

Article

Managerial Risk Perceptions of Corporate Social Responsibility Disclosure: Evidence from the Forestry Sector in China

Feifei Lu ¹, Zhaohua Wang ^{2,*} , Anne Toppinen ³ , Dalia D'Amato ³  and Zuomin Wen ⁴

¹ College of Management, Qingdao Agricultural University, Qingdao 266109, China; feifei.lyu@qau.edu.cn

² Institute of Rural Revitalization, Shandong Academy of Agricultural Sciences, Jinan 250100, China

³ Department of Forest Sciences, University of Helsinki, 00014 Helsinki, Finland; anne.toppinen@helsinki.fi (A.T.); dalia.damato@helsinki.fi (D.D.)

⁴ College of Economics and Management, Nanjing Forestry University, Nanjing 210037, China; zuominwen@hotmail.com

* Correspondence: zhaohuawang1971@hotmail.com

Abstract: Understanding how managers perceive risks in the decision-making process of corporate social responsibility (CSR) disclosure is vital, especially in sectors with high social and environmental demands on sustainability. The main aim of this study was to explore the impact of managerial risk perceptions and influencing factors on CSR disclosure in the forestry sector of China and to improve the sustainable development of forestry. Utilizing survey data of 214 managers from Chinese forestry enterprises, we analyzed how manager backgrounds, including six variables (gender, age, education level, degree major, number of years working as a manager, and work experience) related to the managers' risk perceptions of CSR disclosure via a two-stage model. The analyses of the two-stage model revealed that the influence factors differ in the two stages of risk perception. According to our results, influencing factors were not the same at various stages of the CSR reporting process. This requires decision makers to take practical driving factors into account and select managers with different characteristics to carry out the CSR disclosure of forestry enterprises.

Keywords: corporate social responsibility (CSR) disclosure; manager characteristics; risk perception; forestry sector; sustainable development; China



Citation: Lu, F.; Wang, Z.; Toppinen, A.; D'Amato, D.; Wen, Z. Managerial Risk Perceptions of Corporate Social Responsibility Disclosure: Evidence from the Forestry Sector in China. *Sustainability* **2021**, *13*, 6811. <https://doi.org/10.3390/su13126811>

Academic Editors:

Valentín Molina-Moreno and Juan Victor Meseguer Sánchez

Received: 7 April 2021

Accepted: 24 May 2021

Published: 16 June 2021

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2021 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 (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

To ensure the sustainable development of society, the economy, and the environment [1–4], enterprises in all sectors must fulfill their social responsibilities [5]. Forestry enterprises with land-use level impacts are no exception [6]. As their activities are closely related to forests and surrounding ecosystems [7,8], such enterprises are expected to account for the needs of all other stakeholders while pursuing maximum economic gains for shareholders [9–13]. To engage with sustainability issues [14], they adopt a range of measures, such as adhering to business practices that comply with ethical standards, rationally utilizing forest resources, conserving energy and reducing emissions, improving technology, strengthening management, fulfilling their social responsibilities, and disclosing evaluations of their sustainability performance [6,15,16].

Managerial risk perception is the subjective feeling and understanding of risk events; it reflects the values, ideologies and other social-cultural constructs of the group in the process of management and decision making [17,18]. It has been pointed out that corporate social responsibility (CSR) can affect many types of risk, including systematic risk, supply chain risk, regulatory risk, product and technology risk, litigation risk, reputational risk, etc., in a variety of ways [18]. Jagannathan et al. [19] reveal that CSR-related risks can be rare, large, and non-diversifiable, and are related to companies' downside risk. Hoepner et al. [20] propose that activism on CSR(ESG) issues, and in particular, environmental issues, can lower a company's downside risk. Pressures exercised by both

internal and external stakeholders drive the implementation of forestry enterprises' CSR strategies [21–23]. These companies' top executives are relevant decision makers during the process. As internal stakeholders of forestry enterprises, they play a pivotal role in CSR disclosure, and their abilities to recognize traits and risk perceptions influence their willingness and attitudes toward CSR disclosure and disclosure strategies [24–28].

Several studies have investigated CSR disclosure in the forest sector at regional or global scales [25,29–33], including both developed and emerging economies. In terms of empirical studies, they mainly focused on the factors influencing CSR fulfillment and disclosure, and corporate environmental behavior [29,32,34]. Therefore, limited research has been carried out concerning factors that impact managerial risk perceptions concerning CSR disclosure and influencing the executive level in forestry enterprises.

According to related studies, Chinese forestry enterprises have made efforts concerning CSR disclosure and progressed in recent years [32,35,36]. However, a limited number of enterprises are currently involved in reporting their practices, partly because of the weak enforcement by the government and relevant institutions [28]. Except for public companies required to annually disclose their CSR reports, the other influential enterprises in this sector do this in response to the advocacy of industrial associations, such as the Chinese Forestry Industrial Association and the Chinese Forestry Industrial Union, under their guidance, without the supervision and regulation of related government departments.

Our study aims to explore the impact of managerial risk perceptions and influencing factors of managers on CSR disclosure in the Chinese forestry sector and to improve the sustainable development of forestry. The structure of our study is as follows: Section 2 presents the theoretical background, introducing the main concepts concerning the disclosure of CSR literature in the forestry sector; our hypothesis is also developed in Section 2; the data and methodology are explained in Section 3; Section 4 presents and discusses our empirical results; Section 5 presents the discussion and conclusions.

2. Theoretical Background and Hypothesis

2.1. Theoretical Background

Previous literature has argued that CSR is driven by society's expectations [37], including the values and needs of multiple stakeholders [38]. Stakeholder management theory [39] states that managers supply diverse information depending on multiple stakeholders. Traditionally, publicly owned companies have mainly been accountable to their shareholders, and their principal aim has been to pursue value maximization. Stakeholder management theory, however, proposes that the long-term viability of companies also needs to include the concerns of multiple stakeholders who are influential or essential for the company, including shareholders, customers, suppliers, local communities, governments, and environmental groups [40,41]. Multiple stakeholders assess CSR by selectively processing the disclosure information to evaluate the effectiveness of a company in satisfying their needs and interests [22]. Academics utilize the stakeholder theory to explain CSR issues; Wang and Juslin demonstrate that the stakeholder theory is a valuable tool for collecting and evaluating CSR data, as its results provide strong empirical evidences to reveal that values have a significant effect on the stakeholder perception of CSR performance [23]. Roberts' study empirically tests the ability of the stakeholder theory to explain one social responsibility disclosure [42]. Steurer maps stakeholder theory anew, from the 'stakeholder theory of the firm' to three perspectives on 'business–society' relations [43]. Stakeholder theory is an instrumental application, as the model dimensionalizes the notion of stakeholder salience, and distinguishes between and among internal and external stakeholders, etc. [40,44].

Administrative personnel, especially middle-senior administrators, are the most relevant stakeholders within a forestry enterprise. How they perceive the internal and external social and environmental pressures of the company and how they perceive stakeholder needs and attitudes have an impact on the company's policy concerning CSR disclosure [25,26]. If we wish to understand the reasons for an organization behaving a certain

way, we must be aware of the preferences and characteristics of the most powerful administrators in the organization [45]. This is an illustration of the upper echelons theory. Therefore, Meng [28] believes that the upper echelons theory could be employed to interpret the relationship between the personal backgrounds or traits of public enterprise (including forestry enterprises) administrators and corporate environmental information disclosure in China and applies this theoretical framework to empirical research. Previous research studies have also proved the correlation between managerial traits and the significant strategic decisions and performances of enterprises [46], which suggests the effectiveness of the upper echelons theory as part of the academic support for our study.

According to the prospect theory in behavioral economics [47], administrators have an inherent aversion to loss and a natural tendency to avoid risks in entrepreneurial decision making. Figure 1 synthesizes a framework of the decision-making process on CSR disclosure in forestry enterprises by collecting and referring to the abovementioned theories. In the perception process of managers, pressures from stakeholders confronted by managers and the characteristics (including observable background factors of risk perceptions and mental factors) of the managers are also the base and influencing factors for personal insight and cognition. The limited insight and selective cognition of the managers also leads to different interpretations of the risks and situations, resulting in various interpretation presentations and decisions for CSR disclosure. Based on these theories' background, we constructed a risk perception of managers, using a 5-point Likert scale survey and formulated hypotheses.

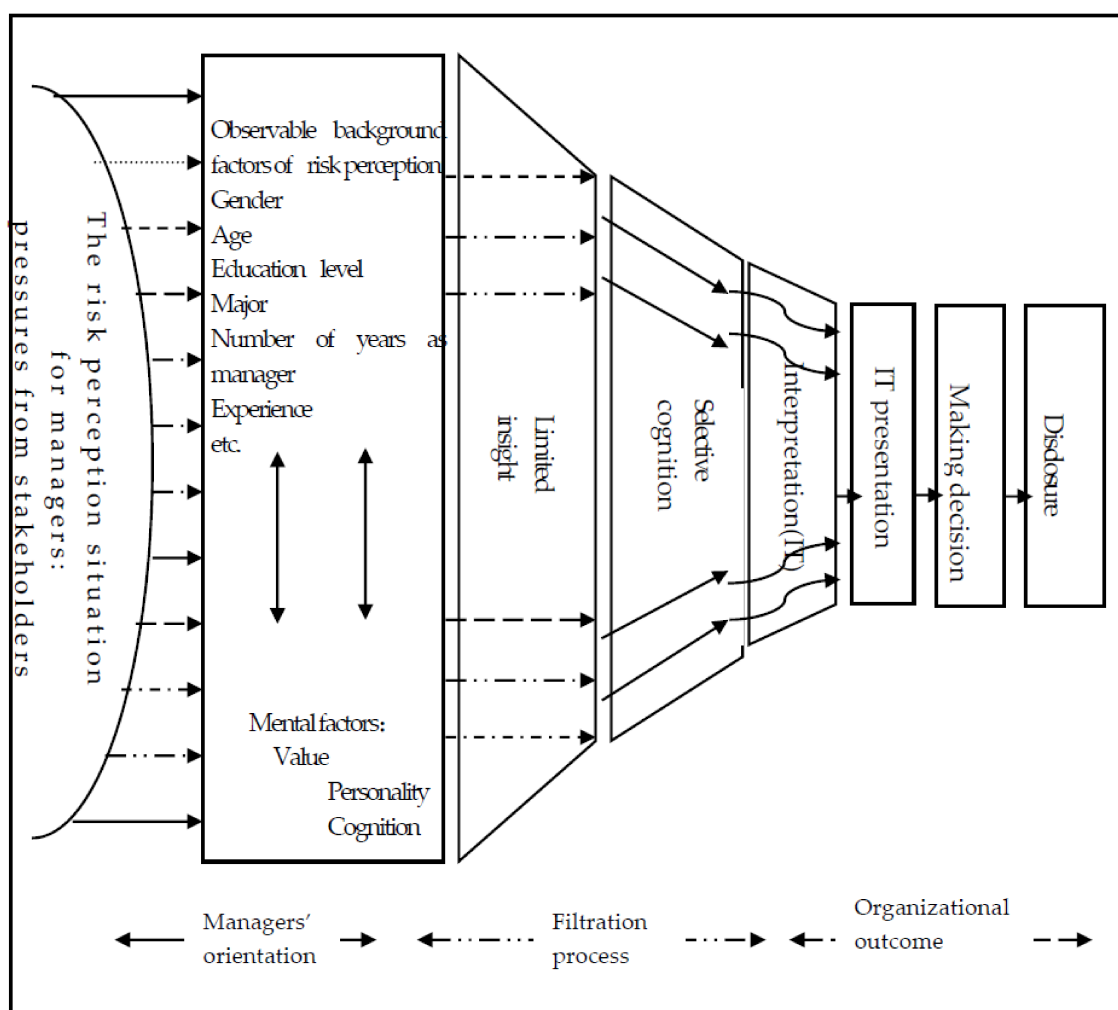


Figure 1. Impact of risk perception and influencing factors in the decision-making process on CSR disclosure in forestry companies [48,49].

2.2. Hypothesis Development

Corporate executives tend to be self-interested when disclosing CSR reports to the market. A positive tone of disclosure will improve corporate and personal image and avoid punishment brought by the attention of regulators and the public [8,50].

According to the upper echelons theory and relevant individual factors in ethical decision making, the background characteristics of the executives involved include educational background, work experience, age, gender, etc. (e.g., Hambrick and Mason [45], Tihanyi et al. [46], Bantel and Jackson [51], and Wiersema and Bantel [52]).

Although few studies have so far focused on the relationship between CSR disclosure and managerial characteristics, individual factors have attracted the attention of many ethics researchers, and in-depth studies in the field of ethical decision making have also been conducted for various characteristics (e.g., Ford and Richardson [53]; Loe et al. [54]). Certain scholars have reviewed the literature on ethical decision making, and the variables that affect ethical decision making are divided into unique individual factors and situational variables [53]. Variables related to individual factors include nationality, religion, gender, age, education, occupation, etc. [54], summarize the previous consensus views of scholars on individual factors (such as gender, age, education, and work experience) and the organizational learning processes that affect ethical decisions.

Despite the scarcity of studies on the relationship between administrator background traits and the disclosure of forestry enterprise CSR reports, according to the theory above, administrator background traits that deserve special attention include age, gender, work experience, education level, degree major, personality, nationality, financial status (income), and morality, which reflect the administrators' perception and values. As the process of issuing CSR data is related to commercial ethics, the explorations and concerns of certain researchers in this field deserve our notice. The literature on ethical decision-making includes relatively in-depth research of personal traits [53,54], such as religion, gender, age, education, work experience, and occupation. This research excludes factors such as ethics and values, as they are concerned with psychology at a deeper level. Instead, based on our literature review (as shown in Table 1) and expert advice, we selected six factors as variables, i.e., gender, age, education level, degree major, number of years working as a manager, and work experience, and hypothesized that these six variables respectively impact the administrators' recognition of the risks involved in decision making in terms of disclosing CSR reports.

Table 1. Influencing factors of managerial risk perceptions.

Demographic Factors Influencing Managers' Attitude towards CSR	References and Resources	Expected Sign
Gender	Meng, 2014; Boden and Nucci, 2000; Barua et al., 2010 [49,55,56]	Compared with male executives, female executives believe that corporate information disclosure risks are higher, thus resulting in a diminished willingness of females to report on/disclose CSR.
Age	Meng, 2014, Wiersema and Bantel, 1992; Hambrick and Mason, 1984 [42,49,52]	Senior executive age is positively correlated with the perception level of risks associated with CSR, thus resulting in a diminished willingness of senior managers to report on/disclose CSR.
Education level	Wang, 2017; Meng, 2014; Wiersema and Bantel, 1990; Bantel and Jackson, 1989 [49,51,52,57]	The risk perception of CSR disclosure of forestry enterprises is negatively correlated with the education level of managers, thus resulting in a diminished willingness of managers with shorter academic curricula to report on/disclose CSR.

Table 1. Cont.

Demographic Factors Influencing Managers' Attitude towards CSR	References and Resources	Expected Sign
Major	Meng, 2014; Ding, 2011 [49,58]	The risk perception of forest corporate social responsibility information disclosure is negatively correlated with the degree major background of managers, thus resulting in diminished willingness of managers with dissimilar degree majors to report on/disclose CSR.
Number of years working as a manager	Meng, 2014; Forker, 1992 [49,59]	The time that a manager remains in position positively correlates with the degree of risk perception, thus resulting in a diminished willingness of managers with more years of services to report on/disclose CSR.
Work experience	Wang, 2017; Bantel and Jackson, 1989 [51,57]	The work experience (such as participating in the disclosure of CSR reporting) that a manager has accumulated is positively correlated with the degree of risk perception, thus resulting in a diminished willingness of managers with more experience to report on/disclose CSR.

Demographic and psychological studies have confirmed behavioral differences between male and female managers. A survey on how education level impacts corporate survival showed that the survival time of enterprises with female executives in the United States is generally longer than enterprises with solely male executives [55]; the survey also found that female executives tend to pursue long-term, stable development and relatively conservative corporate strategies. Barua et al. [56] reviewed the correlation between gender and the level of information disclosure and discussed the gender differences in various decision-making contexts (e.g., in attitudes to risk, financial analysis, and legal compliance). As summarized by Barua et al. [56], women were more cautious when making decisions. Prudent managers tended to avoid risks and because of the pressure caused by internal and external stakeholders and public reactions they were more cautious about CSR disclosure. Therefore, the decision to conduct CSR reporting was more prudent for female executives. Age represents the experience and risk preferences of managers and affects the strategic choice of enterprises. Studies have shown that age is related to cognitive level and the increasing age of managers tended to increase their risk avoidance [45]. Previous studies have confirmed that older managers tended to make more conservative strategic decisions [52]. Young managers may be more open to and have a strong sense of social responsibility: primarily environmental and social responsibility awareness. Therefore, we hypothesize the following:

Hypothesis 1 (H1). *Compared with male executives, female executives believe that corporate information disclosure risks are higher, thus resulting in a diminished willingness of females to report on/disclose CSR.*

Hypothesis 2 (H2). *Senior executive age is positively correlated with the perception level of risks associated with CSR, thus resulting in a diminished willingness of senior managers to report on/disclose CSR.*

Education background reflects an individual's knowledge and skill base to a certain extent. Education reflects the ability of managers to accept and process new and different knowledge and complex information. Highly trained managers were more open to new ideas and more able to adapt to change. Previous studies have shown that highly

educated managers were more likely to implement strategic change [51,52,58]. Finkelstein and Hambrick [60] found a positive correlation between executive education level and organizational ability and observed that managers with high education levels made more rational decisions. Therefore, the higher the education level, the more concerned managers were about corporate social responsibility, and the more they tended to defuse the risks and disclosure of social responsibility information.

Managers with different major backgrounds had different understandings of corporate social responsibility and CSR disclosure. Entrepreneurs with similar degree majors are generally believed to have higher knowledge and skills than entrepreneurs with other degree majors, so they will have a more comprehensive understanding of CSR disclosure and have a higher sense of CSR [58]. All that said, managers with higher education or professional qualifications were more willing to change or able to solve complex problems and deal with risks. Therefore, they were also more likely to assume more social responsibilities. We therefore hypothesized that:

Hypothesis 3 (H3). *The risk perception of CSR disclosure of forestry enterprises is negatively correlated with the education level of managers, thus resulting in a diminished willingness of managers with shorter academic curricula to report on/disclose CSR.*

Hypothesis 4 (H4). *The risk perception of forest corporate social responsibility information disclosure is negatively correlated with the degree major background of managers, thus resulting in diminished willingness of managers with dissimilar degree majors to report on/disclose CSR.*

The longer the time served as a manager, the stronger management control the manager had over a company and the more conservative the manager was; the higher the risk perception level of CSR disclosure reporting, the more likely the level of information disclosure was threatened [59]. In addition, functional career experiences had a significant effect on the actions taken by a manager or an entire top management team [45,58]; the more work experience (such as participating in the disclosure of CSR reporting) the managers had, the higher that the risk perception level of CSR reporting disclosure was. We therefore hypothesized the following:

Hypothesis 5 (H5). *The time that a manager remains in position positively correlates with the degree of risk perception, thus resulting in a diminished willingness of managers with more years of services to report on/disclose CSR.*

Hypothesis 6 (H6). *The work experience (such as participating in the disclosure of CSR reporting) a manager has accumulated is positively correlated with the degree of risk perception, thus resulting in a diminished willingness of managers with more experience to report on/disclose CSR.*

3. Data and Methods

3.1. Data Collection

From 2012 to 2019, the Chinese Forestry Industry Association (CFIA) and the Chinese National Forest Products Industry Association (CNFPIA) ushered in the disclosure of 92 CSR reports (2011–2018) by 31 forestry companies (CNFPIA, 2019) [61]. These 92 CSR reports are released separately and voluntarily and are different from the annually released reports of other publicly listed forestry companies. Figure 2 shows the trend of CSR reporting by Chinese forestry enterprises advocated by CNFPIA and CFIA from 2012 to 2019. Our study selected 15 forestry companies from the 31 forestry companies, which had more than two years of disclosure experience, were all above medium-sized, and representative of Chinese forestry enterprises recommended by CNFPIA. Discarded companies only had one year of discontinuous disclosure experience. The selected companies operate in various parts of China and include large state-owned, large public-listed state-owned,

large non-public-listed state-owned, large private, and medium-sized private companies (detailed information about the enterprises in Appendix A).

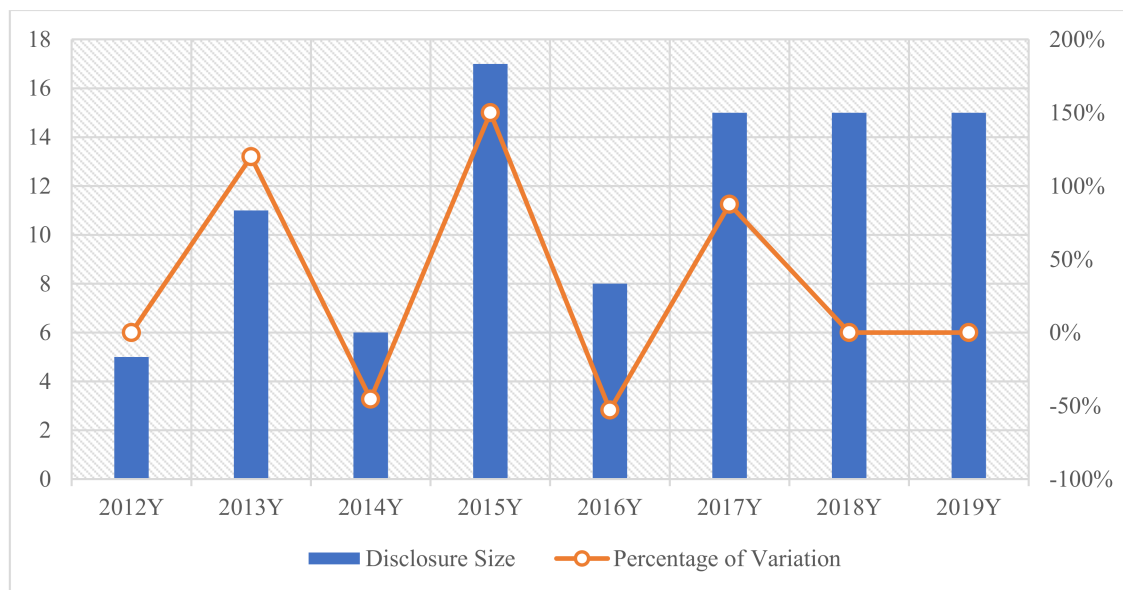


Figure 2. The trend of CSR disclosure of Chinese forestry companies advocated by CNFPIA and CFIA (2012–2019).

Of the 225 questionnaires issued in the semi-structured interviews to administrators at various levels, such as the top and middle levels, 214 (95.11%) were valid. We used quota sampling and snowball sampling [62] to avoid bias and intercorrelation within an enterprise when selecting the respondents from the managers of each forestry enterprise. Furthermore, we interviewed the respondents face-to-face and one-on-one. Respondents were assured anonymity during the survey. However, the possibility of some level of individual and social desirability bias occurring cannot be completely excluded.

The questionnaire was designed to quantify the influence of selected background variables on managers' attitudes to CSR disclosure.

The following questions concerning the risk perceptions of CSR disclosure were enquired about in the semi-structured interview process:

- "Are there risks involved in CSR disclosure?" ('yes' or 'no')*
- "If the response is 'yes', what do you think of the risks? And what is the degree of risk for CSR disclosure."*
- "Are there other risks involved in CSR disclosure and what is their degree of risk?"*

We used a 5-point Likert scale to quantify answers for questions b and c. The range was designed to indicate the degree of risk perception as ordinal variables: "1"—lowest risk; "2"—lower risk; "3"—general risk; "4"—higher risk; "5"—highest risk. Please see Appendix B for details.

The following efforts were made in the questionnaire design and collection process to improve the reliability and validity of the questionnaire: (1) prior to the study, some of the authors discussed risk perception on CSR disclosure with three experts in economics, administration, and sociology based on the relevant literature; (2) an expert of psychology was invited to provide guidance for the questionnaire design and to revise the questionnaire content according to the interview and pre-test results; (3) feedback from experts and entrepreneurial administrators did not reveal any missing elements in risk perception factors influencing CSR, concluding that the questionnaire was relatively complete in design; (4) the questionnaires were issued to above-mid-level administrators in forestry enterprises because of their more complete and accurate understanding of their entrepreneurial CSR and their identity as the primary decision makers in the disclosure of

their enterprises' CSR reports; (5) to avoid hasty answers, respondents were given plenty of time to complete the questionnaire.

3.2. Analysis

By analyzing the decision-making processes of small, medium-sized, and large companies in terms of financial leverage, Ramalho et al. [63] discovered that various sized companies differ not only in financial leverage decision-making mechanisms, but also in decision-making mechanisms with regard to whether they issue bonds and how many bonds they issue via a two-stage model. Further developing the model in its application analysis, Wooldridge [64] used the two-stage model to respectively analyze the participation decision-making mechanism ($y = 0$ if $y = 0$; $y = 1$ if $y > 0$) and the quantization decision-making mechanism (studying the determinants if $y > 0$), adopting the logistic regression model in the analysis of the former and the multivariate linear regression model in the analysis of the latter. On the whole, when analyzing the links between managers' recognition of risks and their characteristics, we observed that administrators varied significantly in their risk recognition, which means that the data distribution did not follow the common distribution models. Thus, making a multivariate linear regression or generalized linear regression analysis is not suitable. So this study attempted to build a two-stage regression model.

According to the hypothesis above and the two-stage model, our study established the two-stage model in the empirical analysis of risk perception: the dependent variable in the first part is whether an administrator thinks it is risky to release a CSR report (1 for 'yes', and 0 for 'no'). The dependent variable in the second part is the assessment value of the risk induced by releasing an enterprise's CSR reports, and the independent variable is an administrator's gender, age, education level, degree major, rank, number of years spent working as a manager, and whether they have participated in drafting and releasing their enterprise's CSR reports (work experience). A logit model and a multiple linear regression model were adopted, respectively, for the regression analysis. The two-part model is introduced as follows:

$$\ln\left(\frac{P}{1-P}\right) = \alpha + \beta_1 gen_i + \beta_2 age_i + \beta_3 edu_i + \beta_4 major_{i+} + \beta_5 workyear_i + \beta_6 par_i + \varepsilon$$

$$risk = \alpha + \beta_1 gen_i + \beta_2 age_i + \beta_3 edu_i + \beta_4 major_{i+} + \beta_5 workyear_i + \beta_6 par_i + \varepsilon$$

The variables are as follows: 'gen' represents gender, including 0 for males and 1 for females; 'age' is the anagraphic age, consisting of three groups: 30–39 years old (the reference group), 40–49 years olds, and those over 49 years old; 'edu' represents the education level, composed of three groups—a high school degree and junior college degree (the reference group), a bachelor's degree, and a master's degree; 'major' stands for degree majors, consisting of four groups—literature and philosophy (the reference group), economics and management, science and engineering, and agriculture and forestry; 'workyear' stands for the number of years spent working as a manager, composed of three groups—1–5 years, 6–10 years, and more than 10 years; and 'par' stands for work experience, used to indicate whether an administrator has participated in drafting and releasing their enterprise's CSR reports (0 for 'yes', and 1 for 'no').

4. Empirical Results

4.1. Risk Perception Based on Descriptive Analyses

Table 2 showed the basic characteristics of the sample managers. Of the 214 surveyed managers, over 80% were male, while only 17.76% were female. Respondents were mainly 30–39 years old and 40–49 years old, accounting for 42.52% and 50.93% respectively, while those who were 50 years old and older accounted for 6.54%. Respondents most commonly had bachelor's degrees, accounting for 66.51%, followed by senior high school and junior college personnel, while the lowest proportion of respondents had graduate degrees. The

number of respondents majoring in economics and management (30.05%), and agriculture and forestry (33.80%) were significantly higher than those majoring in literature, history, and philosophy (17.37%) or science and technology (18.78%). Middle managers made up 50.71% of the respondents, while 38.86% were grassroots managers, and 10.73% were senior managers.

Table 2. The characteristics of sample managers.

Variable Name	Classification	Sample Size	Percentage (%)
Gender	Male	N = 176	82.24
	Female	N = 38	17.76
Age (years)	30–39	N = 91	42.52
	40–49	N = 109	50.93
	Above 49	N = 14	6.54
Education background and degree	High school and junior college	N = 39	18.14
	Undergraduate	N = 143	66.51
	Graduate	N = 33	15.35
Major	Literature and philosophy	N = 37	17.37
	Economics and management	N = 64	30.05
	Science and engineering	N = 40	18.78
Years as manager	1–5	N = 123	58.02
	6–10	N = 42	19.81
	Above 10	N = 47	22.17
Participated in CSR disclosure	Yes	N = 59	27.57
	No	N = 155	72.43

Out of the 214 respondents, 129 (60%) managers believed it risky for their enterprises to disclose CSR information. We defined them as the risk-cognizing group. Figure 3 is a more detailed descriptive analysis of the managers' risks perception, using a 5-point Likert scale. It shows the risk perception of managers for the supervision of shareholders and investors, government and community, general public, consumers, peers, non-governmental organizations (NGOs), and increased investment in environmental protection. To sum up, our 5-point Likert scale analysis showed that the qualitative value of most managers' risk perceptions of CSR disclosure posed to different stakeholders is average or relatively low, and the average percentage of managers' risk perceptions value is very low or relatively high. Almost none of the values are very high, meaning none of the managers perceived the risk to be high.

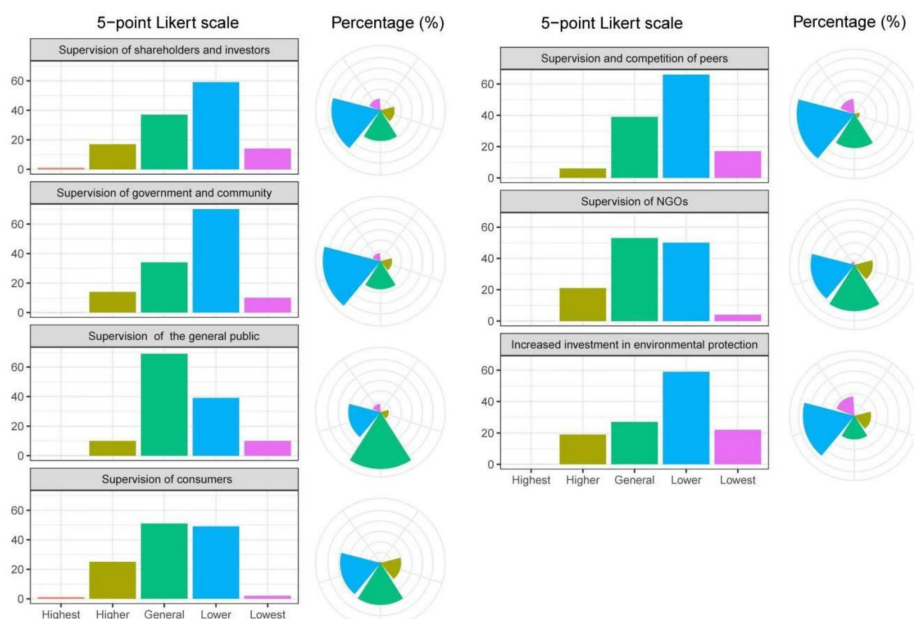


Figure 3. Descriptive statistics of the risk perception of managers concerning CSR disclosure in forestry enterprises, using a 5-point Likert scale.

4.2. Risk Perception Analysis via the Two-Stage Model

According to our results, approximately 40% of the administrators believed that releasing their CSR reports posed no risk, i.e., the risk value was 0, whereas 60% of the administrators thought that a risk was involved. By referring to the model adopted in the medical costs decision-making analysis and corporate financial decision-making analysis mentioned above [65], our research argues that administrators' risk recognition during their decision-making process comprises two parts. The first stage is probability decision-making, i.e., whether the administrators believe that there is a risk: (1) if there is no risk, $P = 0$; (2) if there is a risk, $P = 1$. The second stage is the risk perception degree assessment of decision making during which the risk perception value is above 1. An analysis of the test revealed that risk tendency followed the normal distribution, being thus suitable for multivariate linear regression analysis.

Table 3 demonstrates the analysis results of the two-stage regression model. In the first stage, a logistic regression analysis showed that when compared with the reference groups, the regression coefficients for the bachelor's and master's degrees and for the 6–10 years and over 10 years spent working as a manager were above 0, with a statistically significant difference. This indicated that administrators who hold a bachelor's or master's degree or have worked for 6–10 years or longer were more inclined to think that releasing their CSR reports is risky. The regression coefficients were also above 0 for administrators over 50 years of age, who had a major in agriculture and forestry, or held mid-level or top-level positions, but we observed no statistically significant difference. The regression coefficients were below 0 for administrators who are female, 40–49 years old, have a major in economic management or science and engineering, or have not participated in drafting and releasing their enterprises' CSR reports, but with no statistically significant difference.

Table 3. The two-stage analysis result of managerial risk cognition concerning CSR disclosure.

Variable Name	Risk Perception (Yes/No)				Risk Assessment Value			
	β	Std.	95%CI		β	Std.	95%CI	
Gender (Female)	−0.41	0.42	−1.24	0.41	0.89	0.83	−0.76	2.54
Age (40–49)	−0.56	0.37	−1.29	0.16	0.36	0.64	−0.92	1.63
Age (above 49)	0.03	0.80	−1.54	1.60	0.15	1.22	−2.27	2.58
Undergraduate	1.08 *	0.47	0.15	2.01	0.04	0.89	−1.73	1.80
Graduate	1.57 *	0.63	0.33	2.80	−1.17	1.16	−3.48	1.14
Economics and management	−0.13	0.48	−1.06	0.80	2.70 *	0.99	0.75	4.66
Science and Engineering	−0.80	0.56	−1.90	0.31	7.70 *	1.19	5.34	10.05
Agriculture and forest	0.93	0.52	−0.08	1.95	3.11 *	0.97	1.19	5.04
Years as managers (6–10)	1.84 *	0.51	0.84	2.84	1.76 *	0.76	0.25	3.26
Years as managers (more than 10)	1.37 *	0.52	0.36	2.39	2.17 *	0.78	0.62	3.72
Participated in compiling CSR disclosure (No)	−0.14	0.41	−0.93	0.66	−1.50 *	0.63	−2.75	−0.26

* Significance is at alpha = 5% level, $p < 0.05$; β = regression coefficient; Std. = standard error; CI = confidence interval.

The second-stage multivariate linear regression analysis showed that compared with the reference groups, the regression coefficients of administrators who majored in economic management, science and engineering, agriculture and forestry, or had worked for 6–10 years or longer were above 0, with a statistically significant difference. It indicated that these groups were more able to perceive that CSR disclosure involves a high risk; the regression coefficient of those who have not participated in the drafting and releasing of CSR reports was below 0, with a statistically significant difference. It indicated that this group believed in a low risk induced by releasing CSR reports; the regression coefficients of females, 40–49 year-olds or above, those with a bachelor's degree, and who hold a mid-level or high-level position were above 0. The regression coefficient of master's degree holders was below 0, and both had no statistically significant difference.

5. Discussion and Conclusions

According to analyses of the extent of administrator risk recognition, most hold that releasing forestry enterprise CSR reports poses an average or low supervision risk to various stakeholders, an average percentage believe the supervision risk to be very low or relatively high, and nearly no administrators think the supervision risk is very high. Only when it comes to supervision risks posed to shareholders and consumers do certain administrators believe the risk to be very high, reflecting their concerns with these two stakeholder groups. These findings are interesting in comparison to Wang and Juslin [25], who found that various stakeholders perceive CSR according to their own preferences and emphasize issues related to their interests and benefits, such as those analyzed in the perception of various stakeholders in our study.

The analyses reveal that administrators with a bachelor's or master's degree, or 6–10 years or more of work experience are more inclined to perceive the release of CSR reports as risky. This indicates that the education level and number of years spent working as a manager in a forest enterprise have a significant impact on their decision-making processes. Other variables have no impact on administrators' risk recognition of CSR information disclosure.

Among administrators who perceive releasing CSR reports to involve risks, those who have majored in economic and management, science and engineering, agriculture and forestry, or have worked as managers for 6–10 years or more are increasingly inclined to believe in CSR information disclosure causing high risk. This indicates that professional backgrounds and knowledge structures impact the decision making of administrators. Administrators who have not participated in the drafting and releasing of their enterprises' CSR reports tend to believe that only a low risk is involved in releasing CSR reports, whereas administrators experienced in CSR reporting take the potential risks into account and choose to avoid them, as they have a more comprehensive and in-depth understanding of their enterprises' fulfillment of CSR and their CSR report disclosure. Therefore, whether administrators have participated in the drafting and releasing of CSR reports influences their decision-making recognition.

Analyses of the two-part model also reveal differences in influence factors in the two stages of risk perception. In the first stage, administrator educational level and years spent working as a manager are considered major factors influencing whether they believe it to be risky to release their CSR reports; in the second stage, while years spent working as a manager still plays a significant role in their risk perception, their education level does not. The managers' degree majors and whether they have participated in the drafting and releasing of their CSR reports additionally play a significant role in their risk perception. Therefore, our hypotheses H5 and H6 are confirmed, while H1, H2, H3, and H4 are rejected. Results of our study also show no significant association between gender, age, and risk perception of CSR disclosure. This correlation has often been proposed in empirical CSR research, but there is no consensus on whether such a correlation is positive or negative. That said, certain management studies postulate that CSR disclosure correlates with gender [51,52] or age [47], while this phenomenon was not borne out in the context of the Chinese forestry sector.

On the whole, we identified how the characteristics of managers, including six variables (gender, age, education level, degree major, years spent working as managers, and work experience), are related to the risk perceptions of managers in the process of decision-making for CSR disclosure via a two-part model utilizing survey data from 15 Chinese forestry enterprises. The analyses reveal that the influencing factors are different between the two stages of risk perception. Therefore, influencing factors are not equivalent at various stages of the CSR disclosure process, which reminds decision makers to take into account the practical impact factors and select different managers based on their backgrounds to push forward the implementation of CSR disclosure. This may also provide a reference point on CSR disclosure for researchers and practitioners.

As a shortcoming, our samples are from only part of the forestry enterprises in China, although they are representative, being used as the data source. Consequently, the results cannot be generalized to a huge number of existing, small-scale forestry enterprises in China, or even the Chinese forestry sector as a whole. However, this study aims to explore the effect of managerial risk perceptions and the influencing factors of managers on CSR disclosure in the Chinese forestry sector and to improve the sustainable development of forestry. As the largest emerging economy in the world, China is a vital player in the global forest sector. That said, studies on CSR disclosure in China, especially the perception of managers of forestry enterprises, are focused primarily on industries with a major impact on the environment and ecosystem services since it is the contribution of this study as well.

Last but not least, we can only interpret the impact of risk perception and the preferences of managers toward CSR disclosure; further topics may include the communication and discussion between influencing factors and CSR disclosure, and how corporations and managers respond to these impact factors. It would also be interesting to shed further light on the impacts of managerial perceptions on performance [37] and the effect of their value orientation [13,25] on the quality of CSR disclosure.

Author Contributions: Conceptualization, F.L. and Z.W. (Zhaohua Wang); Data curation, F.L.; Formal analysis, F.L.; Funding acquisition, F.L., Z.W. (Zhaohua Wang) and Z.W. (Zuomin Wen); Methodology, F.L., Z.W. (Zhaohua Wang) and D.D.; Project administration, Z.W. (Zhaohua Wang); Software, Z.W. (Zuomin Wen); Supervision, Z.W. (Zhaohua Wang) and A.T.; Validation, Z.W. (Zhaohua Wang), A.T., D.D. and Z.W. (Zuomin Wen); Writing—original draft, F.L.; Writing—review & editing, A.T. and D.D. All authors have read and agreed to the published version of the manuscript.

Funding: The National Natural Science Foundation of China (NSFC-AF31361130342), University Innovation and Technology Project of Shandong Province in China (2020RWG004) and the High-level Research Foundation of QAU (1119710).

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Acknowledgments: We are very grateful for the valuable comments and suggestions from Robert Kozak, University of British Columbia and the editor and two anonymous reviewers. Funding are gratefully acknowledged as well.

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

Appendix A

Table A1. Descriptions of interviewed forestry companies and organizations.

Companies (Organizations)	Years of CSR Disclosure	Websites	Ownership Type of Companies State Owned or Private	Listed Companies Yes or No
Guangxi Sunway Forest Products Industry Co., Ltd.	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019	http://www.3sunway.com (accessed on 3 June 2021)	Private	No
Jilin Forest Industry Group	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019	http://www.jlsgjt.com/index (accessed on 3 June 2021)	State owned	Yes
Nature Home (China) Co., Ltd.	2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019	http://www.nature-cn.cn (accessed on 3 June 2021)	Private	Yes
Guoxu Group (Affiliated to Guangxi Gaofeng Forest Farm)	2013, 2014, 2015, 2016, 2017, 2018, 2019	http://www.guoxujt.com.cn (accessed on 3 June 2021)	State owned	No
Xingxing Group Co., Ltd.	2013, 2014, 2015, 2016, 2017, 2018, 2019	http://www.xxcqmm.cn (accessed on 3 June 2021)	Private	No
Baluohe Wood Co., Ltd.	2014, 2015, 2016, 2017, 2018, 2019	http://www.elegantliving.cn (accessed on 3 June 2021)	Private	No
Fenglin Group Co., Ltd.	2015, 2016, 2017, 2018, 2019	http://www.fenglinggroup.com (accessed on 3 June 2021)	Private	Yes

Table A1. Cont.

Companies (Organizations)	Years of CSR Disclosure	Websites	Ownership Type of Companies State Owned or Private	Listed Companies Yes or No
Dareglobal Group Co., Ltd.	2015, 2017, 2018, 2019	http://www.dareglobalwood.com (accessed on 3 June 2021)	Private	Yes
Jiusheng Board Co., Ltd.	2015, 2017, 2018, 2019	http://www.jiushengboard.com (accessed on 3 June 2021)	Private	No
Yihua Wood Co., Ltd.	2012, 2013, 2016	http://yihua978.floorb2b.com (accessed on 3 June 2021)	Private	Yes
Vohringer Wood Technology Co., Ltd.	2017, 2018, 2019	http://cus.vohringer.com (accessed on 3 June 2021)	Private	Yes
Zhejiang Shiyou Timber Co., Ltd.	2017, 2018, 2019	http://www.sbmia.org.cn (accessed on 3 June 2021)	Private	No
Dehua Tubaobao Co., Ltd.	2012, 2013	http://www.tubaobao.com (accessed on 3 June 2021)	Private	Yes
Powerdekor Group Co., Ltd.	2015, 2018	http://www.powerdekor.com.cn/mob/list.action (accessed on 3 June 2021)	Private	No
Yaodonghua Decor Materials Technology Co., Ltd.	2018, 2019	http://www.yaodonghua.com (accessed on 3 June 2021)	Private	No
China National Forest Products Industry Association (CNFPIA)	–	http://www.cnfpia.org/index.html (accessed on 3 June 2021)	–	–
Chinese Forestry Industrial Union (CFIU)	–	http://www.chinalycy.org/ (accessed on 3 June 2021)	–	–

Appendix B

Table A2. Descriptive statistics of the questionnaire of risk perceptions on CSR disclosure of managers in forestry enterprises.

Risk Perceptions	No.	Percentage (%)	
Risks (No)	85	39.72	
Risks (Yes)	129	60.28	
	5-point Likert scale	Mean	Std. Dev.
Supervision of shareholders and investors	Highest	3.53	0.89
	Higher		
	General		
	Lower		
Supervision of government and community	Lowest	3.59	0.79
	Highest		
	Higher		
	General		
	Lower		
Supervision of general public	Lowest	3.38	0.74
	Highest		
	Higher		
	General		
	Lower		
Supervision of consumer	Lowest	3.20	0.79
	Highest		
	Higher		
	General		
	Lower		
Supervision and competition of	Lowest	3.73	0.75
	Highest		

Table A2. Cont.

Risk Perceptions	No.	Percentage (%)	
peers	Higher General Lower Lowest		
Supervision of NGOs	Highest Higher General Lower Lowest	3.28	0.76
Increased investment in environmental protection	Highest Higher General Lower Lowest	3.66	0.94

References

- Vidal, N.G.; Kozak, R.A. The recent evolution of corporate responsibility practices in the forestry sector. *Int. For. Rev.* **2008**, *10*, 1–13. [\[CrossRef\]](#)
- Vidal, N.G.; Kozak, R.A. Corporate responsibility practices in the forestry sector: Definitions and the role of context. *J. Corp. Citizsh.* **2008**, *31*, 59–75. [\[CrossRef\]](#)
- Abeysekera, A.; Lu, Y.J. *Social and Environmental Disclosure by Chinese Firms*; Routledge: London, UK; Taylor & Francis Group: New York, NY, USA, 2014.
- Panwar, R.; Hansen, E.; Kozak, R. (Eds.) *Forests, Business and Sustainability*; Routledge: New York, NY, USA, 2016.
- Uyar, A. Evolution of corporate reporting and emerging trends. *J. Corp. Account. Finance* **2016**, *27*, 27–30. [\[CrossRef\]](#)
- Ranängen, H.; Zobel, T. Revisiting the ‘how’ of corporate social responsibility in extractive industries and forestry. *J. Clean. Prod.* **2014**, *84*, 299–312. [\[CrossRef\]](#)
- D’Amato, D.; Li, N.; Rekola, M.; Toppinen, A.; Lu, F.F. Linking forest ecosystem services to corporate sustainability disclosure: A conceptual analysis. *Ecosyst. Serv.* **2015**, *14*, 170–178. [\[CrossRef\]](#)
- 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. [\[CrossRef\]](#)
- Yang, J.M.; Ji, X.X.; Deane, D.C. Spatiotemporal Distribution and Driving Factors of Forest Biomass Carbon Storage in China: 1977–2013. *Forests* **2017**, *8*, 263. [\[CrossRef\]](#)
- Panwar, R.; Hansen, E.; Kozak, R. Evaluating social and environmental issues by integrating the legitimacy gap with expectational gaps: An empirical assessment of the forest industry. *Bus. Soc.* **2014**, *53*, 853–875. [\[CrossRef\]](#)
- Toppinen, A.; Zhang, Y.; Hansen, E.; Korhonen-Kurki, K.; Li, N. Role of corporate responsibility: Insights from three forest-industry multinationals investing in China. In *From Global Pressures to Local Responses*; IUFRO World Series; Katila, P., Galloway, G., de Jong, W., Pacheco, P., Mery, G., Eds.; Taylor and Francis Group: Didcot, UK, 2014; Volume 32, pp. 217–228.
- Korhonen, J.; Zhang, Y.; Toppinen, A. Examining vertical integration in the global forest sector. *For. Policy Econ.* **2016**, *70*, 39–46. [\[CrossRef\]](#)
- Pätäri, S.; Tuppurä, A.; Toppinen, A.; Korhonen, J. Global sustainability megaforges in shaping the future of the European pulp and paper industry towards a bioeconomy. *For. Policy Econ.* **2016**, *66*, 38–46. [\[CrossRef\]](#)
- D’Amato, D.; Droste, N.; Allen, B.; Kettunen, M.; Lahtinen, K.; Korhonen, J.; Leskinen, P.; Matthies, B.D.; Toppinen, A. Green, circular, bio economy: A comparative analysis of three sustainability avenues. *J. Clean. Prod.* **2017**, *168*, 716–734. [\[CrossRef\]](#)
- Tuppurä, A.; Toppinen, A.; Jantunen, A. Proactiveness and corporate social performance in the global forest industry. *Int. For. Rev.* **2013**, *15*, 112–121. [\[CrossRef\]](#)
- Lahtinen, K.; Toppinen, A.; Mikkilä, M.; Toivio, M.; Suur-Uski, O. Corporate responsibility reporting in promoting social license to operate in forestry and sawmilling industries. *Forestry* **2016**, *89*, 2–17. [\[CrossRef\]](#)
- Slovic, P. Perception of risk. *Science* **1987**, *236*, 280–285. [\[CrossRef\]](#)
- Wikdavsky, A.; Dake, K. Theories of risk perception: Who fears what and why? *Daedalus* **1990**, *119*, 41–60.
- Jagannathan, R.; Ravikumar, A.; Sammon, M. Environmental, social, and governance criteria: Why investors should care. *J. Invest. Manag.* **2018**, *16*, 18–31.
- Hoepner, A.G.F.; Oikonomou, I.; Sautner, Z.; Starks, L.T.; Zhou, X.Y. ESG Shareholder Engagement and Downside Risk. *SSRN Electron. J.* **2019**. [\[CrossRef\]](#)
- Starks, L.T. EFA keynote speech: corporate governance and corporate social responsibility: What do investors care about? What should investors care about? *Financ. Rev.* **2009**, *44*, 461–468. [\[CrossRef\]](#)

22. Riordan, C.M.; Gatewood, R.D.; Bill, J.B. Corporate image: Employee reactions and implications for managing corporate social performance. *J. Bus. Ethics* **1997**, *16*, 401–412. [[CrossRef](#)]
23. Liu, X.B.; Anbumozhi, V. Determinant factors of corporate environmental information disclosure: An empirical study of Chinese listed companies. *J. Clean. Prod.* **2009**, *17*, 593–600. [[CrossRef](#)]
24. De Villiers, C.; van Staden, C.J. Shareholders' requirements for corporate environmental disclosures: A cross country comparison. *Br. Account. Rev.* **2010**, *42*, 227–240. [[CrossRef](#)]
25. Wang, L.; Juslin, H. Corporate social responsibility in the Chinese forest industry: Understanding multiple stakeholder perceptions. *Corp. Soc. Responsib. Environ. Manag.* **2013**, *20*, 129–145. [[CrossRef](#)]
26. Cohen, D.; Mathey, A.H.; Biggs, J.; Boyland, M. Corporate Social Responsibility. In *The Global Forest Sector: Changes, Practices and Prospects*; Taylor and Francis Group: Didcot, UK, 2014; pp. 353–376.
27. He, Z.X.; Shen, W.X.; Li, Q.B.; Xu, S.C.; Zhao, B.; Long, R.Y. Investigating external and internal pressures on corporate environmental behavior in papermaking enterprises of China. *J. Clean. Prod.* **2018**, *172*, 1193–1211. [[CrossRef](#)]
28. Meng, X.H.; Zeng, S.X.; Tam, C.M. From voluntarism to regulation: A study on ownership, economic performance and corporate environmental information disclosure in China. *J. Bus. Ethics* **2013**, *116*, 217–232. [[CrossRef](#)]
29. Mikkilä, M.; Toppinen, A. Corporate responsibility reporting by large pulp and paper companies. *For. Policy Econ.* **2008**, *10*, 500–506. [[CrossRef](#)]
30. Han, X.O.; Hansen, E. Corporate social responsibility implementation in the global forest sector. *J. Corp. Citizsh.* **2011**, *47*, 101–118. [[CrossRef](#)]
31. Toppinen, A.; Li, N.; Tuppura, A.; Xiong, Y. Corporate responsibility and strategic groups in the forest-based industry: Exploratory analysis based on the global reporting initiative (GRI) framework. *Corp. Soc. Responsib. Environ. Manag.* **2012**, *19*, 191–205. [[CrossRef](#)]
32. Lu, F.F.; Kozak, R.; Toppinen, A.; D'Amato, D.; Wen, Z.M. Factors influencing levels of CSR disclosure by forestry companies in China. *Sustainability* **2017**, *9*, 1800. [[CrossRef](#)]
33. Colaço, R.; Simão, J. Disclosure of corporate social responsibility in the forestry sector of the Congo Basin. *For. Policy Econ.* **2018**, *92*, 136–147. [[CrossRef](#)]
34. Li, N.; Toppinen, A.; Tuppura, A.; Puumalainen, K.; Hujala, M. The patterns and determinants of sustainability disclosure in the global forest industry. *EJBO Electron. J. Bus. Ethics Organ. Stud.* **2011**, *16*, 33–40.
35. Li, W.J.; Zhang, R. Corporate social responsibility, ownership structure, and political interference: Evidence from China. *J. Bus. Ethics* **2010**, *96*, 631–645. [[CrossRef](#)]
36. Li, Y.H.; Foo, C.K. Managing CSR inside China. In *Diversity of Managerial Perspectives from Inside China*; Foo, C.K., Ed.; Springer: Berlin/Heidelberg, Germany, 2016.
37. Van der Putten, F.P. *A Research Agenda for International Corporate Social Responsibility*; NRG Working Series, 5–9; The Nyenrode Research Group: Breukelen, The Netherlands, 2005.
38. Carroll, A.B. A three-dimensional conceptual model of corporate social performance. *Acad. Manag. Rev.* **1979**, *4*, 497–505. [[CrossRef](#)]
39. Freeman, E. *Strategic Management: A Stakeholder Approach*; Pitman Publishing: Boston, MA, USA, 1984.
40. Simmons, J. Managing in the post-managerialist era: Towards socially responsible corporate governance. *Manag. Decis.* **2004**, *42*, 601–611. [[CrossRef](#)]
41. Brickson, S. Organizational identity orientation: The genesis of the role of the firm and distinct forms of social value. *Acad. Manag. Rev.* **2007**, *32*, 864–888. [[CrossRef](#)]
42. Roberts, R.W. Determinants of corporate social responsibility disclosure: An application of stakeholder theory. *Account. Organ. Soc.* **1992**, *17*, 595–612. [[CrossRef](#)]
43. Steurer, R. Mapping stakeholder theory anew: From the 'stakeholder theory of the firm' to three perspectives on business–society relations. *Bus. Strategy Environ.* **2006**, *15*, 55–69. [[CrossRef](#)]
44. Su, C.; Mitchell, R.K.; Sirgy, M.J. Enabling guanxi management in China: A hierarchical stakeholder model of effective guanxi. *J. Bus. Ethics* **2007**, *71*, 301–319. [[CrossRef](#)]
45. Hambrick, D.C.; Mason, P.A. Upper echelons: The organizations as a reflection of its managers. *Acad. Manag. Rev.* **1984**, *9*, 193–206. [[CrossRef](#)]
46. Tihanyi, L.; Ellstrand, A.E.; Daily, C.M.; Dalton, D.R. Composition of the top management team and firm international diversification. *J. Manag.* **2000**, *26*, 1157–1177. [[CrossRef](#)]
47. Kahneman, D.; Tversky, A. Prospect theory: An analysis of decision making under risk. *Econometrica* **1979**, *47*, 263–292. [[CrossRef](#)]
48. Hambrick, D.C. Upper echelons theory: An update. *Acad. Manag. Rev.* **2007**, *32*, 334–343. [[CrossRef](#)]
49. Meng, X.H. *Study on Driving Mechanism of Corporate Environmental Information Disclosure*; Shanghai Jiao Tong University Press: Shanghai, China, 2014.
50. 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](#)]
51. Bantel, K.A.; Jackson, S.E. Top management and innovations in banking: Does the composition of the top team make a difference? *Strateg. Manag. J.* **1989**, *10*, 107–124. [[CrossRef](#)]

52. Wiersema, M.A.; Bantel, K.A. Top management team demography and corporate strategic change. *Acad. Manag. J.* **1990**, *35*, 91–121.
53. Ford, R.; Richardson, W. Ethical decision making: A review of the empirical literature. *J. Bus. Ethics* **1994**, *13*, 205–221. [[CrossRef](#)]
54. Loe, T.; Ferrell, L.; Mansfield, P. A review of empirical studies assessing ethical decision making in business. *J. Bus. Ethics* **2000**, *25*, 185–204. [[CrossRef](#)]
55. Boden, R.J.; Nucci, A.R. On the survival prospect of men's and women's new business ventures. *J. Bus. Ventur.* **2000**, *15*, 347–362. [[CrossRef](#)]
56. Barua, A.; Davidson, L.; Rama, D.; Thiruvadi, S. CFO gender and accruals quality. *Account. Horiz.* **2010**, *24*, 25–40. [[CrossRef](#)]
57. Wang, S.Y.; Zhang, S.J.; Li, B.B. Effect of diversity on top management team to the bank's innovation ability-based on the nature of ownership perspective. *Proc. Eng.* **2017**, *174*, 240–245.
58. Ding, W. The impact of founder's professional-education background on the adoption of open science by for-profit biotechnology firms. *Manag. Sci.* **2011**, *57*, 257–273. [[CrossRef](#)]
59. Forker, J.J. Corporate governance and disclosure quality. *Account. Bus. Res.* **1992**, *22*, 111–124. [[CrossRef](#)]
60. Finkelstein, S.; Hambrick, D.C. *Strategic Leadership: Top Executives and Their Effects on Organizations*; West: St. Paul, MN, USA, 1996.
61. China National Forest Products Industry Association (CNFPPIA). Available online: <http://www.cnfpia.org/index.html> (accessed on 26 October 2019).
62. Gummesson, E. *Qualitative Methods in Management Research*; Sage Publications: Thousand Oaks, CA, USA, 2000.
63. Ramalho, J.S.; Vidigal, S.J. A two-part fractional regression model for the financial leverage decisions of micro, small, medium and large firms. *Quant. Financ.* **2009**, *9*. [[CrossRef](#)]
64. Wooldridge, J.M. *Introductory Econometrics: A Modern Approach*; Renmin University of China Press: Beijing, China, 2003.
65. Duan, N.; Manning, W.G.; Morris, C.N.; Newhouse, J.P. *A Comparison of Alternative Models for the Demand for Medical Care*; Health Insurance Experiment Series; Rand: Santa Monica, CA, USA, 1982.