

Article

Firm Characteristics and Corporate Social Responsibility: The Case of Czech Transportation and Storage Industry

Simona Činčalová *  and Veronika Hedija 

Department of Economic Studies, College of Polytechnics Jihlava, 586 01 Jihlava, Czech Republic;
veronika.hedija@vspj.cz

* Correspondence: simona.cincalova@vspj.cz; Tel.: +420-608-271-820

Received: 13 January 2020; Accepted: 4 March 2020; Published: 5 March 2020



Abstract: Nowadays, corporate social responsibility is an important factor in sustainable growth. The paper aims to examine the relationship between selected characteristics of firms (firm age, firm size, firm performance, and gender diversity of boards) and the application of a corporate social responsibility concept in the Czech transportation and storage industry. Using the data from own survey, the Albertina database, and the Business Register, and applying the Pearson and Spearman correlation coefficients and regression analysis, it has been found that there is a statistically significant relationship between firm size, firm financial performance, and CSR practice of firms. On the other hand, firm age and gender diversity of boards are not the factors affecting the CSR practice. These findings have brought new insights in the area of CSR and its application in the Czech Republic.

Keywords: corporate social responsibility; firm size; firm age; firm performance; gender diversity

1. Introduction

The significance of corporate social responsibility (CSR) for business, society, and governance is now undisputed, and is seen as an important factor of sustainable growth [1]. Defining CSR is not a simple task. There are many reasons [2]. Firstly, CSR is an attractive concept that is defined and also applied differently by different groups of people. Secondly, CSR overlaps with other conceptions that describe business-society relations (e.g., sustainability, business ethics, accountability). The other reason is that CSR is a dynamic phenomenon. It is changing over time, as new problems are emerging and formerly innovative practices are becoming routine.

Despite these challenges, the generally accepted definition of CSR was given by Rasche et al. [3]. CSR refers to the integration of an enterprise's social, ethical, environmental, and philanthropic responsibilities towards society into its processes, operations, and core business strategy in cooperation with relevant stakeholders.

Companies engage in CSR for many reasons. The most widely mentioned one is the so-called business case. Some firms create CSR practices and policies because they trust that it positively influences their financial earnings. However, there is no conclusive link between corporate financial performance and corporate social responsibility practice. In the empirical literature, great attention is paid to this issue.

On the other hand, less attention is paid to the analysis of factors that form the implementation of CSR principles in the company. These factors include the size of the company, its age, composition of management, and also the business financial performance itself. Larger and older companies are more likely to find resources and space for the application of the CSR concept. On the other hand, smaller firms may be more flexible and dynamic and adapt to new trends, as well as younger firms. In terms

of the composition of the company's management, women compared to men may be more inclined to apply the CSR concept. Additionally, more financially successful firms can afford to apply the CSR concept and emphasize social and environmental goals. The empirical evidence about the role of mentioned firm characteristics (the size of the company, its age, firm performance, or the composition of management) in the forming the CSR concept are not clear.

The paper is devoted to the corporate social responsibility concept and its application. The aim of the paper is to examine the relationship between selected characteristics of firms (firm age, firm size, firm performance, and gender diversity of boards) and the application of corporate social responsibility concept in Czech transportation and storage industry.

The transportation and storage industry is one of the sectors where environmental issues are strongly emphasized, and the industry is subject of supervision and control in this area. It is therefore very interesting to examine whether companies in the industry have information on the CSR concept, whether they are also active in other areas of CSR, and whether this concept is part of their business strategy. This issue has not yet been investigated in the Czech Republic.

Using the data from own survey, the Albertina database, and the Business Register, and applying the Pearson and Spearman correlation coefficients and regression analysis, the effect of firm size, firm age, firm performance, and gender diversity of boards on CSR practice was examined. It was found that there was a statistically significant relationship between firm size, firm financial performance, and CSR practice of firms operating in Czech transportation and storage industry. On the other hand, the firm age and gender diversity of boards were not the factors affecting the CSR practice in the examined industry. These findings bring new insights in the area of CSR and its application in the Czech Republic.

This paper is organized as follows: Section 2 sets the theoretical background and presents a literature review, Section 3 describes the applied data and methodology, Section 4 shows the empirical results and discusses them, and compares with findings of previous studies. The last section, titled Conclusions, focuses on a concise recapitulation of the main findings and provides suggestions for further research.

2. Corporate Social Responsibility and Firm Characteristics

Corporate social responsibility, the awareness about this concept, correct understanding, and application of its principals is the way to sustainability in terms of contemporary society. The concept of CSR has no uniform definition, and there is still some confusion as to how CSR should be explained. CSR is about having responsibilities and taking actions beyond their legal obligations and business aims. It covers economic, social, environmental, and philanthropic activities [4,5].

CSR could influence existing key business metrics. On the other hand, the concept and its application could be affected by firm characteristics, such as firm size, age, composition of management, or firm financial performance.

The relationship between CSR and financial performance of firms belongs to the most frequently explored issues. According to agency theory as a part of contract theory, the application of CSR principles could affect firm performance through multiple channels. CSR expenditures could cause additional costs for the companies and divert funds from more profitable potential investments. It may lead to a temporary decline in business performance. On the other hand, stakeholder theory suggests that firms should participate in good relationships with all stakeholders and that CSR expenditures could accelerate financial performance because of indirect benefits [6,7].

Empirical studies show that the relationship between CSR and financial performance is not clear. Vurro and Perrini [8] claim that making the most of CSR reporting has a positive impact on performance. Lee et al. [9], Bučiunienė et al. [10], Vilanova et al. [11] show that a well-established CSR has a positive effect on business revenues. Also, Turban and Greening [12] examined CSR activities for large US businesses and found that corporate social responsibility had a positive impact on the return on assets (ROA). Based on the Australian Firm Reputation survey, Galbreath [13] concluded that CSR had a

positive effect on financial performance as measured by ROA and return on equity (ROE). Several authors measured CSR against the Tobin q indicator, which under certain conditions can be understood as a ratio of the market price of a share to its book value, and again reached positive conclusions [14]. Positive effects of socially responsible activities on the financial performance of the company were also shown in other studies [5,15–24].

On the other hand, some studies also identified the negative effects of CSR on business performance. For example, Cowen et al. [25] reported that there was a negative relationship between CSR and ROE. Dooley and Lerner [26] examined CSR measures related to the environment and confirmed a negative link between CSR and ROA. Brammer et al. [27] confirmed the negative link as well through the market performance of businesses in the United Kingdom, namely the earnings per share. Generally, papers identifying the positive impact of CSR on business performance prevail in empirical studies.

Causality can also be the opposite when companies with higher economic performance also emphasize social goals and stronger application of the principles of corporate social responsibility. The empirical studies took this endogenous problem into account and applied methods to minimize the difficulty to estimate the effect of CSR on firm performance. According to the limitations of the papers, different results of studies could also be caused by different methodologies and the specifics of the selected sample, sector, and country [13,27].

The concept of CSR was also examined in the context of other characteristics of the company, most frequently firm age and firm size. The link between these factors and CSR has not been clarified from the theoretical point of view. Findings of existing empirical studies have not established generally applicable conclusions as well.

Following the stakeholder theory approach, the involvement of CSR could increase with the ageing and size of the company. The older firms are much more responsible in the case of diversity and environmental awareness [28]. On the other hand, young companies need to build their image, possibly through CSR activities, and then get larger marginal benefits from CSR inputs [29]. In terms of company size, the broadly accepted view is that larger firms are more likely to be socially responsible due to the fact that they are more visible. According to institutional theory, they face higher pressures to apply CSR concepts [30]. From the resource perspective, the implementation of CSR principles is usually associated with additional costs. It also provides more in-depth knowledge in the field of CSR. Large firms can benefit from not so limited resources, and even higher specialization applied in business management [31,32]. On the other hand, smaller companies are more flexible, and they adapt better to the market environment. The application of CSR should be faster in these companies.

The results of empirical studies are mixed, showing positive, negative, and also no relationship between CSR, firm age, and firm size. Jeppesen et al. [17] found a positive link between firm age, firm size, and participation of the company in CSR. Also, Trencansky and Tsaparlidis [33] concluded that older firms more probably applied CSR practices (e.g., philanthropic and voluntary activities) examining the relationship in Sweden. The study of Al-Gamrh and Al-Dhamari [34] found a positive influence of firm age, firm size, and government ownership and CSR. On the contrary, Badulescu et al. [29] concluded that the firm age was not the determining factor of CSR actions, proving the relationship between firm age and CSR in Romania. Additionally, Wiklund [35] argued that the firm age had no impact on the level of involvement in CSR activities. Orlitzky [36] identified only a weak relationship between firm size and CSR using the meta-analysis. Udayasankar [30] suggested the possible non-linearity of firm size and CSR link and claimed that tiny and huge businesses were equally motivated to participate in CSR. However, motivations could be different. Medium-sized companies were the least motivated, so this fact proposes a U-shaped relationship between CSR participation and firm size.

From the theoretical point of view, gender diversity in corporate boards can influence many aspects of a firm's life. It can affect firm performance, management style applied, and also corporate strategy [37]. According to upper echelons theory, the firm outcomes are determined by the characteristics of top management team members, including experiences, values, and personalities [38]. Men and women

can differ in their characteristics, and thus board gender diversity can influence the firm strategy. One of the consequences of the higher proportion of women in leadership can be the shift away from the current focus on the individual benefits and profit, to a perspective more concerned with social groups and social justice [4]. Brush [39] states that leading women often combine economic goals, such as profit and growth, with social goals, such as customer and employees' satisfaction, in comparison with men. Hence, the higher gender diversity of boards could support the application of CSR principles. The relationship between CSR and gender diversity of boards could be double-sided. The application of the CSR concept could contribute to gender equality in a framework of gender mainstreaming, and promote higher female participation in leadership [40,41].

Papers examining the relationship between CSR and various aspects of gender equality form a separate group of studies. Bear et al. [42] examined the impact of the proportion of women on board, diversity of board resources on corporate CSR, and corporate reputation. They concluded that the number of women on the board had a positive impact on CSR. Corporate social responsibility also mediated the relationship between the proportion of women on boards and firm reputation. Boulouta [43] focused on the link between board gender diversity and corporate social performance and concluded that the percentage of women in boards significantly affected the corporate social performance, mainly due to reducing the negative social practices.

However, the effect of CSR on business performance and the factors affecting the application of CSR concept could be industry and country-specific, and also the examined period could play the role. The CSR could be perceived as a dynamic concept changing in time, and also its effects could be shown in the long run.

Several authors deal with the issue of CSR, specifically in transitional countries. Visser et al. [44] argue that the CSR concept is usually practiced by large, multinational, and national firms. CSR tends to be less institutionalized and formalized, and is more associated with charity and philanthropy, as well as a successful way for a company to generate revenues. On the other hand, Lindgreen et al. [45] claim that the spread and the case of CSR activities in transitional and developing countries do not differ distinctly from the models of developed countries, and they even do not concentrate only on charity and philanthropy. Badulescu et al. [29] deal with the case of Romania, and they examined the relationship between firm age and implementation of CSR activities. They found that age was not the determining factor of CSR practices.

The issue of CSR has been relatively underexplored in the Czech Republic. There are several studies about the firm performance of Czech companies and CSR. Paulík et al. [46] claim that the concept is a crucial factor in a bank's performance. The other paper by Kocmanova and Simberova [47] has not found any relationship between CSR and firm performance in the Czech manufacturing industry. But the field of relationship between firm size, firm age, gender equality, and CSR has not been explored enough. So, the paper is original in this case, and it extends and deepens the existing knowledge.

3. Materials and Methods

To examine the relationship between selected firm characteristics and CSR concept, the data from three sources were used: Own survey, data from the Albertina database, and detailed data from the Business Register.

To gain knowledge about the use of the CSR concept in business practice, the primary quantitative research was chosen, within which a questionnaire survey was conducted. The research aimed to evaluate the use and scope of CSR implementation in medium and large enterprises in transportation and storage industry. However, it has been shown that these data are sensitive to companies and they are reluctant to share information on CSR concept and social and environmental goals. Due to personal contacts, a relatively good sample of data was obtained in the Northeast region (using NUTS 2 classification). The region does not differ significantly from the others on the field of transportation and storage industry, and the situation is very similar to that in other Czech regions. From this point

of view, the data are representative for Czech transportation and storage industry. The suitability of the region's selection supports the fact that the two largest cities in the region, Pardubice and Hradec Kralove, together with several other towns in the Czech Republic, have the lowest share of long-term unemployment. This fact is important because the social pillar is one of CSR parts. The survey was implemented in 2017. Using the Albertina database, it was found that 70 medium and large enterprises (over 50 employees) operated in the transportation and storage industry in the Northeast region in 2017.

A questionnaire was designed for members of the top management of companies. The managers were expected to have the best information about company strategy and policy. The questionnaires were distributed via email addresses. The initial rate of return of the questionnaires was low, so it was necessary to contact the firms by phone and fill out the questionnaire in person. It was found that managers did not want to provide sensitive information. Based on the promised anonymity and sending the survey results, their return was much higher. The data of 29 respondents was received, which formed approximately 41 percent of firms.

There was a total of 11 closed, open, and semi-open questions (see Appendix A). The questionnaire was in a simplified form. The introductory word contained instructions on how to fill it, or the details were explained personally. To assess the CSR of individual firms, we examined the following: Whether the company applied the principles of CSR, whether the CSR was part of the corporate strategy, and whether it had CSR certification (or planned to certify). The firm could score from 0–3, when 0 meant that it did not practice the CSR concept, and 3 indicated that the firm applied the principles of CSR, the CSR was the part of the corporate strategy, and it had the CSR certification (or planned to certify).

The data about CSR was supplemented by information about firm size, firm age, firm performance, and gender composition of the board. The data necessary to determine a firm size, age, and firm performance was exported from the Albertina database. This database contains information on all profit and non-profit entities in the Czech Republic that were assigned a personal identification number (IČ). At present, this database covers the data of more than 2.7 million subjects. The data for the gender composition of the executive body of the firms was obtained from the Business Register. It is a public register providing official statutory information about Czech companies.

The number of employees and the total revenue were used as firm-size indicators. Firm age denoted the firm age in 2017. The gender diversity of board represented the percentage of women in the executive body. The financial performance was assessed using two methods. Firstly, ROA, which is computed as earnings before interest and taxes divided by total assets. This indicator belongs to the most frequently applied indicators of firm performance. Secondly, selected bankruptcy models that are based on the summarization of selected aspects of the business (most often profitability, liquidity, indebtedness, and activity) and provide a more detailed view of business performance. These models enable us to distinguish the firms having good financial health and businesses that are in financial distress and are threatened by bankruptcy. We used two bankruptcy models: Altman's Z-Score model and index IN05 ([2,48]). Z-Score model is the best known and most frequently used bankruptcy model, index IN05 represents the model that was designed by Inka Neumaierová and Ivan Neumaier for the Czech conditions [49].

Altman Z-Score model could be described as follows [50]:

$$Z - Score = 0.717.X_1 + 0.847.X_2 + 3.107.X_3 + 0.420.X_4 + 0.998.X_5 \quad (1)$$

where X_1 is working capital/total assets, X_2 denotes retained earnings/total assets, X_3 is earnings before interest and taxes/total assets, X_4 represents the book value of equity/book value of total liabilities, X_5 is sales/total assets, and Z' is the overall index.

According to the value of Z-Score, we can identify financially distressed and non-distressed entities. If Z is smaller than 1.23, the firm is threatened by a bankruptcy (Distress zone); if Z is higher than 2.90, the firm is in good financial condition, and there is not financial distress (Safe zone). The values between 1.23 and 2.90 denote the grey zone, where the conclusion is ambiguous.

Index IN05 has followed the formula by Neumaierová and Neumaier [49]:

$$IN05 = 0.13.P_1 + 0.04.P_2 + 3.97.P_3 + 0.21.P_4 + 0.09.P_5 \quad (2)$$

where P_1 denotes assets/liabilities, P_2 is earnings before interest and taxes /interests, P_3 denotes earnings before interest and taxes /assets, P_4 denotes total revenue/assets, and P_5 is the ratio of current assets/short-term liabilities. The companies are divided into three zones. If the value of IN05 is lower than 0.90, the company is probably not prospering. The value higher than 1.60 places the firm into a prosperity zone. Values between 1.60 and 0.90 put the company into the grey zone [49].

Because of the lack of financial data in some cases, the final sample covers the data of 24 firms. It represents approximately 34 percent of medium and large enterprises operating in the Transport and Storage sector in the Northeast Czech region in 2017. Descriptive statistics are shown in Table 1.

Table 1. Descriptive statistics.

Variable	Mean	Sd	Min	Max
CSR	1.667	1.050	0	3
Firm age	21.333	4.905	3	26
Total revenue (in thousands of CZK)	331,413.3	247,594.5	56,886	944,921
Number of employees	164.083	121.871	45	401
Gender diversity of boards	0.090	0.236	0	1
Z-Score	2.335	1.288	-0.088	5.013
IN05	1.401	0.860	-0.791	3.591
ROA	0.050	0.071	-0.103	0.211

Source: Own survey, Albertina database, Business Register, authors' computations.

To consider the link between selected firm characteristics and CSR practice, we used the Pearson correlation coefficient and also the Spearman rank correlation coefficient to take into account possible non-linearity of the relationship [51].

Pearson's correlation coefficient is calculated using the following formula:

$$r = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2 \sum_{i=1}^n (y_i - \bar{y})^2}} \quad (3)$$

where x_i and y_i are the quantities between which we investigate the relationship, \bar{x} and \bar{y} are the mean values of x_i and y_i .

The Spearman's correlation coefficient is calculated as follows:

$$r = 1 - \frac{6 \sum (R_{x_i} - R_{y_i})^2}{n(n^2 - 1)} \quad (4)$$

where R_{x_i} and R_{y_i} represent the order of values x_i and y_i .

To quantify the relationship between CSR and selected firm characteristics in more details, regression models were subsequently applied:

$$CSR_{it} = \beta_1 \cdot firm\ age_{it} + \beta_2 \cdot firm\ size_{it} + \beta_3 \cdot gender\ comp\ board_{it-2} + \beta_4 \cdot firm\ performance_{it-2} + u_{it} \quad (5)$$

where i denotes firm, t is year, CSR_{it} is corporate social responsibility of i -th firm, $firm\ age_{it}$ is the age of i -th firm, $firm\ size_{it}$ is the size of i -th firm, $gender\ comp\ board_{it-2}$ denotes gender composition of executive body of i -th firm in year $t-2$, $firm\ performance_{it-2}$ denotes economic performance or financial health of the i -th firm in year $t-2$, and u_{it} is the disturbance term.

As the dependent variable, we employed company social responsibility. As the explanatory variables, we employed the gender composition of the executive body (proportion of women in executive body), firm size (measured by the number of employees), firm age (measured by the number of years), and firm performance (measured by ROA, Z-Score, and IN05). For more robust results, we used three alternative indicators of firm performance: ROA, Z-Score, and IN05.

However, the link between the gender composition of the board and the application of CSR principles can be bidirectional. These variables could be interrelated. A higher representation of women in leadership can lead to higher CSR. A higher application of CSR principles in the form of non-discrimination can lead to a higher representation of women in boards. The same could be applied to corporate performance. CSR and financial performance can be bidirectional too. A higher CSR can lead to higher financial performance. Higher financial performance and higher company wealth could then enable the company to focus on higher goals as social and environmental ones that are the part of CSR. To solve the problem of endogeneity of the proportion of women on boards and firm performance, we lagged these explanatory variables. We chose a lag of two years because the implementation of CSR measures is not a quick choice and it can take some time.

To estimate the coefficients of the regression model, the Ordinary Least Square (OLS) with heteroskedastic-consistent standard errors was used. We detected the multicollinearity using the variance inflation factor. There is not any problem of multicollinearity in the presented models. To support the validity of the results, we tested the independence of the dependent and independent variables using the Fisher's exact test and Friedman test. Both tests confirm the differences between individual variables.

For the computation, the MS Excel and STATA software were used.

4. Results and Discussion

As we mentioned above, the own survey was the primary source of data for research. The questionnaire was completed by representatives of companies when the company age ranged from 3 to 26 years and was 21 years on average. The firms had 164 employees on average and total revenue of almost CZK 332 million. The smallest enterprise in the research sample had 45 employees and a turnover of CZK 137 million, while the largest enterprise employed 401 employees and had a total revenue of CZK 336 million. The average gender diversity of boards, which is calculated as the percentage of women in the executive body, was 9 percent in the sample. Only 17 percent of firms had at least one woman in the executive body.

First, it was found that 75 percent of surveyed respondents used the concept of CSR. Only three respondents stated that they did not even consider its introduction. The others were considering implementing it in the future. Paradoxically, the companies that did not implement the concept of CSR also answered other questions in which they identified some CSR activities they were performing. This fact shows low awareness of the idea of CSR in some companies.

All businesses applying the concept of CSR stated that CSR was a part of their strategy, and almost half of them claimed that their vision or mission was also in line with social responsibility and was compiled concerning CSR policy. The weakness of the companies surveyed was the definition of company values, evaluation, and remuneration systems according to CSR objectives.

One of the questions examined whether CSR was certified in the companies (so-called ISO 26000 standard) or at least they were considering it. It was found that most of the companies did not have a certified CSR concept, and were not planning to do so. Only three companies were certified, and two companies were planning to get the certification within a maximum of 7 years. It could probably be because certification is costly.

The research showed that the management of companies perceived the incorrect understanding of the CSR concept as the most common obstacle to its implementation, and many companies did not integrate all four pillars comprehensively.

To assess the financial performance of examined firms, the ROA and a selected bankruptcy model were used. The average value of ROA ranged from -0.103 to 0.211 , and only three firms reported the negative value of ROA. The average value of ROA was 0.05 , which indicates that the earnings before interests and taxes amounted to 5 percent of total assets on average. Then, we calculated the Z-Score and index IN05 for individual firms using Equations (1) and (2). According to the results, we divided the firms into three zones: Financial distress zone, grey zone, or safe zone. The results are shown in Table 2. The results show that the conclusions of individual models assessing the financial health of selected companies did not differ significantly. Both applied models detected that 20–25 percent of firms reported poor financial health and could have financial problems.

Table 2. Bankruptcy models—results (in percent of firms).

Model	Financial Distress	Grey Zone	Safe Zone
Z-Score	20.8%	50%	29.2%
IN05	25%	37.5 %	37.5%

Source: Own survey, Albertina database, Business Register, authors' computations.

Firstly, the relationship among selected firm characteristics (firm age, firm size, gender composition of boards) and firm performance and CSR practice of firms was tested using the Pearson and Spearman correlation coefficients (Equations (3) and (4)). The results are shown in Table 3.

Table 3. Relationship between CSR and selected firm characteristics.

Variable	Pearson Correlation Coefficient	Spearman Correlation Coefficient	N
Firm age	-0.2984	-0.2579	24
Total revenue (in thousands of CZK)	0.3923^*	0.3902^*	24
Number of employees	0.4907^{**}	0.5516^{***}	24
Gender diversity of boards	0.2149	0.2431	24
Z-Score	-0.4827^{**}	-0.4649^{**}	24
IN05	-0.4560^{**}	-0.3745^*	24
ROA	-0.4370^{**}	-0.4089^{**}	24

Notes: *** significant at the 1 per cent level, ** significant at the 5 per cent level, * significant at the 10 per cent level.

Source: Own survey, Albertina database, Business Register, authors' computations.

Financial performance and firm size proved to be the factors that could affect the CSR practice. It was found that there was a statistically significant relationship between firm size, firm financial performance, and CSR practice of firms.

To evaluate the strength of the relationship, we followed Vaus [51], which ranks the correlation coefficients for social science researchers as follows: 1.00 means perfect correlation, 0.99 to 0.90 near perfect, 0.89 to 0.80 very strong correlation, 0.79 to 0.70 strong, 0.69 to 0.50 substantial, 0.49 to 0.30 moderate, 0.29 to 0.10 low, and 0.09 to 0.00 trivial. The negative result implies a reverse correlation.

The results showed that larger firms applied CSR concept more than the smaller ones. The correlation coefficient ranged from 0.39 to 0.55 depending on the method used and applied indicator of firm size. The relationship was stronger using the number of employees as the indicator of firm size. The relationship was substantial in that case and statistically significant at the 5 percent level. This conclusion is in line with the results of Lepoutre and Heene [32] that argued the lack of financial resources of smaller firms to applicate CSR. Skypalova and Kucerova [52], using Czech data, claimed that large firms had more knowledge about CSR concept as compared with micro and small firms. Thus, the larger companies are more likely to apply the CSR concept.

The relationship between the firm performance (measured by Z-Score, IN05, and ROA) and CSR was statistically significant with moderate rank, but a negative one. The correlation coefficients reached

the value from -0.38 to -0.48 . It indicates that the CRS concept is applied rather by companies having lower financial performance. This can be closely linked to pursuing alternative business goals. The reason for this may be that firms following CSR ideas are more likely to pursue alternative goals (social, environmental) in addition to financial performance. Hence, the financial performance of these firms could be lower. On the other hand, the application of CSR concept could affect the firm performance negatively. According to Akben-Selcuk [6], it could be because CSR expenditures cause additional costs for the firms and divert funds from more profitable potential investments. However, the application of CSR concept can bring financial benefits that could be clearly quantifiable in the long run. The financial burden and the time period can play an important role in the Czech Republic, where the application of the CSR concept does not have a long tradition. Skypalova and Kucerova [52] examined the knowledge and implementation of the CSR concept in the Czech Republic and found out that more than 50 percent of respondents had not encountered the CSR concept.

On the other hand, the firm age and gender diversity of boards are not the factors affecting the CSR practice. The relationship between firm age and CSR was negative and not statistically significant. The age of the firms did not affect CSR practice. The examined companies were similar in age, with an average age of 21 years and a standard deviation of 5 years. Only one of the companies was significantly younger, with firm age of 3 years.

The relationship between gender diversity of boards and CSR was positive. However, the estimated values indicated only low relationship, and the correlation coefficients was not statistically significant. In the sample, only approximately 17 percent of surveyed companies had women in leadership, and there was only one company led by a woman. All companies where women were represented in the leadership applied the CSR concept. Additionally, the average level of CRS was higher in these companies compared to men-led firms. However, these conclusions need to be taken with caution due to the relatively low sample examined and low representation of women-led firms.

Then, we used a linear regression model (Equation (5)) to analyze the relationship between the selected firm characteristics and CSR. It allowed us to take the possible mutual links into account and get more robust results. To minimize the problem of endogeneity, we used the lagged value of problematic explanatory variables (firm performance and gender diversity of boards). The estimates of regression models are presented in Table 4.

Table 4. Regression models estimation: Lagged value of gender diversity of boards and firm performance.

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Firm age	-0.0031 (0.0314)	-0.0107 (0.0328)	0.0016 (0.0334)	-0.0201 (0.0283)	-0.0135 (0.0285)	-0.0128 (0.0261)
Firm size						
Total revenue	1.58×10^6 ** (6.68×10^7)	1.14×10^6 * (6.27×10^7)	1.13×10^6 (6.73×10^7)			
Number of employees				0.0032 * (0.0017)	0.0032 * (0.0018)	0.0021 (0.0015)
Gender diversity of boards (t-2)	0.2081 (0.5479)	0.3883 (0.3890)	0.6772 ** (0.3060)	0.1298 (0.6730)	0.2016 (0.5563)	0.5915 (0.4006)
Firm performance (t-2)						
Z-Score (t-2)	-0.3218 ** (0.1314)			-0.2415 * (0.1353)		
IN05 (t-2)		-0.6205 *** (0.1913)			-0.5901 *** (0.1910)	
ROA (t-2)			-10.028 *** (3.0461)			-9.0740 ** (3.3971)
Constant	2.0755 ** (0.7527)	2.631 *** (0.6955)	2.2008 *** (0.7259)	2.2173 *** (0.6002)	2.5011 *** (0.6348)	2.4477 *** (0.5383)
R squared	0.3241	0.4054	0.5163	0.3413	0.4658	0.5115
N	24	24	24	24	24	24

Notes: *** significant at the 1 per cent level, ** significant at the 5 per cent level, * significant at the 10 per cent level. Robust standard errors in parentheses. Source: Own survey, Albertina database, Business Register, authors' computations.

The findings confirmed the previous conclusions. The estimated regression coefficients indicate the existence of a statistically significant relationship between financial performance, firm size, and CSR practice of the company. On the other hand, the firm age and gender composition of boards did not prove to be the factors affecting CSR. The results were very similar, using alternative indicators of firm size (total revenue, number of employees) and firm performance (Z-Score, IN05, ROA).

The applied models explain from 32 to 52 percent of the variability in CSR, depending on the used indicators of firm size and firm performance. The coefficients of determination were higher in the case of using the number of employees as the indicator of firm size (Models 4, 5, and 6 in Table 4). It indicates the higher explanatory power in comparison with total revenue (Models 1, 2, and 3 in Table 4). The relationship between firm size and CSR was positive. An increase in the number of employees by 100 lead to an increase in the CSR indicator of 0.3. On the other hand, the negative values of regression coefficients in the case of all three indicators of firm performance indicate that the CSR principles are more probably applied in firms having lower economic performance. This can be closely linked to pursuing alternative business goals. The primary goal of these firms is not to achieve high firm financial performance. Companies pursuing alternative goals (social, environmental) and emphasizing the achievement of these goals also by applying CSR standards. The financial performance of these firms should be lower due to the costs arising in connection with pursuing alternative goals.

5. Conclusions and Limitations

The study was devoted to the very important issue of corporate social responsibility and its application in the Czech Republic. While the CSR concept has been well known and widely applied by firms in developed countries for a long time, it has also been in focus in transition economies in recent years. The surveys have shown that there is still relatively little awareness of the corporate social responsibility concept, its content, and the benefits of it in the Czech Republic.

This study aimed to examine the relationship among selected firm characteristics (firm size, firm age, gender diversity of boards, and firm performance) and CSR practice using the Czech data for transportation and storage industry.

It was found that firm age and gender diversity of boards were not the factors affecting the application of CSR. On the other hand, there was a moderate, negative relationship between the financial performance of the company and the CSR. Firms that reported the higher financial performance had a lower level of CSR and vice versa. Additionally, the firm size proved to be a statistically significant factor in forming the CSR practice of firms. The larger firms applied the CSR concept more in comparison to smaller counterparts.

This study extends the knowledge in the field of CSR and brings new insights in the area of CSR and its application in the Czech Republic. However, the topic clearly deserves further attention. The sample size was the main limitation of our research, followed by the fact that the relationship was tested only for one industry. It brings interesting conclusions for the surveyed industry. However, these are difficult to be generalized to the whole Czech Republic. Testing the relationships between CSR, firm age, firm size, firm financial performance, and gender diversity of boards on a larger sample of companies would give a better insight into this issue, and it could help to also identify the industry specifics of this issue. We expect that the situation will be less prominent in the other sectors (especially in the case of gender diversity of boards). Further research is intended to investigate the relationship among selected firm characteristics and CSR in other Czech industries. The larger sample would also ensure the better generalizability of our conclusions.

Author Contributions: Conceptualization, S.Č.; methodology, S.Č. and V.H.; software, S.Č. and V.H.; validation, S.Č. and V.H.; formal analysis, S.Č. and V.H.; investigation, S.Č. and V.H.; resources, S.Č. and V.H.; data curation, V.H.; writing—original draft preparation, S.Č. and V.H.; writing—review and editing, S.Č. and V.H.; visualization, S.Č. and V.H.; supervision, S.Č. and V.H.; project administration, S.Č. and V.H.; funding acquisition, S.Č. and V.H. All authors have read and agreed to the published version of the manuscript.

Funding: This research was supported by the College of Polytechnics, Jihlava, under Grant no. 1170/26/423 “Attributes of business performance management and determining factors”.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

QUESTIONNAIRE SURVEY: CORPORATE SOCIAL RESPONSIBILITY

- 1) Does your company apply the principles of corporate social responsibility (CSR)?
 - No, we do not use CSR or consider its introduction
 - No, we do not use CSR, but we are considering implementing it from around:
 - Yes, we apply CSR

- 2) If you use CSR, which motives (benefits) led you to introduce it into the company policy? If you do not use CSR, which would lead you to do so? Mark on scale 1–5 according to the importance of the motive (1—most important, 3—medium important, 5—unimportant).

a) the firm’s belief that it is right	1 2 3 4 5
b) seeking a competitive advantage	1 2 3 4 5
c) increase in profit, decrease in costs	1 2 3 4 5
d) increasing customer loyalty	1 2 3 4 5
e) improving reputation and image	1 2 3 4 5
f) public relations	1 2 3 4 5
g) ambient pressure	1 2 3 4 5
h) seeking to attract and retain quality staff	1 2 3 4 5
i) a better picture in the eyes of potential investors	1 2 3 4 5
j) another theme, please specify:	1 2 3 4 5
k) nothing.	

- 3) What specific CSR activities does your company perform in the following areas? *economic*:
 - transparency and credibility
 - good relationships with customers, suppliers

social:

 - involvement of employees in decision-making
 - financial and non-financial benefits
 - employee development, education

environmental:

 - saving energy, water
 - financial and non-financial benefits
 - employee development, education
 - waste management, recycling
 - stakeholder involvement in environmental policy

philanthropic:

 - donation
 - support of the local community

- other, please specify:
- we do not carry out any CSR activities
- 4) Add to the text: CSR is realized in four areas - economic, social, environmental and philanthropic. In my opinion, the greatest emphasis should be on area, on the contrary area is least important.
- 5) What do you see as the biggest obstacles to implementing CSR?
- lack of time
- misunderstanding of the concept of CSR
- incorrect implementation of CSR
- lack of qualified staff
- legislative and tax environment
- high cost
- we do not need CSR
- other, please specify:
- we see no obstacles to the implementation of CSR
- 6) How do you ensure the link between the CSR concept and the corporate strategy?
- CSR is part of our strategy
- vision is in line with CSR, compiled with respect to CSR policy
- corporate values are described according to CSR
- evaluation systems, remuneration are linked to CSR objectives
- otherwise, please indicate how:
- 7) In what areas do you measure CSR? *economic*:
- corporate governance
- responsible approach to customers
- relationships with suppliers and other business partners
- marketing and advertising
- social*:
- employee involvement and communication
- remuneration for work
- health and safety
- stakeholder involvement in decision-making
- environmental*:
- environmental policy
- waste and recycling
- energy and water
- philanthropic*:
- access to the local community
- involvement in charitable projects
- other, please specify:

- we do not measure CSR in any area
- 8) Do you use some specific indicators to measure CSR in these areas? *economic*:
- number of published indicators in the CSR report
 - customer satisfaction index
 - number of complaints
- social*:
- number of non-financial benefits
 - number of absentee days of employees
- environmental*:
- energy, water consumption
 - amount of emissions
 - the amount of unsorted and unused waste
- philanthropic*:
- number of awards received
 - donation - amount of contributions provided
 - other, please specify:
- we do not use any indicators to measure CSR
- 9) Do you have CSR certification?
- No, we do not and we are not going to certify
 - No, we do not, but we are going to certify - when approximately?
 - Yes, we do

References

1. Fombrun, C.; Shanley, M. What's in a Name? Reputation Building and Corporate Strategy. *Acad. Manag. J.* **1990**, *33*, 233–258.
2. Matten, D.; Moon, J. "Implicit" and "explicit" CSR: A conceptual framework for a comparative understanding of corporate social responsibility. *Acad. Manag. Rev.* **2008**, *33*, 404–424. [[CrossRef](#)]
3. Rasche, A.; Morsing, M.; Moon, J. *Corporate Social Responsibility: Strategy, Communication, Governance*; Cambridge University Press: Cambridge, UK, 2017.
4. Kingsmill, D. *A Review of Women's Employment and Pay, Women and Equality Unit*; Cabinet Office: London, UK, 2001.
5. Reverte, C.; Gomez-Melero, E.; Cegarra-Navarro, J.G. The influence of corporate social responsibility practices on organizational performance: Evidence from Eco-Responsible Spanish firms. *J. Clean. Prod.* **2016**, *112*, 2870–2884. [[CrossRef](#)]
6. Akben-Selcuk, E. Corporate social responsibility and financial performance: The moderating role of ownership concentration in Turkey. *Sustainability* **2019**, *11*, 3643. [[CrossRef](#)]
7. Cho, S.J.; Chung, C.Y.; Young, J. Study on the Relationship between CSR and Financial Performance. *Sustainability* **2019**, *11*, 343. [[CrossRef](#)]
8. Vurro, C.; Perrini, F. Making the most of corporate social responsibility reporting: Disclosure structure and its impact on performance. *Corp. Gov. Int. J. Bus. Soc.* **2011**, *11*, 459–474. [[CrossRef](#)]
9. Lee, Y.K.; Lee, K.H.; Li, D.X. The impact of CSR on relationship quality and relationship outcomes: A perspective of service employees. *Int. J. Hosp. Manag.* **2012**, *31*, 745–756. [[CrossRef](#)]

10. Bučiunienė, I.; Kazlauskaitė, R. The linkage between HRM, CSR and performance outcomes. *Balt. J. Manag.* **2012**, *7*, 5–24. [[CrossRef](#)]
11. Vilanova, M.; Lozano, J.M.; Arenas, D. Exploring the nature of the relationship between CSR and competitiveness. *J. Bus. Ethics* **2009**, *87*, 57–69. [[CrossRef](#)]
12. Turban, D.B.; Greening, D.W. Corporate social performance and organizational attractiveness to prospective employees. *Acad. Manag. J.* **1996**, *40*, 658–672.
13. Galbreath, J. Does primary stakeholder management positively affect the bottom line? Some evidence from Australia. *Manag. Decis.* **2006**, *44*, 1106–1121. [[CrossRef](#)]
14. Bauer, R.; Koedijk, K.; Otten, R. International Evidence on SRI Mutual Fund Performance and Investment Style Life. *J. Bank. Financ.* **2005**, *29*, 1751–1767.
15. Al-Tuwaijri, S.A.; Christensen, T.E.; Hughes, K.E. The relations among environmental disclosure, environmental performance, and economic performance: A simultaneous equations approach. *Account. Organ. Soc.* **2004**, *29*, 447–471. [[CrossRef](#)]
16. Balabanis, G.; Philips, H.C.; Lyall, J. Corporate social responsibility and economic performance in the top British companies: Are they linked? *Eur. Bus. Rev.* **1998**, *98*, 25–44. [[CrossRef](#)]
17. Jeppesen, S.; Kothuis, B.; Ngoc Tran, A. *Corporate Social Responsibility and Competitiveness for SMEs in Developing Countries: South Africa and Vietnam*; Agence Française de Développement: Paris, France, 2012.
18. Graves, S.B.; Waddock, S.A. A look at the Financial-Social Performance Nexus when Quality of Management is Held Constant. *Int. J. Value Based Manag.* **1999**, *12*, 87–99. [[CrossRef](#)]
19. Pava, M.L.; Krausz, J. The Association between Corporate Social- Responsibility and Financial Performance: The Paradox of Social Cost. *J. Bus. Ethics* **1996**, *15*, 321–357. [[CrossRef](#)]
20. Surroca, J.; Tribo, J.A.; Waddock, S. Corporate responsibility and financial performance: The role of intangible resources. *Strateg. Manag. J.* **2010**, *31*, 463–490. [[CrossRef](#)]
21. Taghian, M.; D'Souza, C.; Polonsky, M. A stakeholder approach to corporate social responsibility, reputation and business performance. *Soc. Responsib. J.* **2015**, *11*, 340–363. [[CrossRef](#)]
22. Mikolajek-Gocejna, M. The relationship between corporate social responsibility and corporate financial performance—Evidence from empirical studies. *Comp. Econ. Res.* **2016**, *19*, 67–84. [[CrossRef](#)]
23. Waddock, S.A.; Graves, S.B. The corporate social performance-financial performance link. *Strateg. Manag. J.* **1997**, *18*, 303–319. [[CrossRef](#)]
24. Bowman, E.H.; Haire, M. A strategic posture toward corporate social responsibility. *Calif. Manag. Rev.* **1975**, *18*, 49–58. [[CrossRef](#)]
25. Cowen, S.S.; Ferreri, L.B.; Parker, L.D. The impact of corporate characteristics on social responsibility disclosure: A typology and frequency-based analysis. *Acc. Organ. Soc.* **1987**, *12*, 111–222. [[CrossRef](#)]
26. Dooley, R.S.; Lerner, L.D. Pollution, profits, and stake-holders: The constraining effect of economic performance on CEO concern with stakeholder expectations. *J. Bus. Ethics* **1994**, *13*, 701–711. [[CrossRef](#)]
27. Brammer, S.; Brooks, C.; Pavelin, S. Corporate social performance and stock returns: UK evidence from disaggregate measures. *Financ. Manag.* **2006**, *35*, 97–116. [[CrossRef](#)]
28. Withisuphakorn, P.; Jiraporn, P. The effect of firm maturity on corporate social responsibility (CSR): Do older firms invest more in CSR? *Appl. Econ. Lett.* **2015**, *23*, 298–301. [[CrossRef](#)]
29. Badulescu, A.; Badulescu, D.; Saveanu, T.; Hatos, R. The relationship between firm size and age, and its social responsibility actions—Focus on a developing country (Romania). *Sustainability* **2018**, *10*, 805. [[CrossRef](#)]
30. Udayasankar, K. Corporate social responsibility and firm size. *J. Bus. Ethics* **2008**, *83*, 167–175. [[CrossRef](#)]
31. Obrad, C.; Petcu, D.; Gherghes, V.; Suci, S. Corporate Social Responsibility in Romanian Companies—Between Perceptions and Reality. *Amfiteatru Econ. J.* **2011**, *13*, 43–55.
32. Lepoutre, J.; Heine, A. Investigating the impact of firm size on small business social responsibility: A critical review. *J. Bus. Ethics* **2006**, *67*, 257–273. [[CrossRef](#)]
33. Trencansky, D.; Tsaparlidis, D. The Effects of Company's Age, Size and Type of Industry on the Level of CSR. The Development of a New Scale for Measurement of the Level of CSR. Master's Thesis, Umea School of Business and Economics, Umea, Sweden, 2014.
34. Al-Gamrh, B.; Al-Dhamari, R. Firm characteristics and corporate social responsibility disclosure in Saudi Arabia. *Int. Bus. Manag.* **2016**, *10*, 4283–4291.
35. Wiklund, J. The Sustainability of the Entrepreneurial Orientation-Performance Relationship. *Entrep. Theory Pract.* **1999**, *24*, 37–48. [[CrossRef](#)]

36. Orlitzky, M. Does firm size confound the relationship between corporate social performance and firm financial performance? *J. Bus. Ethics* **2001**, *33*, 167–180. [[CrossRef](#)]
37. Campbell, K.; Bohdanowicz, L. Corporate Governance and the Growing Role of Women in the Boardroom. In *Transforming Governance: New Values, New Systems in the New Business Environment*; Gower: Farnham, UK, 2015; pp. 121–142.
38. Hambrick, D.C.; Mason, P.A. Upper Echelons: The Organization as a Reflection of its Top Managers. *Acad. Manag. Rev.* **1984**, *9*, 193–206. [[CrossRef](#)]
39. Brush, C.G. Research on Women Business Owners: Past Trends, a New Perspective and Future Directions. *Entrep. Theory Pract.* **1992**, *16*, 5–30. [[CrossRef](#)]
40. Dex, S. The business case for family friendly policies. In *ESRC Gender Mainstreaming Seminar*; DTI: London, UK, 2004.
41. Grosser, K.; Moon, J. Gender mainstreaming and corporate social responsibility: Reporting workplace issues. *J. Bus. Ethics* **2005**, *62*, 327–340. [[CrossRef](#)]
42. Bear, S.; Rahman, N.; Post, C. The impact of board diversity and gender composition on corporate social responsibility and firm reputation. *J. Bus. Ethics* **2010**, *97*, 207–221. [[CrossRef](#)]
43. Boulouta, I. Hidden Connections: The Link between Board Gender Diversity and Corporate Social Performance. *J. Bus. Ethics* **2013**, *113*, 185–197. [[CrossRef](#)]
44. Visser, W.; Matten, D.; Pohl, M.; Tolhurst, N. *The A to Z of Corporate Social Responsibility*; Wiley: London, UK, 2007.
45. Lindgreen, A.; Swaen, V.; Campbell, T.T. Corporate Social Responsibility Practices in Developing and Transitional Countries: Botswana and Malawi. *J. Bus. Ethics* **2009**, *90*, 429–440. [[CrossRef](#)]
46. Paulík, J.; Kombo, F.; Ključnikov, A. CSR as a driver of satisfaction and loyalty in commercial banks in the Czech Republic. *J. Int. Stud.* **2015**, *8*, 112–127.
47. Kocmanova, A.; Simberova, I. The relationship between corporate environmental, social and governance performance, and economic performance: Empirical study on Czech manufacturing industry. *Int. J. Econ. Stat* **2014**, *2*, 170–178.
48. Ali, R.; Sial, M.S.; Brugni, T.V.; Hwang, J.; Khuong, N.V.; Khanh, T.H.T. Does CSR Moderate the Relationship between Corporate Governance and Chinese Firm's Financial Performance? Evidence from the Shanghai Stock Exchange (SSE) Firms. *Sustainability* **2020**, *12*, 149. [[CrossRef](#)]
49. Neumaierová, I.; Neumaier, I. Index IN05. In Proceedings of the Sborník Příspěvků z Mezinárodní Vědecké Konference Evropské Finanční Systémy, Brno, Czech Republic, 21–23 June 2005; pp. 143–148.
50. Altman, E. *Corporate Financial Distress: A Complete Guide to Predicting, Avoiding, and Dealing with Bankruptcy*; John Wiley and Sons: Hoboken, NJ, USA, 1983.
51. Vaus, D. *Analyzing Social Science Data: 50 Key Problems in Data Analysis*; SAGE Publications: London, UK, 2002.
52. Skypalová, R.; Kučerová, R. Knowledge and Application of Concept of the Corporate Social Responsibility in the Czech Republic. *Procedia Econ. Financ.* **2014**, *12*, 607–615. [[CrossRef](#)]



© 2020 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).