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Effects of Corporate Environmental Responsibility, CSR and CEO Shareholding on Financial Performance: Evidence from U.S.-Listed Companies

F. Hachicha
University of Sfax, Sfax, Tunisia

ABSTRACT

Corporate environmental responsibility (CER) plays an important role in the sustainable policies of firms and affects the behaviors of managers. For U.S. listed firms for 2010–2021, this study aims at evaluating the sustainability of investment through corporate environmental responsibility (CER) and corporate social responsibility (CSR), the complementarily or substitutability between (CER) and the CEO shareholding, and the impact on corporate financial performance (CFP).The results show that CSR efforts create a good image of the company, which subsequently enhances the credibility of its corporate environmental responsibility projects. Also, the results show the corporate environmental responsibility of U.S listed companies has a positive impact on performance. Specifically, the CEO's shareholding serves as a mediator between corporate environmental responsibility and CFP. Moreover, the paper finds substitutability between CEO shareholding and corporate environmental responsibility, so the more the shareholding CEO is reluctant to take the risk, the more they avoid investing in corporate environmental responsibility projects. This finding will reinforce the positive effect of corporate environmental responsibility on performance. A positive relationship was recorded between CFP and the combination between CSR and CER and between CFP and the combination between CER and CEO shareholding. Taken together, our evidence suggests that CER concerns could enhance the extent of managerial learning, especially for firms experiencing greater risks. Our paper provides new evidence for the role of CER in reducing corporate risk and further confirms the importance of the corporate environment by conducting a robustness test.

Keywords: corporate environmental responsibility (CER); corporate social responsibility (CSR); CEO shareholding; corporate financial performance (CFP)

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INTRODUCTION

The measurement of corporate performance has become indispensable because of a more competitive modern economic environment. It is necessary to ensure the achievement of the strategic objectives of a company. Manufacturing SMEs must have a reliable performance measurement system that takes into account any environmental change to guarantee survival and competitiveness. However, the complexity of the performance and the lack of consensus around this concept are the causes of some problems.

The relation between corporate social responsibility (CSR) and corporate financial performance (CFP) has been extensively studied by academics and researchers (T. T. Le and M. Ferasso [1], R. T. Anees et al. [2]). Several studies have attempted to establish this link, but the results have been very inconsistent. In general, there are three categories of theoretical explanations for the evaluation of CSR relationships/CFP: one postulates the existence of linear relations between the two constructs; the second suggests the absence of links between the two constructs; and finally, the last suggests the existence of a more complex non-linear relationship between two variables. Finally, there is a linear and significant relationship between the dimensions of CSR and the CFP. J.-J. Han et al. [3] observed a negative relationship between environmental performance and CFP, while governance performance shows an inverse U relationship with CFP. As a result, it can be more significant when researchers go beyond the traditional views about either positive or negative impact and explore its dynamics.

Also, the issue of corporate environmental responsibility (CER) has been widely discussed

recently and has received a great deal of attention from governments, shareholders, and the public. Both academic researchers and business managers have acknowledged the significance of CER activities. The CER refers to the way in which companies undertake their responsibility to minimize and manage the negative impact of their operations and activities on the environment [4, 5]. According to Z. F. Li et al. [6] and B. Peng et al. [5], both academic researchers and business managers have acknowledged the significance of CER activities.

Ownership concentration is an important factor that influences companies' environmental responsibility. For the relationship between the CEO's shareholding and performance, S. Marsat et al. [7] investigated the relationship between the CEO's shareholding and the CFP on a sample of companies listed in the SBF 250 index over the period 2004–2008. They showed a curvilinear relationship (in the form of U reversed) between the share held by the largest shareholder and the performance. This relationship is true when the main shareholder is family.

The goal of CER is to maximize the value of stakeholders, who are committed to achieving corporate sustainable development. In recent years, an increasing number of companies have taken the initiative to engage in CER. According to stakeholder theory, CER can build a good reputation among stakeholders, which not only increases firm value but also is a competitive advantage in the market [4, 8].

The choice of the U.S. companies was intentional and not arbitrary. What led me to choose the USA was the fact that it is the country that highlights the importance of CER. In addition, there is a total absence of similar data for other countries for the selected period (2010–2021).

Therefore, this study contributes to the body of knowledge and practice by providing a comprehensive model and results to guide academia and practitioners practice, especially with the present needs of innovation and performance sustainability. This study contributes to the literature in several ways. First, it supports the interaction between CER & CSR and CER & CEO's shareholders on the CFP. Second, we shed light on how the combination between CER and CSR and the combination between CER and CEO's shareholder effect the CFP.

PRIOR LITERATURE AND HYPOTHESES DEVELOPMENT

Corporate Financial Performance and Corporate Environment Responsibility

In recent years, environmental performance and disclosure have become more critical in the business community. A greener, cleaner environment is essential to the survival of every company in the context of the sustainable development promoted in each country. Since the main objective of a company is to maximize shareholder value, it is therefore essential to know the additional value created for companies by conducting environmentally responsible activities. Consequently, many studies have investigated the possible relationship between CER and FP, both in theory and experimentally.

Prior studies in the literature have also emphasized the importance of the relationship between CER and long-term financial performance (D. Devie et al., [9], H. Yumei et al. [10]) suggesting that firms incorporating environmental strategies into their businesses can gain competitive advantages through innovation. Competitive advantages can bring in more business opportunities, such as new markets and consumer segments. Because of the high reputation gained from environmentally friendly activities, environmentally sustainable companies have lower risks of customer loss and higher employee commitment, which in turn contributes to firms' productivity and profits in long run [11].

The positive relationship between CER and long-term financial performance could be explained by stakeholder theory and hypothesis of social impact (E. H. Kao et al. [12]). Moreover, corporate environmental engagement is likely to reduce financing constraints and help environmentally sustainable firms gain green subsidies [13]. Another explanation for the positive relationship between CER and FP is social impact, which claimed that green firms enjoyed a better reputation and corporate image and would reap higher financial performance than other organizations in the long run [14].

A. Sarkar et al. [15] advanced that the majority of the expenditure of CER happened in the initial phase, and the materialization of CER usually takes a long time, especially in the construction industry. The financial performance should be assessed over a long period of time.

Z. Lee et al. [4] studied how environmental responsibility impacted corporate financial performance, as measured by ROE and ROA. By using two different testing methods (OLS and 2SLS) on Korean companies between 2011–2012, the results showed that the relationship between CER and FP was positive and statistically significant. Recently, M. Shabbir and O. Wisdom [16] conducted a study with Nigerian manufacturing companies to examine how investments in the internal environment and investments in the external environment affect the financial performance of the company.

Specifically, companies with higher environmental investments have higher returns than companies that are not environmentally conscious. P. Dimitropoulos and K. Koronios [17] investigated the performance of 7313 corporations in 24 European countries between 2003 and 2018. The experimental analysis results showed that CER created better competitive resources and improved financial efficiency. Similarly, the empirical study of F. Wu et al. [18] with a sample of 141 global construction companies showed that CER increased the return on equity (ROE) and economic value added (EVA) of companies.

We conclude that good environmental management provides companies with a reputational advantage and increased financial performance. The long-term financial benefits of CER include more business opportunities and cost savings, risk reduction, reputation enhancement, and financing advantages.

Therefore, we treat the following hypothesis:

H1: The company's CER is positively related to the company's performance

Corporate Financial Performance (CFP) and CSR

The study of the effect of CSR on the CFP has been rooted in the literature since the 1970s. Several empirical studies have been conducted to elucidate the nature of the causal link between the two concepts. Many researchers have tried to explore the relationship within international markets. For example, S. Brammer et al. [19] examined a negative relationship between CSR and CFP. The main results are as follows:

a) a better financial performance of companies leads to a better commitment to CSR 4;

b) a better CSR does not necessarily lead to a higher ITP.

This work shows a significant and substantial negative impact on CSR and the three measures of the CFP. The extant literature shows that majority of studies in this stream assume that the relationship between CSR and CFP is linear, however, S. Maqbool and A. Bakr [20] concluded that the trend has changed to a non-linear fashion because a simple linear relationship will not sufficiently capture the precise pattern.

B. Yoon and Y. Chung [21] compared the effect of CSR on the CFP of a catering business for internal and external stakeholders. They used two financial measures to capture a company's short-term profitability and market valuation of future profitability. This study revealed that external CSR increases the market value of a company but is negatively related to operational profitability. Internal CSR increases the operational profitability of a company, but has no effect on its market value. This study examines the perspective of CSR stakeholders, taking into account various performance indicators, in order to provide a deeper understanding of CSR and finds that internal and external CSR are meaningful and positive with CFP.

Similarly, it finds a positive relationship between CSR and the CFP. Therefore, we treat the following hypothesis:

H2: Corporate social responsibility is positively related to the company's performance

Corporate Financial Performance and CEO's Shareholding

On a theoretical level, the study of the relationship between shareholding concentration and performance can be analyzed in terms of agency theory and rooting theory. However, according to H. Demsetz [22], the concentration of shareholding is at the origin of divergent interests and conflicts between majority shareholders and minority shareholders (type II agency conflict). For example, when majority shareholders are also managers, they are accused of attributing private profits to the detriment of minority shareholders. In these circumstances, the concentration of shareholding can lead to a phenomenon of entrenchment of the controlling shareholder, detrimental to the performance of the company. Many researchers studied the negative link between the shareholding of the directors and performance. This relationship was observed by K. C. Han and D. Y. Suk [23] in the

USA, and Y. Hu and X. Zhou [24] in China. However, in studies that take into account the endogeneity of the relationship, C.-H.V. Chen and T.-Y.D. Cheng [25] notes that the duality and the shareholding of the managers have negative effects on the performances of the companies.

Moreover, we can think that the influence of the CEO's shareholding depends on their degree of involvement in the company. Therefore, we treat the following hypothesis:

H3: The CEO's shareholding is negatively related to the CFP

Corporate Social Responsibility and Corporate Environmental Responsibility

Corporate environmental responsibility (CER), a derived term from CSR, has attracted the attention of some international industries but has rarely been recognized and targeted in the construction industry.

Corporate social responsibility (CSR) has been intensely discussed across the world for decades, but there is no consensus on the definition. Howard R. Bowen, the "father of CSR" [26], famously argued that social responsibility is not a panacea, but contains a truth to guide business in the future. It means businessmen were responsible for the consequences of their actions in a wider range than just profit and loss. The CER or environmental corporate social responsibility (ECSR), indicates the environmental aspect of CSR, focusing on environmentally responsible business practices that are not (always) required by laws but benefit society [27]. Since then, CSR has embraced a significantly growing discussion, while its definitions have diversified [28] and traced back to 27 definitions of CSR, of which the majority emphasize environmental concerns within the CSR scope.

H4: Corporate social responsibility is positively related to corporate environment responsibility

Corporate Environment Responsibility and CEO's Shareholding

Little research studies the relationship between corporate environmental responsibility and the CEO's shareholding. Our study is among the first. The CER maintains good communication and relationships between listed companies and stakeholders [29]. Also, a good relationship between listed companies and stakeholders is conducive to better partnerships with the transmission and utilization of high-tech resources [30].

According to B. H. Raven [31], the leader who owns the most shares in the company has a direct relationship with key members during board meetings and legitimate processes. In turn, the CEO can further strengthen to assess the quality of business strategy, decision-making process, and open relationships between these parties and encourage investment in research and development. P. Pitcher et al. [32] suggest that the degree of CEO's shareholding in a firm serves as a key indicator to measure the level of power of the CEO, who subsequently makes strategic long- or short-term decisions such as investment in innovation and research in the environment.

Therefore, we treat the following hypothesis:

H5: The CEO's shareholding is positively related to corporate environmental responsibility

In the following, we discuss the indirect effect of the different variables tested (CER, CSR, CEO's shareholding) on the financial performance. Otherwise, whether there is an interaction between these variables and their impact on performance.

We further argue that the relationship that may exist between its variables strengthens and improves performance. To our knowledge, this is the first study that deals with this type of relationship for American companies.

Figure provides an overview of the hypotheses that we developed in the preceding subsections.

Hypothesized model: This is a simplified version of the actual model that does not display the control variables, error terms, or the indicator variables of the latent construct. The observed variables are represented by rectangles.

DATA AND SAMPLE

This paper takes 2010–2021 as the observation years for the U.S.'s listed companies. The collection of financial data is from the DATASTREAM database. The initial sample for analysis was based on the firms included in the international CSR database. The database developed by the MSCI is for research and ratings of the CSR performance of companies. In this research, we excluded the financial and insurance-listed companies. Also, environmental responsibility

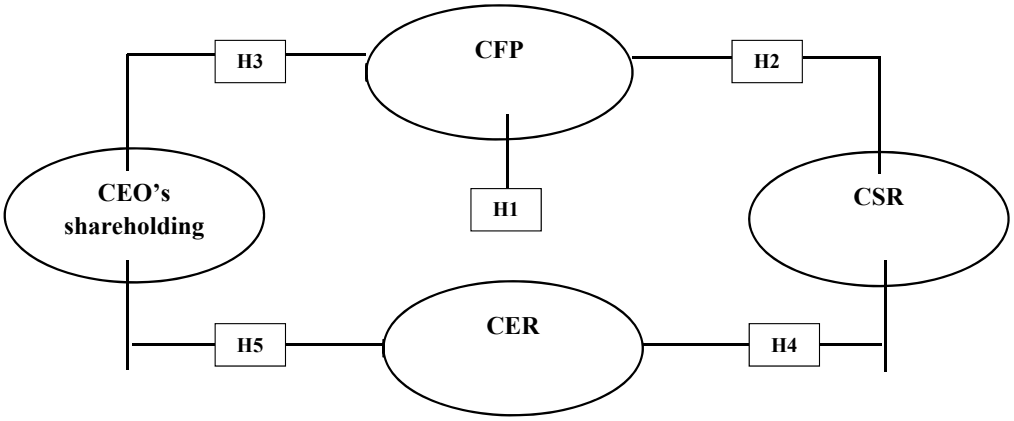

Fig. **Hypothesized design**

Source: Compiled by the author.

behavior data comes from the corporate environmental responsibility score in the social responsibility report evaluation system of U.S.-listed companies. In addition, in order to mitigate the interference of outliers on the study findings, the 1% and 99% percentiles of variables were zeroed out. After removing and related data from listed companies with missing data, the above data were matched to obtain a final sample of 620 observations.

Variables and Empirical Model

In this study, we defined all variables as follows:

A. Dependent variables

ROA = Net income / total average assets

ROE = Net income / total average equity

Tobin's Q = Market Value of Equity + Book Value of Debt) / Carrying Value of Total Assets

B. Independent variables

CER: Environmental responsibility score of listed companies provided by the U.S.

CSR: Corporate social responsibility.

CEO share: does the company director admit shares in this company (dummy variable 0 or 1)? Is it to be consider according to the compensation of the CEO remuneration shareholders or not?

A. Control variables

There are some indicators like Leverage ratio (LEV), business size measured by the natural log of total assets (Size), Annual Sales Growth Rates (AGE), Inflation (INF), Gross domestic product (GDP), Annual Sales Growth Rates (GROWTH).

Empirical Model

In this study, there are three model.

Thus, we will estimate each three-model specification (M1, M2 and M3) by GMM for U.S.-listed companies in the sample studied. The GMM method we used is the "Generalized Moments" method in dynamic panel.

The models are estimated as follows:

$$CERi,t = \alpha 0 + \alpha i CERi,t-1 + \beta 1 CEOsharei,t + \beta 2 CSRi,t + \varepsilon_{it} \quad \text{(M1)}$$

$$Performance\,i,t = \alpha 0 + \alpha i\ Performance\,i,t-1 + \beta 1 CERi,t + \beta 2 CEOsharei,t + \beta 3 CSRi,t + \\ + \beta 4\ Levi,t + \beta 5 SIZEi,t + \beta 6 GROWTHi,t + \beta 7 AGEi,t + \beta 8 GDPi,t + \beta 9\ INFi,t + \varepsilon_{it} \quad \text{(M2)}$$

$$Performance\,i,t = \alpha 0 + \alpha i\ Performance\,i,t-1 + \beta 1\left(CEOsharei,t * CERi,t\right) + \beta 2\left(CSRi,t * CERi,t\right) + \varepsilon_{it} \quad \text{(M3)}$$

In the formula, the subscript *i* indicates the individual firm (*i* = 1,...620), represents the time (*t* = 1... 11), CER*i*, *t* is the corporate environment responsibility — CEO share is the CEO's shareholding — GROWTH, SIZE, AGE, GDP, Lev and INF are the control variables, α_0 , β0 is the constant term, β*i* (*i* = 1, 2, 3, 4,...9) are the coefficients of variables, and $\varepsilon_{i,t}$ is labelled as an error term.

Model 1 is the regression model of CSR and CEO's shareholding on CER, that is, hypotheses H4 and H5. Model 2 is the regression model of CFP between control variables and explained variables. This model is applied to confirm the following hypotheses: H1, H2 and H3. On the basis of model 3, the interactive term between the CEO's shareholding and CER is added to test the moderating effect of CFP.

EMPIRICAL RESULTS

Descriptive Statistics Correlation Analysis

Table 1 presents the descriptive statistics for the explanatory variables and the variable to explain used in our model (2010–2021). The observation numbers of the different variables are not identical. This is explained by the missing CSR data for some companies. The mean values of Tobin's Q, ROA and ROE are 1.334, 3.346 and 6.643, respectively. CER has a mean of 3.37% and the CEO share is 0.163. Firm size has a mean of 16.04. The mean values of age, leverage, inflation, and gross domestic product are 3.971, 0.228, 0.009 and 6.339, respectively.

Table 2 is the correlation analysis of the main variables. The analysis results show that the correlation coefficient between CER of listed companies and CSR is 0.148, which passes the significance test at the 1% confidence level, indicating a significant positive correlation between CER of listed companies and CSR. Meanwhile, most of the control variables passed the significance test at the 1% and 5% levels, respectively, demonstrating that this paper's control variables are reasonable. In addition, the correlation coefficients between variables are all less than 0.5, reflecting no serious multicollinearity problem.

Interaction Between CER and CSR and Relation Between CER and CEO Shareholding

The estimation of the M1 model shows that all the variables are significant (*Table 3*). Concerning the first explanatory CSR variable, measure whatever by the existence of the reward of corporate responsibility or by community score / reward of corporate responsibility has a significant and positive effect on CER. This positive effect shows that the CSR index positively and significantly influences the development of CER. The result found allows us to validate our hypothesis that "CSR is positively related to CER".

Also, the finding shows that the second explanatory variable, CEO share measured by the existence of the CEO's shareholding in the company, has a significant and negative effect on the CER whatever the value of CSR. This negative effect shows that the existence of the CEO's shareholding in the company negatively and significantly influences the development of CER.

Relation Between CFP, Independent Variable and Control Variable

The M2 model estimate shows that the CER has a significant and negative effect on the CFP in the ROA and ROE (*Table 4*). Also, according to the table above, CER has a positive and significant influence on the CFP measured by Tobin's Q. So, we can conclude that in the case where CER influences the CFP negatively, we find that investments in CER decrease current profits. That is not the case we expected, because it takes years for CER to realize profit. In our case, the CER investments in our period of research will be considered costs. However, CER is not free; normally, the CEO's shareholding in the company has a significant and positive effect on the CFP, in the ROE and Tobin's Q specifications. Thus, the CEO's shareholding positively and significantly influences the CFP, as measured by Tobin's Q and ROE specifications. The shareholding is positively associated with the CFP measured by the ROE and Q of Tobin and seems to provide better control of the firm.

Our results prove that the CSR variable, measured by any CSR index, has a significant and positive effect on the CFP in the ROE specification. This positive effect shows that CSR positively and significantly influences the CFP, as measured by the ROE specification. It can be concluded that the application of CSR is related to a higher enterprise value and, subsequently, an improvement in the financial performance of the firm as measured by the ROE. There is a positive relationship between CSR and the CFP (ROE). Subsequently, companies that have social responsibility can enhance the reputation of the company and reduce financial risk because CSR creates

Table 1

Descriptive Statistics

Variable	Mean	Std.Dev	Min	Max
Tobin's Q	1.333816	1.312053	0	13.539
ROA	3.346266	11.51885	−94.82	63.89
ROE	6.642832	61.00685	−1011.76	283.207
CER	0.0373403	0.098744	−0.0073624	1.415275
CEOshare	0.1639344	0.370596	0	1
CER CEOshare	0.1639344	0.370596	0	1
SIZE	16.04077	1.720177	9.662753	19.45809
GROWTH	11.51518	96.32205	−43.11	2102.75
AGE	3.971474	0.9066033	0	5.749393
LEV	0.2284621	0.1375132	0	0.7249
INF	0.009875	0.0072087	0	0.021
GDP	6.339403	0.0190057	6.313523	6.371639

Source: Compiled by the author.

Table 2

Correlation Matrix

	Tobin's Q	ROA	ROE	CSR	CER	CEO share	CER CEO share	SIZE	GROWTH	AGE	LEV	INF	GDP
Tobin's Q	1.000												
ROA	0.0474	1.000											
ROE	0.0467	0.4289*	1.000										
CSR	0.0548	−0.2322*	0.1487*	1.000									
CER	0.3749*	−0.4736*	−0.1946*	0.148	1.000								
CEOshare	−0.1092*	0.0271	0.0138	0.0432	−0.0901*	1.000							
CER CEOshare	−0.1092*	0.0271	0.0138	−0.0316	−0.0901*	1.0000*	1.000						
SIZE	−0.5421*	0.1989*	0.1029*	−0.0089	0.4798*	0.1938*	0.1938*	1.000					
GROWTH	0.0578	−0.1681*	−0.0317	0.0432	0.1487*	−0.0290	−0.0290	−0.1686*	1.000				
AGE	−0.0657	0.2603*	0.1004*	0.1224*	−0.2322*	−0.0919*	−0.0919*	0.2631*	−0.0779	1.000			
LEV	−0.2896*	−0.1117*	−0.1141*	−0.0089	−0.2154*	0.0359	0.0359	0.1668*	−0.0863	0.0723	1.000		
INF	−0.0933*	−0.0007	−0.0159	−0.0901*	0.0681	−0.1214*	−0.1214*	−0.0394	0.0764	−0.0442	−0.0339	1.000	
GDP	0.1260*	0.0275	−0.0133	0.4798*	−0.0576	0.2242*	0.2242*	0.0836	−0.0397	0.0746	0.0778	−0.4309*	1.000

Source: Compiled by the author.

Note: * $p < 0.1$: significant at the 10% threshold.

Table 3

Interaction Between CER and CSR and Relation Between CER and CEO Shareholding

Dependent variable	(M1)
	CER
CSR	0.0000854 (19.87)***
CEO share	−0.0012547 (−5.76)***

Source: Compiled by the author.

Note: *** p < 0.01: significant at the 1% threshold. CER, CSR: corporate social responsibility, CEO share: CEO's shareholder.

a positive relationship with customers and staff, which increases the competitiveness of staff and increases the acquisition of new projects.

The variable SIZE has a significant and negative effect on the company's financial performance in Tobin's Q and ROA. We can conclude that large companies have lower values. Also, the annual sales growth rate has a significant and positive effect on the CFP, taking into consideration the ROE and ROA. So, the annual sales growth rate positively and significantly influences the company's financial performance. Therefore, we can conclude that when the leverage ratio in the firm is significantly positive on Tobin's Q. In this case, the market does not favor the risks and, therefore, discounts the value of the company for an effect.

Effect of Complementarity or Sustainability Between CER and CSR on CFP and Between CER and CEO Shareholding on CFP

The empirical results of Model M3 show that the CER * CSR, measured by the combination of CSR and CER, has a significant and positive effect on the CFP in Tobin's Q and has a negative effect on ROA (*Table 5*). Therefore, when the combination of CSR and CER positively and significantly influences the company's financial performance, as measured by Tobin's Q.

The estimation proves that the CER * CEO has a significant and positive effect on the company's financial performance in Tobin's Q and ROE. This positive effect shows that the combination of the CEO's shareholding and CER positively and significantly influences the CFP. We can conclude that we find a positive and significant result between the CER/CEO share and the CFP (ROE, Tobin's Q), which indicates that the market is putting higher value on the CER spending that performs better on the shareholding of the CEO.

CONCLUSION

Performance is a complex and multidimensional concept that integrates different dimensions to define it and different measurement indicators because it remains a matter of perception and all actors do not have the same perception of performance. It is related to the company's vision, strategy and objectives. It is in the sense that the performance of a company can be measured from different angles and is not limited solely to its financial dimension. This study examined the importance of corporate environmental responsibility on the performance of American companies and its complementarity with and participation of the CEO's shareholding. The underlying factors contributing to the enhancement of U.S. firm's ROA and EVA margin were decomposed by panel data regressions. Our research focuses primarily on the impact of CSR, CER and CEO's shareholding on the CFP. We study the relationship between CER and CSR and the relationship between CER and CEO's shareholding, and then study its impact on the company's performance. The CER is an important channel for U.S.-listed companies, and the government must become aware of and strengthen it. We conclude that the interaction between CSR and CER can create a good image for the company, which gives credibility to its CER. On the other hand, there is substitutability between the CEO's shareholding and CER. The closer the shareholder is to the company, the more he is afraid to take the risk, and the more he does not invest in the CER. Also, regarding the link between CER and CFP, there is both a negative relationship when CFP is measured by ROA or ROE and a positive and significant relationship when CFP is measured by Tobin's Q. So, CER investments for the given period are thus considered costs.

This study has significant contributions to the literature. It responded to the debate on the strength and driving forces of the correlation between corporate environmental responsibility and financial performance for U.S.-listed firms. The results supported the idea that the effort of taking CER was valued by the market in general. The results demonstrate that U.S. companies

Table 4

Relation Between CFP and Independent Variable and Control Variable

DEPENDENT VARIABLE	Tobin's Qs	ROA	ROE
CER	2.578456 (2.40)***	2.448548 (4.18)***	2.5549291 (4.18)***
CEO share	0.0804982 (4.39)***	−0.18778 (4.72)***	0.1514778 (4.73)***
CSR	−0.0505763 (−1.46)	0.0001518 (0.51)	−0.012564 (−0.49)
SIZE	−0.0325644 (−7.55)***	−0.0776107 (−7.35)***	−0.0757063 (−7.35)***
GROWTH	−0.0084521 (−0.23)	−0.0214149 (−0.38)	−0.0001156 (−0.30)
AGE	−0.2452186 (−4.63)***	−0.5989895 (−4.37)***	−0.2741019 (−3.38)***
LEV	0.6598423 (5.55)***	0.3679983 (5.36)***	0.7177014 (5.67)***
GDP	0.1583565 (14.67)***	0.2574177 (11.32)	0.3864648 (12.16)***
INF	−6.1254792 (−9.11)***	−5.038323 (−8.72)***	−6.152677 (−8.84)***

Source: Compiled by the author.

Note: *** p < 0.01: significant at the 1% threshold. CER, CSR 1 / 2/3: corporate social responsibility, CEOshare: CEO's shareholder, SIZE: company size, GROWTH: annual sales growth rate, AGE: the age of the company, LEV: the leverage effect, GDP: gross domestic product; INF: inflation.

Table 5

Effect of Complementarity or Sustainability Between CER and CSR on CFP, and Between CER and CEO Shareholding on CFP

Variables	M3		
	Tobin's Q	ROA	ROE
CER*CEO share	0.054789 (2.73)***	0.547852 (12.14)***	10.05897 (16.82)***
CER*CSR	0.5894001 (4.67)***	−1.8692 (−12.24)***	−16.5822 (−14.66)***

Source: Compiled by the author.

Note: *** p < 0.01: Significant at the 1% threshold. CER*CSR: Combining corporate social responsibility and corporate environmental responsibility, CER*CEO share: Combination of the CEO's shareholding and corporate environmental responsibility.

that have social responsibility value the CER more highly and show better performance. Therefore, companies that have a social responsibility can enrich the reputation of the company and reduce financial risk because CSR creates a positive relationship with customers and staff, which increases the competitiveness of staff and increases the acquisition of new projects. Also, listed companies should understand the value creation effect of CER because environmental responsibility should not be regarded as a wrong allocation of resources but as an essential tool to enhance the company's value. At the same time, we should strengthen advertising efforts, improve the transparency of CER, attract more stakeholders' attention, and exert the reputational effect of environmental.

In addition, when making strategic decisions, both economic and social benefits should be considered. CEOs should be encouraged to promote corporate environmental responsibility within their capacity while improving the performance of listed companies, which indicates that the companies that have the shareholding of the CEO value the CER expenses to show better performance.

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ABOUT THE AUTHOR

Fatma Hachicha — Assoc. Prof., Department of Finance, Institute of High Business Studies of Sfax, Sfax, Tunisia
http://orcid.org/0000-0002-0999-0448
hachicha_fatmaa@yahoo.com
fatma.hachicha@ihecs.usf.tn

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