



International Journal of Business Excellence

ISSN online: 1756-0055 - ISSN print: 1756-0047

<https://www.inderscience.com/ijbex>

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Hanh Thi My Le, Irene Wei Kiong Ting, Qian Long Kweh, Ha Lam Tan Ngo

DOI: [10.1504/IJBEX.2020.10031019](https://doi.org/10.1504/IJBEX.2020.10031019)

Article History:

Received:	09 May 2020
Accepted:	09 June 2020
Published online:	16 January 2023

CEO duality, board size and firm performance: evidence in Vietnam

Hanh Thi My Le

Benchmarking Research Group,
Faculty of Accounting,
Ton Duc Thang University,
Ho Chi Minh City, Vietnam
Email: lethimyhanh@tdtu.edu.vn

Irene Wei Kiong Ting*

Faculty of Industrial Management,
Universiti Malaysia Pahang,
Pahang, Malaysia
Email: irene@ump.edu.my
*Corresponding author

Qian Long Kweh

Faculty of Management,
Canadian University Dubai,
Dubai, United Arab Emirates
Email: qlkweh@gmail.com

Ha Lam Tan Ngo

Faculty of Accounting,
Ton Duc Thang University,
Ho Chi Minh City, Vietnam
Email: ngotanlamha@tdtu.edu.vn

Abstract: From the perspective of the agency and stewardship theories for explaining the relationship between corporate governance and firm performance, this study examines the impacts of CEO duality and board size on the firm performance. We assess the association between CEO duality, board size and firm performance of top 200 companies listed on the Vietnam Stock Exchange (VSE) over 2014–2015. Our findings show that: 1) CEO duality limits the monitoring function of the board, and a large board size promotes dominance and power of leaders that create more conflicts; 2) the number of executive directors in the top management positively influences firm performance. Findings of our study certainly help policymakers and other stakeholders understand the relationship between CEO duality, board size and firm performance. Overall, this study highlights the CEO duality and the relationship of board size and firm performance in a nation with less protection of minority shareholders.

Keywords: firm performance; CEO duality; board size; Vietnam.

Reference to this paper should be made as follows: Le, H.T.M., Ting, I.W.K., Kweh, Q.L. and Ngo, H.L.T. (2023) 'CEO duality, board size and firm performance: evidence in Vietnam', *Int. J. Business Excellence*, Vol. 29, No. 1, pp.98–120.

Biographical notes: Hanh Thi My Le is a Lecturer at the Faculty of Accounting, Ton Duc Thang University (TDTU), Ho Chi Minh City, Vietnam. Besides 15 years of teaching, she has published some research papers in some journals, such as *Journal of Intellectual Capital*, *Managerial Decision Economics*, *International Journal of Business and Society*, *Journal for Global Business Advancement*, etc. She holds as a Conference Chair at a few international conferences. Her research interest mainly focuses on the quality of financial reports, intellectual capital, corporate social responsibility, corporate governance, earning management, accounting and managerial behaviour, etc. She also commits time and effort to serve as the Dean of Faculty of Accounting at the Ton Duc Thang University.

Irene Wei Kiong Ting is a Senior Lecturer of Finance from the Faculty of Industrial Management, Universiti Malaysia Pahang (UMP), Malaysia. She has spent almost two decades in teaching finance courses at tertiary level. She has published extensively in top journals, with focuses on behavioural finance, corporate governance, intellectual capital, capital structure, etc. She has received several best paper awards for her research works from various international conferences. Besides, she also commits time and effort being on the QS-MAPLE International Academic Advisory Committee. She also serves as the Director of the Office of Career Placement and Development Centre at UMP.

Qian Long Kweh is an Associate Professor in Accounting and Finance at the Faculty of Management, Canadian University Dubai, UAE. His research interests include performance measurement, corporate governance, auditing, business strategy, financial reporting, intellectual capital, corporate social responsibility, etc. He has published some articles in top journals, such as *OMEGA*, *European Journal of Operational Research*, *Applied Economics*, *International Review of Financial Analysis*, and *Asia-Pacific Journal of Accounting & Economics*.

Ha Lam Tan Ngo earned her Bachelor degree at the University of Richmond and Master degree at the North Carolina State University, USA. She is currently a Lecturer at the Faculty of Accounting, Ton Duc Thang University, Ho Chi Minh City, Vietnam. Besides teaching management accounting courses, she also develops her academic professional through conducting scientific research with main area of interests include corporate governance, corporate social responsibility, and managerial behaviour.

1 Introduction

The BOD plays a significant role in an internal control mechanism, which thereby attracts many researchers to conduct many studies regarding relationship between the BOD's characteristics and firm performance (Adams et al., 2010; Cabrera-Suárez and Martín-Santana, 2015; Dash and Raithatha, 2019). Notably, among different

characteristic of the board, CEO duality and board size on firm have been widely discussed and received considerable attention among academia and business (Boone et al., 2007; Dalton et al., 2007; Tang, 2017; Pearce and Patel, 2017). CEO duality occurs when the CEO is also the chairman of the board, in which such dual leadership roles would provide a higher authority in decision-making. March and Shapira (1987) highlighted that the CEO might control the results of the business and financial decisions when they have such an illusion of control. Regarding the board size issue, the UK Combined Code (2010) emphasises the need for the board to be of appropriate size, but no specific board size has been recommended (FRC, 2010). However, Jensen (1993) revealed that boards containing more than seven to eight members are less effective in decision-making and communication.

The empirical literature examining the relationship of CEO duality, board size and firm performance yields mixed findings as a consequence of the opposite perspectives of agency and stewardship theories. The agency theory argues that if a partition of ownership and control exists, then agency control tools can be used to coordinate the targets of managers (agents) with those of owners (principals). Agency theory highlights that boards should be independent of management to limit managerial entrenchment and opportunism (Jensen and Meckling, 1976). Hence, the dual leadership structure violates this independence approach, and CEO duality likely has a negative association with firm performance. Also, according to this theory, agency problems arise when different behaviours appear in boardrooms, especially for larger boards. Jensen (1993) further explained that the larger board size would increase the costs of the agency problems. Furthermore, the coordination and communication issues in the larger board size would lead to a lower level of firm performance.

By contrast, the stewardship theory (Barney, 1990; Donaldson and Davis, 1991), on the other hand, argue differently in regard to the dual leadership and the board size. Stewardship theory support that the dual leadership structure motivates CEO non-financially. Notably, the CEO would be satisfied with their recognition, achievement and reputation, which then encourages the CEO to act as a good steward in order to enhance firm performance. The stewardship theory also suggests that a company with a larger board can operate better because a large board size provides valuable contribution and creates a connection with external environment resources (Kiel and Nicholson, 2003). Boone et al. (2007) stated that larger groups likely reject risky projects because several group members must consider a project before being accepted, thereby reducing business risk and improving firm performance. As a result, CEO duality and a large board size likely has positive relationship with firm performance in accordance with stewardship theory.

Furthermore, most prior studies investigating the issues of corporate governance rather focused on developed markets and instead of developing markets. Our study, on the other hand, contributes evidence on the debates of the relationship, specifically in the Vietnamese context, a developing country where various issues of corporate governance need to be clarified. In Vietnam, the business environment has improved, but the mechanism of corporate governance is still inadequate (World Bank, 2016). Results from prior studies in Vietnam suggest that CEO duality, occurring when the CEO is also the chairman of the board, accounts for approximately 34% and that board contains around six members (Nguyen et al., 2015a; Kabir and Thai, 2017; Vu and Pratoomsuwan, 2019). These findings are relatively low compared with other countries. Notably, studies in other countries show that the percentage of CEO duality is over 50% (Ahmadi et al., 2017;

Duru et al., 2016; Yang and Zhao, 2014) or the mean of board size is ten members (Coles et al., 2008; Connell and Cramer, 2010; Chen and Al-Najjar, 2012; Yang and Zhao, 2014; Liu et al., 2015; He and Luo, 2018). In order to improve the quality of corporate governance, Vietnamese business law and corporate governance regulation with numerous amendments are often written referring to international laws. As a consequence, in June 2017, the Vietnamese Government issued Decree No. 71/2017/ND-CP providing guidelines on directing the corporate governance applicable to public companies. Notably, the chairman is not allowed to serve as the CEO starting on 1st August 2020 in public companies, and the members of the board of directors (BOD) of a public company shall be from 3 to 11. Whether or not the Decree No. 71/2017/ND-CP would be appropriate expectation of Vietnamese Government? Our study would intend to affirm the appropriateness.

Last but not least, we recognise that studies regarding the characteristics of boards and the firm performance within Vietnamese context are limited. Vo (2017), Le and Phan (2017) and Vu et al. (2018) only focused on the board ownership structure and firm performance, whereas Vu et al. (2018) limited their study by providing the evidence of board size, the CEO ownership and ownership concentration in boards to return on assets (ROAs). Le et al. (2018) investigated the effect of board meeting frequency on the financial performance of companies listed in the Vietnam Stock Exchange (VSE) but not the dual leadership structure and board size. We intend to fill these gaps.

This study contributes to the debate of corporate governance from several dimensions. First, most prior studies investigated direct impacts of varies characteristics of corporate governance such as board diversity (Pham and Hoang, 2018; Ngo et al., 2019; Nguyen et al., 2015a) or ownership concentration (Nguyen et al., 2015b) on firm performance. Nevertheless, very few studies tested the impacts of CEO duality or board size on firm performance. Hence, we can contribute more valuable findings when conducting our research regarding the association of CEO duality and board size with firm performance within Vietnam – one of emerging countries that has less protection of minority shareholders (World Bank, 2016).

Second, our research is conducted in Vietnam – an emerging Asian country, which is in the process of economic transition, developing actively in international foreign trade activities, attracting much capital flows from Western countries. The study will contribute valuable findings in regarding the impacts of corporate governance's characteristics on firm performance to provide more detailed and specific information for foreign investors and prospective investors who would like to further invest in Vietnam in particular and Southeast Asian countries in general. The study is promised to draw a clearer picture of the impacts of some corporate governance characteristics on firm performance within emerging Southeast Asian countries.

Final, this study aims to assist companies to achieve the highest level of corporate governance through improving appropriate management. Our findings support policymakers and regulators with useful information to improve corporate governance policies. Notably, the findings indicate a significant policy implication, in which the chairman should not be allowed to also serve as the CEO to improve firm performance. Moreover, the result also reflects the relevance of the current policy implemented by the Vietnamese Government.

The rest of the paper is arranged as follows: Section 2 examines previous studies on the relationship between management characteristics and firm performance globally and in Vietnam. Section 3 discusses the research methods and data collection. Section 4

describes the findings and discussion. Finally, Section 5 concludes and provides recommendations.

2 Literature review and hypothesis development

Numerous studies on corporate governance attempt to identify the influence of the characteristics of the BOD on firm performance (Adjaoud et al., 2007; Abdallah and Ismail, 2017; Bebchuk and Weisbach, 2010; Detthamrong et al., 2017; Filatotchev et al., 2007; Paniagua et al., 2018; Vintilă et al., 2015; Shabbir et al., 2019; Drakos and Bekiris, 2010). Adjaoud et al. (2007) indicated that the quality of executive board plays an essential role in corporate governance to achieve the shareholders' goals. Notably, Bathula (2008) argued that the size of the executive board is closely related to firm performance. Shabbir et al. (2019) found that governance composition contributes to improving firm performance. Drakos and Bekiris (2010) found no relationship between board independence and firm performance, but the authors explored a negative relationship between firm performance and board size.

Furthermore, ownership of the director negatively correlate with firm performance in small board sizes. Nevertheless, for companies with large board sizes, the level of ownership of the BOD has a positive impact on firm performance. Moreover, the companies with small board sizes seem to benefit from CEO duality, but others do not. For companies with large board sizes, independence is limited when one person holds two positions, contrary to a small board size company. Relevant correlation between board characteristics, such as board size, board structure, board independence, or gender of the board members and firm performance, is a persisting topic on the debate, with numerous perspectives and conclusions (Arora and Sharma, 2016; Bebchuk and Weisbach, 2010; Paniagua et al., 2018). CEO duality, BOD and their influence on firm performance are exciting issues in theory and practice (Duru et al., 2016; Finkelstein et al., 2009). The empirical literature investigated these mixed results, specifically the contradicting result between the agency theory (Fama and Jensen, 1983; Jensen, 1993) and stewardship theory (Barney, 1990; Donaldson and David, 1991). Many prior studies arrive at various conclusions. Nevertheless, the present study aims to identify a significant negative impact of CEO duality and board size on firm performance.

2.1 CEO duality and firm performance

Previous literatures found mixed results on the relationship between dual leadership structure and firm performance. Notably, while few researchers explain their findings based on stewardship theory, others utilise agency theory to backup for their findings' explanation.

The stewardship theory (Barney, 1990; Donaldson and David, 1991) assumes that managers would be not affected by his benefits, instead, managers' motivation would be well aligned with other stakeholders' goals. When CEO simultaneously play as a manager and a board representative, it would be a great advantage to unite the command from top to bottom, allowing the CEO to maximise his ability to perform his role effectively. Notably, the CEO would be able to understand thoroughly the firm, from daily operating management to monitoring function, in which enhancing his ability to generate the best benefits to all stakeholders. With that being said, CEO duality would

not constraint the ability of the CEO to perform their role effectively, but rather enhance the CEO's power to provide all stakeholders with the best benefits. Such assertion is well aligned with stewardship theory, affirming that CEO duality is positively associated with a higher level of firm performance based on the priority of stakeholders' benefits (Barney, 1990; Donaldson and David, 1991).

In consistence with stewardship theory, many prior studies have shown similar results. For instance, Nugroho and Eko (2011), Bayrakdaroglu et al. (2012), Cabrera-Suárez and Martín-Santana (2015), Yang and Zhao (2014) and Shabbir et al. (2019) relatively showed that CEO duality has a significant positive relationship with firm performance. Notably, while Yang and Zhao (2014) emphasises the benefits of CEO duality on cost-saving and effective decision-making, Shabbir et al. (2019) stated that CEO duality would show a positive impact on the efficiency of internet companies in China. Similarly, such positive association between CEO duality and firm performance was further confirmed by Ahmadi et al. (2017). Their study revealed that CEO duality is popular and highly correlated with a higher level of performance based on the French firms listed on the Cotation Assistée en Continu (CAC).

In contrast to the assumption of the stewardship theory, the theoretical framework of agency theory states that boards should be separated from the management role, and also emphasises that the independence of a board is significant for monitoring and executing governance roles (Jensen and Meckling, 1976). The dual leadership role of CEO would create interest conflicts between shareholders and managers (Chiraz and Jarbouï, 2016). Furthermore, role duality will create a concentrated power for the CEO-cum-chairman in making decisions to maximise his benefits without any constraints. Therefore, CEO duality would limit the monitoring function of the board, thus making its essential control function ineffective (Chen and Al-Naijar, 2012). In consistence with agency theory, other prior studies have also presented similar findings, mainly: independent directors are better in monitoring firm performance and are widely applied in many countries (Cabrera-Suárez and Martín-Santana, 2015; Duru et al., 2016). Duru et al. (2016) provide evidence supporting agency theory wherein CEO duality may reduce firm performance. Filatotchev et al. (2007) state that managerial independence and firm efficiency positively influence companies in Poland and Hungary, or Liu et al. (2015) showed that independent directors have an overall positive influence on firm operating performance in China. Liu et al. (2015) confirmed that independent directors play a significant role in preventing insiders from self-dealing and improving investment efficiency.

Nevertheless, we support the view of agency theory that CEO with the dual leadership power on the board may abuse the BODs' power to make decisions and prioritise their interests (Combs et al., 2007; García-Ramos and García-Olalla, 2011), thus would reduce firm performance. Hence, we hypothesise that a separation of the CEO and the chairman will increase firm performance:

Hypothesis 1 CEO duality is negatively associated with firm performance.

2.2 Board size and firm performance

While board independence is frequently emphasised and analysed in prior studies, we should pay more attention to another exciting element of corporate governance, the size of the BOD, specifically the relationship between board size and firm performance.

Board size plays an essential role in board efficiency and firm value (Pranati, 2017; Tahtamouni et al., 2019).

According to stewardship theory, firms with a large board size operate better because large board size provides more valuable contribution and creates a good connection with external environment resources. Many prior studies have well supported such acknowledgement, Shukeri et al. (2012), Mak and Kusnadi (2005), Mohapatra (2017), Pranati (2017), Zhou et al. (2018) and Ciftci et al. (2019) respectively confirmed that firms with large board size could obtain better overall performance. Consistently, Firstenberg and Malkiel (1994) further stated that the larger boards are more concentrated and would enhance the firm value.

In contrast to stewardship theory findings, Jensen (1993) and Lipton and Lorsch (1992) argued that large corporate boards negatively impact firm performance due to difficulties in solving agency problems among members. This notion well supports agency theory's argument that agency problems arise when various behaviours appear in boardrooms, and a larger board would reduce firm performance. Yermack (1996), Eisenberg et al. (1998), Vintilă et al. (2015) and Shabbir et al. (2019) respectively indicated that smaller boards are better off for firm performance. In particular, large board size would increase the likeliness of agency conflict, which then causes many board functions, including, monitoring, controlling and integrating decision-making, become less efficient.

Not only showing a negative association between large board size and firm performance, but many other studies also point out specific results such as the influence of a number of board members or different board actions on firm performance. In particular, Guest (2008) advocated that poor communication and inadequate decision-making weaken the effectiveness of large boards in the UK. The study of Guest (2008) also emphasises that large board size has a substantial negative effect on profitability, Tobin's Q and share returns, which then more likely to reflect on the malfunction of the board advisory rather than its monitoring function. Consistently, other studies across regions and countries, including in Asia (Mak and Kusnadi, 2005), in OECD countries (Andres et al., 2005), in Germany (Bohren and Odegaard, 2003), China (Liu et al., 2015), India (Arora and Sharma, 2016) and Vietnam (Nguyen et al., 2014), all confirmed same findings that that larger board size hurts the firm value.

Regarding the number of members comprising the board, Eisenberg et al. (1998) and Bennedson et al. (2008) documented that board size and profitability are negatively correlated in small and mid-size firms. Bennedson et al. (2008) explicitly confirmed that the negative relationship is worse when the size of the boards comprises six or more members. Coles et al. (2008) found that the relationship between board size and firm performance is U-shaped. Notably, a negative association is found between board size and firm performance for sophisticated firms (above-median score of the number of segments) and a positive association between board size and firm performance for pure firms (below-median number of segments).

Nevertheless, we support agency theory, in which larger boards likely reflect the ineffectiveness in monitoring and other problems concerning poor communication and inadequate decision-making. Hence, we propose the following hypothesis:

Hypothesis 2 Large board size is negatively associated with firm performance.

3 Data and methodology

3.1 Samples of data

The sample comprises the top 200 listed firms over the total of 600 listed firms on the Vietnamese stock market from 2014 to 2015, in which 100 listed firms are from the Ho Chi Minh Stock Exchange and another 100 from the Ha Noi Stock Exchange. These are companies whose market capitalisation values show the highest ranking on Ho Chi Minh (HOSE) and Ha Noi (HNX) Stock Exchanges as date 31 December 2015. Notedly, finance, insurance and unit trust companies are excluded due to differences in regulatory requirements related to them. In case, data of a few companies within the TOP 100 on HOSE and TOP 100 on HNX is missed, or the listed firms leave the trading platform, we will substitute these cases for the next high market cap companies. Hence, after collecting the necessary data, the final sample comprises 400 firm-year observations of 200 listed firms. The annual data regarding the characteristics of the board of each company, namely, CEO duality, the board size, firm performance and firm characteristics, are collected from the listed companies' annual reports from the Vietnamese securities market.

3.2 Measurement of variables

3.2.1 Dependent variables

This study follows Wintoki et al. (2012), Mentş (2013) and Duru et al. (2016) and focuses on firm operating performance as a dependent variable. We use accounting measures, namely, *ROA* and return on equity (*ROE*), to measure firm performance. Notably, while *ROA* is calculated by dividing the firm's net profit by average assets, the *ROE* is done by dividing the firm's net profit by average equity.

These measurements are comparable to those used by Liu et al. (2015) which are applied in the Chinese stock market because China and Vietnam have a similar transition from a planned to a market economy. Also, we rather use accounting measures instead of market-based measures because accounting measures would be better for measuring the internal efficiency of a business. Meanwhile, during the 2014–2015 period, Vietnam's stock market experienced a lot of abnormal fluctuations from external factors, so the use of internal measures of the business to measure the performance of the company would be more appropriate. Furthermore, while *ROE* is used to measure firm's profitability on each share and would be useful information for investor's decision making when comparing among different firms in the same industry, *ROA* provide investors with essential information on profits generated from invested assets (Vu et al., 2018). Hence, using the two measurements, *ROE* and *ROA*, would best help us to assess financial performance of a firm.

3.2.2 Independent variables

The independent variables used in this study are CEO duality (*DUAL*) and board size (*BFSIZE*). *DUAL* is a dummy variable that takes the value '1' if the CEO or the general manager also serves as chairman of the board (duality) and '0' if otherwise. 38% of the firms have demonstrated duality in our sample study. *BFSIZE* is the natural logarithm of the number of directors at the board level.

3.2.3 Control variables

Other variables included in this model are defined as follows:

- 1 Director size (DSIZE) is measured as the total of the number of executive directors in the top management of firms.
- 2 Firm size (FSIZE) is the natural logarithm of total sales. Previous studies found a correlation between firm size and performance (Guest, 2008; Lasfer, 2006; Linck et al., 2008), in which larger firms will require additional management and expertise, which would result in larger boards.
- 3 Leverage (LEV) is measured as the ratio of total liabilities to total assets at year-end. Firms with high leverage are more dependent on external resources, and they also have greater advisory requirements.
- 4 Audit reputation (AUD) is a dummy variable that takes the value '1' if the auditor is big 4, and '0' if the auditor is non-big 4. Detthamrong et al. (2017) found that audit reputation is positively associated with firm performance because the firm's decision-making process and the resulting decisions have improved with better audit quality.
- 5 Industries (IND) are dummy variables.

Our study categorises companies into eight sectors in accordance to the Global Industry Classification Standard (GICS). Nevertheless, in order to facilitate the analysis and ensure the appropriate number of samples in each industry, this study controls each firm industry grouping using four sectors of activities, including, industrial, consumer goods, consumer services and remaining sub-sector – the baseline subgroup to compare with the other three sub-sectors. In fact, the three industry groups, including industrial, consumer goods, consumer services are significant groups of Vietnam economy, presenting 80% of the market capitalisation of companies in the sample. Thus, we establish three dummy variables as follows:

- 1 IND1 takes the value '1' if the activities of the firm belonged to the industrial sector, and '0' if otherwise.
- 2 IND2 takes the value '1' if the firms are in the consumer goods, and '0' if otherwise.
- 3 IND3 takes the value '1' if the firms are in the consumer services, and '0' if otherwise.

The regression coefficients of these three dummy variables represent the different effects of each business sector on firm performance. Table 1 shows the definitions of all variables of our study.

3.3 Regression model

The regression model of the characteristics of the BOD to the firm performance of the Vietnamese companies is as follows:

$$PER_{it} = \beta_0 + \beta_1 Dual_{it} + \beta_2 BSIZE_{it} + \beta_3 DSIZE_{it} + \beta_4 FSIZE_{it} + \beta_5 LEV_{it} + \beta_6 AUD_{it} + \beta_7 IND_{it} + \varepsilon_{it}$$

where the subscript i and t represent the firm and time, respectively. β_i , $i = 1$ to 7, are coefficients of the respective independent and control variables. $Dual_{it}$ = CEO duality of firm i at time t ; $BSIZE_{it}$ = board size of firm i at time t ; $DSIZE_{it}$ = director size of firm i at time t ; $FSIZE_{it}$ = firm size of firm i at time t ; LEV_{it} = the ratio of total liabilities divided by total assets of firm i at time t ; AUD_{it} = the dummy variable of audit firm i at time t ; IND_{it} = the sectors of the activity of firm i at time t ; ε_{it} is the error term.

Table 1 Measurement of variables

<i>Variable</i>	<i>Description</i>	<i>Definition</i>
Dependent variables		
PER _{it}	ROA – firm performance (return on assets)	Profit after tax divided by average assets for firm i in the year t
PER _{it}	ROE – firm performance (return on equity)	Profit after tax divided by average equity for firm i in the year t
Independent variables		
DUAL	CEO duality	CEO or general manager holds the position board chair (dual is 1 if CEO is board chair, 0 otherwise)
BSIZE	Board size	The natural logarithm of number of board members in the year
Control variables		
DSIZE	Director size	The natural logarithm of number of executive directors in top management in the year t
FSIZE	Firm size	The natural logarithm of total sales
LEV	Leverage	The ratio of total liabilities divided by total assets at the end of year t
AUD	Audit	Equals '1' if the audit firm is big 4, and '0' otherwise
IND	Industry	IND1 takes the value '1' if the firms are in the industrials, and '0' if otherwise IND2 takes the value '1' if the firms are in the consumer goods, and '0' if otherwise IND3 takes the value '1' if the firms are in the consumer services, and '0' if otherwise

4 Findings

4.1 Descriptive statistics

Our sample comprises 200 firms, along with 400 firm-year observations in this study whose sector of activities are presented in Table 2. 40% of firms in the sample belongs to the industrial sector; and one of the industrial firms also has its ROA ranked second in the sample (ROA = 84%). Consumer goods and industrial sectors include not only firms

which generate the lowest ROA and ROE (ROA are -37% and -27% , respectively, whereas ROE is -68% and -124%) but also firms which have the highest ROA and ROE (ROA are 92% and 84% , respectively, whereas ROE is 116% and 149%). Compared with other sectors, consumer goods has a high ROA of approximately 9.7% , which indicates that firm performance within the consumer goods sector is fluctuating. Many companies are in good shape, whereas others are not performing well. Nevertheless, the consumer goods sector is still performing efficiently, compared with the rest. The technology and utility sector does not have outstanding firm performance, but the operating activities of this sector are relatively stable. Furthermore, firm performance within technology and utility is not different among each other, making the average performance of this sector better than others. On average, firms in real estate have the lowest firm performance (ROA and ROE are 2.3% and 5.6%). This notion is in consistence with the Vietnamese context, wherein the real estate sector in Vietnam is frozen.

Table 2 Profile of the firms analysed – firm performance to industry

<i>Industry</i>	<i>N</i>	<i>Percent</i>	<i>ROA</i>				<i>ROE</i>			
			<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>Median</i>	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>Median</i>
Basic materials	68	17%	-0.19	0.35	0.0602	0.0487	-0.19	0.57	0.1224	0.0960
Consumer goods	80	20%	-0.37	0.92	0.0975	0.0650	-0.68	1.16	0.2026	0.1865
Consumer services	40	10%	-0.31	0.46	0.0926	0.0802	-0.46	0.86	0.1911	0.1245
Healthcare	20	5%	-0.28	0.19	0.0781	0.0961	-0.41	0.33	0.1661	0.1965
Industrials	162	40%	-0.27	0.84	0.0839	0.0643	-1.24	1.49	0.1530	0.1430
Real estate	4	1%	0.01	0.05	0.0230	0.0161	0.01	0.13	0.0559	0.0401
Technology	14	4%	0.02	0.18	0.0876	0.0908	0.03	0.30	0.1755	0.1750
Utilities	12	3%	-0.01	0.23	0.1014	0.1085	-0.02	0.35	0.2138	0.2622
<i>Total</i>	<i>400</i>	<i>100%</i>								

Notes: 1 Refer to Table 1 for definition of variables (ROA, ROE).

2 *N* is the number of firm-year observation.

Table 3 shows the board characteristics of the firms. The data present that the size of most boards is five members (62%) and only a few numbers of firms have 3–4 or 10–11 members, indicating that most listed companies within the dataset complied with the corporate governance regulation. Nevertheless, there are still 6% of companies that have boards with less than five members, which do not comply with the board size policy of the Vietnamese Government. Most firms do not have CEOs holding the position of the board chair; however, 38% of firms show CEO duality. The number of directors in the top management comprising three to five members is 72%, whereas only 1% of listed companies have 10–13 directors in the top management. Our study comprises big firms trading on the Vietnamese stock market that are audited by big 4 (80%). This finding is similar to the real situation, considering that the companies in our sample are the largest corporations in the Vietnamese stock market.

Table 3 Board characteristics and auditing companies in the firms analysed

<i>Variable</i>	<i>N</i>	<i>%</i>
BSIZE		
3–4 members	24	6
5 members	246	62
6–9 members	124	31
10–11 members	6	1
<i>Total</i>	<i>400</i>	<i>100</i>
DUAL		
Dual	152	38
Non_Dual	248	62
<i>Total</i>	<i>400</i>	<i>100</i>
DSIZE		
1–2 directors	50	12
3–5 directors	286	72
6–9 directors	60	15
10–13 directors	4	1
<i>Total</i>	<i>400</i>	<i>100</i>
AUD		
Big 4	322	80
Non_Big 4	78	20
<i>Total</i>	<i>400</i>	<i>100</i>

Notes: 1 Refer to Table 1 for the definition of variables.

2 *N* is the number of firm-year observations.

Table 4 shows the summary statistics of all firms' performance, CEO duality, board size and control variables. Firm performance has an average ROA and ROE of 8% and 16% respectively. These results are also consistent with Le et al. (2018), whose study was conducted based on the top VN100 companies in Vietnam. However, the range of firm performance is remarkable; particularly, the highest result of ROA is 92%, whereas the lowest is -37%. Similarly, the minimum and maximum ROE are -124% and 149%, respectively. Hence, this finding indicates that while many companies operate efficiently, several companies are still inefficient.

The percentage of CEO serving as board chair is relatively high (38% on average). Our findings of CEO duality are also in consistence with prior studies in Vietnam. Nguyen et al. (2015a) showed their descriptive statistics of CEO duality in which CEO dual has a mean of 34% when performing his research from 2008 through 2012. However, this result is low, compared with the percentage of CEO duality in prior literature when studying in other countries; most previous studies showed the percentage of CEO duality over 50%. Ahmadi et al. (2017) reported a 59% for the French CAC listed firms from 2011 to 2013. Duru et al. (2016) found that the CEO duality percentage obtains an average of 50% in the sample of 17,282 firm-year observations from Compustat databases from 1997 to 2011. The percentage of mean CEO duality is 64%, as reported by Yang and Zhao (2014).

Next, on average, BOD comprises five members, with a maximum of 11 members. The mean board size is 5.49 members for the overall sample. Our findings of board size are in consistence with the research of Kabir and Thai (2017) when conducting on a sample of 524 firms listed during years 2008–2013 (the mean of board size is 5.47 members) and the research of Nguyen et al. (2015a) with the mean of board size containing 5.81 members when conducting within the period 2008–2012. However, this number is relatively small, compared with the board size in other countries. The mean board size is 10 members, as stated by Coles et al. (2008) and Chen and Al-Najjar (2012) when using a sample of 8,165 firm-year observations from Compact Disclosure and Investor Responsibility Research Center (IRRC) from 1992 to 2001 and the Chinese Stock Exchange from 1999 to 2003. Connell and Cramer (2010), Yang and Zhao (2014), Liu et al. (2015) and He and Luo (2018) stated that the mean board size is approximately nine members for the Irish stock market in 2001, for the firms from the Compustat North America Database over 1979–1998 period, for all the listed firms on the Shanghai and Shenzhen Stock Exchanges for the 1999–2012 period, and for Chinese listed firms over the 2004–2013 period, respectively. Duru et al. (2016) and Paniagua et al. (2018) reported a mean board of 10 members, in which Duru et al. (2016) used the data from Compustat databases with 17,282 firm-year observations over the 1997–2011 period and Paniagua et al. (2018) conducted for Chinese listed firms from 2004 to 2013. The mean board size is 11 members, as reported by Ahmadi et al. (2017) for the French CAC listed firms over the 2011–2013 period.

Table 4 Sample and descriptive statistics

<i>Variable</i>	<i>N</i>	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>Median</i>	<i>Std. dev.</i>
ROA (%)	400	−37	92	8	6	0.11
ROE (%)	400	−124	149	16	15	0.19
DUAL	400	0	1	0.38	0	0.49
BSIZE	400	3	11	5.49	5	1.45
DSIZE	400	1	13	4.11	4	1.75
FSIZE (Sales_Million VND)	400	2,269	40,080,385	1,821,691	442,823	4,892,098
LEV	400	0.01	33.03	1.69	1.001	2.83

Notes: ROA and ROE are the ratio of profit after tax divided by average assets and average equity, respectively; dual is a dummy variable coded as 1 if the CEO also serves as a chairman and 0 otherwise; BSIZE is natural logarithm of board size; DSIZE is amounts of directors in top management; FSIZE is firm size measured by total sales; LEV is the ratio of total debt to total assets.

The directors' mean number of top management is four members. The companies in our sample are large corporations with average sales of approximately VND2,000 billion (equivalent to USD100 million), where the highest sales are VND40,000 billion (equivalent to USD2,000 million) and the lowest sales are only VND2 billion (equivalent USD100 million); the range of sales varies approximately 20,000 times.

Regarding leverage, firms are mostly high leveraged, with an average liability level of 1.69 times, in which VMD (Vimedimex Medi-Pharma Joint Stock Company) has the highest debt level up to 33 times. According to our data and original annual reports, the debt level of VMD is high during 2007–2017, in which the trade accounts payable was

from 23 to 27 times and the borrowings were from 3 to 6 times during 2014 to 2017. VMD's ROA was also relatively low, which is approximately 0.7%.

4.2 Empirical findings

We conducted a correlation analysis of our variables. Table 5 shows the Pearson correlation analysis. No particularly high bivariate correlations are observed among independent variables (the highest being 0.452). This finding shows that our model is unaffected by multicollinearity problems. We also conducted the variance inflation factor (VIF) after the regressions to re-check for any multicollinearity issue; all VIFs are low (1.031–1.611) and all tolerance levels are higher than 0.1 (0.621–0.970) (presented in Table 6 as running regressions). Hence, no multicollinearity problem exists.

Table 6 shows our results of the coefficients and the regression analysis regarding the impact of board attributes on firm performance using the second alternate measures of firm performance (ROA and ROE).

Hypothesis 1 proposes a negative association between CEO duality (DUAL) and firm performance. Column 1 in Table 6 supports this prediction because the coefficient is negative in each of the two OLS regression analyses. When firm performance is measured by ROA (column 1) and by ROE (column 2), the relationship between CEO duality (DUAL) and firm performance is significant at the 10% and 5% level ($p < 0.1$) respectively, which means that Hypothesis 1 is supported. Such negative relationship between CEO duality and firm performance is in consistence with the agency theory (Jensen and Meckling, 1976), confirming that CEO duality would limit the supervisory role of the board to decide the CEO's interests. Consequently, the dominant power of CEO duality will make firm performance worse.

Hypothesis 2 anticipates a negative correlation exists between board size (BSIZE) and firm performance. The results in columns 1 and 2 of Table 3 support this prediction because the coefficient is negative in the regression analysis. The relationship between board size and firm performance is significant at the 10% level ($p < 0.1$) when firm performance is measured by ROA (column 1) and ROE (column 2). As a result, Hypothesis 2 is supported. The increase in the size of the BOD leads to coordination problems and a larger board is more insider-dominate and ineffective (Chen and Al-Naijar, 2012), leading firm performance become worse. These results also offer consistent support through the agency theory, in which a large board size promotes the dominance and power of leaders that may create conflicts (Jensen, 1993). Often, resolving conflicts would take a long time, and discussing the firm's business strategies is also tricky. Hence, firm performance and board size are significantly and negatively correlated.

Similarly, leverage (LEV) is also negatively associated with firm performance, which would indicate that firms with higher debt will result in worse performance. As discussed above, some firms in our sample unveil profitability problems, with the lowest ROE of -124% (as shown in Table 2), possibly due to the high risk associated with their highly leveraged positions.

Table 5 Correlation analysis ($N = 400$) – firm performance = ROA, ROE, respectively

	ROA	ROE	DUAL	BSIZE	DSIZE	FSIZE	LEV	AUD	IND	Consumer goods
DUAL	-0.057 (0.257)	-0.058 (0.251)	1							
BSIZE	0.032 (0.526)	0.051 (0.313)	-0.094 (0.062)	1						
DSIZE	0.134** (0.008)	0.206** (0.000)	0.044 (0.388)	0.269** (0.000)	1					
FSIZE	0.203** (0.000)	0.329** (0.000)	0.059 (0.240)	0.245** (0.000)	0.452** (0.000)	1				
LEV	-0.220** (0.000)	-0.056 (0.266)	0.014 (0.786)	-0.045 (0.376)	0.239** (0.000)	0.195** (0.000)	1			
AUD	0.201** (0.000)	0.185** (0.000)	-0.027 (0.598)	0.194** (0.000)	0.254** (0.000)	0.408** (0.000)	-0.089 (0.078)	1**		
IND1	0.018 (0.719)	-0.025 (0.615)	0.021 (0.673)	-0.131** (0.0100)	-0.077 (0.127)	-0.165** (0.001)	0.055 (0.275)	-0.108 (0.031)	1	
IND2	0.024 (0.635)	0.046 (0.358)	-0.041 (0.415)	0.110* (0.030)	0.031 (0.545)	-0.095 (0.057)	-0.056 (0.262)	0.101 (0.044)	-0.246 (0.000)	1*
IND3	0.111* (0.027)	0.152** (0.002)	0.108* (0.031)	0.122* (0.016)	0.210** (0.000)	0.304** (0.000)	0.002 (0.973)	0.077* (0.124)	-0.362* (0.000)	-0.155* (0.002)

Notes: ***, **, and *: correlation is significant at the 1%, 5%, and 10% level, respectively (two-tailed).

The number of directors in the top management has a positive and significant effect on the firm performance of ROA and ROE (ROA, $p < 0.05$ and ROE, $p < 0.1$). Many managers in the top management team would help generate a positive influence on firm administration. This case also mitigates personal interest and generates competition between managers with duties. Hence, managers can exert their best efforts to improve firm performance. Moreover, firm size (FSIZE) is significant for the measurement of performance (ROA and ROE have a p -value of less than 0.01).

Finally, the results in Table 6 show two more aspects which require attention. First, all activity sectors show impacts on firm performance, in which industrials (IND1), consumer goods (IND2) and consumer services (IND2) are significant at the 10% level (p between 0.05 and 0.1). These industries positively influence firm performance. Other remaining industries also affect firm performance through the results of ROA and ROE, yet the level of influence the remaining ones is not the same as the above three sectors. Secondly, the reputation of auditors has an insignificant effect on firm performance, meaning that companies audited by big 4 or non-big 4 companies have nothing to do with its firm performance.

Table 6 OLS estimates-regression analysis

Variables	Operating performance				VIF
	ROA		ROE		
	Coef.	<i>p</i> -value	Coef.	<i>p</i> -value	
DUAL	-0.094	0.053*	-0.104	0.031**	1.031
BSIZE	-0.86	0.093*	-0.088	0.085*	1.163
DSIZE	0.117	0.038**	0.108	0.054*	1.398
FSIZE	0.167	0.006***	0.301	0.000***	1.611
LEV	-0.287	0.000***	-0.147	0.004***	1.147
AUD	0.085	0.116	0.022	0.683	1.285
IND1	0.179	0.027**	0.097	0.077*	1.323
IND2	0.129	0.071*	0.105	0.059*	1.376
IND3	0.083	0.089*	0.123	0.017**	1.175
N	400		400		
Adjusted R^2	0.148		0.133		
F-statistics	7.300		7.593		

Notes: ***, **, and *: correlation is significant at the 1%, 5%, and 10% level, respectively (two-tailed).

1 Refer to Table 1 for the definition of variables.

2 N is the number of firm-year observations.

5 Discussion and conclusions

5.1 Discussion

This study serves as a pointer to the corporate governance and firm performance relationship for Vietnamese listed firms. Across two measures of performance, we found significant negative impacts of CEO duality and board size with firm performance. CEO

duality can decrease firm performance. This result is consistent with Duru et al. (2016), Jackling and Johl (2009) and Liu et al. (2015). However, this result differs from the findings of Ahmadi et al. (2017), Donaldson and David (1991) and Yang and Zhao (2014). CEO duality limits the monitoring and integrating roles of the board. Without CEO duality, the board can be bias-free in assessment, which eventually makes the control functions effective. This explanation is consistent with the agency theory (Jensen, 1993) regarding the role of boards, which indicated that independent boards always act in the best interest of stakeholders (Liu et al., 2015). Such independence would help control CEO power and further secure the shareholders' interest. Furthermore, the independence of the board would improve board capability to enhance firm performance (Duru et al., 2016).

Moreover, board size is negatively associated with firm performance in Vietnam. This result is consistent with Andres et al. (2005), Arora and Sharma (2016), Connell and Cramer (2010), Guest (2008), Mak and Kusnadi (2005), Nguyen et al. (2014) and Paniagua et al. (2018). Large corporate boards are less efficient, facing many difficulties in solving the agency problem among board members. When board size becomes enormous, more agency problems may arise within the board. The board is more of a symbolic figure, instead of a part of the management process. This notion is also consistent with the perspective of the agency theory, which argues that larger boards are more likely to be cautious in monitoring management. The monitoring role of the board has been mentioned extensively, and a general agreement indicates that smaller boards are better at monitoring. A general argument shows that smaller groups are more cohesive, more productive and able to monitor the firm effectively (Liu et al., 2015; Arora and Sharma, 2016). Larger groups are not good at monitoring due to some problems, such as social loafing and higher coordination costs (Lipton and Lorsch, 1992; Jensen, 1993; Paniagua et al., 2018). However, this result contrasts with that of Mak and Kusnadi (2005), Shukeri et al. (2012) and Zhou et al. (2018). They found a positive association between board size and firm performance.

Specifically, our result provides evidence that is different from that shown by Vu et al. (2018) using the data of 557 listed firms on VSEs in 2014. Vu et al. (2018) stated that the size of the BOD presents a significant and positive impact on firm performance measured by ROA. The size of the BOD does not show any significant influences on ROE figures when using the data of Vietnamese listed firms in 2014. Furthermore, Vu et al. (2018) did not find any evidence regarding the relationship between CEO duality and the firm performance by using ROA and ROE figures. Our result also supports the evidence of further debates on agency and stewardship theories concerning the monitoring function or the advisory role of BOD. Our results agree with the agency theory's view, as they do not support the view of the stewardship theory.

Lastly, the result shows the negative and significant effects of leverage and the positive and significant effects of the interaction of firm performance with the board size and some industries, such as industrials, consumer services (CONS) and consumer good for the measurement of performance.

5.2 Conclusions and policy implications

This research initiative aims to determine the impacts of CEO duality and board size on firm performance of listed companies on the VSE. The findings show that CEO duality

and board size have significant and negative impacts on firm performance. Practical and theoretical contributions provide for future research and practice based on these results.

Theoretically, research results have reinforced the theories mentioned above, in which companies with an independent board will have better performance (Jensen and Meckling, 1976). CEO duality limits the monitoring role of the board and makes its essential control functions ineffective. Considering that board independence is an effective mechanism for mitigating agency conflicts within such poor investor protection environment, the view that a substitution effect exists between internal and external corporate governance mechanisms is supported (Liu et al., 2015). Moreover, our findings confirm that companies with smaller board sizes have better financial performance. Our result also contributes to academic and regulation arguments for the effectiveness of small boards, as larger boards more likely present collaboration and communication problems, which cause worse firm outcome (Guest, 2009). Accordingly, our findings contribute to the debate concerning CEO duality and board size, which supports the agency theory's view. The debate presents a clear implication that board independence enhances board ability, which shows a positive impact on the firm outcome. Moreover, large board limits the members' ability to conduct strategic interactions, which lessens firm performance.

Practically, our overall result helps well explain for the necessary of Decree No. 71/2017/ND-CP, which provides the guidelines on directing the corporate governance applicable to public companies. The result reinforces the aptness and correctness of the regulation, which does not allow CEO duality. Providing an excessive amount of power to the CEO does not make the company's performance better but sometimes can be worse. When a person holds dual power as a CEO and a chairman, he is likely to make decisions that are more beneficial to his interest than to shareholders' interests. Moreover, our findings also support the mandatory regulation that requires explicitly the minimum and the maximum number of board members following Decree No. 71/2017/ND-CP of the Vietnamese Government.

Our findings have important implications for some board attributes, the dual CEO and board size, as one of the parts of corporate governance across developing countries in general and emerging countries. Our study results confirm that firms with non-CEO duality and smaller board sizes expect to achieve higher financial performance. The negative impact of CEO duality and board size on firm performance requires attention when the government of developing countries released relevant policies in the corporate governance mechanism. Regulations in regarding to the limitation of number of members on board and the disallowance of CEO duality are significant factors that enhance the quality of corporate governance, thereby improving firm performance, which is appropriate to the reality of the Vietnamese context.

This study contributes useful information that provided a more in-depth insight into the issues of CEO duality and board size in corporate governance activities for shareholders, investors, companies and policymakers in developing countries. This finding also contributes to the shareholders' and investors' understanding of decision-making on listed companies in Vietnam and other developing countries.

Nevertheless, the generalisability of these results is subject to certain limitations. Many factors effect on firm performance, and not all of them are used in this research to control the models. For instance, the other board attributions still need to be explored. Moreover, the nonlinear relationship between board size and firm performance exclude from this study. Future studies should conduct to examine the influence of other board

compositions, such as board independence, board ownership and diversity of the board on firm performance. Moreover, the period must extend to obtain additional information to analyse and examine the U-shaped relationship between board size and firm performance.

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