# The influence of CEO characteristics on corporate environmental performance of SMEs: Evidence from Vietnamese SMEs

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| CHRONICLE | ABSTRACT |
|---|---|
| | Drawing on upper echelon theory, this study investigates the impact of CEOs' (chief executive officers) demographic characteristics on corporate environmental performance (CEP) in small and medium-sized enterprises (SMEs). We hypothesized that CEO characteristics, including gender, age, basic educational level, professional educational level, political connection, and ethnicity, affect SMEs' environmental performance. Using the cross-sectional data analysis of 810 Vietnamese SMEs, this study provides evidence that female CEOs and CEOs' educational level (both basic and professional) are positively related to the probability of CEP. We also find that based on the role of institutional environment on CEP, political connections had a negative effect on CEP in the context of Vietnam. Another finding is that SMEs with chief executives from ethnic minority groups show a higher level of the probability of corporate environmental performance than companies operated by Kinh chief executives. Since CEP is an essential dimension of corporate social responsibility, a strategic decision for SMEs, it is crucial for the company to select appropriate CEOs based on their demographic characteristics. |
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## 1. Introduction

Corporate social responsibility (CSR) is an important strategic decision for both SMEs and large firms. According to Carroll and Brown (2018), corporate social responsibility (CSR) can be defined by "each of the words for which CSR stands". Corporate refers to all types of enterprises, including large, medium, and small. Society relates to the full batch of stakeholders, comprising communities, nations, the world, other living organisms, and the natural environment. Responsibility involves the obligation of business for what is generated by "their power, control, or management". In order to clarify and explain more clearly, scholars disaggregate CSR into multifaceted dimensions, based on different kinds of fundamental stakeholder issues (Inoue & Lee, 2011). Lee et al. (2018) argued that there is a considerable amount of literature has been published on CSR studies which illustrated numerous aspects of CSR: society, economic and environment (González-Rodríguez et al., 2015); products, employee relation and governance (Ge & Liu, 2015); employee relations, products, community, environment and diversity (Inoue & Lee, 2011). In the scope of this study, we investigate on the environmental dimension of CSR. According to (World Bank, n.d.), SMEs account for approximately 90% of businesses and make up around 40% of gross domestic product (GDP) in emerging economies. Because of popularity, sustainability studies of SMEs have received considerable critical attention from scholars. Jenkins (2004) argued that SMEs are regarded as a dispute within the CSR - related fields debate because of SMEs' failure to activate with them. This view is supported by Dey et al. (2018), who stated that SMEs are supposed to face the problem of cost reduction because CSR practices are expensive. Revell and Blackburn (2007) also pointed out that the shortage of sources such as lack of time and finance, and environmental protective perception lead SMEs to avoid

to do activities towards environmental protection. Poor management capability and the difficulty of engagement capacity in environmental issues are other causes that can translate into an unwillingness and incapacity to invest in environmental initiatives (González-Benito & González-Benito, 2005). However, not all studies agree that the relationship between SMEs and their environmental performance is always negative. Some scholars suggest that SMEs can improve their environmental performance by developing strategic approaches, appropriating with their capacities (Aragón-Correa et al., 2008). An example of this is the study carried out by Zhu et al. (2019), who argued that investing in technology, management, and marketing innovation can help SMEs enhance positive environmental practices.

According to Saeed and Ziaulhaq (2019), SMEs' strategic decision is concentrated in CEOs' power because the organizational structure of SMEs is less complicated and less strained by organizational inertia. Thus, the role of CEOs in SMEs is more significant than in larger firms. To interpret a very complex decision-making process from executives, two studies by Hambrick and Mason (1984) and Hambrick (2007) provided the theory "Upper Echelons Theory" which states that strategic decisions of companies are the reflection of executives' background characteristics. Drawing on this theory, in the stream of CSR literature, studies found that several attributes of top executives, such as education, gender (Manner, 2010), age (Fabrizi et al., 2014), political ideology (Chin et al., 2013), tenure (Huang, 2013) and ethnicity (Ramasamy et al., 2007) are instrumental in CSR. Although a large and growing body of literature has investigated executives' characteristics and their influence on CSR/CEP, most studies have only focused on large corporations which cannot be directly applicable to SMEs because the power of CEOs in SMEs is different with it in large firms (Saeed & Ziaulhaq, 2019). Second, research outcomes using the context of developed countries may not be directly applicable to emerging countries like Vietnam. Third, far too little attention has been paid to the influence of political ideology and ethnicity of CEO on CEP, especially in previous studies relating to Vietnam. Therefore, the primary objective of this study is to examine the impact of CEOs' gender, age, basic – professional educational level, political ideology, and ethnicity on the CEP of Vietnamese SMEs.

This study makes several significant contributions to the growing literature on the association of CEOs' demographic characteristics and CEP in several ways. First, we provide evidence on the relationship between CEOs' gender, age, basic – professional education level, political connectedness and ethnicity, and the CEP of SMEs. There are several reasons for choosing SMEs as a research target. SMEs provide more direct empirical evidence to test the effect of CEOs' characteristics on firms' decision making than do larger firms (Escribá-Esteve et al., 2009). Moreover, unlike large businesses, SMEs face the problem of insufficient resources and the lack of appropriate administrative systems, so they tend to be dependent on the beliefs, values, cognitions, and information-processing abilities of their executives (Lubatkin et al., 2006). Second, to examine these relationships, we choose SMEs operating in the context of Vietnam, allowing for the research of other developing countries in South East Asia countries such as Laos or Cambodia. Third, we contribute to the increasing literature on political connections. It is the first study that analyzes how Communist CEO affects the environmental performance of SMEs, a question that has not been investigated in the context of Vietnam. Fourth, our study provides contributions to the limited research of the impact of CEOs' ethnicity on corporate environmental responsibility, especially in the context of Vietnam. In analysis, we show that there is a difference between a CEO from Kinh ethnic group and an ethnic minority in terms of the level of CEP. In doing so, we advance important literature to the upper echelon perspective in the context of Vietnam.

This paper has been divided into six parts, including the present introduction. The second part deals with theoretical background (upper echelon theory) and our review of previous literature for hypothesis development. It will then go on to the methodology used for this study, including data selection, research model, and the measurement of dependent and independent variables. The fourth chapter is concerned with main results including descriptive analysis and regression results. In section 5, the discussion of results is presented. Finally, the conclusion gives a brief summary and implications for research and practice.

## 2. Theoretical Framework and Hypotheses Development

In order to investigate the association between CEP and CEO characteristics in SMEs, we use various theories to look insight into the issue. Indeed, the well-known theories: upper echelons theory is used mainly to provide a theoretical framework for the hypotheses tested.

### 2.1. Theoretical background

Upper Echelon Theory

In order to understand how the impact of CEOs' characteristics on CSR activities, this paper investigates on the insights of the upper echelons theory (UET), published by Hambrik and Mason (1984). The theory argues that strategic decisions can be reflected by managerial background characteristics. The underlying principles of UET bases on bounded rationality theory, which states that an individuals' decision-making is not always based on rational motives because they cannot fully collect and analyze all circumstantial information (Simon, 1972; March, 1978). Thus, they tend to depend on their psychological and behavioral factors in decision making (Finkelstein et al., n.d.; Gigerenzer & Reinhard, 2002). Hambrik and Mason (1984) considered the complexity and difficulty of measuring the psychological dimensions of CEOs. The authors also argued that managers' observable demographic indicators that refer to their personalities such as education level, business degree, age,

gender, ethnicity, and tenure length can be more objective and measurable (Marcel, 2009; Abdullah & Said, 2018). By drawing on the insights of UET, several studies reveal various characteristics of executives, such as gender (Kassinis et al., 2016), age (Lee et al., 2018), education (Manner, 2010), ethnicity (Louis & Osemeke, 2017) and political ideology (Chin et al., 2013), can impact on firms' social-environmental performance. Taken together, our UET-based study concentrates on the CEOs' observable characteristic indicators, including age, gender, educational level, political connection, and ethnicity, which can explain the level of the firms' corporate social performance. On the ground of literature review and Upper Echelon theory, our conceptual model is illustrated in Fig. 1.
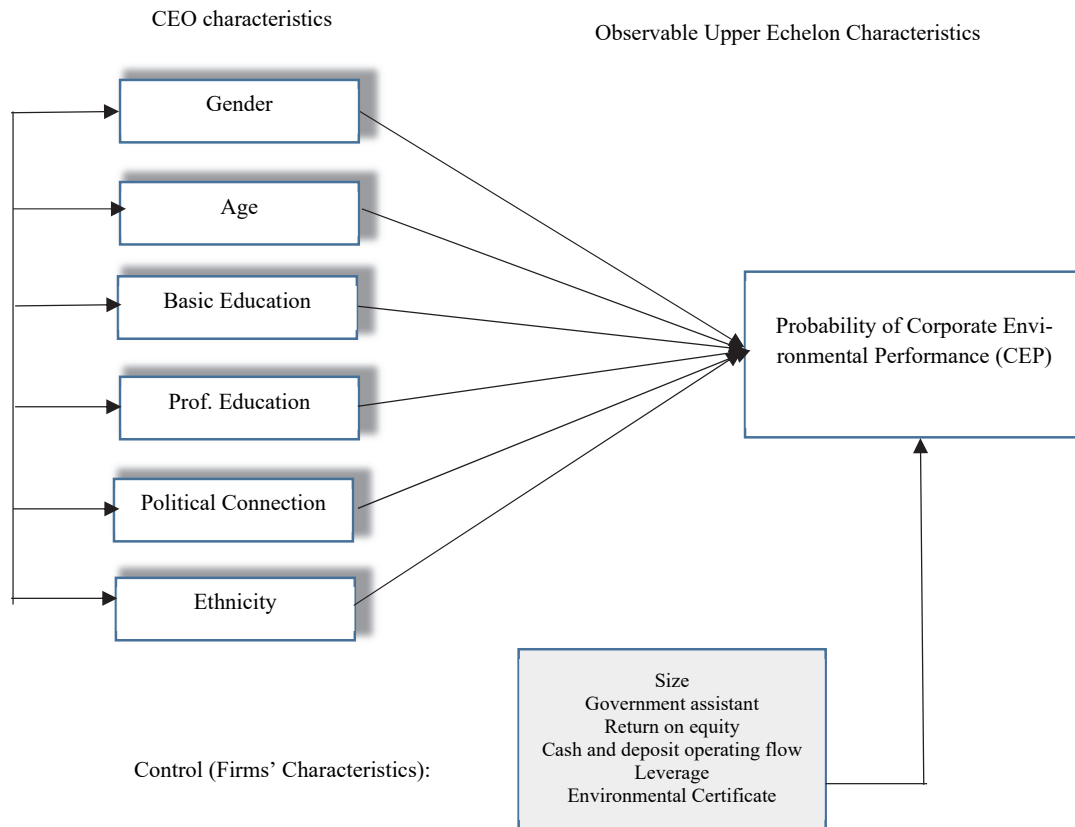


**Fig. 1.** Conceptual model: Relationship between biographical characteristics of CEOs, factors affecting CEP, and the probability of CEP

*2.2. Hypothesis development*

*CEO Gender*

Several attempts have been made to demonstrate that the firms' decision of whether to undertake CSR practices or not is impacted by CEOs' gender (Manner, 2010; Carpenter et al., 2004). Drawing on upper echelon theory, research has documented an association between CEOs' gender and corporate social performance. As noted by Huang (2013), there is a significant relationship between CEO gender and firms' CSR performance levels. Regarding that, many scholars argue that female CEOs concern more often CSR-related fields than male ones (Kassinis et al., 2016; De Silva & Pownall, 2014; Cook & Glass, 2018). There are several reasons to explain. Eagly and Johannesen-Schmidt (2001) pointed out that females pay more attention to the issues related to ethics, taking care of others, and social responsibility. Similarly, Boulouta (2013) suggested that women are unlikely to involve in unethical business behavior and more likely to do socially oriented behavior. In another major study, Jiang and Akbar (2018) found that the female CEOs of companies from both non-polluting and polluting industry increase in corporate environmental investment. The authors explained that, by drawing on the concept of social role theory, women are more society and environmental-oriented, whereas male managers are more self-oriented. Concerning SMEs, because of small-medium size, SMEs' managers usually suppose that they do not attract attention from local community and government. Thus, they are highly likely to ignore external issues, including social and environmental problems (Lepoutre & Heene, 2006). Building on the above set of arguments, we suggest that female CEOs are better than their male colleagues to improve environmental practices in SMEs.

**Hypothesis 1.** *There is a positive influence between female CEOs and the probability of SMEs' environmental performance.*

*CEO Age*

The intellectual capabilities of CEO such as knowledge, experience, skills, achievements in education level can be improved when his or her age increases (Sitthipongpanich & Polsiri, 2015). Drawing on upper echelon theory, CEO age has been indicated to have an impression on the level of corporate social performance in businesses (Lee et al., 2018; McCarthy et al., 2017). According to Fabrizi et al. (2014), there is a difference between young versus old managers in the CEOs' career concerns. The authors argued that because young managers have to perform positive observable results to the market, they tend to take actions that concentrate on short-term observable outcomes and are less likely to boost social/environmental-related field activities. Contrary to young executives, older CEOs are not under high pressure by market like younger colleagues so, older managers have a stronger motivation to concern corporate social performance (Fabrizi et al., 2014). This view is supported by Shahab and Chen (2019), who pointed out that young CEOs are more eager to pursue profit maximization, thereby leading to decrease sustainable activities and performance. Regarding SMEs, Lee et al. (2016) found that SMEs follow a profit-seeking strategy instead of a profit-sacrificing path for CSR. Secondly, the problem of CSR practices in SMEs is due to the shortage of CSR knowledge and managerial skills (González-Benito & González-Benito, 2005; Raza & Majid, 2016). In such cases, older CEOs may be better appropriate to SMEs' social-environmental performance as they are less likely to under high pressure to perform high economic outcomes. Thirdly, CSR knowledge, and managerial skills are advantages of older CEOs, compared with younger colleagues. Building on the above set of arguments, we posit our hypothesis:

**Hypothesis 2.** *There is a positive relationship between CEO age and the probability of SMEs' environmental performance.*

*CEO Education*

Education level is one of criteria to assess CEO ability. Bhagat et al. (2012) argued that the degree of managers' knowledge, perspective, and technical understandable skills could be a signal of CEOs' education level. There are several studies, drawing on upper echelon theory, which links to CEOs' education and corporate social performance. An example of this is the study carried out by Huang (2013) in which CEOs' educational specializations are found to be associated with firms' CSR performance. Similarly, Lewis et al. (2014) found that managers, who held MBA degrees, tend to publish environmental information whereas, colleagues, who held law degrees, are less likely to publish this type of information than other businesses. In the same vein, Amore et al. (2019) presented a positive relationship between CEO education and CEP. There are several empirical studies that provide evidence to explain why better-educated CEOs usually lead to better environmental performance. Meyer (2015) suggested that higher educated individuals are more likely to behave in a more environmentally and socially friendly orientation. Moreover, we can expect that a better-educated CEOs can have better CSR knowledge and managerial skills. SMEs, which face the shortage of CSR knowledge, need CEOs with higher educational achievement to compensate for the lack.

**Hypothesis 3a.** *There is a positive relationship between CEO basic educational level and the probability of SMEs' environmental performance.*

**Hypothesis 3b.** *There is a positive relationship between CEO professional educational level and the probability of SMEs' environmental performance.*

*CEO Political Connectedness*

Study conducted by Goren et al. (2009) provides substantial evidence that chief executives' political ideologies are manifestations of their elemental values. Drawing on resource-based view theory, Saeed et al. (2014) suggested that one of crucial resources for the firms is political connection. There is a consensus among scholars that politically connected CEOs can help their firms to gain various tangible and intangible advantages (Saeed et al., 2014; Zhang, 2017) such as lower tax rate (Wu et al., 2012), preferential bank loans (Faccio, 2006) and the higher ability of assessing government environmental policy (Zhang, 2017). Regarding SMEs, the political resource is more significant important because they lack sources and legitimacy (Saeed & Ziaulhaq, 2019). Drawing on upper echelon theory, the study, conducted by Chin et al. (2013), suggests that CEOs' political orientations will impact on their companies' CSR initiatives. In the context of China, Li et al. (2008) argued that Communist Party membership mentions a measure of politically connected levels. Strong evidence of the relationship between politically connected CEOs and CSR is found in the study conducted by Marquis and Qian (2014). This study illustrates that chief executives who are Communist Party members are more common to issue CSR report. A possible explanation for this result may be their compliance with Communist government policies and regulation in CSR performance (Marquis & Qian, 2014). Similarly, Zhang (2017) pointed out that there is a positive relationship between politically connected CEOs and corporate environmental responsibility. The finding also suggests that politically connected CEOs are expected by their stakeholders to perform environmentally responsible ways and maintain high moral standards (Zhang, 2017). Similarity with a Communist state like China, it is quiet common if a chief executive is a Communist Party member and plays a role in government in Vietnam. According to Markussen and Ngo (2019), becoming a member of the Communist Party of Vietnam could facilitate access to financial sources in several ways and may have a high political and social status than other people. To sum up, it is expected that Communist CEOs can play a significant positive role in SMEs' environmental performance. Considering this, we develop our hypothesis:

**Hypothesis 4.** *There is a positive relationship between Communist Party member CEOs and the probability of SMEs' environmental performance.*

*CEO ethnicity*

The literature review about the drivers of firms to involve in CSR, conducted by Turker (2018) listed ethnic background as one of essential drivers of social and environmental responsibility. In the context of a multi-culture country: Malaysia, Haniffa and Cooke (2005) supported for the hypothesis that the level of corporate social disclosure is greater for firms with the number of Malay ethnic managers accounting for the majority of board. The finding indicates that the cultural value of the Malays and the governments' favored ethnic group can explain the result (Haniffa & Cooke, 2005). This view is supported by Ramasamy et al. (2007), who draw our attention to the relationship between CEOs' ethnicity and the degree of corporate social performance. The result of this study shows that firms managed by Malay ethnic CEOs illustrate higher degrees of corporate social performance than firms managed by Chinese CEOs. The most likely cause of the distinction between the two groups may come from religious differences, which Islam education is more appropriate with the CSR concept (Abu-baker, 2000). In the same vein, in the context of Nigeria, Louis and Osemeke (2017) investigated three major executives' ethnic groups (Yoruba, Igbo, and Hausa) to find the level of CSR adoption, influenced by their cultural differences. Results from the study suggest that ethnic directors (Yoruba, Igbo, and Hausa) impact significantly and positively on CSR. In terms of explanation, Louis and Osemeke (2017) used cultural trait theory to indicate that ethnic minorities can bring external resources and concentrate on the long-term goal of the firm (Benson, 2009; Chai, 2010). There are several studies which suggest that the characteristics of CEOs' ethnicity can help their businesses to obtain tangible and intangible resources such as ethnicity's cultural values and governmental support (Haniffa & Cooke, 2005); ethnic education (Ramasamy et al., 2007); external and specific knowledge and the commitment with long-term goal of the firm (Louis & Osemeke, 2017). Refer to the context of Vietnam where the majority of population is from Kinh ethnic group (approximately over 80% total population) and the rest from ethnic minority groups. In this situation, CEOs from an ethnic minority may be considered more valuable to CSR practices due to tangible and intangible assets that they bring into SMEs. Based on the above argument and empirical evidence we hereby formulate the following hypothesis that question the influence of ethnic groups on SMEs' environmental performance.

**Hypothesis 5.** *There is a positive influence between ethnic minority CEOs and the probability of SMEs' environmental performance.*

## 3. Methodology and Data

This cross-sectional database used in this study is taken from Vietnam SME database, which was collected by the coordination of Central Institute for Economic Management (Vietnam), the Institute of Labour Science and Social Affairs (Vietnam), the Development Economics Research Group (University of Copenhagen), and United Nations University. The method of data collection is the survey instrument, consisting of two types: the enterprise-level survey and the employee survey. In the scope of this study, only enterprise-level survey was used, which includes information about firm financial indicators, enterprise history, and manager background characteristics. Chosen firm are micro, small and medium-sized enterprises according to World Bank definition (below 300 employees), operating in nine provinces of Vietnam: Hanoi, Hai Phong, Ho Chi Minh, Phu Tho, Nghe An, Quang Nam, Khanh Hoa, Lam Dong, and Long An (from the North to the South). In this research, 810 enterprises with sufficient data were chosen. We used the possibility of whether the firm treats environmental issues or not, which was obtained from environment sector of the survey as a measurement of the environmental performance of the companies. Environmental issues consist of 9 factors: air quality, fire, heat, lighting, noise, waste disposal, water pollution, soil degradation / pollution, and others (Fig. 2).
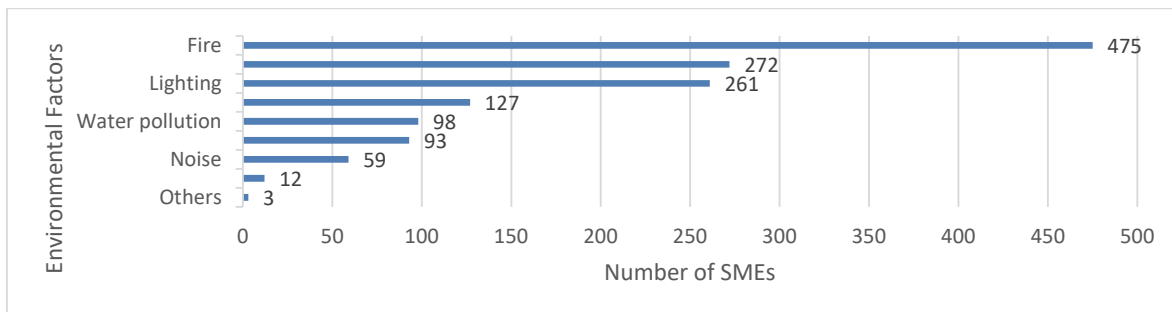
**Fig. 2.** Number of SMEs, by environmental factors treated

The possibility score has a scale of 0 or 1, with 0 indicating a non-treatment on environment and 1 indicating a treatment on environment. Data on managers' characteristics was collected from identification particulars, household characteristics of the manager, investments; assets; liabilities and credit; and economic constraints and potentials parts of the survey. All data used were collected in the year of 2015. We constructed a model to examine the hypothesis regarding the impacts of CEOs' characteristics on firms' environmental performance.

Model:
$$CEP = \alpha_0 + \alpha_1 GEN_i + \alpha_2 AGE_i + \alpha_3 BE_i + \alpha_4 PE_i + \alpha_5 PO_i + \alpha_6 ET_i + \alpha_7 SIZE_i + \alpha_8\, GA_i + \alpha_9\, ROE + \alpha_{10}\, CFO + \alpha_{11}\, LEV + \alpha_{12}\, EC + \varepsilon_i$$

where CEP = corporate environmental performance, GEN = the gender of CEO, AGE = the age of CEO, BE = the basic educational level of CEO, PE = the professional educational level of CEO, PO = CEOs' political connection, ET = CEOs' ethnicity, SIZE = company size, GA = government assistance, ROE = return on equity, CFO: cash and deposit operating flow, LEV = leverage, EC = environmental certificate, $\varepsilon$ = error terms. The dependent variable, corporate environmental performance (CEP), is a dummy variable. It equals to 1 if the company performed environmental treatment, and it equals to 0 if the company did not treat environmental issues. Environmental issues consist of 9 factors: air quality, fire, heat, lighting, noise, waste disposal, water pollution, soil degradation/pollution and other (Fig. 2). The independent variables consist of six CEOs' demographic characteristics: GEN, AGE, BE, PE, PO and ET, and six control variables: SIZE, GA, ROE, CFO, LEV and EC. CEOs' gender is a dummy variable equal to 1 if the CEO is female, and zero if the CEO is male. CEOs' age is calculated as the age of the manager in 2015. The basic educational level of CEO is measured on a five-point scale reflecting the highest degree of basic education obtained (1 = None, 2 = Not finished primary, 3 = Finished primary, 4 = Finished lower secondary, 5 = Finished upper secondary). The professional educational level of CEO is measured on an eight-point scale reflecting the highest level of professional education obtained (1 = Unskilled, 2 = Technical level without certificate, 3 = Vocational elementary, 4 = Vocational secondary, 5 = Professional secondary, 6 = Vocational college, 7 = College, 8 = University and higher). CEO is a Communist Party member or not: a dummy variable that takes a value of 1 if the manager is a Communist Party member and zero otherwise. CEOs' ethnicity: is a dummy variable where it equals to 1 if the manager is from an ethnic minority group and equals to 0 if CEO is from Kinh ethnicity. Based on previous research, we control for company size (SIZE), government assistance (GA), return on equity (ROE), operating cash flow (CFO), leverage (LEV), and environmental certificate (EC). A summary of variables is shown in Table 1.

**Table 1**

A summary of variables

| Category | Variable | Descriptions |
|---|---|---|
| Dependent variable | CEP | Corporates' environmental performance equals to 1 if the firm treated environmental issues, and 0 if the company did not perform environmental treatment |
| CEOs' characteristic variables | GEN | CEOs' gender: equal to 1 if the CEO is female, and equals to 0 if the CEO is male |
| | AGE | CEOs' age: Measured by the age of the CEO at 2015 |
| | BE | Basic education level: equals to 1 if the manager has not attended any educational level; equals to 2 if not finished primary; equals to 3 if finished primary; equals to 4 if finished lower secondary, equals to 5 if finished upper secondary |
| | PE | Professional education level: equals to 1 if the CEO is at unskilled level; equals to 2 if he/she is at technical level without certificate; equals to 3 if he/she is at vocational elementary level; equals to 4 if he/she is at vocational secondary level; equals to 5 if he/she is at professional secondary level; equals to 6 if he/she is at vocational college level; equals to 7 if he/she is at college level; equals to 8 if he/she is at university and higher level. |
| | PO | CEO political connectedness: equals to 1 if the CEO is a member of the Communist Party, and zero if not. |
| | ET | Ethnicity: equals to one if the manager is from an ethnic minority group and equals 0 if CEO is from Kinh ethnicity. |
| Control variables | SIZE | Firm size: the natural logarit of total assets. |
| | GA | Equals to 1 if the firm receives any sort of government assistance and 0 if not. |
| | ROE | The ratio of net profit to equity. |
| | CFO | The ratio of operating cash flow to total asset. |
| | LEV | The ratio of total debt to total equity. |
| | EC | Equals to 1 if the firm has environmental standard certificate and 0 if not. |

We performed our research through regression analysis. Logistic regression method is used because its dependent variable, CEP, is a dummy variable.

## 4. Analysis and Results

### 4.1. Descriptive Analysis

Table 2 shows the descriptive statistics of the ten research variables.

**Table 2**

Descriptive statistics for variables

| Variable | Mean | Median | Maximum | Minimum | SD | N |
|---|---|---|---|---|---|---|
| CEP | 0.6691 | 1 | 1 | 0 | 0.4708 | 810 |
| GEN | 0.3271 | 0 | 1 | 0 | 0.4695 | 810 |
| AGE | 40.8814 | 39 | 82 | 21 | 11.4250 | 810 |
| BE | 4.7617 | 5 | 5 | 2 | 0.5481 | 810 |
| PE | 5.1370 | 6 | 8 | 1 | 2.7874 | 810 |
| PO | 0.0556 | 0 | 1 | 0 | 0.2292 | 810 |
| ET | 0.9259 | 1 | 1 | 0 | 0.2621 | 810 |
| SIZE | 14.9054 | 15.0271 | 20.6410 | 9.49552 | 1.7703 | 810 |
| GA | 0.1160 | 0 | 1 | 0 | 0.3205 | 810 |
| ROE | 0.3831 | 0.1331 | 22.4770 | -1.3027 | -1.3429 | 810 |
| CFO | 0.0001 | 0.0001 | 0.0008 | 0 | 0.0001 | 810 |
| LEV | 0.2656 | 0 | 55.9718 | -8.8599 | 2.1311 | 810 |
| EC | 0.2790 | 0 | 1 | 0 | 0.4488 | 810 |

The variables' name, the mean values, the median values, the maximum values, the minimum values, the standard deviation, and the sample sizes of each variable are illustrated in the seven columns of each variable. The mean of the dummy variable CEP is 0.6691358, which demonstrates that 66.91% of the firms (542 out of 810) treated environmental issues. As for the GEN variable, nearly 33% of total CEOs' number is male, followed by around 67% female. Most of CEOs' age are from 31 to 50 years old (about 60%), followed by over 50 and below 31 years old (around 21% and 19% respectively). 662 out of 810 CEOs finished upper secondary school whereas, 303 out of 810 managers graduated from university or higher in their professional education. The average value of political connection variable is 0.0556, which shows that around 5.56% of CEOs is a Communist Party member. The number of CEOs from the Kinh ethnic group is 750 out of 810, followed by managers from other ethnic groups (60 managers). The control variables (SIZE, GA, ROE, CFO, LEV, EC) are consistent with those of past studies (Hu & Loh, 2018; Ji et al., 2019), but for brevity, we do not discuss them in detail.

**Table 3**

Correlation statistics for variable

| Variables | CEP | GEN | AGE | BE | PE | PO | ET | SIZE | GA | ROE | CFO | LEV | EC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CEP | 1.0000 | | | | | | | | | | | | |
| GEN | 0.0857 | 1.0000 | | | | | | | | | | | |
| | (0.0147) | | | | | | | | | | | | |
| AGE | -0.1891 | -0.1603 | 1.0000 | | | | | | | | | | |
| | (0.0000) | (0.0000) | | | | | | | | | | | |
| BE | 0.3025 | 0.0137 | -0.2659 | 1.0000 | | | | | | | | | |
| | (0.0000) | (0.6964) | (0.0000) | | | | | | | | | | |
| PE | 0.3812 | 0.0900 | -0.3426 | 0.5344 | 1.0000 | | | | | | | | |
| | (0.0000) | (0.0104) | (0.0000) | (0.0000) | | | | | | | | | |
| PO | -0.07 | -0.0721 | 0.1894 | 0.0366 | 0.0887 | 1.0000 | | | | | | | |
| | (0.0464) | (0.0402) | (0.0000) | (0.2978) | (0.0116) | | | | | | | | |
| ET | 0.0787 | -0.0640 | 0.0669 | -0.1696 | -0.1273 | -0.0686 | 1.0000 | | | | | | |
| | (0.0252) | (0.0687) | (0.0569) | (0.0000) | (0.0003) | (0.0510) | | | | | | | |
| SIZE | 0.5148 | 0.0865 | -0.2059 | 0.3752 | 0.5008 | 0.0154 | 0.0366 | 1.0000 | | | | | |
| | (0.0000) | (0.0137) | (0.0000) | (0.0000) | (0.0000) | (0.6612) | (0.2983) | | | | | | |
| GA | 0.1237 | -0.0267 | -0.0354 | 0.0732 | 0.0361 | 0.0636 | -0.0583 | 0.1332 | 1.0000 | | | | |
| | (0.0004) | (0.4484) | (0.3143) | (0.0373) | (0.3043) | (0.0706) | (0.0971) | (0.0001) | | | | | |
| ROE | -0.0432 | 0.0195 | -0.0056 | 0.0033 | -0.0256 | -0.0232 | -0.0120 | -0.1989 | 0.0366 | 1.0000 | | | |
| | (0.2193) | (0.5799) | (0.8740) | (0.9246) | (0.4666) | (0.5101) | (0.7338) | (0.0000) | (0.2983) | | | | |
| CFO | 0.0070 | -0.0257 | -0.0297 | 0.0568 | 0.0441 | 0.0441 | -0.0654 | -0.1856 | -0.0425 | 0.1491 | 1.0000 | | |
| | (0.8421) | (0.4643) | (0.3988) | (0.1061) | (0.2103) | (0.5472) | (0.0627) | (0.0000) | (0.2272) | (0.0001) | | | |
| LEV | 0.0418 | 0.0169 | -0.0427 | 0.0464 | 0.0447 | 0.0086 | -0.0215 | 0.0792 | 0.1288 | 0.0202 | -0.0273 | 1.0000 | |
| | (0.2351) | (0.6314) | (0.2248) | (0.1873) | (0.2034) | (0.8076) | (0.5406) | (0.0243) | (0.0002) | (0.5651) | (0.4372) | | |
| EC | 0.2795 | 0.0348 | -0.1143 | 0.2304 | 0.3399 | 0.0774 | -0.0498 | 0.4307 | 0.1603 | -0.0597 | -0.0185 | 0.0953 | 1.0000 |
| | (0.0000) | (0.3220) | (0.0011) | (0.0000) | (0.0000) | (0.0275) | (0.1565) | (0.0000) | (0.0000) | (0.0895) | (0.5987) | (0.0066) | |

Table 3 illustrates the correlation matrix for our key variables. As shown in Table 3, low correlations exist between CEOs' characteristics variables and control variables, with the highest correlation (0.5008) observed between PE and SIZE. Test for multicollinearity shows a mean VIF of 1.25. These ensure the absence of multicollinearity in our regression analyses.

*4.2. Regression Results*

*4.2.1. Result for Hypothesis 1*

Table 4 shows the results of a logit regression model on the relationship between female CEO and CEP to test Hypothesis 1. It can be seen that women CEO and the probability of CEP are positively correlated at 10% significant level. This shows that when the chief executive in a firm is a female, the business is more likely to make performance for environmental protection.

**Table 4**

Hyphothesis 1 test result

| Variable | CEP | | |
|---|---|---|---|
| | Coef. | z | p |
| GEN | 0.3247 | 1.71 | 0.087 |
| SIZE | 0.8628 | 11.41 | 0.000 |
| GA | 0.5750 | 1.69 | 0.092 |
| ROE | 0.0942 | 1.25 | 0.211 |
| CFO | 2410.737 | 3.05 | 0.002 |
| LEV | -0.0189 | -0.35 | 0.725 |
| EC | -12.5637 | 2.24 | 0.025 |

LR chi2(7) = 275.85 Prob > chi2 = 0.0000 Pseudo R2 = 0.2682

*4.2.2. Result for Hypothesis 2*

Table 5 indicates the results of a logit regression model for the relationship between CEOs' age and environment-related activities in SMEs to test Hypothesis 2. Results illustrate that CEOs' age in SMEs has a negative relation with the probability of CEP at the 10 % significant level. Thus, Hypothesis 2 was not supported. This suggests that firms with an older CEO have relatively lower probability of environment-related performance (negative impact).

**Table 5**

Hyphothesis 2 test result

| Variable | CEP | | |
|---|---|---|---|
| | Coef. | z | p |
| AGE | -0.0157 | -1.94 | 0.052 |
| SIZE | 0.8421 | 11.11 | 0.000 |
| GA | 0.5427 | 1.60 | 0.109 |
| ROE | 0.0982 | 1.32 | 0.187 |
| CFO | 2232.319 | 2.83 | 0.005 |
| LEV | -0.0198 | -0.38 | 0.706 |
| EC | 0.5373 | 2.12 | 0.034 |

LR chi2(7) = 276.71 Prob > chi2 = 0.0000 Pseudo R2 = 0.2691

### 4.2.3. Results for Hypothesis 3a

In Table 6, it can be seen that the level of CEOs' basic educational level and the probability of CEP is positively associated at the 5% significant level, which implies that CEOs, who are better educated at basic level tend to concern more about environmental-related issues.

**Table 6**

Hyphothesis 3a test result

| Variable | CEP | | |
|---|---|---|---|
| | Coef. | z | p |
| BE | 0.3722 | 2.27 | 0.023 |
| SIZE | 0.8240 | 10.66 | 0.000 |
| GA | 0.5491 | 1.62 | 0.106 |
| ROE | 0.0888 | 1.20 | 0.230 |
| CFO | 2120.302 | 2.68 | 0.007 |
| LEV | -0.0190 | -0.37 | 0.712 |
| EC | 0.4910 | 1.94 | 0.053 |

LR chi2(7) = 278.19 Prob > chi2 = 0.0000 Pseudo R2 = 0.2705

### 4.2.4. Results for Hypothesis 3b

Table 7 provides the results obtained from the regression models for the relationship between CEOs' professional educational level and the possibility of environmental-related performance. Similar to basic educational level, analysis shows that this relationship is a positive relation at the 1% significant level. Thus, hypothesis 3b was supported. This shows that CEOs with higher professional educational profiles are highly likely to consider more about environmental-related problems.

**Table 7**

Hyphothesis 3b test result

| Variable | CEP | | |
|---|---|---|---|
| | Coef. | z | p |
| PE | 0.1181 | 3.28 | 0.001 |
| SIZE | 0.7792 | 9.86 | 0.000 |
| GA | 0.6364 | 1.87 | 0.062 |
| ROE | 0.0899 | 1.23 | 0.220 |
| CFO | 1951.734 | 2.44 | 0.015 |
| LEV | -0.0171 | -0.31 | 0.755 |
| EC | 0.3956 | 1.53 | 0.125 |

LR chi2(7) = 283.64 Prob > chi2 = 0.0000 Pseudo R2 = 0.2758

### 4.2.5. Results for Hypothesis 4

As shown in Table 8, the results show that the political connection of CEO (Communist Party member) is related to the possibility of CEP, with statistically significant p-value at 5% significant level. However, the result also illustrated that CEOs, who are not Communist Party members, are better than their colleague, who are members of this Party, in CEP which opposes to hypothesis 4.

**Table 8**

Hyphothesis 4 test result

| Variable | CEP | | |
|---|---|---|---|
| | Coef. | z | p |
| PO | -0.9758 | -2.33 | 0.020 |
| SIZE | 0.8607 | 11.42 | 0.000 |
| GA | 0.5756 | 1.69 | 0.091 |
| ROE | 0.0936 | 1.26 | 0.207 |
| CFO | 2361.681 | 2.97 | 0.003 |
| LEV | -0.0163 | -0.29 | 0.769 |
| EC | 0.5904 | 2.33 | 0.020 |

LR chi2(7) = 278.43 Prob > chi2 = 0.0000 Pseudo R2 = 0.2708

*4.2.6. Results for Hypothesis 5*

As shown in Table 9, the results reveal that CEOs' ethnicity variable maintains a positive significant effect on the possibility of CEP at 10% significant level. This finding supports the prediction of our fifth hypothesis, which states that CEOs, who belong to an ethnic minority group are favorable with CEP. To sum up, hypothesis 5 is supported. A summary of results can be found in Table 10.

**Table 9**

Hyphothesis 5 test result

| Variable | CEP | | |
|---|---|---|---|
| | **Coef.** | **z** | **p** |
| ET | 0.6380 | 1.77 | 0.077 |
| SIZE | 0.8561 | 11.37 | 0.000 |
| GA | 0.5652 | 1.66 | 0.096 |
| ROE | 0.0996 | 1.33 | 0.184 |
| CFO | 2416.342 | 3.06 | 0.002 |
| LEV | -0.0154 | -0.29 | 0.774 |
| EC | 0.5754 | 2.28 | 0.022 |

LR chi2(7) = 276.31 Prob > chi2 = 0.0000 Pseudo R2 = 0.2678

**Table 10**

A summary of results.

| CEO characteristics | Hypotheses | Results |
|---|---|---|
| Gender | H1: female CEO → probability of CEP (+) | Support |
| Age | H2: CEO age → probability of CEP (+) | Not Support |
| Basic Education | H3a: CEO basic educational level → probability of CEP (+) | Support |
| Professional Education | H3b: CEO professional educational level → probability of CEP (+) | Support |
| Political Connectedness | H4: CEO political connectedness → probability of CEP (+) | Not Support |
| Ethnicity | H5: ethnic minority CEO → probability of CEP (+) | Support |

## 5. Discussion

The goal of this paper was to investigate the empirical association between CEOs' demographic characteristics and the possibility of CEP. Using a sample of 810 firms in 2015, the findings of our regression analysis show significant relationships. The results show that CEOs' demographic characteristics, including gender, age, basic – professional education level, political connectedness, and ethnicity, have a positive or negative influence on the probability of CEP. We discuss our major findings from the logit regression model, and their implications are clearly shown below. First, we turn to CEOs' gender, results show the support of the first hypothesis, which states that the presence of a female executive significantly increases the possibility of treatment in environmental issues by SMEs. It is also consistent with the theoretical arguments that hypothesize that female is stronger in ethical attitudes (Kassinis et al., 2016). Hyun et al. (2016) also argued that female executives chosen for board of director membership tend to have strong reputations in environmental-related issues. Another possible explanation for this result can be taken from gender theory (Kanter, 1993) which describes that their specific characteristics such as a "green" tendency, more effective monitoring of agents, ethical conduct compliance, and greater reactivity with multiple stakeholders, which lead to greater environmental-oriented behavior (Kassinis et al., 2016). Next, we turn to CEOs' age: surprisingly, a negative effect of age was found, which opposes the prediction of our second hypothesis. This finding is also inconsistent with existing empirical findings of two studies Fabrizi et al. (2014); Shahab and Chen (2019) but consistent with the studies of McCarthy et al. (2017); Oh et al. (2016). This contradictory result may be due to the shortage of physical and mental stamina (Child, 1975), the lack of ability to learn a new behavior, and acknowledge new ideas (Chown, 1961) of older CEOs. Taylor (1975) also suggested that young chief executives have higher tendencies to summarise information and take a shorter time to make decisions compared with older CEOs. Another possible explanation for this might be when CEOs are nearing retirement age, they tend to less concerned about making a long-term decision and disengage in corporate environmental responsibility (Oh et al., 2016). Third, the coefficients on CEOs' basic and professional education are both positive and significant. This finding verifies our third hypothesis (3a and 3b) which stats that there is a positive association between CEO education and the possibility of CEP, and is also consistent with the extant studies that illustrate that higher educated individuals tend to engage in a more environmentally friendly orientation (Meyer, 2015). Amore et al. (2019) also suggested that education shapes managerial styles of CEOs in environment-related issues. Moreover, higher levels of CEOs' education level tend to be positively related to the levels of their knowledge about environmental responsibility issues. In the case of SMEs, poor management capability, lack of knowledge about CSR, and the difficulty of engagement capacity in environmental issues give rise to the necessity of well - educated chief executives. Fourth, regarding political ideology term, results show a significant negative relationship between Communist CEO and the possibility of CEP. This finding does not support the fourth hypothesis and counters with the findings of Zhang (2017); Marquis and Qian (2014). A possible explanation for this might be that the involvement in political process may be used as a form of umbrella to protect firms from environmental regulation and penalties (Zhang, 2017). This is especially the case in transitional economies, including Vietnam, where, through political relationships, firms may bribe local government officials to gain many types of advantage (Van Vu et al., 2018). Second, political connected firms may influence the local government to weaken environmental policy and penalties in their favor (Zhang, 2017). Moreover, it would be necessary to investigate the institutional conditions which whether a country has strin-

gent environmental regulations or not because it influences on the possibility of politically connected firms act in environmentally responsible ways (Zhang, 2017). Thus, this contradictory result may be due to: the research of Zhang (2017) was conducted in the unique context of firms in China where environmental rules and regulations can be stricter than Vietnam. Another major finding of our study relate to CEOs' ethnicity, the results reveal that there is a relationship between CEOs' ethnicity and the probability of CEP, being consistent with those of other studies (Ramasamy et al., 2007; Louis & Osemeke, 2017; Haniffa & Cooke, 2005). This finding also confirms the prediction of our fifth hypothesis, which suggests that CEO, who comes from an ethnic minority are favorable with the CEP. It seems possible that the result is due to intangible assets that CEO from an ethnic minority brings into firms such as ethnicity's' cultural values (Haniffa & Cooke, 2005), ethnic education (Ramasamy et al., 2007), external and specific knowledge, and the commitment with long-term goals of the firm (Louis & Osemeke, 2017). This finding may also be explained by the fact that Vietnamese government have supported to the development of ethnic minorities by the provision of subsidies such as financial and technical assistance from the government (Nguyen & Baulch, 2007).

## 6. Conclusion

This paper has examined the impact of CEO demographic characteristics on firms' environmental indictor of CSR in Vietnamese SMEs, including CEOs' gender, age, basic education level, professional education level, political connection, and ethnicity. By using different estimation methods, our findings provide evidence for the significant impact of CEOs' demographic characteristics on firms' environmental performance. First, this study confirms the association between CEO gender and CEP, in which a firm operated by a female CEO is more environmentally responsible. This finding is broadly consistent with earlier studies (Kassinis et al., 2016; De Silva & Pownall, 2014; Cook & Glass, 2018) and may be due to the social / environmental – oriented behavior of woman (Boulouta, 2013; Jiang & Akbar, 2018). Second, another finding of our study is the relationship between CEO age and SMEs' environmental performance. However, more research needs to be undertaken to clarify this association. Third, the results show that both basic and professional educational levels of CEOs positively affect CEP. Basic educational level is an indicator of individuals' general knowledge, while professional educational level shows the ability of individuals' professional skills. The higher educational level is, the better CEOs' decision making is because it improves their management skills and CSR knowledge, which are insufficient in SMEs. Fourth, specifically, contrary to expectations, Communist CEO negatively affects CEP, which does not support the previous studies (Zhang, 2017; Marquis & Qian, 2014). It may be that political connections can be considered to be an umbrella of protection to avoid the pressure from government to comply with environmental regulation and penalties (Zhang, 2017). Loose environmental regulations in Vietnam can be another reason. Fifth, our empirical result also showed that the ethnicity of CEO has a significant influence on CEP, which firms managed by CEOs from ethnic minority groups have significantly higher levels of CEP than firms operated by Kinh chief executives. It is difficult to explain this result, but it might be related to ethnic minoritys' cultural background that pursues the long-term interest of firm, thereby favoring CEP activities. The support policies of Vietnamese government for ethnic minorities such as policies 135 and 134, which can bring into the firms managed by CEOs from ethnic minority tangible and intangible advantages, may be a possible explanation for this finding. This, however, further work is required to explore. To sum up, this research advances valuable knowledge to the study of CEO characteristics and SMEs' environmental performance, which adds literature to upper echelon theory. Some useful practical implications can be derived from this study. With regard to SMEs, selecting appropriate people for the position of executive impacts substantially on the companies. First, because executives of SMEs have more control than colleagues of large firms, the role of them in making strategic plans and decisions relating to CEP activities in SMEs is significantly important. Second, compared with large firms, SMEs are lack of knowledge, resource, and managerial skill to undertake environmental issues. Thus, our findings provide several useful implications for SMEs, in order to choose suitable CEOs for the purpose of CEP practices. For example, if SMEs wish to adjust positively organizations' CSR practices, they should hire a new CEO who is female, young, has a high level of basic and professional education, is not a member of Communist Party, and an ethnic minority. Conversely, if SMEs wishes to reduce CEP activities, it is more suitable to consider CEOs who are male, old, less basic and professional educated, are a Communist party member, and a Kinh ethnicity. Our results also suggest that the stakeholders can know the environmental performance of SMEs by analyzing and understanding the characteristics of their executives such as gender, age, basic-professional educational level, political ideology, and ethnicity. We acknowledge that this research has certain limitations that represent opportunities for future research. First, because this research only examines the year 2015, future studies should collect data from other years to generate a cross-sectional time-series data, which contributes a more comprehensive understanding (Vu, Nguyen, Ho, & Vuong, 2019). Second, as only Vietnam SMEs were in the study sample, our research is constrained to the context of businesses in Vietnam. Thus, future research should be conducted in other countries to generalize findings. Second, we use a five-point scale to reflect CEOs' professional education level, but it lacks to investigate the difference between types of degrees at a specific level (for instance: between technical and business university degrees). Third, because political connectedness variable is constructed by binary form, it should be measured in more composite form to find comprehensive understanding. Following this suggestion, it would be interesting to consider the political connection as a moderator or mediator to examine the relationship between other CEOs' characteristics and environmental performance. Lastly, CEP is a multi-measured concept with various other elements (Zhang, 2017), so future studies should use additional indicators such as the amount of energy used or the cost of environmental treatment.

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