



Entrepreneurial orientation and green management in an emerging economy: The moderating effects of social legitimacy and ownership type

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ABSTRACT

By combining major tenets developed in the entrepreneurial orientation literature and institutional theory, we investigate the relationship between entrepreneurial orientation and green management in the context of emerging markets and the moderating effects of social legitimacy and ownership type using survey data from 200 Chinese firms. In China, we find that entrepreneurial orientation is positively associated with emerging markets' green management. This positive relationship is strengthened by social legitimacy and is stronger for state-owned enterprises than for non-state-owned enterprises. Furthermore, our empirical results partly support the idea that the facilitation of high entrepreneurial orientation, high social legitimacy and state ownership is more effective in facilitating emerging markets' green management than other configurations. This study explores a new perspective, i.e., the integration of an entrepreneurial approach and institutional theory to explain why firms make differentiated green decisions in emerging markets. Additionally, the three-way configuration effects provide a more complete picture and thereby facilitate a deeper understanding of emerging markets' entrepreneurial spirit with regard to environmental issues.

1. Introduction

The commitment to being green and pursuing environmentally friendly practices has become an important issue within current competitive scenarios (Ronald and Ronald, Hofer et al., Tang and He, 2019). There is an increasing amount of evidence that green management, i.e., "the organization-wide process and practice of applying innovation to achieve sustainability, waste reduction, social responsibility, and a competitive advantage via continuous learning and development and by embracing environmental goals and strategies that are fully integrated with the goals and strategies of the organization" (Haden et al., 2019), is often positively associated with firms' financial performance (Archicci and Ing, 2019; Orlitzky et al., 2019), firm value (Flammer, 2019; Li et al., 2019), corporate financing (Liao, 2019), and product innovation (Hu et al., 2019).

As such, identifying the factors that drive green management has become a popular topic of multidisciplinary studies. For instance, grounded in institutional theory or stakeholder theory, several studies

have acknowledged that firms' green management practices are shaped by coercive, normative, and mimetic pressures from various stakeholders (e.g., Chen et al., 2019; Murovec et al., 2019; Shah, 2019). The resource-based view (RBV) also provides a compelling reason to examine the internal resources and capabilities of the organizations driving green management such as financial resources (Li et al., 2019), technical resources (Jiang et al., 2019), social capital (Liao, 2019), and dynamic capabilities (Zhou et al., 2019).

However, a more important understanding may be insufficient to explain why firms tend to be greener in the context of emerging markets. Environmental issues are of paramount importance and are characterized by different features in emerging markets than those of developed countries (Fan et al., 2019; Zhou et al., 2019; Zhang et al., 2019). For instance, although the stringency of policy regulations and public participation with regard to environmentalism in emerging markets has increased in recent years, they are still significantly lower than in developed countries (Tang and He, 2019; Zou et al., 2019). Meanwhile, firms in emerging markets usually have limited resources and underdeveloped capabilities to gain environmental competitive advantages

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Therefore, it is quite meaningful to ask the following question: What unique factors drive firms to engage in green management in emerging markets, which are characterized by abundant “institutional voids” and limited internal resources?

In this study, combining major tenets developed in the entrepreneurial orientation (EO) literature and institutional theory, we seek to explore how EO, together with social legitimacy and firm ownership type, motivate firms to adopt green management in emerging markets. EO is proposed as a potential driver of green management (Menguc et al., 2014), however, it has attracted only very limited attention. EO represents the presence of a prospector type strategic posture or entrepreneurial spirit in an organization (Miller, 1985; Sarasadara et al., 2014), “capturing specific entrepreneurial aspects of decision making styles, methods, and practices” (Lund and Hephherd, 2014, p. 1). Firms with an entrepreneurial spirit are more likely to proactively explore new routines and processes to cope with environmental changes (e.g., concerns about pollution issues, evolving regulations, changing social expectations, and new green technologies), which are risky and uncertain yet potentially highly rewarding (Arma et al., 2014). Thus, we aim to elucidate the critical, yet less examined, role of EO in the adoption of green management in the context of emerging markets.

Specifically, we adopt institutional theory to examine the boundary conditions of the relationship between EO and green management. For emerging market firms without sufficient internal resources or an external stable resource market (Peng, 2003; Rettab et al., 2014), social legitimacy is a potential complement for EO in pursuit of opportunities as it can attract crucial resources (Lund and Hephherd, 2014; Zimmerman and Zeitl, 2014). In addition, we identify firms' ownership type as another potential institutional contextual moderator that is especially important in emerging markets. Ownership is a valid and widely considered predictor of organizational outcomes in emerging markets (Peng et al., 2003; Tan, 2003). That is, state-owned enterprises (SOEs) and non-SOEs demonstrate quite different strategic decisions, behaviors and performance due to their distinctive institutional identities (Peng and Luo, 2014; Hua et al., 2014). Thus, we compare how the impact of EO on green management differs between SOEs and non-SOEs in China.

Furthermore, in contrast to the extant studies, which predominantly focus on the main effect approach or the two-way interaction effect on green management (e.g., Orti de Mandoana et al., 2014; Huang et al., 2014), we adopt a configurational approach to examine a three-way interaction (i.e., EO, social legitimacy, and ownership type) to explore how these factors cluster together to better explain green management. As a firm is configured on multiple dimensions rather than only two, the configurational approach is more conducive to deeply understanding corporate outcomes (Liu et al., 2014), such as how EO affects firm performance (Tam and Elfring, 2014; Lund and Hephherd, 2014). This study represents one of the earliest efforts applying a configurational approach in the research field of green management.

In summary, based on the EO literature and institutional theory as well as the configurational approach, this study addresses three research questions: First, what is the relationship between EO and green management for emerging market firms? Second, what are the boundary conditions of the relationship between EO and green management in the specific context of an emerging economy? Our model explores the moderating roles of both social legitimacy and firm ownership type. Third, what is the configurational effect of EO, social legitimacy, and ownership type on the adoption of emerging market firms' green management? Empirically, we construct a point Likert scale and adopt a face-to-face interview assisted on-site survey method to collect first-hand data from Chinese firms in provinces. Hierarchical moderated regression analysis and subgroup analysis are used to test our hypotheses.

The remainder of the paper is structured as follows: Section 2 presents the theoretical background and develops our theoretical hypotheses, and section 3 provides the empirical tests. The implications and limitations of this study are discussed in the final section.

2. Theory and hypotheses development

2.1 Entrepreneurial orientation and green management in emerging economies

With the current, increasingly severe environmental problems, green management is inevitably becoming one of the most important strategic decisions for firms in both developed countries and emerging markets. The core idea of green management is to protect natural resources as well as the natural environment to enhance operational effectiveness in resource and energy consumption (Chabowski et al., 2014).

Green management practices often include green manufacturing, green design, green marketing, and the integration of green factors into firms' strategic goals (Lee, 2008). Green management generally involves socially complicated processes, long-term investment, and outcome uncertainty, which make it quite different from traditional management. For example, implementing environmental standards requires a substantial investment in relevant environmental technologies and processes, especially in the initial stage (Aguilera Caracuel et al., 2014). Nevertheless, firms continue to pursue green management for various reasons.

Grounded in institutional theory or stakeholder theory, several studies have acknowledged that firms' green management practices are shaped by coercive, normative, and mimetic pressures (e.g., Chen et al., 2014; Wu et al., 2014). For example, firms frequently engage in green innovation to avoid economic costs as well as the political costs imposed by coercive pressure (Menguc et al., 2014). Normative pressure, which includes social norms and moral standards, guides firms to take green innovation actions to meet different stakeholders' expectations (Ansari and Clelland, 2014). In addition, mimetic pressure from competitors often motivates industrial companies to take energy-saving actions (Wu et al., 2014). Pressures exerted by different stakeholders, such as regulatory institutions (Murovec et al., 2014), stockholders (Li et al., 2014), suppliers (Jah, 2014), consumers (Zhang and Zhu, 2014), communities (Chaltenbrand et al., 2014), NGOs (Jah, 2014), and the public (Ang and He, 2014), have also been proposed to separately or jointly explain why firms choose to “go green”.

The RBV also provides a compelling perspective to examine how internal resources and capabilities drive green management. Firms' green initiatives require the accumulation, allocation, and coordination of various resources (Nath and Ramanathan, 2014). Specifically, firms with abundant financial resources, technical resources, and human resources tend to invest in green projects without expectation of instant economic returns (Jabbour et al., 2014; Jiang et al., 2014; Chaltenbrand et al., 2014). Social capital promotes the implementation of green management through the search and acquisition of necessary resources (Liao, 2014). International experience and organizational learning capability help firms develop a series of best green management practices to deal with environmental regulations (Aguilera Caracuel et al., 2014). Dynamic capability and strategic flexibility are also drivers of green management because they can allocate and reconfigure resources rapidly, flexibly and effectively to adapt to external changes (Yang et al., 2014; Zhou et al., 2014).

Despite their influences, the above-mentioned leading viewpoints have limitations. The former perspective predominantly treats firms' green management as a defensive mechanism, thus failing to explain why firms respond quite heterogeneously to external pressures in terms of environmentalism (Ang and He, 2014) or why some firms pursue green practices even before stakeholders exert pressure on them (Zhou et al., 2014). The latter is based on the premise that firms lacking resources will engage less in green management initiatives. This cannot account for why firms without abundant resources have differentiated actions. Recent studies that are complementary to the institutional framework and the RBV have explored how CEOs' time perspective (Orti de Mandoana et al., 2014), managerial interpretations (Arma et al., 2014), top managerial mindsets (Liu et al., 2014), and organizational

design [harma](#), impact firms' decision making on green management. Along these lines, we suggest EO as a potential driver of green management in the specific context of emerging markets.

In particular, there are two salient differences in firms' green management between developed countries and emerging markets, such as China. First, the stringency of policy regulations and public participation with regard to environmentalism in emerging markets are significantly lower than those in developed countries [Yang and He](#). For example, many young managers in Germany, Switzerland and Austria stated that they would leave a company if they did not feel that their employer expected them to actively engage in environmental protection activities [Einsmann](#), which is not often the case in emerging markets. In China, although environmental protection regulations have become more stringent than they have been, there are still plenty of unclear legal provisions, law enforcement problems, and unclear industry standards [Luffer et al](#), [Heng et al](#). Second, firms in developed countries tend to be greener after their businesses gain competitive advantages and accumulate needed resources [harma](#), yet firms in emerging markets usually have limited resources and underdeveloped capabilities. These internal and external uncertainties provide both opportunities and challenges for emerging market firms, thus obscuring the relationship between firms' green management and the antecedents that have been explored in the context of developed countries.

Here, we seek to elucidate the critical role of EO in the adoption of green management in the context of emerging markets. The EO concept stems from Ann Miller's intriguing idea that "an entrepreneurial firm is one that engages in product market innovation, undertakes somewhat risky ventures, and is first to come up with proactive innovations, beating competitors to the punch" [Miller](#), p. As an organizational level concept, EO focuses on gaining competitive advantage principally through innovation, proactive and risk-taking behaviors [Li et al](#). Specifically, innovativeness refers to "a firm's tendency to engage in and support new ideas, novelty, experimentation, and creative process that may

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from endorsements and approval from governments and other authorities (Ang et al., 2015), which are very beneficial in the identification and implementation of green opportunities in emerging markets. On the one hand, regulatory legitimacy supplies firms with useful information ahead of other competitors and thus helps those firms realize the value of proactiveness in grasping green opportunities. The availability of information can also reduce the uncertainty of engaging in green management initiatives. On the other hand, regulatory legitimacy can also lead to firms with disproportionately scarce resources with which to exploit green opportunities such as government subsidies (Hung et al., 2015), tax benefits (Chen et al., 2015), bank loans (Lin et al., 2015), new entry certification, and standard setting rights.

By conforming to the normative aspects of institutions, firms can gain normative legitimacy. Firms with high normative legitimacy must consider the social norms arising from various social constituencies by presenting an image emphasizing social welfare, interests, and values (Ang and Bansal, 2015). Normative legitimacy signals a good public image and social trustworthiness, which helps firms build good relationships with stakeholders (Fombrun et al., 2000). In this way, normative legitimacy can serve as a tool to acquire resources and specific knowledge (Lund and Shepherd, 2015). As the markets of green products are often far from mature, firms not only need plenty of resources to conduct research and development but also require stakeholders' acceptance of their green attempts and products. Meanwhile, environmental improvement often requires several parties, or even a whole industry, to work collaboratively (Einsmann, 2015). Good relationships with stakeholders are essential to mobilize other organizations in combined green efforts with the focal company. Overall, normative legitimacy can defend firms with high EO from a high risk of failure in pursuit of green opportunities (Lumpkin and Lichtenstein, 2005).

By conforming to the cultural cognitive aspects of institutions, firms can gain cognitive legitimacy. Cognitive legitimacy involves the adoption of culturally supported and assumed symbols, signs, words, habits, values, and rules (Maggio and Powell, 2003), usually in an unconscious way (Reinalda and Harward, 2005). One mechanism through which cognitive legitimacy functions in the pursuit of green opportunities is a shared organizational culture and conceptual basis in the development of green management. By communicating an environmentally friendly culture with employees and other stakeholders, firms with high EO can attract talented employment seekers devoted to green careers (Ang et al., 2015) and thus improve their capability to identify and exploit green opportunities. Such efforts may also signal firms' commitment and good performance prospects in terms of their green practices, thereby attracting potential investors and other necessary resources. Thus, our second hypothesis is as follows:

Hypothesis 2 Social legitimacy will strengthen the positive relationship between EO and green management practices for emerging market firms.

2. The moderating role of ownership type

In addition to the use of social legitimacy building tactics to address the challenges of engaging in green management, the coexistence of OEs and non-OEs is another significant institutional feature of emerging markets such as China. OEs are characterized as being highly controlled by governments and enjoying various political privileges (Ruton et al., 2015). Non-OEs receive less support from the government than OEs, which means that non-OEs are less able to acquire institutional resources and often face much fiercer market competition without specific institutional protection (Tang and Tang, 2015). Due to these differences, previous studies have revealed that EO is more positively associated with performance for OEs than for non-OEs (Tang et al., 2015). Thus, ownership type has the potential to influence the effectiveness of EO in facilitating green management.

Specifically, we suggest that with high EO, OEs may prefer engaging in green initiatives more than non-OEs do. On the one hand, OEs have a stronger motivation to choose green opportunities. Such firms are not directly affected by the discipline of the market, and the decisions of whether to shut down the firm or replace managers are determined mainly by politicians rather than the market (Li et al., 2015). (Megginson and Netter, 2001). Due to their institutional identity, OEs often have multiple objectives and are expected to realize both economic and noneconomic goals such as raising the level of social welfare (Liao et al., 2015).

Thus, pursuing green opportunities helps OEs improve their image from the perspective of politicians regardless of whether their efforts achieve positive or negative economic returns. In addition, the soft budgets usually enjoyed by OEs may enable environmental issues more likely opportunities to be pursued and facilitate related research (Reinalda and Harward, 2005).

in green management practices. With high social legitimacy, OEs must not only meet the requirements of politicians but also demonstrate their congruence with social norms and the expectations of other social constituencies. Therefore, these firms are more likely to engage in green efforts while introducing entrepreneurial activities. In summary, the combination of high EO, high social legitimacy, and status as an OE appears to be related to a high level of green management.

Other combinations of EO, social legitimacy and ownership type are less effective. OEs with low social legitimacy may treat being green as an option rather than an obligation. Their managers may be concerned about only the demands of local governments and serving politicians with their entrepreneurial activities, which does not necessarily lead to green management. Non-OEs with high social legitimacy may prefer other market opportunities to green ones. These firms can acquire information and resources more easily than non-OEs with low legitimacy, yet such acquisition is still more difficult for them than for OEs.

Without actual support from governments, they lack the source of precise policy messages and soft budgets to arbitrarily conduct green research and experiments. They are more likely to endeavor to allocate their precious resources, time and energy as rewardingly as possible. For non-OEs with low social legitimacy, without the resources and pressure brought by ownership and legitimacy, the potential value of green opportunities is often ignored. Such firms treat survival as their primary goal (Carr et al., 2019) and may change or respond to marginal market opportunities (Lund and Hefherd, 2019) instead of being environmentally responsible. Thus, we propose the fourth hypothesis as follows:

Hypothesis 4 The link between EO and green management is stronger for OEs with high social legitimacy than for other combinations.

3. Method

3.1 Data collection

We use a unique first-hand collected data set. The sample size is in China in order to test our hypotheses. In the Chinese context, a series of environmental-related laws and policies have been carried out since the 1970s, and not until 2002 did the level of policy regulation and implementation for environmental protection become more stringent. In fact, China amended the Environmental Protection Law in 2002 to further enhance the awareness of local governments and firms of the importance of environmental issues and to encourage them to improve their green conditions by adopting various green management practices (Liu and Ye, 2019; Hu et al., 2019). Thus, green data collected before 2002 can better show the central role of EO in the process of making green management decisions.

To collect high quality data, we conducted a face-to-face interview assisted on-site survey. While this type of survey is much more costly than traditional surveys conducted by mail, email or telephone, it can obtain a higher response rate and ensure that the survey is more understandable to respondents. The questionnaire was originally designed in English based on the existing literature and was then translated into Chinese with the assistance of PhD students who are competent in both languages. A pilot test with managers of local firms was conducted to ensure that each item could be accurately understood. To reduce social desirability bias, we ensured that our item descriptions were phrased to be neutral, and we assured the respondents of the confidentiality of their responses and that their responses would be used only in the aggregated analysis.

A three-stage process was performed to collect the final data. First, 100 Chinese provinces were chosen, and a list of 1000 firms was randomly chosen from the local yellow pages of these provinces. Second, our research team contacted the managers of the chosen firms to determine their willingness to participate in the research. Among those firms, 300 agreed to participate. Third, well-trained research assistants were sent to the firms to conduct the on-site survey. Finally,

questionnaires were returned. After omitting questionnaires with excessive missing data, we obtained 200 firms as our final sample size. The response rate = 30%. You may see the profiles of the survey sample in Table 1.

We ensured that our respondents were sufficiently knowledgeable about their firms' decision making as all of our on-site respondents were high-ranked managers such as CEOs, COOs, and divisional managers. We also used a t-test to compare the firms that participated and the firms that did not participate and found that there was no significant non-response bias. Additionally, Harman's single factor test was performed. No single factor accounted for most of the variance; thus, common method variance bias was not a major issue in this study.

2 Questionnaire description

A 7-point Likert scale format was used to measure each of our constructs where "1" indicated strongly disagree and "7" indicated strongly agree. The items included in our study were grounded in the relevant literature and adopted from prior studies that have been validated by scholars in both Western countries and the Chinese context. The details of the item descriptions are presented in Table 2.

Entrepreneurial orientation We adopted Chang's 5-item scale for measuring EO. While the scale most commonly used to measure EO is the Miller, Coon and Lee in scale (Brown et al., 2007; Coon and Lee in, 2007; Miller, 2007; Lumpkin and Dess, 2001), we found that this approach focused exclusively on the product market and on the technological aspects of EO. We therefore adopted Chang's 5-item scale, which also adapted two items from Miller and Friesen (1982) and one item from Hurt et al. (2002) to reflect a firm's overall innovation. The details of the items are shown in Table 2. Following Ang (2007), we treated EO as a higher-order latent construct that consists of four first-order indicators.

Social legitimacy To measure the level of firm social legitimacy, we combined Hu et al.'s 5-item scale and Yang et al.'s 5-item scale to capture recognition and acceptance by various types of stakeholders. Hu et al.'s 5-item scale was developed based on Cottrell and Tuchman (1987) and has only 3 items covering only stakeholders such as the community and the public. Yang et al.'s 5-item scale was developed based on Elsbach (1995) and has 5 items covering critical stakeholders such as peer firms, customers, and various levels of governments. As a more comprehensive measurement, the scale we formed had 10 items, which are shown in Table 2.

Ownership type The sample was classified into two categories: OEs and non-OEs. Non-OEs include privately owned enterprises, collectively owned enterprises, joint ventures, foreign joint ventures, and state-owned enterprises.

Table 1 Profiles of the survey sample.

Firm Age	Frequency	Firm size	Frequency
0-5 years	10%	1-50 people	10%
6-10 years	20%	51-100 people	20%
More than 10 years	70%	More than 100 people	70%
Public-Listed Company	Frequency	Development Stage	Frequency
Yes	10%	Introduction	10%
No	90%	Growth	20%
		Maturity	30%
		Recession	50%
Ownership	Frequency	Industrial Sector	Frequency
State owned	10%	Heavy manufacturing	10%
Privately owned	20%	Light manufacturing	20%
Collectively owned	30%	Construction	30%
Joint foreign J	10%	Service	10%
Others	30%		

Note: Numbers are presented as percentages.

enterprises, and others

Independent variable Green management The level of green management was measured by asking the respondents to assess how well their firms have protected the environment, maintained an ethical working environment, obeyed the laws of nature, recycled their products, economized raw material usage, and utilized resources responsibly. This method of measurement has also been used and validated in studies such as Liu et al. (2019) in the context of China.

Control variables We also controlled for several variables in the analysis. *Firm size* was measured by the logarithm of the number of employees. Firms were also classified as *public companies* or *not public companies*. *Industrial development stage* was coded as the introduction stage, growth stage, maturity stage or recession stage. *Industry sector* was classified as the heavy manufacturing industry, light manufacturing industry,

Table 3
Correlations and discriminant validity

Variable	Mean										
Green management											
EO		**	0.765								
Social legitimacy		**	**	0.751							
Ownership		-	-	-							
Firm size				**	**						
Public company		-	-	-	*	-	**				
Development stage		-	-	-	**	**	**				
Industrial sector		-	-	-	-	**	-	-	*		

Note: **p < 0.01, *p < 0.05, N = 100. The data on the diagonal line in bold are the square root of AVE

root of AVE corresponding to the focal construct, indicating sufficient discriminant validity. Overall, all these results suggest that the constructs exhibit appropriate psychometric properties, and our measurement model fits well with the data.

Regression results

We used hierarchical moderated regression analysis to test our hypotheses (Tam and Elfring, 2015). First, we examined the multicollinearity in the regression models. The maximum VIF is 1.12, since the VIF values are all below 5, multicollinearity was not a problem in this study. Then, we used hierarchical multiple regression analysis to examine the above hypotheses. Table 3 shows the results of the regressions with green management as the dependent variable.

In Model 1, the coefficient of EO is $\beta = 0.12, p < 0.01$, showing that EO has a positive and significant influence on emerging markets' green management. Hypothesis 1 is thus supported. In Model 2, the coefficient of the interaction between EO and social legitimacy is $\beta = 0.08, p < 0.05$. The coefficient of the interaction between EO and ownership type is $\beta = 0.05, p < 0.05$. The coefficient of the configuration among EO, social legitimacy and ownership type is $\beta = 0.03, p > 0.05$. These results provide empirical support for the two-way interactions. Hypotheses 2 and 3 are not supported for the three-way configuration model. Hypothesis 4 is partially supported.

We also performed a subgroup analysis, separating our sample into OEs and non-OEs. Table 4 shows the results. Model 1 and Model 2 indicate that EO $\beta = 0.15, p < 0.01$ and $\beta = 0.10, p < 0.05$ facilitates only OEs in taking green actions. This is consistent with the argument of Hypothesis 5. Model 1 and Model 2 suggest that with high EO and high social legitimacy, both OEs and non-OEs are willing to adopt green management. A t-test shows that the three-way configuration effect is more significant in the group of OEs. Hypothesis 5 is thus partly supported.

Table 4
Regression results

Variable	Model 1	Model 2	Model 3
Firm size	***	***	***
Public company			
Development stage	-	**	-
Industrial sector	-	-	-
EO		***	***
Social legitimacy		***	***
Ownership			
EO × L			**
EO × Ownership			***
L × Ownership			
EO × L × Ownership			-
R ²			
Adjusted R ²			
F-value	*	***	***

Note: N = 100. ***p < 0.001, **p < 0.01, *p < 0.05, †p < 0.1. Standard errors in parentheses.

5 Robustness test

We further examine how each dimension of EO affects green management in emerging markets. In the main analyses above, we use the aggregated index of four dimensions for measuring EO. Testing the relationship between each dimension of EO and emerging markets' green initiatives is useful to validate the robustness of our findings. As indicated in Table 3, the results using each dimension of EO appear similar to the original results shown in Table 3, with proactiveness and innovativeness showing significantly positive relationships with emerging markets' green management. $\beta = 0.08, p < 0.05$ and $\beta = 0.05, p < 0.05$.

4. Discussion

4.1 Theoretical contributions

Our study contributes to the green management literature in the following ways. First, we explore a new perspective, i.e., the integration of an entrepreneurial approach and institutional theory to explain why firms make differentiated green decisions in emerging markets. The driving forces of green practices in emerging markets can be different from those in developed countries since emerging market firms usually have insufficient resources and operate in a turbulent and complex environment with institutional deficiencies (Yang et al., 2019). In the current study, we highlight that the integrated logics of an entrepreneurial approach and institutional theory are suitable to further advance our understanding of the ongoing transformation towards environmentally friendly practices in emerging markets. More concretely, emerging market firms with an entrepreneurial spirit are more likely to interpret ongoing external changes as opportunities instead of threats and to take risks to pursue green opportunities and be more adaptable to new changes. These firms could also leverage their legitimacy and ownership type to overcome institutional defects and resource constraints to proactively pursue green opportunities in emerging markets. These findings are complementary to the prior research emphasizing a defensive mechanism, i.e., institutional theory and stakeholder theory or the resource and capability bases, i.e., RCT undertaken in developed countries.

Second, based on (Jiang and Hephherd, 2019) and other configurational works, the current study is an early effort to incorporate social legitimacy and ownership type into a configuration of how EO influences emerging markets' green management. The prior research adopts a main effect or a two-way interaction approach to examine the driving factors of environmental behaviors (e.g., Jiang et al., 2019; Orti de Mandoana et al., 2020). We propose that the configuration of high legitimacy and state-owned ownership maximizes the contribution of EO to emerging markets' green management. The multi-ariate configuration of EO and other important constructs in this study provide a more complete understanding of why firms choose to be greener than that obtained using bi-ariate contingency models (Tam, 2015).

Our study also enriches the current EO literature by revealing the role of EO in firms' environmental based CSR. The previous studies have

Table 5
Subgroup analysis OEs vs non OEs

Variable	OEs			Non OEs		
	Model	Model	Model	Model	Model	Model
Firm size	***		**	***	***	***
Public company						
Development stage	–	*	–	–	–	–
Industrial sector						
EO			*			
Social legitimacy			***		***	***
EO × L					***	**
R ²						
Adjusted R ²						
F-value	**	***	***	**	***	***

Note: ***p < .001, **p < .01, *p < .05, †p < .10. Standard errors in parentheses

Table 6
Robustness test

Variable	Model	Model	Model	Model	Model
Firm size	***	***	***	***	***
Public company					
Development stage	–	**	–	–	–
Industrial sector	–	–	–	–	–
Social legitimacy		***	***	***	***
Ownership					
Proactiveness		***			
Aggressiveness					
Risk taking					
Innovativeness					***
R ²					
Adjusted R ²					
F-value	*	***	***	***	***

Note: N = 114. ***p < .001, **p < .01, *p < .05, †p < .10. Standard errors in parentheses

predominantly examined how EO affects corporate performance (e.g., Co in and Miller, see Rauch et al, as a summary). Few researchers have given adequate attention to the link between EO and other corporate economic outcomes such as information acquisition (Chen et al, knowledge creation Li et al, and exploratory innovation Ollman and Tocmann, In contrast, our findings suggest that EO is useful to both business ethics and economic outcomes. In addition, the complementary role of legitimacy (e.g., Luo et al, Wang et al, or ownership type (e.g., Tang et al, to EO, which is emphasized in the growth of new ventures, is extended to the research field of green management.

Finally, our study contributes to institutional theory by demonstrating a new value creation mechanism of social legitimacy. It is widely acknowledged that legitimacy has a positive impact on organizational survival (Elmar and Hane, yet whether and how legitimacy influences other performance aspects is relatively less known (e.g., Ang et al, We argue that social legitimacy can act as a conduit of resource acquisition and capability development to assist green opportunity identification and exploitation for emerging markets. This not only replicates a new mechanism through which social legitimacy can generate returns but also represents a “manipulative” strategic response to institutional processes with regard to environmental improvement (Oli et al,

2 Practical implications

Our findings have several management implications. First, firms in emerging markets, such as China, need to realize that EO may enable them to pursue green opportunities and gain potential first mover advantages. They should develop a certain level of EO to proactively deal with fast changing environmental conditions that move toward environmental protection (Lund and Shepherd,

Second, top management teams, especially in non OEs, need to learn how to leverage the synergistic effect between EO and legitimacy building strategies to support their green practices. In the process of pursuing green opportunities, critical resources can be acquired through the effective use of social legitimacy. For OEs that already enjoy institutional benefits rooted in their ownership structures, appropriate social legitimacy tactics should be skillfully adopted to further facilitate the process of becoming greener.

Moreover, this study has implications for policy makers in emerging countries such as China. Policy makers should design specific mechanisms to identify enterprises that can take the lead in adopting green measures in their industries and launch appropriate policies encouraging those proactive firms to take green actions and realize green knowledge spillovers. This will support the development of a good ecological sustainability culture to a greater extent (Lundel et al, Arry, which can be beneficial for both firms and society.

Limitations and future directions

There are several limitations to be noted that also provide directions for future studies. First, caution is needed in generalizing our study to other countries because of contextual specificity. There are reasons to believe that firms in other emerging markets may experience similar circumstances, such as institutional constraints, yet Chinese policies, social expectations, and culture-based norms do have some uniqueness. Thus, the future extension of the research setting to the multicountry context would further enhance the understanding of the issue at a broader level.

Second, a cross-sectional research design cannot establish the causality argument or avoid endogeneity problems. We suggest that future research use panel data or longitudinal designs to better capture causal relationships and address potential endogeneity problems. Specifically, a DiD analysis could be conducted to explore possible differences before and after the amendment of the Environmental Protection Law in China. It would be very interesting to examine how the interaction of EO and its complementary factors evolves over time to create a more effective and dynamic condition to drive a firm’s green transformation.

Third, we did not examine the heterogeneous effects brought by different kinds of social legitimacy (Aldrich and Fiol, Nowacik and Mon, Firms need to obtain recognition from various stakeholders, such as governments, customers, and financial agencies, which can help them access different types of resources. A direction that

deserves more attention would be to examine whether and how different types of legitimacy differ in driving firms' green efforts directly and indirectly

5. Conclusion

Based on the theoretical development and empirical tests, several revealing conclusions can be drawn from this study. First, firms in emerging economies are more likely to take green actions with a higher entrepreneurial spirit. These high EO firms are more inclined to perceive ongoing environmental issues as opportunities instead of threats, take risks to pursue green opportunities and be more adaptable to change. Second, entrepreneurial firms in an emerging economy with a high level of social legitimacy can acquire various types of resources from external stakeholders to explore and exploit green opportunities; thus, social legitimacy positively moderates the relationship between EO and green management. Third, with high EO, emerging market OEs are more likely to take green initiatives than non-OEs because they are expected to realize more noneconomic goals and enjoy a soft budget to engage in green R&D without serious concerns about instant economic returns. Fourth, the conglomeration of high EO, high social legitimacy, and OE status is more effective in facilitating green management than other conglomeration. This kind of firm can most easily translate its EO into green attempts by acquiring resources and information from both the government and other stakeholders and bearing the highest social expectation to undertake environmental responsibility.

CRedit authorship contribution statement

Xi Li: Writing – original draft, preparation, software. **Jing Yang:** Conceptualization, data collection. **Heng Liu:** Methodology, writing – review & editing. **Xinyu Zhuang:** Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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