sustainability

MDPI

Article

Does a Board Chairman's Political Connection Affect Green Investment?—From a Sustainable Perspective

Kai Wang [1], Hao-Min Zhang [2,*], Sang-Bing Tsai [3,*], Li-Dong Wu [4,*], Kun-Kun Xue [4], He-Jun Fan [1], Jie Zhou [5,*] and Quan Chen [3,*]

1 College of Business Administration, Capital University of Economics and Business, Beijing 100070, China; wangkai@cueb.edu.cn (K.W.); fanhj@cueb.edu.cn (H.-J.F.)
2 School of Business, Macau University of Science and Technology, Macau 999078, China
3 Zhongshan Institute, University of Electronic Science and Technology of China, Zhongshan 528402, China
4 China Academy of Corporate Governance, Nankai University, Tianjin 300071, China; 1120150846@mail.nankai.edu.cn
5 College of Tourism and Service Management, Nankai University, Tianjin 300071, China
* Correspondence: zhoujie_1980@126.com (J.Z.); hmizhang@must.edu.mo (H.-M.Z.); wld@nankai.edu.cn (L.-D.W.); sangbing@hotmail.com (S.-B.T); zschenquan@gmail.com (Q.C.)

Received: 17 January 2018; Accepted: 22 February 2018; Published: 26 February 2018

Abstract: Using a sample consisting of China's listed manufacturing companies which issue A-shares on the Shenzhen and Shanghai stock exchanges from 2008–2014, this study empirically tests the relationship between board chairman's political connections and the amount of energy conservation and emission reduction investment. The results show that the existence of politically-connected board chairmen positively affects green investment. In addition, marketization degrees negatively moderate the relationship between political connection and green investment, which supports an institutional logic perspective. The amount of redundant resources also has the same moderating effect, which is consistent with the resource exchange perspective.

Keywords: green governance; green operation; political connection; resource exchange; manufacturing industry; sustainability

1. Introduction

China's economy has achieved rapid development since the reform and opening-up policy in 1978. At the same time, China has also witnessed various problems, such as wasting resources and air pollution. To deal with these problems, China's manufacturing enterprises have been encouraged to implement green practice, such as energy conservation and emission reduction in recent years. Under these circumstances, energy conservation and emission reduction investment (ECERI) has gradually become an important management decision in these enterprises. Listed manufacturing enterprises began to disclose the information about ECERI in their annual reports, announcements, and social responsibility reports. A stream of literature emerges to analyze the determinants that affect the disclosure of this kind of information [1–7] and the relationship between environmental disclosure and firms' performance [8,9]. However, few studies focus on ECERI and explores what affects the amount of ECERI. This paper tries to fill the blank by examining how political connection affects ECERI.

Nowadays, the concept of 'green governance' has become increasingly popular in both academic and practical circles. The concept can be interpreted in two ways. First, it means taking actions to support a green environment, such as resource conservation [10]. Second, it means using governance mechanisms to influence firms' green practices. In this paper, we adapt the second definition and test how board chairman's political connection, which is one of corporate governance variables,

affects green investment (ECERI). There exist some studies which test the relationship between corporate governance and environmental performance [11,12]. However, these studies mainly focus on board structure or external governance mechanisms. There is a stream of research discussing the role of political connection in listed companies' operation decisions, such as tax payment [13], financing [14,15], and quality management activities [16]. A more recent study argues that political connections are also important parts of governance structures, and plays a key role in China [17]. However, few studies test how political connections affect green investment. In this paper, we try to explore the relationship between board chairmen's political connection and the amount of ECERI.

Specifically, based on neo-institutional theory and resource dependence theory, this paper identifies the following two channels through which board chairman's political connections impact ECERI. The first channel refers to the decision-making logic where the politically-connected board chairmen behave similarly to government officials [18] and push listed companies to invest more in ECER to achieve the government's goal. The second channel suggests that since political connection can bring resources to listed companies [19,20], companies may invest more in ECER in return. Due to the existence of these two channels, we can argue that listed companies with politically-connected board chairmen will invest more in ECERI. In addition, we introduce two moderating effects. According to the channel of decision-making logic, we argue that if the marketization degree of the region where a listed company is located is higher, the degree of government intervention in decision-making through political connection will decrease and the influence of political connection on ECERI will also decrease. According to the channel of resource exchange, we argue that if a listed company has enough redundant resources, it will rely less on political connection to bring more resources, which means the influence of political connection on a firm's decisions will decrease.

Upon the analysis of China's manufacturing companies listed in Shenzhen and Shanghai stock exchanges from 2008–2014, we test the above hypotheses, and find that all of them are supported. The results are robust after changing variable measurements and considering endogenous problems and sample selection bias. Our findings contribute to the literature in several ways. First, we open the black box of China's manufacturing enterprises' green governance by analyzing the relationship between board chairmen's political connection and the amount of ECERI and the channels through which political connection can impact ECERI. Second, extant empirical findings about whether political connection can benefit listed companies are mixed [20,21]. This is because scholars try to explain the roles of political connection from different perspectives. We contribute to the literature by integrating two different perspectives of political connection and how it affects the amount of ECERI. Lastly, this paper also contributes to the literature with regard to environmental performance. When measuring environmental performance, some scholars use the amount of chemical waste emissions [12,22] while other scholars use ratings from a third party. In this paper, we use the data about the ECERI amount collected from China's manufacturing firms' social responsibility reports to measure their environmental performance. Although the size of our sample is limited, we have adopted a new method of measurement.

The rest of our paper involves five more sections. Section 2 is a literature review; Section 3 is a hypotheses development; Section 4 is the research design; Section 5 presents the empirical results; and Section 6 presents the conclusions.

2. Literature Review

2.1. Environmental Performance

When analyzing why firms disclose environmental information, scholars began to take environmental performance into consideration and explore the relationship between environmental performance and environmental disclosure. The results are not consistent. Some studies find a negative relationship between them. For example, Hughes et al. (2001) found that US manufacturing firms, which have a worse environmental performance measured by ratings from a third party,

are more likely to disclose environmental information especially in documents required to be disclosed by the government [23]. Similarly, Clarkson et al. (2011) found that firms with worse environmental performance are more likely to disclose environmental information, as well as disclose more in the indices viewed as objective and verifiable by Global Reporting Initiative Guidelines [24]. Using a sample of China's firms operating in the steel industry, Liu et al. (2011) also obtained the same conclusions [25]. However, conclusions in other studies show the opposite. For instance, Al-Tuwaijri et al. (2004) measured environmental performance using the ratio of toxic waste recycled to the total toxic waste generated and explored the relationship between environmental performance, environmental disclosure, and economic performance after solving the endogenous problem. They found that firms with better environmental performance are more likely to disclose environmental information and these firms also usually have better economic performance [22]. Luo and Tang (2014) examined the relationship between voluntary carbon disclosure and underlying carbon performance and found that carbon performance positively affects carbon disclosure, which supports the signaling theory [26]. The reasons why the above results are mixed may be because the relationship between environmental performance and environmental disclosure depends on whether firms operate in environmentally-sensitive industries or not [27].

In addition, there are a few scholars who examined the relationship between corporate governance and environmental performance. Some scholars found no relationship between good corporate governance and good pollution performance [11]. However, by using the amount of waste released to measure environmental performance, Kock et al. (2012) found that some corporate governance mechanisms such as board of directors, managerial incentives, corporate control market, and the legal and regulatory system play an important role in determining environmental performance [12]. Jo and Harjoto (2012) clarified the casual relationship between corporate governance and CSR engagement. They found that lagged corporate governance variables positively affect CSR engagement not the opposite. They use a CSR composite index, which takes environmental protection into consideration, to measure a firm's CSR engagement [28].

In the context of China, it is somewhat difficult to measure environmental performance since little regulation exists in environmental disclosure [25]. We notice that some listed companies disclose the amount of ECERI in their social responsibility reports, which can be used to measure China's listed companies' environmental performance. Along with the development of the literature, this paper explores the relationship between a corporate governance variable and the amount of ECERI. We focus on one specific corporate governance mechanism called political connection since it is very common and plays an important role in China's listed companies. By doing this, we try to enrich the literature on green governance.

2.2. The Roles of Political Connection

Political connection is one important corporate governance structure variable. Existing studies related to political connection are already abundant since this concept was first proposed in 1974 by Krueger. There are two different perspectives among these studies. First, some scholars think political connection may bring harm to listed companies. For example, Fan et al. (2007) found that firms with political connections underperform those without political connections. Additionally, firms with political connections show inadequate growth. They argue that through political connection, the government can extract rent from the listed companies since these politically-connected CEOs pay more attention to their political career, which harms companies' long-term performance [21]. Following this argument, other scholars examine how rents are extracted. For instance, Wang et al. (2008) found that firms with political connections are more likely to hire small local auditors. They argue that this phenomenon can be explained by these firms' collusion incentives [29]. Chaney et al. (2011) empirically test the relationship between political connections and the quality of earnings. They document that the existence of political connections negatively impact the quality of earnings since these firms do not need to respond to market pressures [30]. Huang et al. (2012) explore the reasons why firms in mainland

China try to be listed in Hong Kong, and find that greater needs to fund growth and expand foreign sales are not major factors. Instead, the cross-list decision can be explained by political connections to a large extent [31]. Li et al. (2015) analyze how political connections affect corporate philanthropy. They find a positive and significant relationship between political connections and the likelihood of corporate philanthropy [32]. In addition to corporate philanthropy, firms with political connections may undertake other kinds of social responsibility, such as hiring more employees and creating more plants when the regions where they are located suffer from large unemployment problems [18,33]. Furthermore, firms with political connections are more tax aggressive [34]. Wang (2015) empirically tests politically-connected independent directors' roles in China's listed companies and finds that, for both private and state-owned companies, the existence of this kind of independent director can lead to more related-party transactions [20].

The second perspective shows that political connection is helpful for listed companies since it can bring resources to listed companies. Consistent with this argument, Berkman et al. (2010) argue that, firms with politically-connected block holders do not benefit from the regulations which aim to improve minority-shareholder protection since this kind of connection is helpful for firms that minority shareholders do not want to lose block holders' support for firms [35]. Niessen and Ruenzi (2010) compare both accounting performance and market performance between politically-connected firms and unconnected firms. They found that politically-connected firms' performance is better [36]. Using survey data, Sheng et al. (2011) examine the roles of business ties and political ties in different institutional and market environments. They find that, when government support is weak and technological turbulence is low, political connection can bring greater performance [37]. When analyzing the relationship between corporate philanthropy and performance, Wang and Qian (2011) argue that firms with political connection rely less on philanthropy since political connection, itself, can benefit them [38].

What kinds of resources can political connection bring into listed companies? Scholars provide different empirical evidence. First, it can bring financial support. Claessens et al. (2008) examine how political contribution affects firms' access to banking in the context of Brazil where firms that contribute to elected federal deputies increase their bank financing significantly [14]. Using corruption scandals as a natural experiment, Fan et al. (2008) compared the access to finance between politically-connected firms and unconnected firms after the arrest of corrupt officials. They found that connected firms have a significant decline, which supports the idea that political connection can bring a financial advantage [39]. Li et al. (2008) find that China's private enterprises' party membership can help them to obtain more loans from banks and other state agencies [40]. Chan et al. (2012) tested the relationship between political connection and financing constraints. They found that, compared with firms without political connection, politically-connected firms experience less financing constraints [19]. Liu et al. (2013) examined the role of political connection in the Chinese IPO market and found a positive relationship between political connection and the possibility of IPO approval [15]. In addition to financial access, Houston et al. (2014) explored how political connection affects the cost of bank loans and found that firms with political ties usually have lower bank loan costs [41]. Second, it can bring favorable policies. For example, Bunkanwanicha and Wiwattanakantang (2009) found that, in Thailand, business owners with political connection try to implement policies which hinder domestic and foreign competitors from using their policy-decision powers [42]. Third, it can bring government subsidy. Johnson and Mitton (2003) argue that, since investors expect firms with strong ties to Prime Minister Mahathir in Malaysia to receive more government subsidy, their market value increased significantly after the Asian financial crisis [43]. Tahoun (2014) focused on a specific kind of political connection, which was stock ownership by politicians. He found that firms with this connection can receive more government contracts [44]. Fourth, it can decrease the effective tax rate (ETR). Adhikari et al. (2006) examined the link between political connections and ETR. They found that firms with political connections have a lower ETR, which supports the idea that Malaysia is a nation with relation-based capitalism [13].

In this paper, we try to integrate these two different perspectives and analyze the relationship between political connections and the amount of ECERI. It is worth mentioning that, in China, the role of the board chairman is more important than that of CEO in a listed company and, therefore, this paper focuses on board chairmen's political connections.

3. Hypotheses Development

3.1. The Impact of Board Chairmen's Political Connection on ECERI

We argue that board chairmen's political connections affect the amount of ECERI through two different channels. First, in recent years, scholars focused on neo-institutional theory have developed a new perspective named the institutional logic [45]. According to this perspective, the decision-making logic of different people is different. Politically-connected board chairmen's decision-making logic is identical to government officials since they are incumbent or retired officials [21]. In China, the evaluation of government officials is not only based on economic performance, but also based on environmental performance and other indicators, especially after the proposal of the Scientific Outlook on Development. Similarly, politically-connected board chairmen also have multiple tasks in addition to earning money. There exist some studies providing empirical evidence for this argument. For example, Fisman and Wang (2015) study the relationship between Chinese firms' political connection and workplace fatalities. They found that the existence of political connections increase the worker death rate. However, if firms are located in provinces where government officials' promotion is contingent on meeting safety quotas, the political connection-mortality relationship will be weaker [46]. Since politically-connected board chairmen begin to pay more attention to environmental performance, firms with such chairmen will invest more in ECER than those without one. This institutional logic perspective is similar to the first role of political connection, which involves the idea that politically-connected chairmen have multiple objectives at the same time.

Second, according to resource dependence theory, firms often try to introduce someone from the outside to avoid environmental uncertainty [47,48]. The establishment of political connection is one of the specific ways. Through political connection, firms can obtain necessary resources and legitimacy [49]. Many studies in the literature review also provide empirical evidence for this argument. However, resource dependence theory can only explain the first half of a whole story. To explain the second half of the story, we propose a resource exchange perspective. In particular, political connection can bring resources to firms, such as government subsidy, financing, and so on. In return, these firms try to meet government's needs. This perspective is consistent with both roles we have reviewed. Based on the resource exchange perspective, we argue that firms with politically-connected board chairmen will invest more in ECER in return for the benefits brought by political connection.

Taking the above two channels into consideration together, we hypothesize that board chairmen's political connection is positively related to the amount of ECERI. Our first hypothesis is:

Hypothesis 1. *Firms with politically-connected board chairmen will have more ECERI than those without such chairmen.*

3.2. The Moderating Effect of Marketization Degree

In order to test the institutional logic channel, we introduce the moderating effect of marketization degree in regions where firms are located. With the development of marketization, the dominant role of government officials' decision-making logic will decrease. This is because a higher marketization degree could decrease the extent to which government officials or politically-connected chairmen intervene in the listed companies' decision-making. There are some studies providing empirical evidence for this argument. For instance, Wang et al. (2008) found that in regions where institutions are less developed, the relationship between political connection and low auditing quality is more evident [29]. Yuan (2008) found that the existence of political connection reduces the sensitivity

of CEO turnover to firm performance, which supports our institutional logic perspective [18]. However, such a reduction is mitigated by stronger institutions. Following this argument, we propose our second hypothesis.

Hypothesis 2. *The marketization degree of the region where a firm is located moderates the relationship between board chairmen's political connection and the amount of ECERI.*

3.3. The Moderating Effect of Redundant Resources

In order to test the resource exchange channel, we introduce firms' redundant resources as another moderating effect. Ozer et al. (2010) argue that resources brought by political connection are not helpful for firms' long-term development and firms should have their own valuable resources [50]. If firms have redundant resources and make full use of them, they can achieve a sustainable competitive advantage [51]. In addition, with these redundant resources, firms will rely less on government support through political connection and it would be unnecessary to invest heavily in ECER to meet the government's need. Scholars also justify this argument by finding that political connection is only helpful for firms' performance or investment when firms have no other available access to necessary resources. However, once firms become capable of achieving resources through other ways, the role of political connection will become less important [37,40,52]. Accordingly, we propose our third hypothesis.

Hypothesis 3. *The amount of redundant resources owned by a firm moderates the relationship between board chairmen's political connection and the amount of ECERI.*

A theoretical model of this paper about how board chairmen's political connection affects the amount of ECERI is provided in Figure 1. Words in square frames of Figure 1 represent variables we are interested in, while words in oval frames represent the influence mechanism between variables.

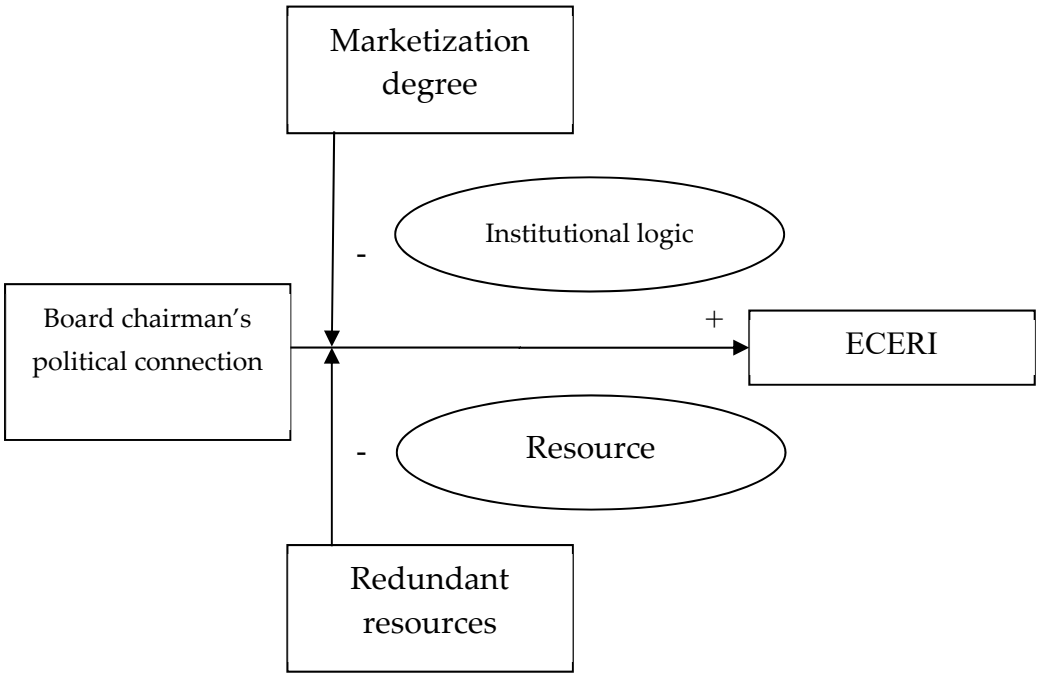

Figure 1. Theoretical model about how board chairmen's political connections affect the amount of ECERI.

4. Research Design

4.1. Sample and Data Sources

To test our three hypotheses, we focus on China's listed manufacturing companies that have disclosed information about the amount of ECERI. In China, the government does not force listed companies to disclose information on ECERI. However, some listed companies voluntary disclose how much money they invest in saving energy and reducing emissions through their social responsibility reports, which bring us a good opportunity to examine the relationship between political connections and ECERI. Therefore, we use an original sample consisting of China's listed manufacturing companies which issued A-shares on Shenzhen and Shanghai stock exchanges between 2008 to 2014 (ECERI data is available in this period). There are two stock exchanges in China's capital market: the Shenzhen Stock Exchange and Shanghai Stock Exchange. If a company issues shares in RMB in these two stock exchanges, the shares will be called A shares. However, if a company issues shares in a foreign currency, the shares will be called B shares. A shares can be bought by only domestic investors while B shares can be bought by foreign investors. Since the investors are different, the corporate governance mechanisms are also different. In this paper, we only focus on firms which issue A shares. We hand-collected the ECERI data from every listed company's social responsibility report. We collected the marketization index from the Fan et al. (2011) study [53]. We use the proportion of liquid assets in total assets to measure the amount of redundant resources and obtain the data from the China Stock Market and Accounting Research Database. The data about other variables is also from the China Stock Market and Accounting Research Database. After excluding observations with missing data and firms with special treatment (this refers to the domestic listed companies operating at a loss for three consecutive years and being warned of delisted risk), our final sample includes 146 observations (including 30 firms). Furthermore, in order to mitigate the influence of outliers and data errors, we winsorize all continuous variables at the 1% and 99% levels.

4.2. Measurements

Our dependent variable is ECERI, which is measured as the amount of ECERI divided by revenue. In social responsibility reports, firms in our sample disclosed how much they invested in ECER. The independent variable is board chairmen's political connection (BCPC). Consistent with Fan et al. (2007), this variable is a dummy variable, which takes the value of one if the company's board chairman is or has been a government official, and zero if not [21].

To test the last two hypotheses, we introduce two moderate variables. The first one is the marketization degree of the region where the company is located (md). The marketization index, which was developed by Fan et al. (2011), is used to measure this variable [53]. There are geographical inequalities in China, which means the institutional development level varies from province to province. Fan et al. (2011) developed a set of marketization indices to measure the institutional development levels in different provinces [53]. The second one is firms' amount of redundant resources (rr), which is measured as the proportion of liquid assets compared to total assets. The more liquid assets, the more adequate resources are available for a firm to deal with unexpected situations [51].

We also choose some control variables based on existing studies about R and D investment (such as in Reference [54]) since the decision of ECER investment is similar to that of R and D investment and there is little empirical research on ECERI. First, we control some variables about a firm's characteristics, including firm size (size), measured as the natural logarithm of total assets. Firms with larger sizes are more capable of investing in ECER. Return on assets (roa) is measured as net profit divided by total asset. Firms which are more profitable are more likely to take part in green investment. Firm age (age) equals the number of years since the company was listed. We expect that younger firms are more likely to take part in green investment since they need greater legitimacy. Second, we control some corporate governance variables. As mentioned, some scholars find that corporate governance has a significant influence on environmental performance [12,28]. Additionally, ECERI is an important decision for

listed companies in the manufacturing industry, which is why shareholders and boards of directors must be involved in it. These variables include the shareholding ratio of the largest shareholder (no1share) measured as the largest shareholder's number of shares divided by the total number of shares, the proportion of independent directors (pid) measured as the number of independent directors on the board divided by the size of board, the nature of the actual controller (state), which is a dummy variable taking the value of one if the firm is state-owned and zero if not. In addition, we control the year fixed effect (year).

4.3. Regression Models

In this paper, we use the OLS regression analysis to explore the relationship between the above variables. When testing the moderating effects, we add two interaction terms which consist of the independent variable and moderate variables into regression, respectively. Our regression models are shown below:

$$ECERI = \alpha + \beta_1 * bcpc + \beta_2 * size + \beta_3 * roa + \beta_4 * age + \beta_5 * no1share + \beta_6 * pid + \beta_7 * state + \beta_8 * \sum_{i=1}^{6} year \quad (1)$$

$$ECERI = \alpha + \beta_1 * bcpc + \beta_2 * md + \beta_3 * md * bcpc + \beta_4 * size + \beta_5 * roa + \beta_6 * age + \beta_7 * no1share + \beta_8 * pid + \beta_9 * state + \beta_{10} * \sum_{i=1}^{6} year \quad (2)$$

$$ECERI = \alpha + \beta_1 * bcpc + \beta_2 * rr + \beta_3 * rr * bcpc + \beta_4 * size + \beta_5 * roa + \beta_6 * age + \beta_7 * no1share + \beta_8 * pid + \beta_9 * state + \beta_{10} * \sum_{i=1}^{6} year \quad (3)$$

5. Empirical Results

5.1. Descriptive Statistics

Table 1 shows the descriptive statistics of variables in the above regression models. The mean value of ECERI is 0.4%, and its maximum value is only 6.6%, which indicates that most of China's listed manufacturing companies take only a small portion of their earnings to invest in green practices. Additionally, 31.5% of companies in our sample are hiring board chairmen with political connections, which is consistent with the findings from the Shi et al.'s (2014) argument that political connection is common among China's companies [17]. The mean value of no1share is 40.7% and its maximum value is as high as 74.3%. These results are consistent with the characteristics of China's listed companies. The proportion of the largest shareholders is high and Type Π agency problems are serious [55]. On average, 36.3% of directors are independent directors and 78.1% of companies are state-owned. After winsorize processing, all the continuous variables have no outliers.

Table 1. Descriptive statistics.

Variable	Obs	Mean	SD	Min	Max
ECERI	146	0.004	0.009	0.000	0.066
BCPC	146	0.315	0.466	0	1
size	146	23.051	1.339	20.407	26.166
roa	146	0.045	0.049	−0.096	0.184
age	146	12.226	5.270	1	22
no1share	146	0.407	0.160	0.114	0.743
pid	146	0.363	0.051	0.300	0.571
state	146	0.781	0.415	0	1
index	146	9.042	2.120	0.380	11.800
rr	146	0.694	0.160	0.335	0.942

5.2. Correlation Analysis

Table 2 shows the correlation coefficient matrix between all the variables. As indicated, the correlation coefficient between ECERI and BCPC is positive, yet not statistically significant.

The relationship between these two variables needs to be further analyzed by OLS regression in the next part. As for control variables, age and ECERI are negatively correlated and the coefficient is significant at the 10% level. The correlation coefficients between explanatory variables and control variables are all less than 0.4. Additionally, we calculated the variance inflation factor (VIF) values of all variables and found that the largest one is 1.430. All these results suggest that the collinearity problem is not substantial in this paper [54].

Table 2. Correlation analysis.

Variable	ECERI	BCPC	Size	Roa	Age	No1share	Pid	State	Index	rr
ECERI	1									
BCPC	0.109	1								
size	0.064	−0.054	1							
roa	−0.112	0.135	−0.013	1						
age	−0.147 *	0.111	0.296 ***	−0.057	1					
no1share	−0.077	−0.152 *	0.202 **	−0.057	0.004	1				
pid	0.004	0.212 **	−0.026	0.077	0.062	0.161 *	1			
state	0.115	−0.247 ***	0.202**	−0.305 ***	0.209 **	0.219 ***	−0.142 *	1		
index	−0.277 ***	0.055	−0.314 ***	0.222 ***	−0.191**	−0.011	−0.017	−0.217 ***	1	
rr	−0.364 ***	−0.144 *	0.001	0.293 ***	0.013	−0.109	−0.158 *	−0.027	0.221 ***	1

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

5.3. Regression Analysis

The regression results are reported in Table 3. Model 1 is a base model with only control variables. The coefficient of size is positive and statistically significant at the 5% level, which suggests that larger firms tend to invest more in ECERI. When analyzing what affects the amount of R and D investment, Lin et al. (2017) also have similar finding [54]. In addition, the coefficient of age is negative and statistically significant at the 5% level, which suggests that younger firms try to do more ECERI. This may be because younger firms tend to acquire more legitimacy through ECERI [38].

Table 3. Regression analysis.

Variable	Model 1	Model 2	Model 3	Model 4
BCPC		0.004 **	0.015 **	0.017 **
		(0.002)	(0.006)	(0.007)
md			−0.001	
			(0.000)	
md*BCPC			−0.001 *	
			(0.001)	
rr				−0.012 **
				(0.006)
rr*BCPC				−0.021 **
				(0.009)
size	0.001 **	0.001 **	0.001	0.001 *
	(0.001)	(0.001)	(0.001)	(0.001)
roa	−0.013	−0.016	−0.007	0.003
	(0.016)	(0.016)	(0.015)	(0.016)
age	−0.000 **	−0.000**	−0.000 ***	−0.000 **
	(0.000)	(0.000)	(0.000)	(0.000)
no1share	−0.008	−0.006	−0.003	−0.007
	(0.005)	(0.005)	(0.005)	(0.005)
pid	0.015	0.009	0.003	−0.002
	(0.015)	(0.015)	(0.014)	(0.014)
state	0.003	0.004 *	0.003	0.004 **
	(0.002)	(0.002)	(0.002)	(0.002)
year	Controlled	Controlled	Controlled	Controlled
_cons	−0.015	−0.015	0.004	−0.003
	(0.014)	(0.014)	(0.015)	(0.014)
Obs	146	146	146	146
F-value	1.430	1.740 *	2.500 ***	3.290 ***
R^2	0.114	0.146	0.224	0.275

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are in parentheses.

Our independent variable, BCPC, is added into Model 2 as the extension of Model 1. After controlling for the impact of control variables, board chairmen's political connections are positively related to the amount of ECERI ($\beta = 0.004$, $p < 0.05$), which suggests that the existence of politically-connected board chairmen will increase a listed company's ECERI. That supports the first hypothesis. Compared with Model 1, the R^2 of Model 2 increases by 0.032, which indicates that the introduction of our independent variable improves the explanation power for the dependent variable.

Model 3 and Model 4 list the empirical results of our moderating effects in the second and third hypotheses. We add two interaction terms into Model 3 and Model 4, respectively. In Model 3, the interaction term of the marketization index and board chairmen's political connection is added. The coefficient of this interaction term is negative ($\beta = -0.001$, $p < 0.10$), which suggests that the relationship between board chairmen's political connections and ECERI is moderated by the marketization index. The second hypothesis is supported. In addition, the coefficient of marketization degree is negative but not significant, which is consistent with Zeng et al. (2012) study [3]. In Model 4, the interaction term of the amount of redundant resources and board chairmen's political connection is added. Its coefficient is negative ($\beta = -0.021$, $p < 0.05$), which suggests that the amount of redundant resources negatively moderates the relationship between board chairmen's political connection and ECERI. The third hypothesis is supported. Furthermore, compared with Model 2, the R^2 of Model 3 and Model 4 increased by 0.078 and 0.129, respectively, which indicates that the introduction of interaction terms improves the explanation power for the dependent variable.

5.4. Robustness Tests

We also test the robustness of our conclusions. First, state-owned firms naturally have a close relationship with the government, and state ownership is another kind of political connection. The important role of this kind of political connection has already been examined in existing studies [3,56,57]. Taking this into consideration, if the influence of board chairmen's political connections still exists even in the presence of state ownership, it can be proven that our conclusions are robust. We run the main effect and moderate effects again for a subsample that consists of only state-owned companies. The results are listed from Model 5 to Model 7 in Table 4. State owned companies are companies with the state as their ultimate controller, which can be judged according to the data in the CSMAR database. In these models, the empirical findings remain unchanged, which indicates that our main effect and moderating effects are still significant even though another kind of political connection exists.

Additionally, someone may argue that there may exist an endogenous problem between board chairmen's political connections and the amount of ECERI. ECERI can affect whether a firm gets access to political connections. To solve this problem, we lead board chairmen's political connections by one period and run the regression again. The results are shown in Model 8 in Table 4. We can see the conclusions do not change since the coefficient of led BCPC is positive and statistically significant at the 5% level.

Considering that the disclosure of data on ECERI is voluntary, and there are mismatches between environmental disclosure and environmental performance (see Section 2.1), sample selection bias may exist. We use the Heckman two-stage regression to overcome this problem. Through a selection model in the first stage, we find that listed companies with larger size, higher profitability, older age, smaller board of supervisors, controlled by the state, and audited by the four largest auditors in China are more likely to disclose information on ECERI. The roles of size and profitability are similar to the results in Jizi et al. (2014) [5], while the role of the state is the same as that in Zeng et al.'s (2012) study [3]. In the second stage, we analyze what affects the amount of ECERI after controlling sample selection bias. Model 9 in Table 4 shows the results. It indicates that board chairmen's political connections still play an important role in determining green investment. Overall, our conclusions are robust.

Table 4. Robustness tests.

Variable	Model 5	Model 6	Model 7	Model 8	Model 9
	Subsample consisting of SOEs			Full sample	Heckman Stage 2
BCPC	0.004*	0.029 ***	0.025 ***		0.003 **
	(0.002)	(0.009)	(0.008)		(0.002)
md		−0.001			
		(0.001)			
md*BCPC		−0.003 ***			
		(0.001)			
rr			−0.016 **		
			(0.007)		
rr*BCPC			−0.033 ***		
			(0.012)		
$BCPC_{t-1}$				0.004 **	
				(0.002)	
size	0.001 *	0.001	0.001	0.001 *	−0.002
	(0.000)	(0.001)	(0.001)	(0.001)	(0.002)
roa	−0.024	−0.010	0.019	−0.012	−0.036 **
	(0.022)	(0.021)	(0.022)	(0.017)	(0.018)
age	−0.000 **	−0.000 **	−0.000	−0.000 **	−0.001 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
no1share	−0.007	−0.006	−0.006	−0.006	−0.000
	(0.007)	(0.006)	(0.006)	(0.005)	(0.000)
pid	0.008	−0.010	0.004	0.009	0.018
	(0.020)	(0.019)	(0.018)	(0.016)	(0.015)
state				0.005 **	−0.002
				(0.002)	(0.003)
year	Controlled	Controlled	Controlled	Controlled	Controlled
_cons	−0.009	0.014	−0.001	−0.017	0.107 *
	(0.018)	(0.018)	(0.016)	(0.015)	(0.061)
Inverse Mills ratio					−0.014 **
					(0.007)
Obs	114	114	114	138	146
F-value	1.520	3.030 ***	3.660 ***	1.640 *	1.950 **
R^2	0.153	0.300	0.341	0.146	0.173

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are in parentheses.

6. Conclusions

Inspired by existing studies about environmental performance and political connection, this paper proposes two perspectives to explain how board chairmen's political connections affect the amount of ECERI. One perspective is the institutional logic perspective, which argues that politically-connected board chairmen share the same characteristics as government officials and environmental performance is one of their evaluation indicators. The other one is the resource exchange perspective, which argues that since board chairmen's political connections bring resources to firms, firms, in return, invest more in ECER to satisfy the government's need. Using a sample consisting of China's listed manufacturing companies which issued A-shares from 2008 to 2014, we empirically test three hypotheses which are derived from these two perspectives. Our robust empirical findings follow. First, board chairmen's political connections positively impact the amount of ECERI. Second, the marketization degree in the region where a firm is located negatively moderates the relationship between board chairmen's political connections and the amount of ECERI. Third, if a firm has more redundant resources, the influence of board chairmen's political connections on the amount of ECERI will decrease.

Our conclusions also have practical implications for government and companies both in China and in other developing countries. First, the opening of the black box of green governance reveals the motivation for companies to invest in ECER, which will be helpful for the government to develop new policies to encourage companies to contribute in saving resources and protecting the environment. For example, as the marketization degree increases, relying on political connections to enhance ECERI is no longer very useful. Thus, while improving the degree of marketization, the government also needs to take some actions to encourage firms to invest in green initiatives, such as stricter enforcement

of environmental regulation. Second, for manufacturing companies, the more redundant resources they have, the lower the possibility they tend to invest in green initiatives under the influence of political connection. However, they need to realize that green practices and their strategic development can be combined together, and they should try to use their redundant resources to introduce some green practices.

Although this paper contributes to the literature with regard to green governance and political connections, there are still some limitations. For instance, because only a few of China's listed manufacturing companies have published social responsibility reports since 2008 and ECERI data is also undisclosed in other reports, we have only a small sample size to analyze. In the future, we can try to use a survey questionnaire method to obtain a broader sample to solve this problem. In addition, we find that under the influence of board chairmen's political connections, ECERI of China's manufacturing companies has increased. However, how ECERI impacts the company's development has not yet been answered. To answer this question, we may try to interview some companies to ask them about the consequences of ECERI.

Acknowledgments: This research was supported by the National Natural Science Foundation of China (grant numbers: 71702114; 71572085; 71672094) and the Zhongshan City Science and Technology Bureau Project (No. 2017B1015).

Author Contributions: Kai Wang took part in writing the paper. Hao-Min Zhang provided ideas and data. Sang-Bing Tsai, Li-Dong Wu, and Kun-Kun Xue provided revisions. He-Jun Fan, Sang-Bing Tsai, Jie Zhou, and Quan Chen offered advice.

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

References

1. Walden, W.D.; Schwartz, B.N. Environmental disclosures and public policy pressure. *J. Account. Public Policy* **1997**, *16*, 125–154.
2. Ahmad, Z.; Hassan, S.; Mohammad, J. Determinants of environmental reporting in Malaysia. *Int. J. Bus. Stud.* **2003**, *11*, 69–90.
3. Zeng, S.X.; Xu, X.D.; Yin, H.T.; Tam, C.M. Factors that drive Chinese listed companies in voluntary disclosure of environmental information. *J. Bus. Ethics* **2012**, *109*, 309–321. [CrossRef]
4. Chen, J.C.; Cho, C.H.; Patten, D.M. Initiating disclosure of environmental liability information: An empirical analysis of firm choice. *J. Bus. Ethics* **2014**, *125*, 681–692. [CrossRef]
5. Jizi, M.I.; Salama, A.; Dixon, R.; Stratling, R. Corporate governance and corporate social responsibility disclosure: Evidence from the US banking sector. *J. Bus. Ethics* **2014**, *125*, 601–615. [CrossRef]
6. Lewis, B.W.; Walls, J.L.; Dowell, G.W.S. Difference in degrees: CEO characteristics and firm environmental disclosure. *Strateg. Manag. J.* **2014**, *35*, 712–722. [CrossRef]
7. Liu, X.; Zhang, C. Corporate governance, social responsibility information disclosure, and enterprise value in China. *J. Clean. Prod.* **2017**, *142*, 1075–1084. [CrossRef]
8. Freedman, M.; Jaggi, B. Pollution disclosure, pollution performance and economic performance. *Omega* **1982**, *10*, 167–176. [CrossRef]
9. Richardson, A.; Welker, M. Social disclosure, financial disclosure and the cost of equity capital. *Account. Organ. Soc.* **2001**, *26*, 597–616. [CrossRef]
10. Cooke, P. Green governance and green clusters: Reginal & national policies for the climate change challenge of central & Eastern Europe. *J. Open Innov. Technol. Mark. Complex.* **2015**, *1*, 1.
11. Cong, Y.; Freedman, M. Corporate governance and environmental performance and disclosures. *Adv. Account. Incorp. Adv. Int. Account.* **2011**, *27*, 223–232. [CrossRef]
12. Kock, C.J.; Santalo, J.; Diestre, L. Corporate governance and the environment: What type of governance creates greener companies? *J. Manag. Stud.* **2012**, *49*, 492–514. [CrossRef]
13. Adhikari, A.; Derashid, C.; Zhang, H. Public policy, political connections, and effective tax rates: Longitudinal evidence from Malaysia. *J. Account. Public Policy* **2006**, *25*, 574–595. [CrossRef]
14. Claessens, S.; Feijen, E.; Laeven, L. Political connections and preferential access to finance: The role of campaign contributions. *J. Financ. Econ.* **2008**, *88*, 554–580. [CrossRef]

15. Liu, Q.; Tang, J.; Tian, G.G. Does political capital create value in the IPO market? Evidence from China. *J. Corp. Financ.* **2013**, *23*, 395–413. [CrossRef]
16. Kim, J.; Jung, S. Study on CEO characteristics for management of public art performance centers. *J. Open Innov. Technol. Mark. Complex.* **2015**, *1*, 5. [CrossRef]
17. Shi, W.; Markoczy, L.; Stan, C.V. The continuing importance of political ties in China. *Acad. Manag. Perspect.* **2014**, *28*, 57–75. [CrossRef]
18. Yuan, Q. *Public Governance, Political Connectedness, and CEO Turnover: Evidence from Chinese State-Owned Enterprises*; Working Paper; The University of Melbourne: Melbourne, Australia, 2011.
19. Chan, K.S.; Dang, V.Q.T.; Yan, I.K.M. Chinese firm's political connection, ownership and financial constraints. *Econ. Lett.* **2012**, *115*, 164–167. [CrossRef]
20. Wang, L. Protection or expropriation: Politically connected independent directors in China. *J. Bank. Financ.* **2015**, *55*, 92–106. [CrossRef]
21. Fan, J.P.H.; Wong, T.J.; Zhang, T. Politically connected CEOs, corporate governance and post-IPO performance of China's newly partially privatized firms. *J. Financ. Econ.* **2007**, *84*, 330–357. [CrossRef]
22. Al-Tuwaijri, S.A.; Christensen, T.E.; Hughes, K.E., II. The relations among environmental disclosure, environmental performance, and economics performance: A simultaneous equations approach. *Account. Organ. Soc.* **2004**, *29*, 447–471. [CrossRef]
23. Hughes, S.B.; Anderson, A.; Golden, S. Corporate environmental disclosures: Are they useful in determining environmental performance? *J. Account. Public Policy* **2001**, *20*, 217–240. [CrossRef]
24. Clarkson, P.M.; Overell, M.B.; Chapple, L. Environmental reporting and its relation to corporate environmental performance. *Abacus* **2011**, *47*, 27–60. [CrossRef]
25. Liu, Z.G.; Liu, T.T.; McConkey, B.G.; Li, X. Empirical analysis on environmental disclosure and environmental performance level of listed steel companies. *Energy Procedia* **2011**, *5*, 2211–2218. [CrossRef]
26. Luo, L.; Tang, Q. Does voluntary carbon disclosure reflect underlying carbon performance? *J. Contemp. Account. Econ.* **2014**, *10*, 191–205. [CrossRef]
27. Cho, C.H.; Patten, D.M. The role of environmental disclosures as tools of legitimacy: A research note. *Account. Organ. Soc.* **2007**, *32*, 639–647. [CrossRef]
28. Jo, H.; Harjoto, M.A. The causal effect of corporate governance on corporate social responsibility. *J. Bus. Ethics* **2012**, *106*, 53–72. [CrossRef]
29. Wang, Q.; Wong, T.J.; Xia, L. State ownership, the institutional environment, and auditor choice: Evidence from China. *J. Account. Econ.* **2008**, *46*, 112–134. [CrossRef]
30. Chaney, P.K.; Faccio, M.; Parsley, D. The quality of accounting information in politically connected firms. *J. Account. Econ.* **2011**, *51*, 58–76. [CrossRef]
31. Huang, M.; Wong, T.J.; Zhang, T. Political considerations in the decision of Chinese SOEs to list in Hong Kong. *J. Account. Econ.* **2012**, *53*, 435–449. [CrossRef]
32. Li, S.; Song, X.; Wu, H. Political connection, ownership structure, and corporate philanthropy in China: A strategic-political perspective. *J. Bus. Ethics* **2015**, *129*, 399–411. [CrossRef]
33. Bertrand, M.; Kramarz, F.; Schoar, A.; Thesmar, D. *Politicians, Firms and the Political Business Cycle: Evidence from France*; Working Paper; University of Chicago: Chicago, IL, USA, 2007.
34. Kim, C.; Zhang, L. Corporate political connections and tax aggressiveness. *Contemp. Account. Res.* **2015**, *33*, 78–114. [CrossRef]
35. Berkman, H.; Cole, R.A.; Fu, L.J. Political connections and minority-shareholder protection: Evidence from securities-market regulation in China. *J. Financ. Qual. Anal.* **2010**, *45*, 1391–1417. [CrossRef]
36. Niessen, A.; Ruenzi, S. Political connectedness and firm performance: Evidence from Germany. *Ger. Econ. Rev.* **2010**, *11*, 441–464. [CrossRef]
37. Sheng, S.; Zhou, K.Z.; Li, J.J. The effects of business and political ties on firm performance: Evidence from China. *J. Mark.* **2011**, *75*, 1–15. [CrossRef]
38. Wang, H.; Qian, C. Corporate philanthropy and corporate financial performance: The roles of stakeholder response and political access. *Acad. Manag. J.* **2011**, *54*, 1159–1181. [CrossRef]
39. Fan, J.P.H.; Rui, O.M.; Zhao, M. Public governance and corporate finance: Evidence from corruption cases. *J. Comp. Econ.* **2008**, *36*, 343–364. [CrossRef]
40. Li, H.; Meng, L.; Wang, Q.; Zhou, L. Political connections, financing and firm performance: Evidence from Chinese private firms. *J. Dev. Econ.* **2008**, *87*, 283–299. [CrossRef]

41. Houston, J.F.; Jiang, L.; Lin, C.; Ma, Y. Political connections and the cost of bank loans. *J. Account. Res.* **2014**, *52*, 193–243. [CrossRef]
42. Bunkanwanicha, P.; Wiwattanakantang, Y. Big business owners in politics. *Rev. Financ. Stud.* **2009**, *22*, 2133–2168. [CrossRef]
43. Johnson, S.; Mitton, T. Cronyism and capital controls: Evidence from Malaysia. *J. Financ. Econ.* **2003**, *67*, 351–382. [CrossRef]
44. Tahoun, A. The role of stock ownership by US members of congress on the market for political favors. *J. Financ. Econ.* **2014**, *111*, 86–110. [CrossRef]
45. Thornton, P.H.; Ocasio, W. Institutional logics and the historical contingency of power in organizations: Executive succession in the higher education publishing industry, 1958–1990. *Am. J. Sociol.* **1999**, *105*, 801–843. [CrossRef]
46. Fisman, R.; Wang, Y. The mortality cost of political connections. *Rev. Econ. Stud.* **2015**, *82*, 1346–1382. [CrossRef]
47. Thompson, J. *Organizations in Action: Social Science Bases of Administrative Theory*; McGraw-Hill Book Company: New York, NY, USA, 1967.
48. Pfeffer, J.; Salancik, G. *The External Control of Organizations: A Resource Dependence Perspective*; Harper and Row: New York, NY, USA, 1978.
49. Hillman, A.J.; Zardkoohi, A.; Bierman, L. Corporate political strategies and firm performance: Indications of firm-specific benefits from personal service in the US government. *Strateg. Manag. J.* **1999**, *20*, 67–81. [CrossRef]
50. Ozer, M.; Alakent, E.; Ahsan, M. Institutional ownership and corporate political strategies: Does heterogeneity of institutional owners matter? *Strateg. Manag. Rev.* **2010**, *4*, 18–29.
51. Vanacker, T.; Collewaert, V.; Zahra, S.A. Slack resources, firm performance, and the institutional context: Evidence from privately held European firms. *Strateg. Manag. J.* **2016**, *38*, 1305–1326. [CrossRef]
52. Zhou, W. Political connections and entrepreneurial investment: Evidence from China's transition economy. *J. Bus. Ventur.* **2013**, *28*, 299–315. [CrossRef]
53. Fan, G.; Wang, X.; Zhu, H. *NERI Index of Marketization of China's Provinces 2011 Report*; Economics Science Press: Beijing, China, 2011.
54. Lin, Z.; Liu, S.; Sun, F. The impact of financing constraints and agency costs on corporate R&D investment: Evidence from China. *Int. Rev. Financ.* **2017**, *17*, 3–42.
55. Fan, J.P.H.; Wong, T.J. Corporate ownership structure and the informativeness of accounting earning in East Asia. *J. Account. Econ.* **2002**, *33*, 401–425. [CrossRef]
56. Inoue, C.F.K.V.; Lazzarini, S.G.; Musacchio, A. Leviathan as a minority shareholder: Firm-level implications of state equity purchases. *Acad. Manag. J.* **2013**, *56*, 1775–1801. [CrossRef]
57. Liu, T.; Deng, Y.; Chan, F. Evidential supplier selection based on DEMATEL and game theory. *Int. J. Fuzzy Syst.* **2017**, 1–13. [CrossRef]