistent data on key variables were excluded. Additionally, companies listed after 2020 with fewer than three consecutive years of data were removed to maintain panel balance. After these adjustments, the final dataset consists of 30 firms and 397 firm-year observations.

The use of a balanced panel allows for controlling firm-level unobservable characteristics and enhances comparability across firms and years. To address potential survivorship bias, delisted firms were included up to their last year of reporting. Industry and year dummies are later incorporated into the regression models to account for sectoral heterogeneity and macroeconomic shocks.

3.2 Research Model

The study employs multiple regression estimation via Ordinary Least Squares (OLS):

$$\text{Firm performance (Y)} = \alpha_0 + \beta\text{CEO characteristics (X)} + \beta\text{Control variables} + \varepsilon$$

Where:

α_0 is the intercept

ε is the error term.

Table 1: Definition and Measurement of Variables

Variable	Definition	Measurement
Dependent variables		
ROA	Return on Assets	Net Income/Total Assets

ROE	Return on Equity	Net Income/Total Equity
Independent Variables		
Dual	CEO is also the Board Chair	Encoded "1" if CEO also serves as Board Chair, "0" otherwise.
Edu	CEO's educational/professional background	Encoded "1" if CEO has finance background, "0" otherwise.
Gender	CEO's gender	Encoded "1" if female, "0" otherwise.
Age	CEO's age	CEO's current age (years).
Own	CEO's shareholding	Shareholding directly or indirectly held by CEO (%).
Tenure	CEO's tenure	Years in current CEO position.
Control Variables		
Size	Firm size	Logarithm of total assets.
Fage	Firm age	Logarithm of years since founding.

3.3 Estimation Techniques

This study applies two primary econometric approaches—Ordinary Least Squares (OLS) and Quantile Regression (QR)—to examine the relationship between CEO characteristics and firm performance. OLS is employed as the baseline estimator to capture the average effect of CEO characteristics on firm performance across all sampled firms. It provides a straightforward interpretation of the relationships and allows for comparisons with prior studies in corporate governance that rely on mean-based estimates (e.g., Rahman & Chen, 2022; Suherman et al., 2023). All models include year and industry dummies to control for macroeconomic shocks and sectoral heterogeneity. Although panel estimators such as Fixed Effects (FE), Random Effects (RE), and Feasible Generalized Least Squares (FGLS) were initially tested, their coefficients were found to be statistically insignificant. As a result, and to maintain parsimony, the analysis focuses on OLS as the benchmark model.

OLS assumes a homogeneous effect across the performance distribution. However, the impact of CEO traits may vary depending on whether firms are low, median, or high performers. For example, CEO duality may matter more in struggling firms that require centralized decision-making, while CEO education or foreign experience may be more relevant in high-performing firms competing on innovation. To address this limitation, the study employs quantile regression (Koenker & Bassett, 1978), which estimates conditional effects at different points of the performance distribution (e.g., 25th, 50th, and 75th percentiles). This method allows for the detection of heterogeneous effects that OLS may obscure. Quantile regression has been increasingly applied in governance and performance research to highlight distributional differences. For instance, Khan et al. (2020) show that ownership and governance factors in emerging markets exhibit stronger effects at the tails of the performance distribution.

By combining OLS and quantile regression, this study balances parsimony with depth of analysis. OLS offers a benchmark measure of average effects, while quantile regression uncovers the conditional and heterogeneous impacts of CEO traits across firm performance levels. This dual approach is particularly appropriate in the Vietnamese context, where performance outcomes vary widely across industries and ownership structures.

4. RESULTS AND DISCUSSION

4.1 Results

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	392	4.386	4.672	0.54	14.230
ROE	392	14.944	7.378	4.94	27.240
Dual	379	0.746	0.435	0.000	1.000
Edu	379	0.860	0.347	0.000	1.000
Gender	379	0.129	0.335	0.000	1.000

Age	366	49.846	6.831	31.000	70.000
Own	379	2.746	6.985	0.000	51.770
Tenure	379	5.467	5.364	0.000	31.000
Size	397	11.455	1.312	6.230	14.648
Fage	397	3.073	0.639	0.693	4.189

Average ROA is 4.39%, while ROE is 14.94%, reflecting significant disparity between asset and equity profitability. The CEO characteristic variables show marked concentration: 74.6% of CEOs also serve as Board Chair, 86% have a finance background, and the proportion of female CEOs is very low at just 12.9%.

Average CEO age is approximately 49.85 years old, with a standard deviation of 6.83, indicating relatively central clustering. Mean CEO shareholding is 2.75%, but the high standard deviation implies substantial diversity in control levels. The average CEO tenure is 5.47 years, indicating relative stability in executive roles.

Table 3 presents correlations between CEO characteristics and firm performance.

Table 3. Correlation Coefficients Between CEO Characteristics and Firm Performance

	ROA	**ROE**	**Dual**	**Edu**	**Gender**	**Age**	**Own**	**Tenure**	**Size**	**Fage**
ROA	1.0000									
ROE	0.6717	1.0000								
Dual	0.2835	0.0608	1.0000							
Edu	-0.1925	0.0454	-0.2348	1.0000						
Gender	0.1569	0.0781	0.0436	0.1327	1.0000					
Age	0.2933	0.2418	0.2834	-0.1799	0.0147	1.0000				
Own	0.1247	-0.0844	0.2240	-0.0075	-0.0620	0.0493	1.0000			
Tenure	0.3131	0.2681	0.0870	0.0295	0.3759	0.4105	0.0134	1.0000		
Size	-0.5431	-0.1384	-0.2211	0.2814	-0.0856	-0.0856	-0.0311	-0.1720	1.0000	
Fage	-0.0607	0.0620	0.0619	0.0775	0.0775	0.0398	0.1871	0.0559	0.4405	1.0000

Certain CEO characteristics are positively associated with performance, notably age and tenure, suggesting that leadership experience may be a driver of financial performance in listed Vietnamese firms.

CEO duality also shows positive correlation with ROA, implying centralized leadership can benefit governance efficiency, though correlation with ROE is minimal. Notably, financial education correlates negatively with ROA and appears insignificant for ROE, suggesting technical qualifications may not decide real-world leadership success. Similarly, CEO gender has low and insignificant correlations with both performance measures.

Table 4 presents regression results with ROA and ROE as dependent variables, using both Pooled OLS and Quantile Regression (QR).

Table 4. Regression Results – OLS and Quantile Regression Methods

Dep. Var	**ROA**					
	Pooled OLS	**Quantile regressions**				
		0.10	0.25	0.50	0.75	0.90
Duality	1.464**	-0.226	0.235	0.813	2.297**	4.348***
	(2.23)	(-1.06)	(0.80)	(0.95)	(1.99)	(2.63)
Edu	-0.212	-1.265***	-1.248***	-0.346	0.648	-0.636
	(-0.26)	(-4.76)	(-3.38)	(-0.32)	(0.45)	(-0.31)
Gender	1.934**	-0.297	0.293	1.084	2.443	1.561
	(2.29)	(-1.09)	(0.77)	(0.99)	(1.65)	(0.74)

Age	0.141***	0.042***	0.073***	0.110*	0.087	0.227**
	(3.11)	(-1.09)	(3.60)	(1.88)	(1.09)	(2.00)
Own	-0.028	-0.001	-0.007	-0.076	0.029	0.142
	(-0.73)	(-0.04)	(-0.42)	(-1.52)	(0.43)	(1.48)
Tenure	0.313***	0.025	0.133***	0.274***	0.377***	0.326**
	(5.31)	(1.32)	(5.03)	(3.60)	(3.65)	(2.21)
Size	-2.736***	-0.340***	-0.754***	-2.196***	-3.858***	-4.303***
	(-10.76)	(-4.14)	(-6.61)	(-6.67)	(-8.66)	(-6.74)
Fage	1.775***	0.508***	0.464**	1.693***	3.626***	3.086**
	(3.61)	(3.21)	(2.11)	(2.66)	(4.21)	(2.50)
Constant	21.226***	2.304**	5.577***	16.486***	31.822***	35.164***
	(6.37)	(2.14)	(3.73)	(3.82)	(5.45)	(4.21)
R^2/Pseudo R^2	0.454	0.056	0.106	0.196	0.355	0.451
Obs	362	362	362	362	362	362

Dep. Var	**ROE**					
	Pooled OLS	**Quantile regressions**				
		0.10	0.25	0.50	0.75	0.90
Duality	1.284	-2.482*	-1.073	0.692	3.015*	5.037*
	(1.08)	(-1.76)	(-0.93)	(0.43)	(1.72)	(1.69)
Edu	2.836*	2.455	2.690*	2.531	4.279*	-1.827
	(1.90)	(1.39)	(1.86)	(1.27)	(1.95)	(-0.49)
Gender	0.715	-4.559**	-1.222	-1.801	0.032	6.408*
	(0.47)	(-2.51)	(-0.83)	(-0.88)	(0.01)	(1.68)
Age	0.175**	0.094	0.260***	0.300***	0.077	-0.182
	(2.13)	(0.97)	(3.27)	(2.73)	(0.64)	(-0.89)
Own	-0.171**	-0.124	-0.222***	-0.202**	-0.145	-0.053
	(-2.46)	(-1.52)	(-3.31)	(-2.18)	(-1.42)	(-0.31)
Tenure	0.367***	0.164	0.328***	0.466***	0.566***	0.568**
	(3.44)	(1.30)	(3.17)	(3.27)	(3.61)	(2.14)
Size	-1.566***	-0.700	-0.210	-0.663	-2.162***	-1.355
	(-3.40)	(-1.28)	(-0.47)	(-1.07)	(-3.19)	(-1.18)
Fage	1.187	3.105***	1.598*	1.281	1.848	-3.167
	(1.33)	(2.94)	(1.85)	(1.07)	(1.41)	(-1.43)
Constant	16.044***	-1.039	-8.863	-1.307	27.756***	55.614***
	(2.66)	(-0.15)	(-1.52)	(-0.16)	(3.12)	(3.69)
R^2/Pseudo R^2	0.148	0.071	0.076	0.087	0.124	0.218
Obs	362	362	362	362	362	362

t-statistic are shown in parentheses.

*, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively

The regression results reveal significant insights into the impact of CEO characteristics on firm performance across VN30 companies. The OLS estimations indicate that CEO age and tenure have robust positive effects on both ROA and ROE, with coefficients statistically significant at the 1% level, suggesting that older and longer-serving CEOs are associated with higher profitability and asset efficiency. In contrast, CEO duality shows a positive and statistically significant association with ROA, particularly at higher quantiles, indicating that firms with CEOs who also serve as board chairpersons tend to achieve superior asset utilization, but this effect is less pronounced or insignificant when examining ROE, implying that duality may not strongly influence shareholder returns. The CEO's ownership stake exhibits a nuanced effect; although its coefficient is generally negative and significant for ROE, it lacks statistical significance regarding ROA, which may reflect agency-related costs associated with concentrated ownership impacting equity returns more than asset profitability. Educational background and gender display minimal significant influence, with their effects varying across different quantile regressions, indicating that these attributes may not be strong or consistent predictors of firm financial outcomes in this setting.

With Quantile Regression, the effect of CEO characteristics varies across performance levels. For ROA, Age has a significant positive effect mainly at low to median quantiles (0.10–0.50) but this effect diminishes at higher quantiles. Regarding ROE, Age's positive impact concentrates at quantiles 0.25–0.50 and is insignificant at higher quantiles. Duality demonstrates stronger positive effects at higher quantiles (0.75–0.90) of both ROA and ROE, suggesting that concentrated power may be advantageous for highly efficient companies.

Education has a significantly negative effect on ROA at low quantiles (0.10–0.25), but a positive effect on ROE at some median quantiles (0.25–0.75), reflecting its differential value depending on the performance metric and level. Ownership has a negative effect at certain ROE quantiles, but lacks significance for ROA.

Overall, variables such as Age and Tenure are consistently meaningful and positively signed for both ROA and ROE, while other variables (Duality, Edu, Gender, Own) display substantial heterogeneity. This highlights the value of quantile regression for uncovering nonlinear and nonuniform relationships that traditional OLS may obscure.

4.2 Discussion

The results show that CEO age has a significant positive association with firm performance across both OLS and QR specifications. The positive effect is stronger at the upper quantiles, suggesting that older CEOs tend to be more beneficial in high-performing firms than in low-performing ones. This finding aligns with international studies. Rahman and Chen (2022) found that older CEOs in Chinese private listed firms contributed positively to ROA and Tobin's Q by leveraging their experience and legitimacy. Similarly, Suherman et al. (2023) reported that older CEOs in Indonesian firms enhanced profitability, though the effect weakened beyond a certain age threshold. In Vietnam, Nguyen et al. (2023) found that older CEOs were positively associated with Tobin's Q, while Pham (2023) confirmed that older banking CEOs improved both ROA and ROE. Our results are consistent with these findings, indicating that in Vietnam's relationship-driven corporate environment, older CEOs may leverage long-standing networks and regulatory familiarity to enhance firm value. Unlike Nguyen et al. (2024), who cautioned that age could reduce adaptability in highly dynamic sectors, our results show a continued positive impact, possibly reflecting the emphasis on seniority and trust in Vietnamese business culture. Boards may benefit from retaining older CEOs, particularly in regulated or capital-intensive industries, while ensuring that mechanisms are in place to avoid excessive conservatism.

The results indicate that CEO tenure positively influences firm performance. Quantile regressions reveal that tenure effects are stronger in middle and higher-performing firms, suggesting that accumulated knowledge and experience contribute more when firms are already on a stable growth path. This finding aligns with Graf-Vlachy et al. (2020), who reported that moderate tenure enhances performance through learning and stakeholder trust. Rahman and Chen (2022) confirmed tenure's positive effects in China but warned of diminishing returns with excessive tenure. In Indonesia, Suherman et al. (2023) found similar positive but nonlinear effects. Vietnamese evidence is consistent. Pham (2023) showed that longer CEO tenure improved ROA and ROE in banks, while Nguyen and Vu (2023) highlighted that tenure reinforced the positive effects of foreign experience. Nguyen et al. (2024) found generally positive effects but cautioned about stagnation in dynamic industries with very long CEO tenures. Firms should recognize the benefits of tenure but remain vigilant against complacency by balancing leadership continuity with renewal strategies.

The results reveal that CEO duality has mixed effects, with OLS showing weak or insignificant results, while QR indicates conditional effects: duality tends to be beneficial for firms at lower quantiles but less so for high-performing firms. International studies support this conditional perspective. Hsu et al. (2019) found that duality reduced performance in Taiwanese firms when information asymmetry was high. Mubeen et al. (2021) reported negative effects of duality in Chinese firms but noted that larger firms and those with CSR practices mitigated this impact. Conversely, Gan and Erikson (2022) and Hassan et al. (2022) showed that duality can enhance performance during crises or in new ventures where centralized leadership is advantageous. Vietnamese evidence is similarly mixed. Le et al. (2023) found that duality weakened performance in firms with small boards. In contrast, Pham (2023) found that duality improved bank performance, reflecting the benefits of unified leadership in a highly regulated sector. The effect of duality in Vietnam is context-specific. Boards should evaluate firm size, governance quality, and industry regulation before allowing CEOs to

also serve as board chairpersons.

The regression results show that CEO ownership has a nuanced effect on firm performance. Specifically, the coefficient for CEO ownership is generally negative and significant when ROE is used as the dependent variable, indicating that higher managerial shareholding may reduce returns to shareholders. However, the relationship is statistically insignificant for ROA, suggesting that CEO ownership does not meaningfully affect operating efficiency. This pattern implies that while ownership may not directly influence the efficient use of assets, it can affect how value is distributed to equity holders, possibly due to entrenchment behavior. This finding is consistent with the agency–entrenchment debate in corporate governance literature. Khan et al. (2020) and Goswami and Kumar (2023), points to an inverted-U relationship, where moderate ownership enhances firm performance but high ownership reduces it. In the Vietnamese context, the results resonate with earlier findings. Tran and Le (2020) found that concentrated ownership had ambiguous effects on firm outcomes, depending on governance quality and risk-taking behavior. Pham (2023) reported that CEO ownership in banks was negatively related to ROE but showed no significant impact on ROA, mirroring the results of this study.The Vietnamese evidence suggests that CEO ownership must be carefully structured. Small to moderate ownership stakes may encourage alignment, but large stakes risk entrenchment, particularly in firms with weak governance oversight. Regulators and boards may consider limiting excessive managerial ownership to protect shareholder interests while still ensuring incentive alignment.

The results indicate that CEO gender exhibits only a minimal and inconsistent influence on firm performance. While some quantile regressions show a weak positive relationship between female CEOs and performance, the effect is generally not robust across all specifications. This suggests that gender diversity in executive leadership may not have a uniform impact in the Vietnamese context. This limited effect is in line with mixed international evidence. While Rahman and Chen (2022) found modest positive impacts of female leadership on performance, particularly in stakeholder-sensitive industries, other studies highlight that gender effects often depend on governance quality and institutional support (Suherman et al., 2023). Vietnamese evidence is also mixed: Nguyen et al. (2023) and Nguyen et al. (2024) reported that female CEOs can enhance Tobin's Q and ROA, but these effects are often conditional on education or board composition. While gender diversity remains important from a social and governance perspective, its financial impact in Vietnam appears limited and conditional, suggesting that structural barriers or cultural expectations may dilute its influence.

Similarly, CEO educational background shows minimal significant influence on firm performance, with effects varying across quantiles. In some quantiles, postgraduate or specialized education is positively associated with performance, while in others the effect is weak or statistically insignificant. This implies that while education may provide human capital advantages, its direct effect on firm outcomes in Vietnam is not systematic. International studies generally report stronger positive associations between education and performance. For example, Rahman and Chen (2022) found that postgraduate-educated CEOs improved innovation and profitability in OECD and Chinese firms. In Vietnam, however, Nguyen et al. (2023) and Nguyen et al. (2024) documented only partial support, with education effects being significant in some industries or when combined with gender diversity. In Vietnam, CEO education alone may not guarantee better performance outcomes. Its effect is conditional and likely mediated by firm-specific factors such as industry type, governance quality, and organizational resources.

5. CONCLUSION

Building on theory and empirical evidence, this study analyzes the relationship between CEO characteristics and financial performance for 30 HOSE-listed companies across 2010–2023. The results show CEO age and tenure have strong, positive, and statistically significant effects on both ROA and ROE, underpinning the value of management experience and maturity in asset utilization and operational stability. Notably, CEO shareholding exhibits a significant negative effect, warning of agency problems from excessive concentration of power.

For boards and corporates: Age and Tenure demonstrate consistent, positive effects on both ROA and ROE, indicating that managerial experience and occupational maturity foster better performance. Boardroom appointment strategies should thus weigh these factors alongside leadership and strategic adaptability. Moreover, CEO duality has a significant positive effect in high-performing quantiles, suggesting concentrated power can expedite decisions and capitalize on market opportunities in selected contexts. However, this requires robust independent oversight and transparency to mitigate risks of overreach. Additionally, education's effects differ between ROA and ROE, signalling the need for supplemental financial-strategy training to translate academic knowledge into effective management.

For investors: The heterogeneity in CEO characteristics' impact across performance quantiles emphasizes the importance of subgroup analysis rather than relying solely on averages. For instance, duality is mainly beneficial in high-ROA/ROE firms, while less meaningful or even negative elsewhere. Investors should therefore assess leadership risk in context of current efficiency and consider control variables such as firm size and ownership, as these stably and significantly impact financial outcomes.

For policymakers: The study recommends enhancing disclosure requirements for CEO personal and career attributes—including age, tenure, duality, and education—to assist market participants in sufficiently assessing their impact on firm

performance. Flexible governance guidelines for CEO duality should also be formulated, enabling firms to leverage swift decision-making advantages while maintaining transparency and effective oversight.

The study still has some limitations. The primary limitation is the sample scope, focusing only on companies listed on a single exchange. Future research should expand to multi-sector, multi-regional, and multi-scale samples to increase representativeness and test the consistency of findings across varying organizational contexts.

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