



Governance Structure, CEO Attributes, and Profit Efficiency of listed securities Firms in Vietnam: New Evidence on Gender Diversity and Board Independence

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ABSTRACT

This study examines the impact of board and CEO characteristics on the profit efficiency of securities companies in a developing market context. Using panel data of 35 listed securities companies in Vietnam during the period–2015-2023 and applying the Feasible Generalized Least Squares (FGLS) method, this study provides new evidence on the governance-performance nexus in the securities sector, which is characterized by high volatility and strong competition. The results indicate that securities firms with female CEOs and a higher ratio of independent directors demonstrate lower profit efficiency levels, while a higher participation of female members on the board of directors significantly impacts firm outcomes. Further analysis shows that the beneficial impact of female directors reduces as firms grow larger, suggesting potential constraints on women's influence in larger organizations. In addition, the adverse effect of board independence is reduced in companies that are larger, have a higher level of foreign ownership, a higher leverage ratio, and during the COVID-19 pandemic. Based on the results, this study provides practical recommendations for regulators and securities firms to strengthen board structures, promote effective female participation, and enhance governance mechanisms tailored to firm-specific and external conditions.

Keywords: Board Characteristics, CEO Characteristics, Profit Efficiency, Securities Companies, Vietnam, Gender Diversity

JEL Classifications: G32, G34, L25

1. INTRODUCTION

In the modern economy, securities companies play a significant role in connecting the supply and demand for capital, thereby facilitating effective financial resource mobilization and distribution. Through activities such as brokerage, underwriting, proprietary trading, and advisory services, these institutions contribute to enhancing market liquidity and transparency and serve as key intermediaries in directing capital flows and supporting firms' access to long-term financing (Yuan et al., 2009). In Vietnam, as the stock market continues to grow in both size and complexity, the role of securities companies in maintaining the stability and efficiency of the national financial system has become more pronounced. In this context, improving the performance of securities companies has emerged as an important subject with both practical and theoretical

implications. In addition to macroeconomic conditions, industry characteristics, and financial factors such as firm size and leverage, corporate governance structure, particularly the characteristics of boards of directors and chief executive officers (CEOs), is seen as a crucial internal factor influencing firm performance in general and that of securities firms in particular.

According to agency theory, the separation of ownership and managerial control can lead to conflicts of interest between shareholders and managers (Al-Matari et al., 2012; Marashdeh, 2021). Within this framework, the board of directors plays an important role in monitoring and guiding managerial decisions to protect shareholders' interests. Board attributes, such as size, meeting frequency, proportion of independent directors, gender diversity, and educational and professional backgrounds, can

directly impact the board's capacity to exercise effective oversight and provide strategic direction to the firm (Bathula, 2008; Kanakriyah, 2021; Pucheta-Martínez and Gallego-Álvarez, 2020).

In contrast, upper echelons theory highlights the role of top executives' personal attributes—particularly those of the CEO—such as age, gender, educational achievement, and professional experience, which shape risk preferences and decision-making approaches, and consequently affect firm performance (Peni, 2014; Pucheta-Martínez and Gallego-Álvarez, 2020; Saidu, 2019; Saleh et al., 2020). In the securities industry, characterized by intense competition and significant market volatility, the role and qualities of the CEO become even more critical in determining a firm's adaptability and its operational effectiveness.

Extensive empirical research has examined how CEOs and board characteristics impact firm performance, although the evidence is mixed. For example, larger board may enhance firm monitoring (Al-Matari et al., 2014; Badu and Appiah, 2017; Marashdeh et al., 2021) but reduce board flexibility (Boshnak, 2021); independent directors can improve transparency (Mura, 2007; Tai, 2025) but sometimes hinder decision-making (Nguyen et al., 2017; Nguyen and Huynh, 2023); CEO duality may align strategy (Al-Matari et al., 2012; Mubeen et al., 2020) or instead encourage excessive power (Marashdeh et al., 2021; Peni, 2014); and gender diversity can support firm performance (Peni, 2014; Pucheta-Martínez and Gallego-Álvarez, 2020) but could yield insignificant or adverse outcomes (Kanakriyah, 2021; Tran and Phan, 2024). These mixed results often reflect differences in institutional settings, industry type, or research design, and most studies focus on developed economies or non-securities sectors. Furthermore, the literature often overlooks how governance and leadership attributes interact with firm-specific factors and external conditions.

To address this gap, this study estimates the impact of board and CEO characteristics on the financial performance of listed securities firms using panel data of 35 listed securities firms in Vietnam from 2015-2023 and the Feasible Generalized Least Squares (FGLS) method. The findings reveal that securities companies with female CEOs and greater board independence are associated with reduced profit efficiency, whereas the presence of female board members exerts a significant positive impact. Additional analysis indicates that the beneficial impact of female board members diminishes as firm size increases, implying potential limitations on women's influence in larger firms. Moreover, the adverse effect of board independence becomes less pronounced in firms with larger size, higher foreign ownership, higher leverage, and during the COVID-19 pandemic period.

This study contributes to the literature in several important ways. First, this study provides empirical evidence on how board and CEO attributes impact the performance of securities companies in developing markets such as Vietnam. Specifically, this study uncovers the nuanced effects of gender-diverse board independence, highlighting the complex interplay between leadership attributes and organizational context. Second, by examining moderating factors such as firm size, leverage, foreign ownership, and the COVID-19 pandemic, this study demonstrates

the impact of contextual and environmental conditions on the governance-performance relationship. Third, based on these insights, this study offers practical implications for improving the performance of listed securities firms, in particular, and the securities sector in Vietnam, in general.

The remainder of this paper is structured as follows. Section 2 reviews the literature on the impact of board and CEO characteristics on firm performance. Section 3 presents the data and methodology. Section 4 reports and discusses the results. Section 5 concludes the paper and provides practical recommendations for securities firms and policymakers.

2. LITERATURE REVIEW

2.1. Theoretical Frameworks

According to agency theory, the board of directors and the CEO play significant roles in managing a firm, which indicate that the success of the firm cannot be separated from their strategic decision-making, supervisory and managerial functions (Hillman and Dalziel, 2003). According to Wang and Hsu (2013), an increase in board size is often linked to a larger company size, which enhances the board's monitoring function. This, in turn, enables firms to achieve better governance and operational efficiency. However, Jensen (1993) argues that smaller boards better facilitate decision-making, strategic direction, and more effective oversight, which in turn enhances firms' financial performance.

A board of directors that is diverse in terms of experience, gender, age, and professional skills contributes a variety of perspectives and ideas to the decision-making process. This diversity enhances the complexity and effectiveness of decisions, which subsequently influences firm performance (Emadeldeen et al., 2021; Gao et al., 2024). The presence of female directors or a female CEO is also believed to exert a positive impact on firm performance, as their presence adds multidimensional viewpoints to decision-making, enhances management oversight, improves corporate governance, and consequently boosts business outcomes (Glass and Cook, 2017; Lee and Thong, 2023; Yahya, 2023). However, board diversity has also been shown to have an adverse relationship with firm performance. Previous literature has discovered that differences in cultural background, education, age, or gender may lead to misunderstandings or communication barriers and differences in approaches to problem-solving or strategic thinking, which can potentially result in conflicts or inefficient decision-making processes (Buse et al., 2014; Jeyhunov et al., 2025).

The board of directors is more effective in its governance of the management team when it includes a higher number of independent members who are not involved in the firm's operations (Benkel et al., 2006; Fama and Jensen, 1983). Independent directors can serve as potential advisors to help enhance the board's expertise and professionalism (Kumar and Singh, 2012). Additionally, independent members can help improve business performance by offering firms new opportunities through their external networks. However, a negative relationship between the ratio of independent directors on boards and firm financial performance can arise, as independent directors might not have sufficient industry-specific

knowledge or understanding of the company's operations, leading to decisions that are not optimal for firm performance (Sulehri, 2023).

According to agency theory, when the chairperson of the board of directors simultaneously holds the CEO position, the board's capacity to oversee management is compromised, thereby reducing the firm's financial performance (Fama and Jensen, 1983). Conversely, stewardship theory suggests that combining the roles of board chair and CEO can positively impact firm performance, as having both roles held by a single person ensures better alignment between objectives and strategies implemented (Peng et al., 2007). Fisman et al. (2005) added that the separation of the two roles may generate conflicts between the CEO's management decisions and the strategic direction set by a company's board.

Upper echelons theory further emphasizes that the characteristics of top executives, particularly the CEO, influence decision-making processes and firm performance (Saleh et al., 2020). Factors such as age, tenure, education, experience, and the ownership level held by the CEOs may reflect their leadership styles, risk appetite, and strategic orientation, thereby shaping the company's performance (Peni, 2014; Saidu, 2019).

2.2. Empirical Evidence

A significant body of empirical research has examined the impact of board and CEO characteristics on firm performance. For this study, the authors focused on a set of specific factors, including board size, proportion of independent directors on the board, gender diversity on the board, CEO duality, and the gender, qualifications, and experience of firm CEOs.

2.2.1. Board size

The majority of previous empirical evidence shows that board size positively impacts firm performance, implying that larger boards allow for stronger and more effective monitoring mechanisms (Bathula, 2008; Al-Matari et al., 2014; Badu and Appiah, 2017; Marashdeh et al., 2021). A greater number of directors also provides the firm with access to more resources and ensures that insights offered to management are more effective (Wang and Hsu, 2013). Conversely, other studies argue that smaller boards with fewer members facilitate decision-making, strategic orientation, and oversight (Wang, 2011). Boshnak (2021) found that larger boards tend to be less flexible in responding to market changes compared to smaller boards.

According to Hidayat and Utama (2015), the relationship between board size and firm performance is U-shaped, implying that as the number of board members increases, firm performance initially declines until it reaches a minimum point, after which performance starts to improve with further increases in board size. In contrast, Jensen (1993) and Kamarudin et al. (2024) indicate that when the board is relatively small, adding more members tends to enhance firm performance. However, once the board reaches a certain size, further expansion tends to negatively affect performance. Additionally, some studies suggest that board size has no significant relationship with firm performance (Assenga et al., 2018; Garba and Abubakar, 2014; Borlea et al., 2017).

2.2.2. Independent directors

Allini et al. (2016) and Kanakriyah (2021) argue that the presence of independent directors can reduce information asymmetry and improve financial transparency; therefore, a higher proportion of independent directors on the board is generally associated with enhanced firm value and performance. Similarly, independent directors may serve as a valuable source of advice and provide firms with new business opportunities through their external networks, which positively affects firm performance (Tai, 2025). Previous empirical evidence also indicates a positive relationship between the proportion of independent directors and firm performance (Mura, 2007; Tai, 2025).

Nevertheless, a board with many independent directors may increase administrative costs, while divergent perspectives can slow decision-making, reduce flexibility, and negatively influence firm performance. Several studies have reported a negative relationship between independent directors and financial performance (Belhaj and Mateus, 2016; Nguyen et al., 2017; Nguyen and Huynh, 2023). Other studies have found no significant association between board independence and firm performance (Gulzar et al., 2020; Shan, 2019).

2.2.3. CEO duality

Several empirical studies have also reported that CEO duality exerts a positive effect on firm financial outcomes (Al-Matari et al., 2012; Bathula, 2008; Mubeen et al., 2020). These studies confirm that CEO duality may minimize conflicts between management and the strategic objectives set by the board, which may enhance firm performance. On the other hand, other studies show evidence of a negative relationship between CEO duality and performance, implying the possibility of authoritarian leadership and the misuse of the CEO's managerial power (Marashdeh et al., 2021; Peni, 2014). In addition, other studies suggest that CEO duality does not significantly impact firm performance (Ali et al., 2022; Voinea et al., 2022).

2.2.4. Board and CEO gender diversity

A substantial body of research demonstrates the beneficial effects of having gender diversity in boards and top management on a company's performance (Carter et al., 2003; Bathula, 2008; Peni, 2014; Pucheta-Martínez and Gallego-Álvarez, 2020). Their results confirm that the presence of female directors or a female CEO could strengthen the monitoring function, reduce conflicts of interest, and improve member connectivity, which eventually enables firms to make more creative and effective decisions (Tran and Phan, 2024). However, some studies suggest that gender diversity does not significantly influence firm performance (Kanakriyah, 2021; Marinova et al., 2015; Naghavi et al., 2021).

2.2.5. CEO qualifications and experience

According to Bhagat et al. (2010), CEOs with higher levels of education are more likely to make effective strategic decisions that improve firm performance. Similarly, Huang et al. (2023) demonstrate that highly educated CEOs with extensive experience are more capable of devising and implementing successful strategies for their companies. Most studies suggest that firms led by CEOs with greater experience and higher qualifications achieve better business performance (Peni, 2014; Saidu, 2019).

Nevertheless, some studies have pointed out potential drawbacks. Experienced CEOs may become overly confident, leading to misguided decision-making (Burkhard et al., 2023; Howard et al., 2023). In addition, older age may result in rigid thinking, reduced innovation, and slower adaptation to market changes, which can negatively impact firm performance (Ren et al., 2020; Suherman et al., 2003). In certain cases, highly educated CEOs may struggle to connect with subordinates, potentially causing managerial conflicts that hinder firm performance (Uppal, 2020).

In summary, while numerous studies have examined the impact of board and CEO characteristics on firm performance, the findings are mixed. These contrasting results may be attributed to differences in firm type, national context, and research period. Notably, there is a scarcity of research specifically addressing the determinants of performance in securities firms, particularly regarding board and CEO characteristics.

3. METHODS AND DATA

3.1. Data

The study employs a panel dataset of 35 securities companies listed on the Ho Chi Minh City Stock Exchange (HOSE) and the Hanoi Stock Exchange (HNX) from 2015 to the end of 2023. Data were collected from publicly available sources, such as audited financial statements, annual reports, and corporate information disclosure systems. During the data processing stage, the authors filtered the sample by excluding companies with missing, incomplete, or noncontinuous data across the study period. After data cleaning, the final sample used for the analysis consisted of 312 observations. The dataset includes information on CEO and board of directors' characteristics, financial indicators, firm-specific attributes, and macroeconomic factors, serving as the basis for measuring the efficiency of securities companies in the model.

3.2. Measuring Profit Efficiency of Securities Companies

To measure the profit efficiency of securities companies in Vietnam, the authors used the stochastic frontier approach (SFA). Following this approach, the author formed a profit efficiency frontier that incorporates input prices and output quantity. The inefficiency term is then extracted from the error term, allowing for a measure of efficiency for securities companies (Berger et al., 2010).

The stochastic profit frontier is constructed using the translog functional form as follows:

$$\ln\left(\frac{PP}{x_2}\right) = \beta_0 + \alpha_1 \ln \frac{w_1}{w_2} + 0.5\alpha_{11} \left(\ln \frac{w_1}{w_2}\right)^2 + \gamma_1 \ln y_1 + \gamma_2 \ln y_2 + \gamma_3 \ln y_3 + 0.5\gamma_{11} (\ln y_1)^2 + 0.5\gamma_{22} (\ln y_2)^2 + 0.5\gamma_{33} (\ln y_3)^2 + \gamma_{12} \ln y_1 \ln y_2 + \gamma_{13} \ln y_1 \ln y_3 + \gamma_{23} \ln y_2 \ln y_3 + \delta_{11} \ln \frac{w_1}{w_2} \ln y_1 + \delta_{12} \ln \frac{w_1}{w_2} \ln y_2 + \delta_{13} \ln \frac{w_1}{w_2} \ln y_3 + \theta \ln \frac{NPI_i}{w_2} + \lambda_n \text{year_dummy} - U_{it} + V_{it} \quad (1)$$

In which, i and t denote firm and time. PP is the profit after tax of securities companies. y denotes securities company output quantity, including investment value (y_1), spread income (y_2), and fee income (y_3). w denotes input prices, including price of securities company unique expenses (w_1) and other expenses (w_2) (details are in Table 1). We normalized the dependent variables and input price by w_2 to impose linear homogeneity on the above model (Berger et al., 2010).

We further use the negative profit indicator (NPI) as a proxy to control for negative profit, similar to the approach of Bos and Koetter (2009). PP takes the value of 1 if securities companies have zero or negative profit and the value of the actual profit amount for companies with positive profits. NPI is assigned a value of 1 for companies with positive profits and the absolute value of PP for companies with negative profits.

We use year_dummy to control for technical changes during the study period. U_{it} is the inefficiency term and V_{it} is the random error.

Profit efficiency scores ($PROFIT$) are estimated using the method of Battese and Coelli (1995). $PROFIT$ takes a value from 0 to 1, with higher values corresponding to higher profit efficiency levels.

3.3. The Model

To examine to impact of board and CEO characteristics on profit efficiency of securities firms in Vietnam, we adopt the approach of Gupta and Mahakud (2020), Pham (2023), and Saidu (2019); and propose the following model:

Table 1: Variables used to estimate profit efficiency

Variable	Variable name	Description
PP	Pre-tax profit	Profit before taxation
Outputs		
y_1	Investment value	(Long-term investment+short-term investment)/total assets
y_2	Spread income	Spread income/total assets
y_3	Fee income	Fee incomes/total assets
Inputs		
x_1	Securities companies unique expenses	The total expenses for specific operations of securities companies include brokerage, proprietary trading, underwriting, investment advisory and financial consulting, custody, and other related costs.
x_2	Other expenses	Interest expenses and management costs of securities companies
Input prices		
w_1	Securities companies unique expenses	x_1 /total assets
w_2	Other expenses	x_2 /total assets
Others		
NPI	Negative profit indicators	NPI take the value of 1 if a company's actual pre-tax profit is >0; and the absolute value of the actual pre-tax profit otherwise.

Table 2: Variables description

Variable	Variable name	Description
PROFIT	Profit efficiency	Calculate in Section 3.2
CEO_board	CEO as a member of board	Dummy variable, takes the value of 1 if firm's CEO is a board member and 0 otherwise
CEO_dual	CEO duality	Dummy variable, takes the value of 1 if firm's CEO is the chairman and 0 otherwise
CEO_gender	CEO gender	Dummy variable, takes the value of 1 if firm's CEO is female and 0 otherwise
CEO_edu	CEO education	1: CEO holds the bachelor degree 2: CEO holds the master degree 3: CEO holds to doctorate degree
CEO_exp	CEO experience	Log (number of year of CEO assignment)
Board_gender	Gender of board members	% of female directors on board
Board_indep	Board independence	% independent directors on board
Board_size	Board size	Log (number of directors on board)
PPE	Property, plant, and equipment	Fixed assets/total assets
INTAN	Intangible assets	Intangible assets/total assets
LEV	Leverage	Total Debt/total assets
SIZE	Firm size	Log (Total assets)
GDP	GDP growth	Annual GDP growth rate
INFL	Inflation	Annual GDP inflation rate

$$\begin{aligned}
 PROFIT_{it} = & \beta_0 + \beta_1 CEO_board_{it} + \beta_2 CEO_dual_{it} \\
 & + \beta_3 CEO_gender_{it} + \beta_4 CEO_edu_{it} + \beta_5 CEO_exp_{it} \\
 & + \beta_6 board_gender_{it} + \beta_7 board_indep_{it} + \beta_8 board_size_{it} \\
 & + \beta_9 PPE_{it} + \beta_{10} INTAN_{it} + \beta_{11} LEV_{it} + \beta_{12} SIZE_{it} + \beta_{13} GDP_{it} \\
 & + \beta_{14} INFL_{it} + \varepsilon_{it}
 \end{aligned} \quad (2)$$

Where PROFIT is the profit efficiency scores, ranging from 0 to 1. Main independent variables capture the characteristics of the CEO and board of directors, including the CEO as the board member (*ceo_board*); the CEO as the board chair (*ceo_dual*); CEO gender (*ceo_gender*); CEO education levels (*ceo_edu*); managerial experience (*ceo_exp*), proportion of female directors on the board (*board_gender*); proportion of independent directors (*board_indep*); and board size (*board_size*). In addition, the model controls for firm-specific and macroeconomic factors that may influence profit efficiency, such as firm size (*SIZE*), fixed assets (*PPE*), intangible assets (*INTAN*), financial leverage (*LEV*), GDP growth (*GDP*), and inflation (*INFL*). Table 2 gives detailed description of each variable.

To estimate model (2), the authors employ panel regression methods such as Ordinary Least Squares (OLS), Fixed Effects Model (FEM), and Random Effects Model (REM). However, as post-estimation tests of these models indicate issues of heterogeneity and autocorrelation, we decided to use the Feasible Generalized Least Squares (FGLS) model to control for these issues. We also performed a system GMM model to account for some of the endogeneity issues and as a robustness test for the results from the FGLS estimations.

4. RESULTS AND DISCUSSIONS

4.1. Profit Efficiency Score of Securities Companies in Vietnam

Table 3 provides descriptive statistics of variables used to measure the profit efficiency of securities firms in Vietnam, as in equation

Table 3: Descriptive statistics of variables used to measure profit efficiency

Variable	Obs	Mean	Standard deviation	Min	Max
PP	315	2.396	4.167	0.004	44.362
y ₁	315	0.924	0.118	0.264	1.018
y ₂	315	0.078	0.097	0	0.674
y ₃	315	0.104	0.078	0	0.599
x ₁	315	141,220.47	253,336.07	-28.5	1,854,848
x ₂	315	128,810.91	244,738.47	-2609	1,932,146
w ₁	315	0.045	0.043	0	0.37
w ₂	315	0.044	0.039	-0.01	0.433
NPI	315	1.299	1.859	0.012	26.073

(1). The data show that securities firms in Vietnam are quite diversified in term of input prices and output quantities.

Vietnamese securities companies' operations are similar to investment banks. From 2015 to 2023, their outputs were predominantly concentrated on investment activities, with average investment values accounting for as much as 92.4% of total assets, consistent with their characteristics as a financial intermediary. At the same time, income from service fees and trading spreads represented a smaller proportion, reflecting limited revenue diversification. On the input side, industry-specific expenses exhibited a large standard deviation, indicating a clear differentiation in scale and strategic orientation among securities companies. Some firms reported negative profits, suggesting uneven operational efficiency in the sector.

Table 4 reports the profit efficiency scores of the securities companies in the sample. The average profit efficiency score of the entire sample was 0.4790, indicating that securities firms attained only approximately 48% of optimal profit efficiency, leaving considerable room for improvement. During the study period, the efficiency scores exhibited an upward trend, particularly from 2015 to 2020, reflecting efforts to enhance operational efficiency and capitalize on the expansion of the stock market in Vietnam.

Remarkably, 2020, the year of the COVID-19 pandemic with severe socioeconomic disruptions, recorded the highest efficiency score. This can be attributed to the surge in individual investors, abundant cheap capital flows, and accommodative monetary policy, which boosted revenues and improved profit margins for many securities companies.

However, from 2021 to 2023, the efficiency scores stabilized at approximately 0.48, indicating steadiness but no significant improvement despite the rapid growth of the stock market. Contributing factors may include intensifying competition, higher operating costs, and challenges in corporate governance and management.

4.2. Impacts of Board and CEOs Characteristics on Profit Efficiency of Securities Companies

Table 5 presents the descriptive statistics of the variables used in the regression model. The statistics indicate substantial heterogeneity among securities companies in the sample. On average, the profit efficiency score is 0.479, indicating a low level of efficiency for the firms in the sample. 15% of the CEOs serve as the board chairmen and 81.3% of the CEOs serve as board members. Additionally, the proportion of female CEOs stands at 15.6%, and the proportion of female directors on board is 21.2%, implying limited female representation in management and on boards of directors. On average, CEOs have a bachelor's degree or above, and the average time that a CEO holds the position is more than 5 years.

Table 4: Profit efficiency score of securities companies in Vietnam

Year	Mean	Standard deviation	Frequency
2015	0.4509	0.2381	34
2016	0.4853	0.2089	34
2017	0.4699	0.2175	35
2018	0.4703	0.2188	34
2019	0.4875	0.2031	35
2020	0.4922	0.2055	35
2021	0.4842	0.1912	35
2022	0.4902	0.1955	35
2023	0.4797	0.2045	35
Total	0.4790	0.2072	312

Profit efficiency scores range from 0 to 1, with 1 represents the most efficient firm in the sample

Table 5: Descriptive statistics of variables used in the regression model

Variable	Obs	Mean	Standard deviation	Min	Max
PROFIT	312	0.479	0.207	0.004	0.856
CEO_board	315	0.813	0.391	0	1
CEO_dual	315	0.156	0.363	0	1
CEO_gender	315	0.156	0.363	0	1
CEO_edu	315	1.698	0.548	1	3
CEO_exp	315	5.727	4.901	1	25
Board_gender	315	0.212	0.192	0	0.8
Board_indep	315	0.035	0.095	0	0.5
Board_size	315	1.606	0.252	1.099	2.303
PPE	315	0.017	0.038	0	0.269
Intan	315	0.011	0.033	0	0.252
Lev	315	0.297	0.259	0	0.849
Size	315	14.005	1.532	9.621	18.053
GDP	315	5.993	1.917	2.562	8.02
Infl	315	2.736	0.896	0.63	3.54

Table 6 reports the correlation matrix of dependent, independent and control variables used in the model. The results in Table 6 suggest little evidence of severe multicollinearity in the subsequent regression results.

Table 7 presents the regression results assessing the impact of CEO and board characteristics on the profit efficiency (PROFIT) of securities companies using both FGLS and System GMM estimations. The findings highlight several board attributes that have significantly impacts on firm performance, reinforcing the conclusions found in existing literature.

First, *CEO_gender* shows a negative and statistically significant coefficient in both models, which indicates that firms with female CEOs tend to achieve lower profit efficiency, consistent with prior studies of Jadiyappa et al. (2019) and Stefanelli et al. (2023). This is a noteworthy finding in the context of Vietnam's financial market, where the proportion of female CEOs in the securities industry is relatively low (15.6%). According to Jadiyappa et al. (2019), the presence gender diversity, particularly female leadership, can result in differences in management styles and strategic directions, which might not be fully supported by the existing corporate culture. Stefanelli et al. (2023) point out that the impact of a female CEO on firm profitability can be linked to board composition. Older board members may not equally recognize the leadership attributes of female CEOs, which could negatively affect firm performance under their leadership.

Second, *board_gender* (the proportion of female directors on the board) also exerts a positive and statistically significant effect at the 10% level in both the models. This finding aligns with the perspective of studies such as Carter et al. (2003) and Pucheta-Martínez and Gallego-Álvarez (2020), which argue that the presence of women on boards not only increases diversity in strategic thinking but also strengthens transparency and oversight, ultimately contributing to improved business performance.

In contrast, the variable *board_indep* (the proportion of independent directors) exhibits a negative and highly significant effect in both estimation methods. This suggests that, in the context of an emerging market such as Vietnam, the role of independent directors has not been fully effective. This interpretation is consistent with the discussion in Section 2 of the literature review, which emphasizes that independent directors in Vietnam often face limitations in accessing information, professional expertise, and substantive involvement in decision-making, resulting in low monitoring effectiveness (Horváth and Spirollari, 2012; Nguyen et al., 2017).

In addition, several control variables, such as LEV and SIZE, play significant roles on efficiency of securities firms. LEV exerts a clearly negative effect on performance, consistent with agency cost theory and prior studies such as Danso (2020) and Ronooowah and Seetanah (2024), which argue that higher leverage intensifies agency conflicts and financial risk. In contrast, SIZE shows a positive effect, reflecting the advantages of scale in spreading fixed costs, enhancing investment capacity in technology, and expanding product portfolios. This result is consistent with earlier evidence reported by Teng et al. (2022) and Vu et al. (2021).

Table 6: Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Profit	1.000														
(2) CEO_board	-0.075 (0.189)	1.000													
(3) CEO_dual	0.009 (0.874)	0.206 (0.000)	1.000												
(4) CEO_gender	-0.094 (0.098)	-0.086 (0.129)	-0.015 (0.790)	1.000											
(5) CEO_edu	-0.073 (0.195)	-0.012 (0.835)	0.108 (0.054)	0.092 (0.101)	1.000										
(6) CEO_exp	0.109 (0.054)	0.221 (0.000)	0.292 (0.000)	-0.141 (0.012)	0.210 (0.000)	1.000									
(7) Board_gender	0.112 (0.049)	-0.109 (0.052)	0.007 (0.906)	0.415 (0.000)	0.093 (0.101)	-0.172 (0.002)	1.000								
(8) Board_indep	-0.059 (0.295)	-0.082 (0.149)	-0.129 (0.022)	-0.037 (0.518)	0.015 (0.785)	-0.087 (0.124)	-0.021 (0.709)	1.000							
(9) Board_size	0.026 (0.646)	0.127 (0.024)	0.009 (0.867)	0.018 (0.748)	0.050 (0.375)	0.218 (0.000)	-0.169 (0.003)	-0.117 (0.039)	1.000						
(10) PPE	0.011 (0.853)	0.007 (0.898)	-0.052 (0.358)	0.094 (0.097)	-0.033 (0.558)	-0.120 (0.034)	-0.058 (0.308)	-0.092 (0.102)	-0.198 (0.000)	1.000					
(11) Intan	-0.001 (0.983)	-0.009 (0.870)	-0.079 (0.160)	0.106 (0.061)	-0.002 (0.971)	-0.144 (0.010)	-0.036 (0.525)	-0.080 (0.157)	-0.177 (0.002)	0.926 (0.000)	1.000				
(12) Lev	-0.175 (0.002)	0.057 (0.309)	-0.168 (0.003)	0.020 (0.719)	-0.054 (0.337)	-0.048 (0.394)	-0.056 (0.320)	0.143 (0.011)	0.244 (0.000)	-0.243 (0.000)	-0.220 (0.000)	1.000			
(13) Size	0.100 (0.079)	0.083 (0.139)	-0.155 (0.006)	-0.013 (0.818)	-0.025 (0.663)	0.100 (0.076)	-0.023 (0.685)	0.122 (0.031)	0.370 (0.000)	-0.271 (0.000)	-0.216 (0.000)	0.656 (0.000)	1.000		
(14) GDP	-0.020 (0.731)	0.040 (0.475)	0.163 (0.004)	0.057 (0.313)	-0.076 (0.180)	-0.002 (0.965)	-0.048 (0.394)	-0.130 (0.021)	0.097 (0.084)	0.060 (0.286)	0.048 (0.398)	-0.143 (0.011)	-0.181 (0.001)	1.000	
(15) Inflation	0.031 (0.589)	0.009 (0.880)	-0.011 (0.839)	-0.020 (0.726)	0.100 (0.077)	0.045 (0.430)	-0.006 (0.909)	0.094 (0.097)	-0.014 (0.807)	0.009 (0.871)	0.032 (0.568)	0.016 (0.771)	0.105 (0.062)	0.113 (0.044)	1.000

In summary, the findings in Table 7 provide robust empirical evidence that CEO and board gender characteristics, the degree of board independence, leverage, and firm size significantly affect the performance of securities companies in Vietnam during the study period. Nevertheless, the magnitude and direction of the effects of these factors may not be uniform across contexts. Therefore, to test the stability and conditional role of macroeconomic factors and firm-specific characteristics, Section 4.3 further examines the impact of the independent variables on profit efficiency scores through interaction terms.

4.3. Further Analysis

Section 4.3 extends the baseline analysis by testing the moderating role of several contextual factors, such as firm size (SIZE), financial leverage (LEV), foreign ownership (FOREIGN), and the COVID-19 pandemic (COVID-19). By adding interaction terms to the baseline models, this study examines whether the impact of board and CEO characteristics on profit efficiency varies significantly under different conditions. This analysis enhances the comprehensiveness of our model and provides clearer evidence for developing tailored recommendations for different groups of securities companies. The results are presented in Table 8.

Table 7: Board and CEO characteristics and profit efficiency of securities companies

Variable	Variable name	PROFIT	
		FGLS	System GMM
CEO_board	CEO as a member of board	-0.026 (-1.15)	-0.0243 (-0.41)
CEO_dual	CEO duality	0.0132 (0.51)	-0.011 (-0.20)
CEO_gender	CEO gender	-0.0473* (-1.68)	-0.190** (-2.51)
CEO_edu	CEO education	-0.0232 (-1.41)	-0.0142 (-0.28)
CEO_exp	CEO experience	0.000907 (0.39)	0.00442 (0.58)
Board_gender	Gender of board members	0.0879* (1.67)	0.271* (1.72)
Board_indep	Board independence	-0.261*** (-2.71)	-0.561* (-1.94)
Board_size	Board size	0.00304 (0.07)	-0.00384 (-0.04)
PPE	Property, Plant, and Equipment	0.569 (0.68)	0.133 (0.09)
INTAN	Intangible assets	-0.917 (-0.99)	-0.751 (-0.40)
Lev	Leverage	-0.262*** (-5.20)	-0.31 (-1.49)
Size	Firm size	0.0438*** (4.98)	0.0935** (2.56)
GDP	GDP growth	-0.00211 (-0.60)	0.00336 (0.43)
Infl	Inflation	0.00375 (0.51)	0.0113 (0.45)
L. PROFIT			0.650*** (3.06)
AR (1) test (P-value)			0.000
AR (2) test (P-value)			0.173
Hansen test of over-identification (P-value)			0.681
Observation		312	239

t statistics in parentheses (*P<0.1, **P<0.05, ***P<0.01)

The results in Table 8 indicate that the impact of governance characteristics on PROFIT is not fixed but may vary depending on firm attributes and macroeconomic conditions. Specifically:

First, the positive effect of the proportion of female directors on PROFIT varies with firm size: the interaction term *board_gender* × SIZE has a negative and statistically significant coefficient, implying that the positive impact of female board representation on profit efficiency diminishes as firm size increases. This can be explained that in larger securities firms, the actual influence of female board members may be constrained by complex delegation structures or traditional corporate cultures (Ararat and Yurtoglu, 2021). This finding is consistent with recent studies such as Ararat and Yurtoglu (2021), Farag and Mallin (2017), and Li and Chen (2018). Second, the role of independent directors varies with macroeconomic conditions: both interaction terms *board_indep* × LEVERAGE and *board_indep* × COVID-19 carry positive and statistically significant coefficients, suggesting that under conditions of high leverage or in crisis contexts (such as the pandemic), the negative impact of independent directors on firm performance tends to be mitigated. This indicates that the effectiveness of independent directors is context-dependent and may improve in high-risk environments where monitoring and control demands are elevated. This finding is in line with Jenwittayaroje and Jiraporn (2019) and Yahaya (2025), who highlight the importance of independent directors in risk-laden contexts such as financial crises or the COVID-19 pandemic.

Third, the interaction terms *board_indep* × SIZE and *board_indep* × FOREIGN show positive significant impact on profit efficiency of securities companies. The results indicate that in larger firms and firms with higher foreign ownership, the negative impact of board independent on profit efficiency is reduced. According to Yahaya (2025), larger firms have more complex governance needs and independent directors can exert more effective oversights and reduce agency issue, consequently reducing any negative

Table 8: Board and CEO characteristics and profit efficiency: moderating effect of firm size, leverage, ownership structure and the COVID-19 pandemic

Variable	Profit efficiency			
	Size	Leverage	Foreign	COVID-19
CEO_gender	0.3007 (1.14)	0.0436 (1.00)	0.0105 (0.30)	0.0435 (1.62)
CEO_gender×VAR	-0.0181 (-0.98)	0.0035 (0.04)	0.0730 (1.35)	-0.1038 (-1.48)
Board_gender	1.4096*** (3.19)	0.1295* (1.82)	0.0954 (1.43)	0.0893* (1.66)
Board_gender×VAR	-0.0964*** (3.12)	-0.1843 (-0.98)	0.00000579 (0.00)	-0.0396 (-0.43)
Board_indep	-1.5405* (-1.93)	-0.4921*** (-2.69)	-0.4539*** (-3.10)	-0.5122*** (-4.59)
Board_indep×VAR	0.0889* (1.72)	0.5827* (1.84)	0.3512* (1.88)	0.5626*** (4.12)
CONTROLS	YES	YES	YES	YES
Observation	312	312	312	312

t statistics in parentheses (*P<0.1, **P<0.05, ***P<0.01). VAR represents: Firm size, leverage, ownership structure, and the COVID-19 pandemic. FOREIGN denotes the foreign ownership ratio. COVID-19 is a dummy variable, take the value of 1 for year 2020 and 2021; 0 otherwise

impact on performance compared to smaller firms. Al-Gamrh et al. (2020) state that foreign ownership is likely to add monitoring and governance standards to current practices of firms, which help to reduce the downsides of board independence, such as potential conflicts or slower decision-making. Akter et al. (2024) further discuss that the presence of foreign directors enhances board independence and help to reduce management opportunisms, which help to strengthen corporate governance mechanisms of firms.

5. CONCLUSION AND RECOMMENDATIONS

This study clarifies the relationship between CEO and board characteristics on profit efficiency of securities in developing countries using a panel dataset of 35 listed securities companies in Vietnam from 2015 to 2023. Using the FGLS regression method, along with a robustness check using the System GMM approach, the results reveal that female CEO and board independence negatively affect the profit efficiency of securities firms, while female board members demonstrate a significant positive impact. Further analysis shows that the positive impact of female board members on efficiency diminishes as firm size increases, reflecting potential constraints on women's substantive influence in larger securities firms. Furthermore, the negative impact of board independence is lessened for firms with larger size, higher foreign ownership, higher leverage, and during the COVID-19 pandemic.

Based on the results, this study provides the following suggestions. First, the negative impact of female CEO on efficiency does not necessarily imply that female CEOs are less capable; it may reflect structural and contextual challenges in Vietnam's financial sector that may limit their performance. Regulators can consider promoting policies that ensure that female CEOs receive equal access to resources, decision-making authority, and professional development opportunities. Second, increasing the proportion of female directors should be accompanied by genuine empowerment, avoiding tokenistic diversity without a substantive influence on decision-making. Internal policies should facilitate the deeper involvement of female directors in governance, thereby realizing the benefits of gender diversity. Third, in contexts of heightened risk or high leverage, securities firms should place a stronger emphasis on leveraging the role of independent directors. This includes appointing individuals with financial expertise, market knowledge, and genuine monitoring capabilities rather than symbolic appointments made solely for regulatory compliance. Simultaneously, firms should improve information-sharing mechanisms to ensure that independent directors have full access to the necessary data, enabling them to perform their oversight functions more effectively in volatile situations. Fourth, companies should focus on training activities or information provision to improve the expertise and accountability of independent directors, particularly in smaller firms. Fifth, since foreign ownership helps mitigate the negative influence of board independence on efficiency, regulators might design incentives for strategic foreign investors that bring international governance standards and require higher-quality monitoring activities.

Although our study makes valuable contributions to the current literature, we acknowledge several limitations that suggest directions for future research. First, our study was conducted in the context of a developing country like Vietnam, which limits the generalizability of our findings. Future studies could extend this topic by conducting cross-country comparisons, particularly between emerging and developed markets. Second, our dataset is restricted to 35 listed securities companies; future research could broaden the scope to include non-listed securities firms or expand to other financial institutions, such as commercial banks or insurance companies, to provide a more comprehensive understanding of the topic across the financial services industry. Third, our study primarily focuses on structural governance characteristics, while other dimensions of governance quality, such as leadership style, executive compensation, or ownership concentration. Were not fully considered. Future research could enrich the analysis by incorporating additional governance mechanisms that may shape the effectiveness of boards and CEOs.

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