Stakeholder Pressures and Corporate Environmental Strategies: A Meta-Analysis

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Abstract: Stakeholder pressures and corporate environmental strategies continue to be important topics of corporate sustainability. Limited by sample size, there is a lack of general conclusions on which groups of stakeholder pressures are the main drivers of environmental strategies. Amassing a database of 58 empirical studies, the authors divided stakeholder pressures into four groups—internal, coercive, market, and social pressure—and explored the relationship between different pressures and environmental strategies by conducting a meta-analysis. The main result shows that internal pressure is the main driver of environmental strategies. Further empirical results show that stakeholder pressures could have a larger effect on corporate environmental strategies in developed countries and that non-manufacturing firms could change their environmental strategies more easily than manufacturing firms. The results provide the practical implication that a green industry transition is strongly needed in the manufacturing industry, especially for polluting industries, and that firms in polluting industries should implement environmental strategy changes in the future. This paper contributes to clarifying the relationship between stakeholder pressures and corporate environmental strategies based on a meta-analysis.

Keywords: stakeholder pressures; environmental strategies; meta-analysis; corporate sustainability

1. Introduction

Research on corporate environmental strategies started in the late 1980s and early 1990s [1,2], and the impact of stakeholder pressure on corporate environmental strategies is one of the important branches of this research. From outside corporations, as the core subjects of environmental governance, businesses are faced with regulations from the government and with supervision from Non-Government Organizations and the public. From the inside of corporations, in order to meet the environmental demands of various external stakeholders, businesses need to develop their strategies to improve their environmental behaviors, pay attention to their construction of environmental strategies, and change how they respond to environmental pressures from different stakeholders to obtain legitimacy [3].

The relationship between stakeholder pressures and corporate environmental strategies is mainly examined from two perspectives—a stakeholder-based view that focuses on how a company’s different stakeholder groups influence their environmental strategies [4,5] and a neo-institutional based view, which focuses on how a company responds to institutional pressures [6]. Recently, Cañón-de-Francia and Garcés-Ayerbe [7] provided evidence that environmental proactivity contributes to obtaining economic benefits. Zhang, Morse, and Ma [8] found that the drivers of corporate social behavior are different between the west and China. Das et al. [9] determined that corporate environmental strategies exert an insignificant direct influence on voluntary environmental behavior.
However, although many scholars have deeply explored this topic, previous studies do not yet offer general conclusions on which stakeholder is the main driver that affects corporate environmental strategies. Thus, the influencing mechanism behind stakeholder pressures on corporate environmental strategies remains to be clarified. The general conclusion is influenced by data availability, limits of measurements, and context factors. Firstly, previous studies have failed to establish and empirically test the theoretical framework on the topic of stakeholder pressures and environmental strategies because of data availability. For instance, He et al. [10] investigated the internal and external pressures on corporate environmental strategies. Maggioni and Santangelo [11] focused on pressures from local environmental non-profit organizations. These studies mainly conducted empirical research based on data availability. Some scholars, such as Valentine [12], have suggested that the impact of stakeholder pressure on environmental strategies is like a “green onion”: Primary stakeholders could have a greater influence than others, but the general framework still needs to be tested empirically. Secondly, the limits in measuring stakeholder pressure and environmental strategies make it difficult to obtain a general conclusion. Some studies using questionnaires cannot acquire a large sample size; panel data research in particular cannot be conducted [13,14]. Furthermore, other studies tend to blur the line between environmental management and environmental performance [15]. This makes studies conflate environmental strategies with environmental performance. Thirdly, context factors need to be introduced into studies, such as the role of different economic development levels (the differences between developed countries and developing countries) and different industry characteristics (differences between manufacturing and non-manufacturing industries); these factors need to be explored further.

Therefore, this paper aims to bridge the systematic results of stakeholder pressures and environmental strategies based on the empirical results of existing research, in order to further clarify the mechanism of stakeholder pressures on environmental strategies and obtain a general conclusion. Thus, the authors applied a meta-analysis, which can be used to gather the results of various studies and collected the data of 58 empirical studies from 1996 to 2018 on the topic of stakeholder pressures and environmental strategies to examine stakeholder pressures’ effects on environmental strategies.

The remainder of the paper is structured as follows. The second section sums up the theoretical literature. The third section offers a description of the methodology and the dataset for the meta-analysis. Empirical results are presented in the fourth section. Finally, the fifth section concludes this paper.

2. Literature Review and Theory Analysis

2.1. Definition of Corporate Environmental Strategies

Corporate environmental strategies are a series of strategic plans intended to mitigate the impact of enterprise on the natural environment, which is involved in product production, business processes, and environmental policies, such as reducing energy consumption and waste, introducing clean energy, and introducing environmental management systems [13,16]. The construction of environmental strategies is complex, and the participation of external stakeholders is one of the important influencing factors [17]. The effective implementation of environmental strategies benefits from the establishment of a stable and trusting relationship with stakeholders.

In order to respond to the environmental pressures from various stakeholders, different companies may have different environmental strategic responses. Hunt and Auster [18] and Romme [1] noted that the classification of corporate environmental strategies depends on a company’s own level of environmental management. Subsequent researchers have formed a spectrum from “reactive” to “proactive” in the classification of environmental strategies [19,20].

Reactive environmental strategies are a negative response to environmental pressure. Enterprises setting reactive environmental strategies often adopt end-of-pipe technologies in order to meet the minimum requirements of environmental regulatory agencies, to minimize the costs invested by
the company on environmental protection and thus reduce the risk of environmental pollution [1]. In the process of responding to stakeholder pressures, reactive environmental strategies only focus on regulatory pressure from the government and regulatory agencies. Boiral [21] and Lim and Tsutsui [22] further noted that such negative responses to external environmental pressure are just a symbolic response used to obtain legitimacy.

On the contrary, proactive environmental strategies emphasize pollution prevention and require enterprises to bolster their environmental capabilities [23]. Sharma and Henriques [24] believe that a company’s environmental capability is built on the effective integration of internal and external resources and that proactive environmental strategies are a substantial expression of environmental behavior. Proactive environmental strategies are an active type of responsive strategy that includes more stakeholders in sustainable development.

2.2. Current Theoretical Perspective

In existing studies, the impact of stakeholder pressures on the formation of corporate environmental strategies has been discussed from the perspective of natural resources, neo-institutions, and stakeholders.

2.2.1. The Neo-Institutional Based View

DiMaggio and Powell [25] believe that all kinds of organizations constitute a field, including key suppliers, consumers, regulators, and other organizations that provide products and services. The interaction between an organization and the environment in the field forms a top-down institutionalized process, which influences organization in the field into three kinds of institutional pressures, including coercive, normative, and mimetic pressures, which produce a phenomenon of organizational isomorphism. In a mature organizational field affected by institutional pressure, enterprises have to meet the demands of various stakeholders to obtain legitimacy, including introducing the same governance structures and adopting the same market behavior. Jennings and Zandbergen [6] were the earliest scholars to introduce institutional theory into enterprise environmental strategy analysis. Jennings and Zandbergen extended the viewpoint of Di Maggio and Powell [25] into a study of the natural environment, and indicated that institutional pressures on an enterprise’s environmental behaviors can be divided into three categories (coercive, normative, and mimetic pressure) and proposed the research topic of institutional pressure and corporate environmental strategy. Some scholars have also included pressure from the supply chain [26], market pressure [27], and internal pressure [10] to supplement existing theories of isomorphic pressure. The empirical results of these studies show that institutional pressure will have a positive impact on the environmental strategic response [28,29].

2.2.2. Stakeholder-Based View

According to stakeholder theory, various stakeholders of the focal company will push that company to use not only short-term economic interests as its ultimate goal [30] but also to promote the implementation of corporate environmental strategies [31,32]. The first study discussing stakeholder pressures on corporate environmental strategies was performed by Henriques and Sadorsky [4], who used empirical data to test the relationship between different stakeholders and whether the company established an environmental plan. The results showed that the composition of an environmental plan is positively affected by pressure from customers, shareholders, regulators, and community groups, but under the pressure of lobby groups, companies tend to reduce their related environmental plans. In the following studies, various stakeholders are divided into different groups based on different classification criteria to investigate the impact of each stakeholders group on corporate environmental strategies. For example, Lee, Kim, and Kim [33] analyzed the internal stakeholder support and external stakeholder pressure influencing mechanisms on environmental strategies. By responding to stakeholders’ environmental demands, a company can establish a trusting
relationship, obtain legitimacy, and then establish a good reputation for the company, adopting different environmental strategies according to the different demands of the relevant stakeholders [34].

2.2.3. A Combination of These Two Theoretical Perspectives

Based on the above analyses, the stakeholder-based view and neo-institutional based view illustrate the impact of stakeholder pressure on corporate environmental strategies from different perspectives. Combined with studies from different perspectives, these theoretical views focus on the “pressure-state-response”. Under pressure from different stakeholders, the focal company has to make a decision to respond to environmental problems, which is crucial for the company’s growth.

The stakeholder-based view focuses on which stakeholder participates in and places pressure on the environmental strategic decision-making of the company. However, it is insufficient to explore only the influencing mechanism of stakeholder pressure. The neo-institutional based view explores stakeholder pressures from the perspective of institutional norms, such as coercive, normative, and mimetic aspects, but this perspective lacks discussion of the market aspects of stakeholder pressures. This paper combines these two perspectives and illustrates the influencing mechanism of stakeholder pressures.

First, we consider the identification of corporate stakeholders (i.e., focusing on who influences corporate environmental strategies). Freeman [30] divides corporate stakeholders into 10 classes, the degree of influence of various stakeholders of the company is different. In the follow-up studies, scholars generally pay close attention to the stakeholders who exert significant influence on environmental strategies [24,31]. A meta-analysis needs to identify and include the corporate stakeholders that have substantially affected the firm.

Second, we consider the governance mechanism of different green stakeholders (i.e., focusing on how stakeholders influence corporate environmental strategies). The pressure mechanism of stakeholders varies due to each stakeholder’s different organizational or group attributes. To identify each stakeholder, it is necessary to pay more attention to the pressure mechanisms of different stakeholders. Li, Xu, and Zheng [35] proposed a green governance framework. They divided the governance mechanism into an economic governance mechanism, an administrative governance mechanism, and a social governance mechanism. From the firm level, this paper first uses coercive pressure and social pressure to represent the coercive mechanisms from regulations, other third-party institutions, and the public. Then, this paper includes internal pressures to represent the pressures from shareholders, management, and employees inside the company, comprising the internal governance of the firm [36]. Furthermore, due to market competition and pressure from the supply chain, we have incorporated the category of market pressure.

2.3. Influencing Mechanism of Stakeholder Pressure

Based on previous studies, this article finds that in order to explore stakeholders’ pressure mechanisms on corporate environmental strategies, it is important to categorize different stakeholder groups, which may help determine the differences among stakeholder groups and assume a bird’s-eye view on this topic. After extracting current papers, the authors classified stakeholder pressures into internal pressure, coercive pressure, market pressure, and social pressure, which represent shareholders, employees, managers, the government, NGOs, the public, industry associations, competitors, suppliers, and buyers. The theoretical framework is shown in Figure 1.
2.3.1. Internal Pressure

The internal stakeholders of a company could have a significant impact on the formation of environmental strategies, but existing studies on the pressure of internal stakeholders have mainly focused on shareholders, managers, and employees [34,37].

Firstly, Herinques and Sadorsky [38] believe that shareholders have an important impact on corporate environmental strategy response and that environmental behaviors may be a reflection of shareholders’ environmental understanding. Major company shareholders are affected by a good environmental reputation and production efficiency and will require the company to implement a positive environmental strategy. Testa, Boiral, and Iraldo [39] determined that shareholder pressure would prompt the company to actively introduce an environmental management system. Moreover, the rise of socially responsible investors in recent years suggests that high environmental performance may provide competitive advantages to the company and thus lead to an investment premium [40].

Secondly, current studies focus on internal managers. Managers are in charge of the daily operational activities of a company, which directly involves environmental management practices. Therefore, a manager’s environmental perception is one of the core elements influencing a company’s environmental strategy. When top management members pay more attention to environmental problems, they will allocate significantly more resources to environmental management activities and implement a series of environmental innovations. The reason why managers’ environmental concerns have an impact on a company’s environmental innovation strategy is that management hopes to give external stakeholders an impression that the company is concerned about environmental issues internally through environmental strategies [41]. Relevant studies show that the environmental understanding of management will have a positive impact on the implementation of environmental strategies [31,42].

Thirdly, employees are not only stakeholders of the company but also human capital of the company. Employees, as one of the important stakeholders within the company, are the core members who disseminate positive environmental practice knowledge and promote the improvement of environmental performance [24]. Current studies show that employees’ influences on environmental strategies, on the one hand, are due to their awareness of environmental problems [43]. On the other hand, compared with other external stakeholders, employees can more directly influence the environmental strategic behavior of the company. The empirical results show that there is a
positive correlation between the degree of coordination between companies and employees and the implementation of proactive environmental strategies [44].

2.3.2. Market Pressure

Market pressure comes from market stakeholders of the focal firm, including market competition and the supply chain. In order to obtain a competitive advantage, entities in the market must improve their own environmental technologies, which may place pressure on the focal firm.

Firstly, the market pressure mechanism comes from competitors of the focal firm. As more enterprises in the same industry increasingly adopt environmental technologies to improve their production and business activities, external stakeholders will become more inclined to choose products from enterprises with environmental technologies [45]. Competitors that introduce environmental technologies will thus gain the recognition of more external stakeholders [16], which may occupy the living space of the focal company and force them to change their environmental strategies to compete for competitive market advantages.

Secondly, industry associations can regulate corporate environmental behaviors by setting certain industry norms and standards [46]. Member enterprises of an industry association may face environmental pressure from these norms and standards, thus becoming more inclined to implement proactive environmental strategies [34]. For example, industry associations can better promote an environmental atmosphere in the industry and supervise an enterprise’s environmental behaviors by signaling the benefits of introducing an environmental management system [47]. In addition, the benchmark effect within the industry association will also exert pressure on the focal company to imitate other environmental management systems.

Thirdly, suppliers and buyers are important stakeholders influencing the establishment of the environmental strategies of the focal company [42, 48]. Existing studies have explored the impact of environmental pressure on enterprises in the supply chain and have found that the proactive environmental strategies of enterprises can obtain trust in the supply chain [49]. On the one hand, green suppliers can restrict the pollution behavior of downstream enterprises through the assessment [50], reputation [51], and network mechanisms [52] of both sides and then require the purchaser enterprises to improve their environmental strategies. On the other hand, buyers can also exert pressure through collective boycotts or lawsuits to affect environmental strategies [53, 54].

2.3.3. Coercive Pressure

Coercive pressure comes from the government, regulators, and legal policies. Coercive pressure compels enterprises to participate in green practices through means such as environmental taxation and punishment. Coercive pressure in the form of environmental regulations is used to promote the environmental practices of enterprises with administrative power and to urge them to adjust their environmental strategies. On the one hand, the administrative power from regulations is manifested in the pollution control of pollutant emissions from these enterprises. On the other hand, administrative power also encourages enterprises to introduce an environmental management system [55], such as the ISO 14001 system, and ecological innovation technology [56], to improve the quality of their pollution control and prevention technology.

However, other studies have noted that environmental pressure from governments and regulators sometimes fails to guide an enterprise’s behavior. For example, Palmer, Oates, and Portney [57] and Kassinis and Vafeas [58] believe that environmental regulations that are too strict may be a cost burden for enterprises, which may make it difficult for such enterprises to bear the regulation costs. Wang, Wijen, and Heugens [59] found that there is an inverted U-shaped relationship between different levels of government regulations and environmental actions in their studies on listed companies in China. The government cannot increase corporate environmental investments [60]. Although there is no agreement on the mechanism behind the coercive pressure of the government and regulatory
agencies on corporate environmental strategic responses, it remains one of the most important factors influencing corporate environmental strategies.

2.3.4. Social Pressure

Social pressure comes from institutionalized social norms and practices, through which the public and NGOs play a critical role in corporate environmental strategies [26,61].

Firstly, the environmental awareness of the public plays an important role in decision-making for corporate environmental social responsibility [62] because social norms dictate whether corporate decisions have social value. Environmental awareness will also influence people’s views on environmental problems [63]. When the public has strong environmental awareness, they will put pressure on the focal company. Related studies have found that when the public has a strong sense of the environment, local enterprises prefer to use clean energy [27]. Studies on corporate environmental strategies have found that enterprises will be affected by environmental awareness and consider environmental issues in company decision-making [64]. However, Dowell and Muthulingam [45] believe that the environmental cognition of the public has little influence on the environmental behavior of enterprises and that enterprises often carry out environmental activities due to their own economic interests, rather than the attention of the public.

Secondly, as the third supervisor of the natural environment, NGOs can supervise the environmental behaviors of enterprises. Previous studies have suggested that NGOs can primarily participate in the corporate green governance by influencing the reputation of the company through indirect mechanisms, such as public protests and environmental litigation, and thus have an impact on environmental strategies [24,32]. Current studies show that the environmental supervision of NGOs has changed enterprises’ environmental strategies [11,33].

3. Research Design

3.1. Meta-Analysis Introduction

A meta-analysis is a type of statistical analysis founded on the empirical results of previous quantitative studies, which can integrate and merge studies with a similar theme, thereby determining the more general conclusions of those studies. Thus, meta-analysis is a quantitative method that provides integrated view of the literature under the same topic and can reduce the subjective biases of a traditional qualitative research review. In recent years, meta-analyses have been widely used in management studies. For instance, Nason and Wiklund [65] applied the meta-analysis method to explore the relationship between a resource-based view and firm growth.

Based on the research on stakeholder pressure and corporate environmental strategies, there are still some notable controversies on how to measure corporate environmental strategies through standard data, such as corporate annual reports and social responsibility reports [13]. This makes it difficult to carry out an empirical analysis with a large sample, as studies mainly use questionnaires and survey analyses, thus producing limitations in their research conclusions. By combining similar research results, the meta-analysis method can help obtain more general research conclusions, highlight the limitations of current research, and propose the future directions of stakeholder pressure and corporate environmental strategies.

3.2. Searching Strategy

The first step of this meta-analysis is to collect studies on the topic of stakeholder pressure and corporate environmental strategies. This process mainly includes three steps: Database selection, literature collection, and literature retrieval.

Firstly, we discuss database selection. EBSCO, Elsevier, Emerald, Springer, Wiley, JSTOR, MDPI, and Google Scholar were selected as the source databases for the relevant literature.
Secondly, we perform a literature collection. To search more systematically and scientifically, we used the method of Mura et al. [66], which involves establishing three groups of keywords, including research objects, sustainability, and measurements. We extract one word from each of the three groups of keywords each time and eliminate duplicate samples; these words comprise the meta-analysis samples in the paper. The list of keywords is shown in Table 1.

Table 1. Keyword Set Used to Search for Papers.

<table>
<thead>
<tr>
<th>Set 1: Research Objects</th>
<th>Set 2: Sustainability</th>
<th>Set 3: Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate Enterprise</td>
<td>Environment *</td>
<td>Strategy</td>
</tr>
<tr>
<td>Company</td>
<td>Green</td>
<td>Practice</td>
</tr>
<tr>
<td>Firm</td>
<td>Ecol *</td>
<td>Management</td>
</tr>
<tr>
<td></td>
<td>Sustainab *</td>
<td>Proactivity</td>
</tr>
<tr>
<td></td>
<td>Social</td>
<td>Response</td>
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<tr>
<td></td>
<td></td>
<td>Responsibility</td>
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<td></td>
<td></td>
<td>Policy</td>
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<td></td>
<td></td>
<td>Initiative</td>
</tr>
</tbody>
</table>

Note: * represents fuzzy search on the related keywords.

Thirdly, we engage in literature retrieval. Based on the results of the literature collection, we further retrieve unrelated research literature. First, we verify whether the topic of the paper is a “stakeholder pressure and corporate environmental strategy”, based on the title, abstract, and keywords, and then we verify the research methods of the studies, excluding the papers on theory analysis, literature reviews, and case studies, leaving only quantitative empirical studies. The retrieval was mainly completed independently by two authors with different professional backgrounds (public administration and corporate governance), and inconsistent retrieval results were discussed and solved. Through the retrieval, 58 research studies were selected in the meta-analysis, containing 32,001 observations.

3.3. Data Coding, Extraction, and Calculation

3.3.1. Data Coding and Extraction

Based on the collected studies, the authors coded the sample information. The coding information includes publication information (author, publication year, and publication journal), sample source (country and industry), stakeholder classification, and sample data extraction (correlation coefficient). The whole process was completed by the two authors independently, and then disagreements were discussed. The coding data were entered after reaching a consensus.

3.3.2. Effect Size Calculation

In the meta-analysis, the authors collected correlation coefficients between stakeholder pressures and corporate environmental strategies for meta-analysis. Then, the authors followed the method of Hedges and Olkin [67] for meta-analysis, which is the mainstream examination method for management research [68]. In this study, the authors used weighted average correlation coefficients [69].

Firstly, according to Hunter and Schmidt [70], the authors transformed the weighted average correlation coefficients into Fisher’s z, which is used as the effect size in the meta-analysis. Fisher’s Z was calculated by the following formula:

\[ z_i = \frac{1}{2} \ln\left(\frac{1 + r_i}{1 - r_i}\right) \]  

(1)
where $r_i$ is the correlation coefficient of stakeholder pressures and corporate environmental strategies. Secondly, the authors calculated the weighted mean effect $z_r$ as follows:

$$z_r = \frac{\sum_{i=1}^{N_i} w_i z_i}{\sum_{i=1}^{N_i} w_i} \quad (2)$$

where $N$ is the total number of studies included in the meta-analysis, and $w_i$ is the weight value of study $i$.

Further, the authors calculated Cocharam’s $Q$ and Higgins’ $I^2$ to analyze the homogeneity of two different studies’ statistics. The related formulas are as follows:

$$Q = \sum_{i=1}^{N} w_i (z_i - \bar{z}_r)^2 \quad (3)$$

$$I^2 = \frac{Q - (N - 1)}{Q} \quad (4)$$

Then, the authors examined whether publication bias in the meta-analysis could affect the empirical results. Publication bias refers to the fact that significant empirical studies are more easily published than studies that are not significant. This article introduces the Rosenthal fail-safe coefficient for this test, which was developed by Rosenthal in 1979. The related formula is as follows:

$$N_{fs} = \left( \sum_{i=1}^{N} \frac{Z_i}{1.645} \right)^2 - N \quad (5)$$

where $N_{fs}$ is the Rosenthal fail-safe coefficient, and $Z_i$ is the Z-value of the $i$th study.

In this study, meta-analysis was performed using the Stata 14.0 software.

4. Empirical Results

4.1. Main Effect Analysis

Table 2 shows the main effects of stakeholder pressure on corporate environmental strategies. The authors first conducted a heterogeneity test on the meta-analysis to determine whether there is heterogeneity among the combined studies. This paper applies the Cocharam Q value and Higgins $I^2$ to test the main effects and determined that the null hypothesis of homogeneity is significantly rejected by the Q value under the main effect ($p < 0.01$), while the $I^2$ is greater than 92%. According to the 75% rule proposed by Hunter and Schmidt [70], there is heterogeneity when combining studies. For studies with obvious heterogeneity, existing studies suggest that the random effect model should be used for combination, while the confidence interval calculated by the random effect model is larger than that of the fixed effect model and tends to be conservative [71]. Therefore, this paper uses the random effect model for estimation.

Then, the authors further test whether publication bias might exist in the meta-analysis using the Rosenthal Fail-Safe $N$ ($N_{fs}$). The results show that the coefficient of $N_{fs}$ is generally greater than $5K + 10$ (K represents the sample size of the study), indicating that, even if publication bias exists, the results are still relatively robust [72,73].

Based on the meta-analysis results, it can be seen that the combined effect between stakeholder pressure and corporate environmental strategies is estimated to be 0.249 (Z-value is 10.97, $p < 0.01$), and 95% of the confidence interval of the effect is positive, indicating that there is a significant positive
relationship between these two variables. Environmental strategies are further divided into proactive and reactive strategies. We found that stakeholder pressures have a positive impact on proactive and reactive environmental strategies, where the proactive strategy effect value is 0.286 (Z-value is 6.56, \( p < 0.01 \)), and the reactive environmental strategy effect value is 0.230 (Z-value is 3.05, \( p < 0.05 \)).

**Table 2. Results of the main effects.**

<table>
<thead>
<tr>
<th>Stakeholder Category</th>
<th>N</th>
<th>Fisher’s Z</th>
<th>95% Confidential Interval</th>
<th>Q Test</th>
<th>I²</th>
<th>Z</th>
<th>Nfs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main effect</td>
<td>58</td>
<td>0.249</td>
<td>0.205 0.294</td>
<td>692.97 **</td>
<td>91.77%</td>
<td>10.97 **</td>
<td>18,008.999</td>
</tr>
<tr>
<td>Reactive</td>
<td>10</td>
<td>0.230</td>
<td>0.083 0.378</td>
<td>169.13 **</td>
<td>94.68%</td>
<td>3.05 **</td>
<td>544.178</td>
</tr>
<tr>
<td>Proactive</td>
<td>38</td>
<td>0.286</td>
<td>0.200 0.371</td>
<td>903.14 **</td>
<td>95.90%</td>
<td>6.56 **</td>
<td>10,223.476</td>
</tr>
</tbody>
</table>

Note: \( N \) represents the number of studies. † \( p < 0.10 \); * \( p < 0.05 \); ** \( p < 0.01 \).

Based on the above analysis, we conclude that stakeholder pressures have a positive impact on corporate environmental strategies and that stakeholder pressures have a larger impact on proactive environmental strategies.

**4.2. Different Stakeholder Pressure Effects**

From the perspectives of different stakeholder groups, we found that all relevant major stakeholders in this study have a positive impact on environmental strategies. Among the four stakeholder groups, the impact of internal pressure is the largest (Coefficient = 0.242, \( p < 0.01 \)), and corporate managers are the main reason why internal pressure could have the largest impact on environmental strategies. Considering the impact of coercive pressure (Coefficient = 0.214, \( p < 0.01 \)) and market pressure (Coefficient = 0.210, \( p < 0.01 \)), we found that coercive stakeholders could have slightly greater power than market stakeholders from the perspective of corporate environmental strategies. However, in the subgroup analysis, buyer pressure was larger than government pressure, which depends on the specific stakeholder’s characteristics, as buyers are the primary stakeholders of the focal firm and have direct economic connections to that firm. This conclusion is consistent with that of He et al. [10] and Singh et al. [37]. The pressure from stakeholders is small, and the estimated coefficient between social pressure and corporate environmental strategies is only 0.089, as shown in Table 3.

**Table 3. The Effects of Different Stakeholder Pressures.**

<table>
<thead>
<tr>
<th>Stakeholder Category</th>
<th>N</th>
<th>Fisher’s Z</th>
<th>95% Confidential Interval</th>
<th>Q Test</th>
<th>I²</th>
<th>Z</th>
<th>Nfs</th>
</tr>
</thead>
<tbody>
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<td></td>
<td></td>
</tr>
<tr>
<td>Internal pressure</td>
<td>26</td>
<td>0.242</td>
<td>0.185 0.300</td>
<td>89.26 **</td>
<td>71.99%</td>
<td>8.27 **</td>
<td>2369.955</td>
</tr>
<tr>
<td>Shareholders</td>
<td>5</td>
<td>0.253</td>
<td>0.107 0.399</td>
<td>18.66 **</td>
<td>78.56%</td>
<td>3.39 **</td>
<td>97.819</td>
</tr>
<tr>
<td>Managers</td>
<td>17</td>
<td>0.254</td>
<td>0.197 0.312</td>
<td>38.39 **</td>
<td>58.32%</td>
<td>8.65 **</td>
<td>1152.570</td>
</tr>
<tr>
<td>Employees</td>
<td>7</td>
<td>0.238</td>
<td>0.135 0.341</td>
<td>16.69 * 64.06%</td>
<td>4.54 **</td>
<td>138.051</td>
<td></td>
</tr>
<tr>
<td>Coercive pressure</td>
<td>29</td>
<td>0.214</td>
<td>0.158 0.270</td>
<td>173.99 **</td>
<td>83.91%</td>
<td>7.46 **</td>
<td>3401.429</td>
</tr>
<tr>
<td>Government</td>
<td>29</td>
<td>0.214</td>
<td>0.158 0.270</td>
<td>173.99 **</td>
<td>83.91%</td>
<td>7.46 **</td>
<td>3401.429</td>
</tr>
<tr>
<td>Market pressure</td>
<td>26</td>
<td>0.210</td>
<td>0.163 0.258</td>
<td>186.79 **</td>
<td>86.62%</td>
<td>8.77 **</td>
<td>3551.594</td>
</tr>
<tr>
<td>Buyers</td>
<td>13</td>
<td>0.228</td>
<td>0.171 0.285</td>
<td>30.06 **</td>
<td>60.07%</td>
<td>7.83 **</td>
<td>707.850</td>
</tr>
<tr>
<td>Suppliers</td>
<td>8</td>
<td>0.189</td>
<td>0.123 0.255</td>
<td>27.57 **</td>
<td>74.61%</td>
<td>5.60 **</td>
<td>335.069</td>
</tr>
<tr>
<td>Competitors</td>
<td>9</td>
<td>0.208</td>
<td>0.118 0.299</td>
<td>106.21 **</td>
<td>92.47%</td>
<td>4.52 **</td>
<td>625.380</td>
</tr>
<tr>
<td>Industry Associations</td>
<td>6</td>
<td>0.192</td>
<td>0.095 0.290</td>
<td>6.57</td>
<td>23.91%</td>
<td>3.88 **</td>
<td>36.111</td>
</tr>
<tr>
<td>Social pressure</td>
<td>11</td>
<td>0.089</td>
<td>0.051 0.128</td>
<td>18.04 †</td>
<td>44.57%</td>
<td>5.01 **</td>
<td>204.800</td>
</tr>
<tr>
<td>ENGOs</td>
<td>7</td>
<td>0.088</td>
<td>0.040 0.135</td>
<td>14.04* 57.27%</td>
<td>3.64 **</td>
<td>111.780</td>
<td></td>
</tr>
<tr>
<td>Communities</td>
<td>7</td>
<td>0.169</td>
<td>0.095 0.244</td>
<td>16.42* 63.46%</td>
<td>4.46 **</td>
<td>140.168</td>
<td></td>
</tr>
</tbody>
</table>

Note: Although in the group of industry associations, \( Nfs \) is less than 5N + 10 (which is 40), this paper used a funnel plot to test this and determined that the funnel plot is generally symmetrical, which indicates that the publication bias is controlled [74]. † \( p < 0.10 \); * \( p < 0.05 \); ** \( p < 0.01 \).
4.3. Moderated Effect Analysis

This article further considers the moderated effects of contextual factors on stakeholder pressure and corporate environmental strategies and mainly considers the economic development level and industry characteristics. From the perspective of economic development level differences, the authors used the human development index (HDI) as the dividing standard to split the research samples of various countries into developed countries (with an HDI of no less than 0.8) and developing countries (with an HDI less than 0.8), according to the United Nations Development Program. The empirical results show that the stakeholder pressure in developed countries can play a more important role in affecting environmental strategies.

From the perspective of industry characteristics, the authors divide the industry into manufacturing and non-manufacturing industries, and the results show that non-manufacturing enterprises are more affected by pressure from stakeholders. The possible reason for this result might be that the non-manufacturing enterprises in the sample are mainly composed of service enterprises, which do not have high costs of pollution control and environmental technology innovation. Compared with manufacturing enterprises, it is easier for these enterprises to change the content of their environmental strategies to respond to environmental pressures from various stakeholders, as shown in Table 4.

Table 4. The moderate effects of economics and industry.

<table>
<thead>
<tr>
<th>Context Factors</th>
<th>N</th>
<th>Fisher\textsuperscript{Z}</th>
<th>95% Confidential Interval</th>
<th>Q Test</th>
<th>$\tau^2$</th>
<th>Z</th>
<th>N/$\alpha$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic Development Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developed Countries</td>
<td>42</td>
<td>0.273</td>
<td>0.218 0.329</td>
<td>561.15 **</td>
<td>92.69%</td>
<td>9.67 **</td>
<td>10,578.122</td>
</tr>
<tr>
<td>Developing Countries</td>
<td>16</td>
<td>0.189</td>
<td>0.110 0.267</td>
<td>127.56 **</td>
<td>88.24%</td>
<td>4.73 **</td>
<td>967.422</td>
</tr>
<tr>
<td>Industry Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturing</td>
<td>32</td>
<td>0.232</td>
<td>0.175 0.289</td>
<td>242.69 **</td>
<td>87.23%</td>
<td>7.95 **</td>
<td>4839.005</td>
</tr>
<tr>
<td>Non-manufacturing</td>
<td>8</td>
<td>0.358</td>
<td>0.301 0.416</td>
<td>5.90</td>
<td>0.00%</td>
<td>12.21 **</td>
<td>372.628</td>
</tr>
</tbody>
</table>

$\dagger p < 0.10; * p < 0.05; ** p < 0.01.$

5. Discussion

This paper analyzes stakeholder pressures on corporate environmental strategies using the method of meta-analysis to obtain general conclusions, have a bird’s-eye view of the matter, and enrich related studies on the topic of corporate environmental strategies. Based on the empirical results, some important factors could be discussed further.

The first is the importance of the field of activity on corporate environmental strategies for polluting industries. Based on this study, the empirical results show that firms from polluting industries are not sensitive to stakeholder pressures. Although stakeholder pressures exist, polluting firms continue to contaminate the natural environment, which suggests a path dependence phenomenon. Solutions to this problem are involved with the green industry transition [75,76]. Under the background of the green industry transition, the underlying mechanism of transition and the micro basis of environmental strategic changes remain underexplored. Second, the greenwashing strategies practiced by some companies were not measured directly. Indeed, reactive environmental strategies are not equivalent to greenwashing strategies. A proactive or positive green practice, such as green communication, may simply be a method of impression management [77] and may not create value. Some studies have tried to examine whether environmental strategies could have a better market value in the capital market, which may represent greenwashing behavior when environmental strategies fail to create market value [78]. However, the confounding effect is still surrounded by greenwashing practices. Third, the natural environment, as a common pool resource, needs to be introduced into analyses on stakeholder pressures and corporate environmental strategies. Starik [79] was the first to introduce nature as an important stakeholder into research on corporate actions. This study extends the
boundaries of the concept of a stakeholder to include non-human entities. By considering the natural environment, a common property of society, the influencing mechanisms of stakeholder pressures could be more clearly explored.

6. Conclusions

In summary, stakeholder pressures have a significantly positive impact on corporate environmental strategies, which is consistent with the results of current studies [37]. Furthermore, by dividing environmental strategies into proactive and reactive strategies, the authors find that stakeholder pressures have a greater positive impact on proactive environmental strategies. Stakeholder pressures can play a key role in companies who implement proactive environmental strategies. Moreover, internal stakeholder pressure has the greatest impact on the implementation of enterprise environmental strategies, among which the manager is the main driving force to promote the implementation of environmental strategies. Further, the authors included economic development level and industry characteristics to test the differences in stakeholder pressures on environmental strategies under the influence of various context factors.

This paper has contributed to this topic from three perspectives. Firstly, we re-examined the relationship between stakeholder pressures and corporate environmental strategies. The general framework was tested empirically through a meta-analysis. Secondly, a general conclusion from the meta-analysis is that internal pressures are the main drivers of corporate environmental strategies, based on the synergy of empirical studies all around world, which means that a large sample size of research agrees that internal pressures are the key factors when implementing corporate environmental strategies. Thirdly, different context factors have been introduced into the relationship between stakeholder pressures and corporate environmental strategies, which shows that the influence of stakeholder pressures on corporate environmental strategies is contingent.

However, there are still many aspects that need to be explored in the future. Firstly, future studies might focus on the synergistic effects of multiple stakeholders on corporate environmental strategies. The formation of corporate environmental strategies refers not only to the result of internal manager decision-making but to the collaborative governance of different stakeholders, both internal and external. Secondly, additional studies on stakeholder pressures and reactive environmental strategies are still needed, as there are only 10 papers discussing stakeholder pressures on reactive environmental strategies. Why such enterprises have a negative response is also a topic worthy of in-depth research. Thirdly, it is necessary to conduct empirical research based on a large sample panel of data [13]. Limited by the measurement of corporate environmental strategies, current empirical papers are generally conducted through questionnaires, which also leads to the problem of small sample size and difficulty in obtaining general conclusions.

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