



Corporate environmentalism pursuit by foreign firms competing in China

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ABSTRACT

This study examines the relationships among environmental orientation, environmental strategy, firm performance, and regulatory stakeholder influence. Survey data collected from foreign invested enterprises (FIEs) in China show that while internal environmental orientation positively influences environmental corporate (but not marketing) strategies, external environmental orientation positively influences both. These two types of environmental strategy are, in turn, found to positively affect firm performance. Regulatory stakeholder influence is found to exert a direct effect on external environmental orientation. Moreover, it is found to positively moderate the relationship between environmental orientation and environmental strategy. These findings provide FIE executives with useful insights into enhancing firm performance through the pursuit of corporate environmentalism.

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1. Introduction

Strategic orientation has long been conceptualized as a valuable intangible firm-specific resource that can guide strategic practices and eventually enhance performance (Ge & Ding, 2005). Despite the general consensus on the strategic orientation–strategy–performance (SO–S–P) proposition in the management and marketing literature (Prahalad & Bettis, 1986), its tenability has yet to be fully tested in the context of environmental management (see for example, Banerjee, Iyer, & Kashyap, 2003; Judge & Douglas, 1998). This research gap needs to be rectified, particularly in view of researchers' increasing interest in applying strategic management concepts to the analysis of corporate greening issues (Fischer & Schot, 1993).

Since Hart's (1995) publication of his seminal natural-resource-based view of the firm (NRVF), increasing numbers of environmental researchers have focused on the firm's internal characteristics when studying corporate greening (Russo & Fouts, 1997). This approach is considered far from comprehensive as it undermines the pivotal role that various external stakeholders often play in shaping the firm's environmental strategies (Buisse & Verbeke, 2003). Among the various external stakeholders, regulatory stakeholders have long been perceived as the most significant driving force for corporate greening in developed (e.g., Fischer & Schot, 1993) as well as developing nations (e.g., Steger, Fang, & Lu, 2003). These views suggest the need to take regulatory stakeholders into account when studying firms' pursuit of corporate environmentalism.

2. Research objective and focus

This investigation examines the relationships among environmental orientation, environmental strategy, firm performance, and the influence of regulatory stakeholders (termed "regulatory stakeholder influence" hereafter). The investigation addresses the aforementioned research gaps by: (1) performing a more thorough test of the SO–S–P proposition in the context of the pursuit of corporate environmentalism; and (2) developing a more comprehensive model that incorporates both the firm's internal factors and external conditions to explain such pursuit. The investigation should be of both academic and practical significance as it concerns an important environmental management issue: namely whether firms, in the face of environmental demands from salient external (regulatory) stakeholders, can actually enhance performance through translating corporate environmental consciousness into corresponding strategies.

To achieve the stated research objectives, this study draws on Banerjee's (2001, 2002) conception of corporate environmentalism, and other relevant management and environmental management literature, to construct a model of the relationships among environmental orientation, environmental strategy, performance, and regulatory stakeholder influence. Because rapidly developing countries often face more severe environmental problems than their developed counterparts, and as previous environmental management studies have been largely confined to the latter (Christmann & Taylor, 2001), this study surveys foreign invested enterprises (FIEs) in China in order to test the model. While China is currently the world's largest and fastest-growing emerging economy, it has paid a high ecological price, equivalent to 8% of its annual gross domestic product. The country hosts 16 of the world's 20 most polluted cities, and is the world's largest and

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second-largest producer of ozone-depleting substances and greenhouse gas emissions, respectively (Bergsten, Gill, Lardy, & Mitchell, 2006). China's deteriorating environmental conditions have prompted adoption of more stringent environmental regulations since the mid-1990s, thus posing new challenges to enterprises operating there. Indeed, since 1996, 60,000 polluting firms across 15 industries have been closed down (Chan, 2005).

The reason for focusing on FIEs is their growing importance in China's economic development. The country is currently the largest host for foreign direct investments, with around 57% of its exports being manufactured by FIEs (China Statistical Yearbook, 2005). As more FIEs come to operate in China, how they perceive and manage issues arising from the business–environment interface will have a profound impact on the country's ecological well-being.

According to the industrial flight hypothesis (Leonard, 1988), multinational corporations (MNCs) often shift operations to developing countries in order to enjoy more lax environmental control. The tenability of the hypothesis, however, has been challenged by subsequent empirical findings (Jaffe, Peterson, Portney, & Stavins, 1995). As for China, the role of FIEs in contributing to environmental problems is mixed. Although recent anecdotal evidence has revealed that several renowned FIEs have been identified as “serious polluters” in China (Spero News, 2006), Christmann and Taylor (2001) empirically found that FIEs there are significantly more advanced than domestic firms regarding environmental management. This finding echoes other case evidence, which suggests that more resourceful FIEs are often under heavier regulatory pressures to “go green” than domestic firms (Child & Tsai, 2005). By empirically examining FIEs' environmental orientation and strategy, this study will shed further light on the degree of environmental friendliness of FIEs in China.

3. Relevant literature, conceptual model, and hypotheses

For reference, a conceptual model delineating the hypothesized relationships among all the constructs under investigation is presented in Fig. 1. The relevant literature and the rationales for the formulation of these hypotheses are now discussed.

3.1. Corporate environmentalism

In response to researchers' diverse interpretations of corporate environmentalism, Banerjee (2002, p. 181) proposed a compre-

hensive definition for this construct, namely “the organization-wide recognition of the legitimacy and importance of the biophysical environment in the formulation of organization strategy, and the integration of environmental issues into the strategic planning process”. He derived this definition based on interviews with senior managers (Banerjee, 2001) and on the empirical results of a validation study (Banerjee, 2002). The validation study also identified the presence of two dimensions for corporate environmentalism, “environmental orientation” and “environmental strategy”.

Environmental orientation manifests the “recognition” facet of the definition, referring to managerial perception of the importance of environmental issues facing firms (Banerjee et al., 2003). The validation study of Banerjee (2002) further identified two types of environmental orientation, “internal” and “external.” Internal environmental orientation (IEO) refers to the firm's internal values and ethical standards regarding the level of commitment it should render to environmental protection. It is often initiated by corporate leaders out of their personal aspiration for being more environmentally responsible. Owing to the exhortations of such leaders, it is likely that their personal environmental ethics will eventually diffuse throughout their organizations and become a corporate value widely shared among organizational members. The profound influence of the late Anita Roddick on the development of a strong pro-environmental culture in Body Shop is illustrative of this diffusion (Dennis, Neck, & Goldsby, 1998).

External environmental orientation (EEO) refers to managers' perception of the need to respond to the environmental demands of external stakeholders. The perceived need, in turn, depends on how seriously managers assess the consequences associated with their firms' failure to meet these demands. From the institutional perspective, these demands can further be regarded as formal or informal institutional constraints that limit the strategic choices available to firms (North, 1990). If firms act against these constraints, they will fail to gain legitimacy from their stakeholders, and consequently risk their license to operate. For instance, the consumer boycott and external stakeholder criticism of Shell after its announcement to sink an oil platform in the North Sea in 1995 prompted the company to become more attentive to its stakeholders' views concerning the environmental implications of its activities (Townsend, 2006).

Environmental strategy manifests the “integration” facet of the definition, and refers to the extent to which environmental issues

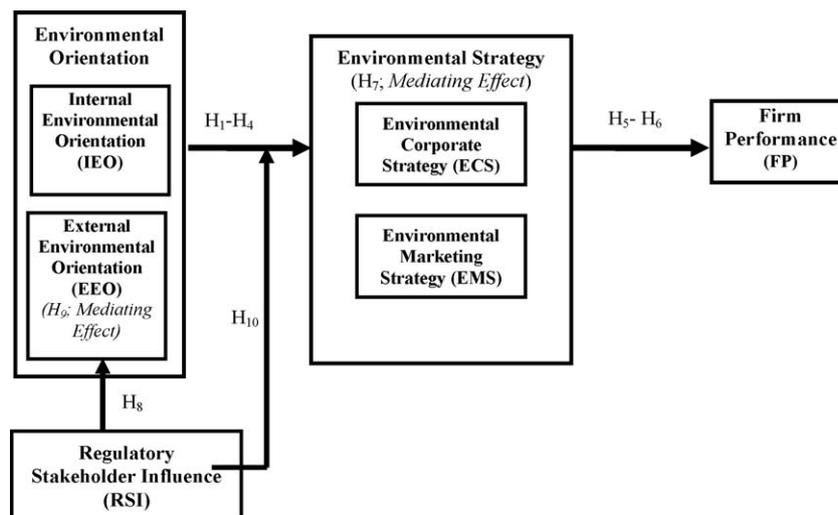


Fig. 1. Proposed conceptual model.

are integrated with the firm's strategic planning process. Banerjee (2002) identified two types of environmental strategy, which Banerjee et al. (2003) subsequently labeled "environmental corporate strategy (ECS)" and "environmental marketing strategy (EMS)," respectively. ECS concerns strategic activities at a firm's higher (corporate) level and involves establishing a link between environmental issues and total quality management, and between environmental objectives and other corporate objectives. It helps determine the kind of business in which the firm should engage in order to meet the environmental expectations of its corporate planners and stakeholders. This strategy is exemplified in adopting new environmental protection technologies and environmentally benign operating processes, and in making R&D investments to contribute to the ecological well-being of society.

Environmental strategy at the firm's lower (business and functional) levels involves the incorporation of environmental issues into product market and marketing mix decisions (Banerjee, 2002). Given the strong marketing focus of these decisions, the strategy was labeled by Banerjee as "environmental marketing strategy" (EMS). EMS concerns offering products specifically to environmentally conscious consumers, increasing the recycled content of the packaging, and communicating the firm's environmental efforts to customers.

3.2. Relationships between environmental orientation and strategy

In studying determinants of the strategy development process, both management (e.g., Miles & Snow, 1978) and marketing scholars (e.g., Voss & Voss, 2000) have long been attracted to a specific intangible organizational variable, "strategic orientation." They conceive strategic orientation as the specific managerial perceptions, predispositions, tendencies, motivations, and desires that precede and guide strategy formulation, and ultimately the direction of the organization (Wood & Robertson, 1997). On this basis, it is likely that environmental orientation, being a specific or ecological version of strategic orientation, also influences the practice of environmental strategy. Specifically, it is believed that firms with a strong environmental orientation will be more likely to engage in an environmental strategy than those firms that do not adopt such a strategy.

Given the influence of corporate strategy on the subsequent development of marketing strategy (Wind & Robertson, 1983), this study postulates that both ECS and EMS are subject to similar influence from the two types of environmental orientation (IEO, EEO). However, as IEO and EEO originate from two different (internal vs. external) sources, the respective logics behind their proposed influence merit further discussion.

3.2.1. IEO, ECS, and EMS

IEO can be interpreted as a firm's pro-environmental corporate culture (Banerjee, 2001). In the strategic management literature, corporate culture can be conceived as a pattern of beliefs and expectations shared by employees and constituting a foundation for shaping their behavior (Prahalad & Bettis, 1986). This literature also views corporate culture as a set of prevailing implicit values that can create a shared vision and unified direction among employees (Deal & Kennedy, 1982). Perceiving corporate culture as a resource that shapes a firm's strategic vision and motivates employees to engage in environmental issues, some scholars specifically posit a positive impact of pro-environmental corporate culture on the practice of environmental strategy (Fernandez, Junquera, & Ordiz, 2003).

There is an increasing trend for MNCs to standardize their environmental policies and practices across their worldwide operations. They do this by transferring more advanced environmental standards from their operations in developed nations to

those in developing nations (Drezner, 2000). The MNC's motive for environmental standardization is likely related to various factors including the environmental ethics of headquarters management and institutional pressures acting at the global level (Christmann & Taylor, 2001). As for individual FIEs operating in developing nations (e.g., China), this standardization could nevertheless be conceived as an internal means for them to "learn" the pro-environmental culture of their headquarters. This acculturation process serves as another pathway for FIEs in China to develop their IEO, and helps explain why some FIEs there are willing to undertake green activities that go beyond the Chinese regulatory requirements (Child & Tsai, 2005). Overall, as corporate culture is encapsulated in employees' beliefs, customs, and values, it is expected that its impact on strategic actions could permeate all levels of the firm (Scholz, 1987). On this basis, two hypotheses are developed:

H₁. An FIE's level of internal environmental orientation positively influences the extent to which it practices environmental corporate strategy.

H₂. An FIE's level of internal environmental orientation positively influences the extent to which it practices environmental marketing strategy.

3.2.2. EEO, ECS, and EMS

EEO concerns managerial perceptions of the need to respond to the environmental demands of external stakeholders (Banerjee, 2001). From the institutional perspective, these stakeholders can be viewed as important institutions that impose formal (e.g., regulations) and/or informal (e.g., norms) rules on how firms should deal with the business–environment interface. If firms operate within the constraints permitted by these rules, they will enhance their own legitimacy and ultimately the likelihood of survival (North, 1990).

Institutional theory suggests that managerial perception of external constraints constitutes a significant guiding force for firms' various strategic actions (Oliver, 1991). It is therefore likely that managers who see a strong need to respond to environmental constraints will be more inclined to practice both ECS and EMS. For instance, when Motorola (China) recognized in 2000 that the Chinese government was about to impose environmental regulations to govern electrical products, it promptly upgraded its entire product design and production systems in accordance with the expected regulatory requirements before they came into effect. This corporate-level environmental initiative (ECS) greatly enhanced the firm's public image (He, Tian, & Chen, 2007). Regarding the practice of EMS, case evidence has also shown that when Panasonic realized the need to address the problems of water shortage and pollution in China in 2004, it promptly launched a water-saving washing machine and relied heavily on green advertising to promote it (Savage, 2004). Based on this theoretical background and case evidence, hypotheses three and four are formulated:

H₃. An FIE's level of external environmental orientation positively influences the extent to which it practices environmental corporate strategy.

H₄. An FIE's level of external environmental orientation positively influences the extent to which it practices environmental marketing strategy.

3.3. Relationships between environmental strategy and performance

Following previous environmental researchers (e.g., Judge & Douglas, 1998), "performance" in this study refers to the firm's

financial performance regarding achievement in generating sales and profits. Within this context, it is noted that the views espoused in previous studies are mixed regarding how environmental strategy may influence performance. Some studies argue that the investment involved in pro-environmental strategic practices outweighs the corresponding benefits, and consequently dampens performance (Walley & Whitehead, 1994). Others maintain that these practices enable the firm to enjoy initial cost savings from remedying existing inefficiencies and wastes, though such savings might become increasingly difficult to realize once the more obvious inefficiencies have been fixed (Hart & Ahuja, 1996). Yet other studies, notably those made by NRVF proponents, contend that firms can acquire competitive advantages from pro-environmental strategic practices in ways other than merely remedying existing inefficiencies and wastes (Westley & Vredenburg, 1996). Despite these mixed views, empirical research on the relationship between environmental strategy and performance remains limited (Sharma, 2000). In order to shed further light on this issue, this study follows the NRVF argument to hypothesize a positive environmental strategy–performance relationship for empirical testing. The rationale to support this hypothesized relationship is now discussed.

According to NRVF researchers, the strategic planning process is “contextually embedded”, and its effectiveness depends strongly on the extent to which it can incorporate various significant external issues into consideration (Ramanujam, Venkatraman, & Camillus, 1986). By regarding environmental issues as external issues that exert increasingly significant impacts on organizational operations, NRVF researchers have contended that a firm’s ability to integrate environmental issues with its strategic planning process constitutes a competitively valuable capability that exerts positive influences on performance (Sharma & Vredenburg, 1998). In short, this analysis suggests that if a firm can integrate environmental issues into its strategic planning process (i.e. Banerjee’s notion of environmental strategy), it will enhance its performance.

A review of the environmental management literature suggests that the positive influence of environmental strategy on performance is likely linked to three areas. First, firms practicing environmental strategy through investing in environmental management systems are better placed to avoid causing future environmental damage and crises. This, in turn, will lower their legal risks of environmental violation (Klassen & McLaughlin, 1996). As FIEs in China are often subject to higher pollution levies for environmental violation than local Chinese firms (Ma & Ortolano, 2000), pro-environmental strategic practices enable these FIEs to lower the costs of legal liability, and consequently improve their financial position (Judge & Douglas, 1998).

Second, owing to their increasing attention to waste prevention, firms practicing environmental strategy are more likely to redesign their existing production processes and adopt new pollution-reducing technologies. These strategic practices provide opportunities for firms to derive cost advantages through more efficient (as well as environmentally sound) operations (Schmidheiny, 1992). In addition, as waste prevention requires firm members to engage in both operational and conceptual learning, it will spur firms’ process innovations and lead to long-term profit potential (Bansal & Roth, 2000; Porter & van der Linde, 1995).

While the first two areas are concerned primarily with ECS, the third area is related largely to EMS. Specifically, it is believed that firms will derive additional revenues through capitalizing on emerging green market opportunities. Owing to a dramatic increase in environmental consciousness worldwide, firms that practice environmental strategy (through reducing the environmental impact of their products or creating new types of environmentally sound products) will be more competent in

satisfying the demands of the growing green market (Gilley, Worrell, Davidson, & El-Jelly, 2000). As a matter of fact, empirical research has shown that Chinese consumers are willing to pay an average price premium of 4.5% for a green version of a product (Chan, 1999). This suggests that firms practicing environmental strategies in China will be better placed to generate additional revenues from these green consumers. Based on all the aspects discussed above, hypotheses five and six are developed:

H₅. The extent to which an FIE practices environmental corporate strategy positively influences its financial performance.

H₆. The extent to which an FIE practices environmental marketing strategy positively influences its financial performance.

3.4. Mediating role of environmental strategy

The discussion regarding H₁ to H₆ further suggests that environmental strategy (ECS, EMS) should mediate the relationship between environmental orientation (IEO, EEO) and performance. This proposed mediating effect is consistent with Banerjee’s (2002) conception of “environmental orientation” that concerns the cognitive responses of managers. As such, the influence of environmental orientation on performance will be realized only after translating into corresponding strategic practices. The suggested mediating effect also echoes the aforementioned SO–S–P proposition that managerial perceptions need to be translated into corresponding acts before influencing performance (Anderson & Paine, 1975). On this basis, hypothesis seven is proposed:

H₇. An FIE’s environmental corporate and marketing strategies positively mediate the relationships between its internal and external environmental orientations, and its financial performance.

3.5. Regulatory stakeholder influence

This study examines how environmental orientation and strategy, as well as regulatory stakeholder influence (RSI), affect the performance of firms pursuing corporate environmentalism (see Fig. 1). While environmental orientation and strategy refer to the firm’s two major pertinent internal factors, RSI constitutes a significant external force that shapes corporate responsiveness toward environmental issues (Buysse & Verbeke, 2003). The incorporation of this external variable helps address the common criticism concerning the internal focus of most environmental management studies adopting the resource-based perspective, and consequently enhances the comprehensiveness of the analysis. Since managers act only according to what they perceive (Miller & Cardinal, 1994), this study takes RSI as a perceptual construct that refers to managers’ perception of the amount of pressure the Chinese government exerts on their decisions involving pro-environmental practices.

Based on Frooman’s (1999) four-category classification for different types of stakeholders, Sharma and Henriques (2005) considered the “stakeholder power” category as the most appropriate to describe regulatory stakeholder influence on corporate greening. In brief, stakeholders in this category are characterized by their control of critical resources and their low degree of resource-dependence on the focal firm. They tend to use “direct withholding” strategies (e.g., prohibiting a polluting firm from engaging in a particular activity or withdrawing its license to operate) to influence the focal firm’s behavior. In the case of China, the formulation of these strategies is vested mainly in the State Environmental Protection Administration (SEPA) of the national

government, whereas their execution is performed mainly by local environmental protection bureaus (directly under SEPA) in conjunction with the corresponding local governments (Ma & Ortolano, 2000).

3.5.1. Direct effect of RSI

This study hypothesizes that RSI exerts a direct effect on EEO. According to the strategic issue interpretation literature, managers are continuously bombarded by a wide array of emerging events from the operating environment. They are expected to attend only to those that appear important to their operations (Newell, 1972). Once managers detect an emerging event as potentially important to their operations (i.e., as a strategic issue), they will engage in an interpretation process to further explore the nature and implications of this event (Dutton & Jackson, 1987). From Daft and Weick's (1984, p. 286) perspective, this process involves "translating" or drawing more meaning from the strategic issue, and will eventually help managers arrive at a shared understanding of its significance.

In the present context, RSI can be conceived as a strategic issue that relates to Chinese officials' introduction of various new environmental protection measures to govern firm operations. Through the aforementioned interpretation process, this issue will be translated into the relevant shared understanding within the firm (Daft & Weick, 1984). As this shared understanding concerns how managers collectively perceive the significance or implications of the influence exerted by a salient external (regulatory) stakeholder, it appears to be well covered by Banerjee's (2001) conception of EEO. This discussion thus suggests a direct effect of RSI (a strategic issue) on EEO (shared understanding). On this basis, hypothesis eight is developed:

H₈. Regulatory stakeholder influence exerts a positive direct effect on an FIE's level of external environmental orientation.

It should be noted that this study does not hypothesize any direct effect of RSI on IEO. According to Banerjee et al. (2003), IEO refers to the firm's internal environmental ethics and commitment to environmental protection. It is shaped largely by top executives' personal concern for the environment and their efforts in communicating this concern throughout the firm. Hence, unlike EEO, which focuses on how senior managers perceive the need to cope with the environmental demands of external stakeholders, IEO focuses on the amount of social responsibility they perceive their firm should bear to advance ecological well-being (Banerjee, 2001). This implies that although both IEO and EEO manifest organization-wide recognition of the importance of maintaining sustainable corporate development (Banerjee, 2002), the emergence of each is driven by different motives. With reference to Bansal and Roth's (2000) classification for different motives for pursuing corporate environmentalism, the emergence of IEO and EEO appears most relevant to the "ecological responsibility" and "legitimation" motives, respectively. According to Bansal and Roth, the ecological responsibility motive is characterized by top executives' personal ethical values rather than by their pragmatic considerations of how to tackle external pressures, whereas the legitimation motive concerns their desire to gain legitimacy from various salient institutions, such as regulators. In view of this difference, this study thus hypothesizes a direct effect of RSI on EEO but not on IEO.

3.5.2. Mediating role of EEO

The foregoing discussion concerning H₈ (RSI → EEO), H₃ (EEO → ECS) and H₄ (EEO → EMS) further suggests that EEO should mediate the effect of RSI on environmental strategy (i.e. RSI → EEO → ECS/EMS). The suggested mediating role of EEO is consistent with the proposition of the strategic issue interpretation

literature. According to this literature, one major motivation for managers to interpret strategic issues is to help them develop a shared understanding of the nature and implications of these issues (Daft & Weick, 1984). This shared understanding, in turn, provides managers with a collective view on how to devise the corresponding coping strategies (Sharma, 2000). In the present context, this proposition appears to imply that the strategic issue of RSI will also prompt managers to arrive at the relevant shared understanding, or EEO, and consequently to develop the corresponding environmental strategy (ECS, EMS). This analysis leads to hypothesis nine:

H₉. An FIE's external environmental orientation positively mediates the relationships between regulatory stakeholder influence, and its environmental corporate and marketing strategies.

3.5.3. Moderating effect of RSI

This study also hypothesizes a moderating effect of RSI on the relationship between environmental orientation (IEO and EEO) and environmental strategy (ECS, EMS). According to the perceived uncertainty literature, increasing stakeholder pressures, which are likely to lead to new regulations and expectations for environmental performance, will increase the level of perceived uncertainty in the operating environment (Aragon-Correa & Sharma, 2003). Using Milliken's (1987) terminology, this uncertainty or RSI can be conceived as a specific type of "state uncertainty" that concerns managers' perceived inability to predict the exact actions regulatory stakeholders may take to monitor their operations. With reference to a contingency view of organizations (Donaldson, 2001), several marketing (e.g., Sahadev, 2008) and management (e.g., Claycomb, Droge, & Germain, 2001) researchers have treated state uncertainty as a moderator in order to examine its possible effect on the relationship between various variables in the strategic decision-making process.

Furthermore, strategists have suggested that firms tend to be strategically more proactive when they perceive the operating setting as highly uncertain (Miles & Snow, 1978). This strategic proactiveness can, in turn, be manifested by how firms actually manage themselves in order to adapt to the uncertain setting. Taking the adaptation to state uncertainty as an organizational process that comprises various strategic elements such as firm-specific resources and strategies, Aragon-Correa and Sharma (2003) have argued that if firms are faced with higher levels of ecologically related state uncertainty, they will be more proactive in translating their tangible (e.g., equipment) and intangible (e.g., environmental orientation) resources into developing environmental strategies to cope with the situation. This argument is derived from the premise that an increase in state uncertainty will make firms realize the serious nature of threats to their survival. As such, they will devote more effort to ensuring that their resources are effectively translated into developing appropriate coping (environmental) strategies. Alongside this, Aragon-Correa and Sharma (2003) have specifically postulated that an increase in state uncertainty (RSI) will lead to a stronger positive effect of resources on pro-environmental strategic practices.

In view of the foregoing literature, and given that strategic orientation is an essential firm-specific intangible resource (Hult & Ketchen, 2001), this study infers that as RSI increases, ecologically related strategic orientation (i.e. environmental orientation) will also exert a stronger positive influence on environmental strategy. This inference leads to the final hypothesis:

H₁₀. Regulatory stakeholder influence positively moderates the relationships between environmental orientation (IEO, EEO) and strategy (ECS, EMS) delineated in H₁–H₄.

4. Survey measures

Measures used in the survey were first generated from the relevant literature and then fine-tuned by a pre-test using 50 senior FIE executives in China. English was initially used to develop the questionnaire, which was subsequently translated into Chinese. The linguistic equivalence between the two versions was ensured by back-translation. Details about the measures are presented in Appendix A.

4.1. Environmental orientation (IEO, EEO) and environmental strategy (ECS, EMS)

Four items from each of Banerjee's (2002) IEO, EEO, ECS and EMS measures were adapted. Each was coded on a seven-point scale (1 = "strongly disagree"; 7 = "strongly agree").

4.2. Firm performance (FP)

Judge and Douglas's (1998) four seven-point (1 = "much worse" to 7 = "much better") items for measuring the financial performance of a firm were adapted. Respondents were requested to rate their firms relative to their competitors on each of these items.

4.3. Regulatory stakeholder influence (RSI)

Buysse and Verbeke's (2003) two relevant items were adapted. Respondents were asked to rate, on a seven-point scale (1 = "no influence at all" to 7 = "very strong influence"), the perceived impact of these stakeholders on their environmental management practices.

4.4. Controls

This study followed previous practice (e.g., Sharma, 2000) to control for the size effect (SIZE), which was measured by the natural logarithm of the number of FIE employees. Since the extent of pollution caused by firms might vary across industries (Banerjee et al., 2003), the investigation also controlled for the industry effect (IND) by computing a pollution index for each of the major Chinese industries. Based on data from the China Statistical Yearbook (2005), three percentages representing the respective shares of waste water, waste gas, and solid wastes produced by each industry were compiled. The pollution index of each industry was then derived by multiplying the average of these three percentages by 100. As FIEs' operating mode might affect their familiarity with, and consequently ability to adapt to host operating conditions (Chan, 2005), a relevant control variable, OM (0 = "wholly foreign-owned enterprises"; 1 = "joint ventures"), was also incorporated. Moreover, since the cultural distance between home and host countries might again affect FIEs' ability to adapt to the host environment, Luo and Park's (2004) approach was followed to compute a cultural distance (CD) index for control purposes. Lastly, Reynolds' (1982, pp. 121–123) 11-item instrument was included to control for respondents' social desirability bias (SDB).

5. Data collection

The sampling frame for the mail survey was compiled from the China Foreign Enterprise Directory (2005). Service enterprises were excluded as they differ significantly from industrial enterprises. Based on these criteria, 750 FIEs located in major coastal regions and Beijing were randomly selected. This geographical choice covered China's most industrialized areas, which are subject to the

closest scrutiny from environmental regulators (Chan, 2005). With the assistance of a research agency, two senior managers (usually general or deputy general managers) from each selected FIE were approached for participation, resulting in the distribution of 1500 questionnaires.

6. Results

6.1. Sample

After three rounds of follow-up, 356 valid replies from 230 FIEs were received. Table 1 details the major demographic characteristics of the sample. A post hoc *t*-test and χ^2 -test revealed that these characteristics were comparable with those of the nationwide population. Overall, 126 (55%) of the responding FIEs sent replies from both managers. This constituted a response rate of 24% ($(126 \times 2 + (230 - 126)) / (750 \times 2)$), comparable to previous studies of FIEs in China (e.g., Chan, 2005). Among those providing multiple responses, the data indicated a satisfactory inter-respondent reliability (≥ 0.75) on IEO, EEO, ECS, EMS, FP and RSI. In view of this, multiple responses from the same FIE were averaged to derive variable values representative of the firm. The application of Armstrong and Overton's (1977) non-response bias check did not detect any significant difference in responses between early and late respondents. In addition, Podsakoff and Organ's (1986) one-factor test did not detect any problem of common method variance.

6.2. Measure validation

Confirmatory factor analysis (CFA) using the structural equation modeling (SEM) software, EQS6.1, was performed for validation purposes. To summarize, CFA did not detect any anomalies for the factor structure of IEO, EEO, ECS, EMS, FP and RSI. All the constructs were found to exhibit satisfactory convergent validity (standardized factor loadings ranged from 0.53 to 0.85; $p < 0.05$) with items loaded as specified. The computed χ^2 statistic of the overall measurement model was equal to 390.45 (d.f. = 194) and significant at $p = 0.001$. This might indicate an inadequate fit of the model. Given that the χ^2 statistic is highly sensitive to sample size, other more powerful fit indexes such as comparative fit index (CFI), normed fit index (NFI), and root

Table 1
Sample characteristics (N = 230).

Average assets invested in China	US\$12,556,302
Average number of employees	442
Location in China	
Guangdong	23%
Zhejiang	20
Fujian	15
Jiangsu	13
Shandong	11
Shanghai	10
Beijing	8
Industry	
Light industry (e.g. textile & wearing apparel, plastics, electronics, leather & fur, foods)	64%
Heavy (e.g., industrial machinery, chemicals, production and distribution of energy, transport equipment)	36
Country/region of origin	
Hong Kong	35%
US	18
Japan	16
Western Europe	15
Taiwan	11
South East Asia	5

Table 2
Descriptive statistics, correlations, and alpha reliabilities derived from the sample ($N = 230$).

	Mean (SD)	IEO	EEO	ECS	EMS	FP	RSI	SIZE	IND	OM	CD	SDB
IEO	4.32 (1.44)	0.78										
EEO	5.50 (1.18)	0.14 [*]	0.75									
ECS	4.70 (1.17)	0.29 ^{**}	0.30 ^{**}	0.75								
EMS	4.91 (1.08)	0.15 [*]	0.38 ^{**}	0.21 [*]	0.77							
FP	5.01 (1.23)	0.22 ^{**}	0.32 ^{**}	0.28 ^{**}	0.36 ^{**}	0.80						
RSI	5.18 (0.98)	0.10	0.44 ^{**}	0.25 ^{**}	0.35 ^{**}	0.28 ^{**}	0.81					
SIZE	6.09 (0.97)	-0.09	-0.01	0.01	0.07	0.11	-0.07	n.a.				
IND	2.44 (1.21)	-0.19 [*]	-0.08	0.04	-0.08	-0.17 [*]	-0.03	0.10	n.a.			
OM	0.41 (0.49)	0.10	0.11	0.07	0.15 [*]	0.05	0.08	-0.08	0.16 [*]	n.a.		
CD	2.46 (2.04)	0.10	0.08	0.12	-0.03	-0.06	0.09	0.15 [*]	0.07	0.04	n.a.	
SDB	5.72 (3.14)	0.13	0.11	0.05	0.02	0.10	0.04	0.10	0.12	0.01	0.03	0.77

Notes: IEO: internal environmental orientation; EEO: external environmental orientation; ECS: environmental corporate strategy; EMS: environmental marketing strategy; FP: firm performance; RSI: regulatory stakeholder influence; SIZE: firm size; IND: industry effect; OM: operating mode; CD: cultural distance; SDB: social desirability bias; SD: standard deviation; n.a.: not applicable. Bold numbers on the diagonal: Cronbach Alphas. N = sample size.

^{*} $p < 0.05$.

^{**} $p < 0.001$.

mean square error of approximation (RMSEA) were also computed to aid interpretation. Overall, the values of these indexes all met the threshold requirements (CFI = 0.97; NFI = 0.94; RMSEA = 0.06) (see Hair, Black, Babin, Anderson, & Tatham, 2006). To assess discriminant validity, Fornell and Larcker's (1981) approach was employed to check whether the correlation estimate between any pair of constructs was significantly different from 1.0; the check detected no anomalies. Table 2 reports the relevant descriptive statistics, correlations and reliabilities for the constructs.

6.3. Further validation for ECS and EMS measures

Since Banerjee's conception of environmental strategy focuses on the extent to which a firm integrates environmental issues into its strategic planning process, the items to measure ECS and EMS may not explicitly take the cost issue into account. However, as Banerjee's corporate environmentalism instrument (including items for ECS and EMS) was carefully developed through in-depth interviews with senior executives (Banerjee, 2001), and empirically validated by structural equation modeling techniques (Banerjee, 2002), its validity should be reasonably safeguarded. As shown in Appendix I, these items involved asking respondents to indicate what their firms were doing to advance environmentally responsible operations. If respondents were willing to express their genuine views on the items, their replies would be able to manifest the pro-environmental practices their firms had actually adopted at the time of the survey. Logically, these adopted practices should represent the outcomes of managerial decisions that had already taken the cost issue into account. To check whether respondents really had expressed their genuine views, ECS and EMS were correlated with SDB. The respective Pearson's correlations were only 0.05 and 0.02 ($p > 0.05$). These findings rendered support for the genuineness of their replies.

Efforts were also made to triangulate survey data on ECS and EMS. This involved arranging personal/telephone interviews with a randomly selected sub-sample of the responding firms to obtain answers to four follow-up questions: (1) whether the firms were ISO14000 certified or applying for such certification; (2) whether they had a special unit to oversee environmental issues; (3) whether they had any environmental plans; and (4) whether they had organized any environmental training for employees within the past year. Respondents agreeing to co-operate were further requested to provide documentary evidence (e.g., annual reports, environmental plans, and environmental publicity documents) to substantiate their answers. Valid responses from 48 FIEs were

obtained, for which the documentary evidence corroborated answers from the interviews. Based on the supplied documents, three researchers familiar with the topic under study also independently rated the extent of environmental practices of the 48 FIEs on a seven-point scale (1 = "small extent" through to 7 = "large extent"). Their ratings were averaged and correlated with the corresponding composite scores on ECS and EMS. The respective correlations were $r = 0.34$ and 0.28 ($p < 0.001$). The findings rendered further support for the validity of the survey data concerning ECS and EMS.

6.4. Model validation and hypothesis testing

Structural analysis using the SEM software, EQS6.1, was performed to validate all the hypothesized relationships of the conceptual model proposed in Fig. 1. In the analysis, the moderating effects of RSI were estimated by Ping's (1995, pp. 338–339) method, which involved the construction of the relevant latent interaction terms within the SEM context. Initially, SIZE, IND, OM, CD and SDB were incorporated into the analysis as control variables. These were excluded from the final model estimation as they provided no significant effects on the endogenous variables at $p \leq 0.05$. Fig. 2 depicts the major results derived from the analysis. The standardized path coefficients and coefficients of determination (R^2) of the analysis are also reproduced in Table 3 to aid subsequent discussion of the hypothesis testing results.

6.5. Overall model fit

A number of measures were adopted to assess the overall model fit and are reported in Fig. 2. Overall, although the χ^2 statistic (509.26; d.f. = 243) derived from the proposed model is significant at $p = 0.000$, other more powerful fit measures all meet the recommended thresholds (i.e., CFI and NFI > 0.90 ; RMSEA < 0.10). Given that the χ^2 statistic is highly sensitive to sample size, the overall fit of the model is thus considered satisfactory.

6.6. Relationships between environmental orientation and strategy (H_1 – H_4)

Both IEO ($\beta = 0.18$) and EEO ($\beta = 0.21$) exert positive influences on ECS at $p < 0.05$ (column 2 of Table 3). These results render support to H_1 and H_3 respectively. In contrast, EEO ($\beta = 0.14$; $p < 0.05$) positively influences EMS but IEO ($\beta = 0.05$; $p > 0.05$) does not (column 3 of Table 3). The results thus support H_4 but not H_2 .

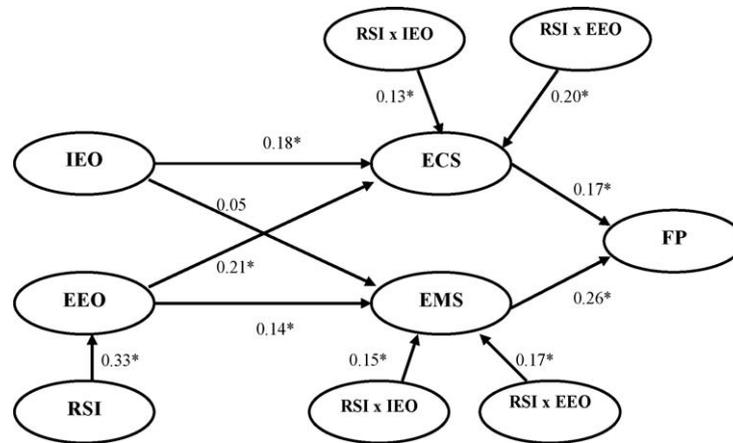


Fig. 2. Path diagram depicting the structural analysis results ($N = 230$). Notes: IEO: internal environmental orientation; EEO: external environmental orientation; ECS: environmental corporate strategy; EMS: environmental marketing strategy; FP: firm performance; RSI: regulatory stakeholder influence. Interaction terms (RSI \times IEO; RSI \times EEO) to examine RSI's moderating effects were constructed by Ping (1995) Ping's (1995) technique. *Standardized path coefficient significant at $p < 0.05$; N = sample size. The control variables were excluded from the final analysis as they did not exert any significant effects on the relevant endogenous variables.

6.7. Relationships between environmental strategy and performance (H_5 – H_6)

Both ECS ($\beta = 0.17$) and EMS ($\beta = 0.26$) positively influence FP at $p < 0.05$ (column 4 of Table 3). These results provide support to H_5 and H_6 respectively. They also corroborate the NRVF proposition that incorporating environmental concerns into the strategic planning process (i.e. Banerjee's notion of environmental strategy) should enhance firm performance.

Given environmental researchers' diverse views on the strategy–performance relationship, a cross-check was made to determine whether the practice of environmental strategy really leads to higher performance (i.e., ECS/EMS \rightarrow FP). This check was considered desirable as the significant strategy–performance link identified in this cross-sectional study might not be causal in nature. Rather, it might simply reflect well-performing firms' higher propensity to practice environmental strategy (i.e. FP \rightarrow ECS/EMS).

To conduct the examination, structural analysis was performed again after reversing the direction of influence between ECS and FP, and between EMS and FP. The analysis was aimed at detecting whether treating FP as a determinant of ECS and EMS would result in better model fit. In summary, this revised model exhibited a poorer model fit ($\chi^2 = 537.79$, d.f. = 243, $p = 0.000$; CFI = 0.94;

NFI = 0.93; RMSEA = 0.10) compared with the model depicted in Fig. 2. The coefficients of the two reversed paths both decreased in their magnitude, and one of them became insignificant (FP \rightarrow ECS = 0.10, $p > 0.05$; FP \rightarrow EMS = 0.19, $p < 0.05$). Overall, this analysis further suggests that ECS and EMS are more likely to be the determinants, rather than the consequences, of FP.

6.8. Direct and moderating effects of regulatory stakeholder influence (H_8 , H_{10})

RSI ($\beta = 0.33$; $p < 0.05$) exerts a direct positive influence on EEO (column 5 of Table 3), thus supporting H_8 . Moreover, the significant interaction terms (RSI \times IEO; RSI \times EEO) (columns 2 and 3 of Table 3) indicate that RSI positively moderates the following relationships at $p < 0.05$: (1) IEO \rightarrow ECS ($\beta = 0.13$); (2) EEO \rightarrow ECS ($\beta = 0.20$); (3) IEO \rightarrow EMS ($\beta = 0.15$); and (4) EEO \rightarrow EMS ($\beta = 0.17$). Overall, these results provide support for H_{10} .

To further explore the nature of the moderating (interaction) effects of RSI, Schilling and Steensma's (2001, pp. 1160–1161) approach was followed to plot the significant interactions using one standard deviation above and below the means of the interacting variables (Figs. 3–6). The interaction plots in Figs. 3–5 all show that although the independent variable (EEO or IEO) in each figure has a positive influence on the corresponding

Table 3 Structural analysis results relating to the test of H_1 – H_6 , H_8 and H_{10} ($N = 230$).

Path from	Path to			
	ECS	EMS	FP	EEO
IEO	0.18*	0.05		
EEO	0.21*	0.14*		
RSI \times IEO	0.13*	0.15*		
RSI \times EEO	0.20*	0.17*		
ECS			0.17*	
EMS			0.26*	
RSI				0.33*
R^2	0.42	0.34	0.37	0.10
Hypothesis test results:	H_1 , H_3 supported " H_{10} supported"	H_2 not supported; H_4 supported	H_5 , H_6 supported	H_8 supported

Notes: IEO: internal environmental orientation; EEO: external environmental orientation; ECS: environmental corporate strategy; EMS: environmental marketing strategy; FP: firm performance; RSI: regulatory stakeholder influence. Interaction terms (RSI \times IEO; RSI \times EEO) to examine RSI's moderating effects were constructed by Ping's (1995) technique.

This table does not present the test results for the hypothesized mediating effects (H_7 , H_9) because they were dealt with in other parts of the paper. N = sample size.

* Standardized path coefficient significant at $p < 0.05$.

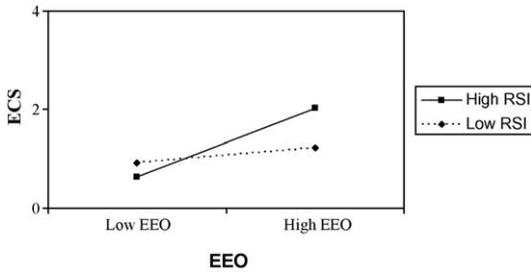


Fig. 3. Interaction effects of EEO × RSI on ECS.

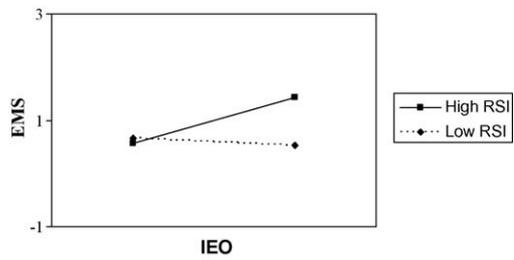


Fig. 6. Interaction effects of IEO × RSI on EMS.

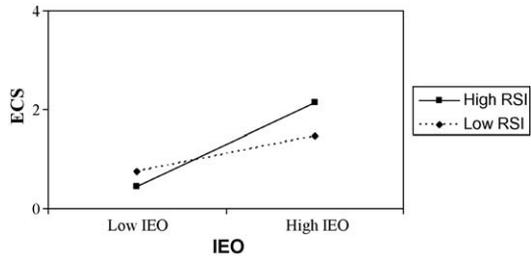


Fig. 4. Interaction effects of IEO × RSI on ECS.

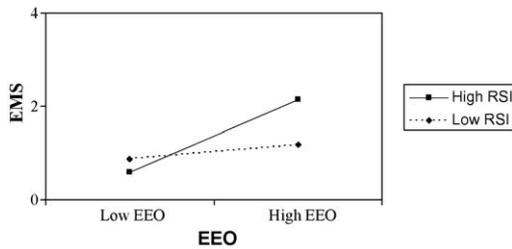


Fig. 5. Interaction effects of EEO × RSI on EMS.

dependent variable (ECS or EMS), such an influence is much stronger when RSI is high (as demonstrated by the much steeper regression slope). Overall, the plots suggest that as RSI increases, the relationships of EEO–ECS (Fig. 3), IEO–ECS (Fig. 4), and EEO–EMS (Fig. 5) also become stronger.

Fig. 6 reveals that while IEO exerts no detectable influence on EMS under the low RSI condition, it exerts a much stronger positive

impact on EMS when RSI is high. This further supports RSI's positive moderating effect on the IEO–EMS relationship. Overall, all these additional analyses provide further support for H₁₀.

6.9. Mediating role of environmental strategy (H₇; IEO/EEO → ECS/EMS → FP)

Within the SEM context, the test of a mediating effect essentially involves examining the relationship between the independent (x) and mediating variables (m), and that between the mediating (m) and dependent variables (y). Denoting these two relationships by the path coefficients $\beta_{x \rightarrow m}$ and $\beta_{m \rightarrow y}$, respectively, a mediating effect is considered to exist if: (1) both coefficients are significant when the direct effect of x on y is also incorporated into the structural model; and (2) the Sobel test detects that the indirect effect of m (approximated as the product of unstandardized $\beta_{x \rightarrow m}$ and unstandardized $\beta_{m \rightarrow y}$) is significantly different from 0 (Kenny, 2008).

In order to test the hypothesized mediating effects of ECS and EMS here, the direct effects of IEO and EEO (independent variables) on FP (dependent variable) were first incorporated into the structural model. This revised model was then subject to structural analysis, with the relevant results summarized in Fig. 7. The results indicate that the two independent variables, IEO and EEO, exert significant influences on the first hypothesized mediator, ECS ($\beta_{IEO \rightarrow ECS} = 0.13$; $\beta_{EEO \rightarrow ECS} = 0.23$). In addition, ECS significantly influences the dependent variable, FP ($\beta_{ECS \rightarrow FP} = 0.17$). Application of the Sobel test also reveals that the indirect effects of ECS on IEO–FP (z-statistic = 2.14, p = 0.03) and on EEO–FP (z-statistic = 2.64, p = 0.00) are both significantly different from 0. These results support the mediating effect of ECS.

Regarding EMS, EEO ($\beta_{EEO \rightarrow EMS} = 0.14$) has a significant influence on this second hypothesized mediator, but IEO

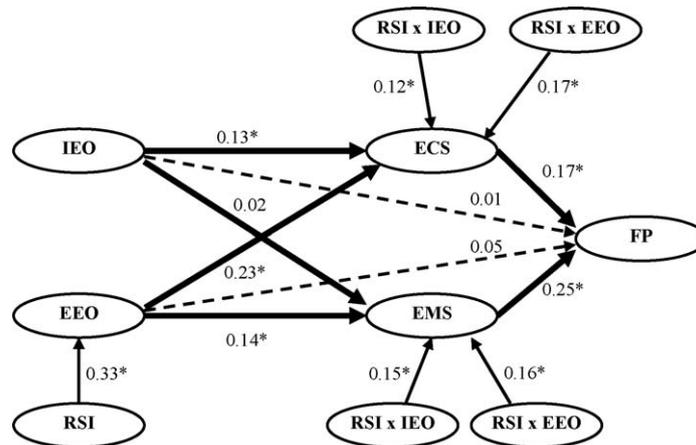


Fig. 7. SEM-based test of mediating effects of ECS and EMS (H₇). Model fit indexes: χ^2 statistic = 507.46 (d.f. = 241, p = 0.000); CFI = 0.97; NFI = 0.95; RMSEA = 0.08. Notes: *Standardized path coefficient significant at p < 0.05. Bold lines denoted paths of the hypothesized mediating effects. Dashed lines denoted the newly added direct effects of the independent variable on the dependent variables.

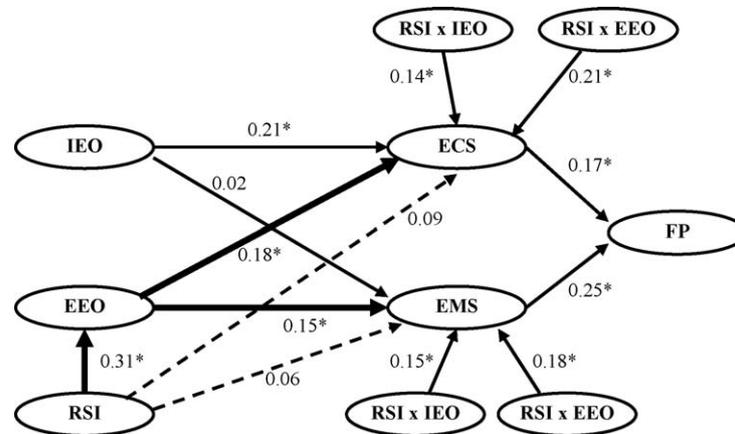


Fig. 8. SEM-based test of mediating effects of EEO (H_9). Model fit indexes: χ^2 statistic = 508.51 (d.f. = 241, $p = 0.000$); CFI = 0.97; NFI = 0.95; RMSEA = 0.08. Notes: *Standardized path coefficient significant at $p < 0.05$. Bold lines denoted paths of the hypothesized mediating effects. Dashed lines denoted the newly added direct effects of the independent variable on the dependent variables.

($\beta_{IEO \rightarrow EMS} = 0.02$) does not (Fig. 7). In addition, EMS exerts a significant influence on the dependent variable, FP ($\beta_{EMS \rightarrow FP} = 0.25$). The Sobel test reveals that the indirect effect of EMS on EEO–FP (z -statistic = 2.45, $p = 0.01$) is significantly different from 0, but is not for IEO–FP (z -statistic = 0.04, $p = 0.97$). These results suggest that EMS mediates the EEO–FP but not the IEO–FP path. Overall, the test results for ECS and EMS provide only partial support for H_7 .

6.10. Mediating role of external environmental orientation (H_9 : $RSI \rightarrow EEO \rightarrow ECS/EMS$)

In similar fashion, the test for the hypothesized mediating effect of EEO involved first incorporating into the structural model the direct effects of RSI (independent variable) on ECS and EMS (dependent variables). This revised model was then subject to structural analysis, with the relevant results summarized in Fig. 8.

The results show that the independent variable, RSI, exerts a significant influence on the hypothesized mediator, EEO ($\beta_{RSI \rightarrow EEO} = 0.31$) (Fig. 8). In addition, EEO significantly influences the two dependent variables, ECS ($\beta_{EEO \rightarrow ECS} = 0.18$) and EMS ($\beta_{EEO \rightarrow EMS} = 0.15$). Application of the Sobel test further reveals that the indirect effects of EEO on RSI–ECS (z -statistic = 2.33, $p = 0.02$) and RSI–EMS (z -statistic = 2.13, $p = 0.03$) are both significantly different from 0. Overall, the results support H_9 .

7. Discussion and summary

Several findings derived from the analyses merit further discussion. First, both IEO and EEO are found to positively influence ECS (Fig. 2 and Table 3). These findings differ from those of Banerjee et al. (2003), in whose study only IEO (and not EEO) was found to positively influence ECS. However, as those researchers did not detail the ranks of the responding managers, the possible inclusion of less senior respondents might have biased the responses toward corporate environmental practices. Overall, the current findings show how the internal environmental ethics of the firm (IEO), and the managerial perception of the need to respond to external stakeholder demands (EEO), both influence the development of ECS. The findings support Bansal and Roth's (2000) observation that firms can be characterized by mixed motivations for initiating environmental practices.

Second, the findings echo those of Banerjee et al. (2003) by showing that only EEO (and not IEO) exerts a significant and positive influence on EMS (Fig. 2 and Table 3). Given the boundary-spanning nature of marketing, it is not surprising to see firms rely

heavily on EMS to cater to external stakeholders' environmental demands. Moreover, since EMS focuses on enhancing firms' competitiveness in their chosen product markets, the successful practice of this strategy thus depends to a large degree on how well and promptly they can respond to a rapidly changing market and competitive conditions. The market- and competition-driven nature of EMS further helps explain the dominant influence of EEO.

Third, both ECS and EMS positively influence FP (Fig. 2 and Table 3). This empirical evidence supports the NRVF proposition that incorporating environmental concerns into the strategic planning process is crucial for superior performance. When compared with EMS, ECS is found to exert a relatively weaker influence on FP (β -value: 0.26 vs. 0.17). One possible explanation may relate to the different time frame required to reap benefits from the practice of these two strategies. Compared with the relatively short-term and functionally oriented EMS (Banerjee, 2001), ECS focuses on such major (and long-term) corporate strategic decisions as entering new businesses, adopting advanced technologies, and moving to new plant locations, for which a much longer time frame is required before their strategic benefits can be fully realized. As the pursuit of corporate environmentalism in China is still nascent, this cross-sectional investigation may be unable to fully capture the possible time-lagged effect of ECS. Using a longitudinal approach in future studies should allow this issue to be explored more thoroughly.

Fourth, the hypothesized mediating effect of environmental strategy (ECS, EMS) on the relationship between environmental orientation (IEO, EEO) and performance (FP) is partially supported (Fig. 7). Specifically, the results show that while EMS mediates only the EEO–FP (and not the IEO–FP) relationship, ECS mediates both relationships. These results contribute to a better understanding of exactly how the SO–S–P proposition can help explain the pursuit of corporate environmentalism. On the one hand, the ability for EMS to mediate the EEO–FP but not the IEO–FP relationship is most likely related to the boundary-spanning nature of marketing. On the other hand, the mediating effect that both ECS and EMS exert on the EEO–FP relationship suggests that EEO constitutes an essential input for the development of environmental corporate and marketing strategies that are conducive to superior performance. The importance of EEO for devising environmental corporate and marketing strategies is also reflected in the test results of H_9 , which show that EEO mediates the effect of RSI on environmental strategy (ECS, EMS) (Fig. 8). As EEO concerns how managers perceive the importance of external stakeholders' environmental demands, the foregoing findings point to the need for managerial sensitivity to such demands for devising financially

viable environmental strategies. Given mounting environmental concerns from various constituencies in China (Chan, 2005), this managerial sensitivity appears indispensable for firms to achieve sustainable growth.

Fifth, in the environmental management literature, there exist two different views on how regulatory stakeholders may influence corporate greening. Some researchers (e.g., Bansal & Roth, 2000) have argued for the direct influence of RSI, and others have argued for its moderating influence. With reference to Banerjee's (2002) notion of corporate environmentalism, the current investigation provides further insights on this contentious issue. The structural analysis results (column 5 in Table 3) clearly show that RSI directly influences the EEO component of corporate environmentalism. The significant interaction terms reported in columns 2 and 3 of Table 3 also reveal RSI's positive moderating influences on the relationships IEO → ECS, EEO → ECS, IEO → EMS, and EEO → EMS (see also Fig. 2). This dual (both direct and moderating) influence demonstrates the pivotal role of regulatory stakeholders in urging firms toward sustainable development. While the majority of the relevant NRVF studies have stressed issues internal to firms, the current findings act to remind researchers in this field of the importance of taking into account both salient internal and external factors when addressing corporate greening issues.

Lastly, the mean scores on ECS (4.70 out of 7) and EMS (4.91 out of 7) (Table 2) also contribute to a better understanding of the extent to which FIEs in China are involved in pro-environmental strategic practices. Overall, although these scores highlight that FIEs are far from apathetic with these practices, there is still considerable room for improvement. This warrants more official attention to improve the situation. For instance, given the identified strong influence of EEO on both ECS and EMS, the Chinese government should make concerted efforts to raise FIEs' responsiveness to the environmental demands of external stakeholders. Such efforts should include boosting public consciousness and participation in environmental protection through education and publicity. The formulation of the National Action Program for Environmental Publicity and Education (1996–2010) represents a move in this direction. If FIEs better recognize the escalating environmental concerns of the Chinese public, they will be more motivated to pursue green practices in order to retain their strategic viability. In the longer run, rising public environmental consciousness, together with regular business–government communication, will help the government improve the regulatory infrastructure.

7.1. Managerial relevance

Given the importance of regulatory stakeholders in driving firms toward sustainable development, the Chinese government should strengthen its environmental regulations and enforcement capabilities. As many emerging economies including China still lack the required environmental knowledge and expertise (Child & Tsai, 2005), the Chinese government should co-operate more closely with environmentally reputable multi-nationals and environmental non-

governmental organizations to fine-tune its existing regulatory framework. Regarding environmental enforcement, China has long been criticized for giving local or regional authorities too much discretion in executing environmental regulations. (Ma & Ortolano, 2000). This leads to inconsistent practices of environmental enforcement across different regions. To avoid this inconsistency, the national government should also provide its SEPA with more resources and power to ensure the standardized execution of environmental regulations at the regional level.

In practical terms, the results should serve to remind FIE executives of the importance of effectively managing regulatory stakeholders' various environmental requirements. Specifically, FIE executives are advised to keep track of these requirements, and to develop regular communication with the relevant central and local officials in order to exchange views on ecological issues. Since environmental regulations and protection in China are still evolving, such activities will provide FIE executives with valuable information and opportunities to better cope with (or even influence) changing regulatory expectations (Child & Tsai, 2005).

8. Limitations and conclusion

The confinement of this study to industrial FIEs operating in the more developed areas of China may restrict the extent to which its findings may be generalized. As such, caution must be taken with the extension of the findings to explaining such ventures as state-owned enterprises, service enterprises, and FIEs operating in the less developed areas of the country. While it is justified to first explore selected venture groups whose business operations are likely to be most affected by China's rising environmental consciousness, a survey with wider coverage in terms of ownership type, industry type, and geographic area will enhance the comprehensiveness of the investigation. Moreover, although it is a widely accepted approach in business-related investigations, the use of cross-sectional survey data in this study inevitably hinders the full establishment of the causal relationships among all the constructs of the proposed model. Using longitudinal data in future studies will help to further verify the model.

This study has established empirically grounded relationships among environmental orientation, environmental strategy, firm performance, and regulatory stakeholder influence, which hitherto has not been achieved in environmental management research. From the findings, it is apparent that effective translation of internal environmental ethics, and of external stakeholders' environmental demands into corresponding strategic initiatives, should improve firm performance. The ways in which the effectiveness of this translation can be enhanced are of vital interest to practitioners, and represent some promising areas for future research.

Acknowledgments

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Appendix A. Measuring instruments used in the survey

Construct	
IEO	Internal environmental orientation (1 = "strongly disagree" to 7 = "strongly agree")
IEO1	At our firm, we make a concerted effort to let every employee understand the importance of environmental preservation
IEO2	Our firm has a clear policy statement urging environmental awareness in every area of operation
IEO3	Environmental preservation is highly valued by our firm members
IEO4	Preserving the environment is a central corporate value in our firm
EEO	External environmental orientation (1 = "strongly disagree" to 7 = "strongly agree")

Appendix A (Continued)

Construct	
EEO1	The natural environment does not currently affect our firm's business activity (R)
EEO2	The financial well-being of our firm does not depend on the state of the natural environment (R)
EEO3	Environmental preservation is vital to our firm's survival
EEO4	Various sections of society expect our firm to preserve the environment.
ECS	Environmental corporate strategy (1 = "strongly disagree" to 7 = "strongly agree")
ECS1	Our firm has integrated environmental issues into our strategic planning process
ECS2	In our firm, "quality" includes reducing the environmental impact of products and processes
ECS3	At our firm, we make every effort to link environmental objectives with our other corporate goals
ECS4	Environmental issues are always considered when we develop new products
EMS	Environmental marketing strategy (1 = "strongly disagree" to 7 = "strongly agree")
EMS1	We emphasize the environmental aspects of our products and services in our ads
EMS2	Our marketing strategies for our products and services have been considerably influenced by environmental concerns
EMS3	In our firm, product-market decisions are always influenced by environmental concerns
EMS4	We highlight our commitment to environmental preservation in our corporate ads
FP	Firm performance (1 = "much worse" to 7 = "much better")
FP1	After tax returns on investment
FP2	Earnings growth
FP3	Sales growth
FP4	Market share change
RSI	Regulatory stakeholder influence (1 = "no influence at all" to 7 = "very strong influence")
RSI1	National and regional governments
RSI2	Local public agencies

Notes: (R) Reversed-score item.

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