

Government's green grip: Multifaceted state influence on corporate environmental actions in China

Ruxi Wang¹ | Frank Wijen² | Pursey P.M.A.R. Heugens²

¹Renmin Business School, Renmin University of China, Beijing, China

²Rotterdam School of Management, Erasmus University, Rotterdam, The Netherlands

Correspondence

Ruxi Wang, Renmin Business School, Renmin University of China, Beijing, China.
Email: wangruxi@rmba.ruc.edu.cn

Research summary: Emerging economies such as China enjoy economic expansion, but also face dramatic environmental challenges. China's government is a central actor in both stimulating economic activities and pursuing environmental protection. Drawing on panel data and in-depth interviews, we examined the influence of the Chinese state at multiple levels on the environmental actions of publicly listed firms. The results show that corporate environmental actions follow an inverted U-shape as control of environmental practices moves from the central government to the most decentral administrative level. This curvilinear relationship is positively moderated by the stringency of environmental regulation and negatively moderated by environmental monitoring capacity. We conclude that state influence on corporate environmental actions in China is multifaceted and subject to "policy-policy decoupling."

Managerial summary: As China's environmental awareness is growing, the country's government is increasingly concerned with the question as to how it can improve the environmental performance of the firms it controls. Our evidence shows the concurrence of two contravening government influences on corporate environmental practices: a performance-enhancing effect of the regulatory pressure by multiple authorities and a performance-diminishing effect of the autonomy enjoyed by local governments. Both the most centrally and the most decentrally controlled firms in China show significantly weaker environmental performance than those controlled by intermediary levels of government. The stringency of sectorial environmental regulation and environmental monitoring capacity affect the strength of the Chinese government's green grip.

KEY WORDS

China, corporate environmentalism, environmental actions, environmental policy, government power

1 | INTRODUCTION

The government is a key driver of corporate environmental practices (Delmas & Toffel, 2004; Henriques & Sadorsky, 1996; Marquis & Qian, 2014; Porter & Van der Linde, 1995). Government instruments such as regulation, pollution levies, and subsidies induce firms to develop and implement environmentally friendly policies (Kemp, Soete, & Weehuizen, 2012). Government influence has been studied extensively in the context of Western societies (Bansal & Hoffman, 2012; Wijen, Zoeteman, Pieters, & Van Seters, 2012), but scholars have only to a limited extent investigated how the government affects environmental practices in *emerging* economies (Marquis & Raynard, 2015). This is surprising as the combination of high economic growth, shifts in global industrial production patterns, and important governance challenges (Hoskisson, Eden, Lau, & Wright, 2000) has led to major environmental problems in many emerging economies (UNEP, 2012).

The quintessential example is China. After decades of sustained growth, China became the world's biggest economy in terms of purchasing power parity in 2014 (IMF, 2014). China also became the world's largest emitter of greenhouse gases in 2006, and the leading consumer of (non-renewable) energy in 2009 (World Bank, 2014), even though the country made progress in terms of resource efficiency and clean product development (Li & Shui, 2015; Mol & Carter, 2006). The growing magnitude of the environmental challenges facing emerging economies therefore calls for a better understanding of their environmental governance.

While researchers have recognized the central role of the government in environmental governance, they have treated its influence on corporate environmental practices as monolithic, consisting of a clear and consistent set of expectations (e.g., Delmas & Toffel, 2008; Sharma & Henriques, 2005). However, the government exerts influence at different levels, from the central state to the village—the most decentral governmental organ. Previous studies have suggested that the Chinese government is a dominant actor with a complex organizational structure and multiple levels of administrative hierarchy, each of which may influence corporate behavior in different ways (Chang & Wu, 2014; Child, Lu, & Tsai, 2007; Luo, Wang, & Zhang, 2017). While the Chinese central state has acknowledged the existence of major environmental problems and has served as the major driver of sustainable development, lower-level administrative branches have not always prioritized sustainable development to the same degree (Qi, Ma, Zhang, & Li, 2008). As one Chinese proverb capturing the mindset of lower-tiered magistrates states: The emperor is as far away as the sky (*tian gao huang di yuan*, in Chinese). Local governments thus have their own development agendas for the firms they control, which need not be consistent with central governmental policies emphasizing environmental protection.

We focus on the multifaceted impact of the government on corporate environmental actions, thereby addressing two essential issues. First, we discuss how administrative hierarchical distance—the number of bureaucratic levels separating the central government and the governmental body that

ultimately controls or monitors a firm—affects environmental actions. We identify nine levels of administrative hierarchy in China, and assess their impact on corporate environmental actions. Second, we focus on sectorial regulatory stringency and monitoring capacity as contextual factors that may moderate the focal relationship. We thus unpack the multifaceted influence of the Chinese government, a seemingly unitary yet internally plexiform actor, on corporate environmental practices. China's transitional market offers an excellent context for examining how a single constituent can exert multiple and sometimes contradictory influences on firms. Our leading *research questions* are: (a) What is the influence of administrative hierarchical distance on corporate environmental actions in China? and (b) What government-related factors moderate this influence?

Using content analysis and panel analysis on data collected on Chinese listed firms between 2008 and 2012, we theorized and found the relationship between administrative hierarchical distance and corporate environmental actions to follow an inverted U-shaped pattern. Two opposing forces produce this phenomenon. On the one hand, firms experience *mounting pressure*, meaning that environmental compliance pressures accumulate with administrative hierarchical distance because each government level adds its regulatory requirements to those of higher administrative levels. On the other hand, we expect firms to experience *increasing autonomy* as local governments in China tend to use their discretionary power, emanating from their distance to the central government, to prioritize economic development over environmental protection. Since the careers of lower-tiered magistrates in China are often determined by their track record for stimulating economic growth (Chang & Wu, 2014), we expect autonomy to prevail at local governmental levels. Moreover, we expect the contextual factors of regulatory stringency and monitoring capacity to moderate the balance between the two forces in different ways. Environmental regulatory stringency strengthens both forces, whereas environmental monitoring capacity weakens them.

Our study adds value in two ways. First, our theoretical contribution to the corporate environmentalism literature, dealing with the integration of environmental considerations into corporate actions, is to disentangle the varied roles of different government levels. While we use the context of corporate environmentalism in China, our insights may also hold in other settings. Most prior studies have treated governments as unitary entities, assuming that they operate in consistent and concerted ways across hierarchical levels (Delmas & Toffel, 2008; Sharma & Henriques, 2005). Contrastingly, we show that governments have multiple faces, and that governmental bodies operating at different levels can exert alternate and even conflicting influences on corporate environmental practices. This may be true not only in emerging economies, but also in developed nations, especially in federal states with high levels of local autonomy, like Germany and the United States.

Second, our empirical contribution is to examine environmental governance in an emerging economy. The existing body of work has privileged investigations of environmental governance in developed economies, in which civil society provides an important complementary “check” on firms' environmental behavior (Bansal & Hoffman, 2012; Wijen et al., 2012). Nonetheless, many contemporary nations facing important environmental challenges—including China and Russia—are characterized by far greater involvement of the government in both corporate ownership and environmental custodianship. Since civil society is a much weaker force in these contexts (Earnhart, Khanna, & Lyon, 2014), our existing insights into corporate environmentalism—built on democracy, stakeholder dialogue, and the influence of nongovernmental organizations (NGOs)—are also less applicable. Shedding light on the influence of the government on corporate environmental practices in an emerging economy like China furthers our understanding of the ways in which the world's rapidly growing environmental challenges can be contained more effectively.

2 | ENVIRONMENTAL GOVERNANCE IN CHINA

In the aftermath of its economic success, China faces important environmental challenges. The similar patterns displayed in the growth rates of carbon dioxide (CO₂) emissions, energy consumption, and gross domestic product (GDP) in Figure 1 suggest that economic development in China has been inextricably linked to environmental degradation.

In China, the largest autocratic country in the world, the state is the dominant actor in terms of advancing corporate environmentalism (Beeson, 2010; Marquis & Qian, 2014). NGOs play a supporting role in this process (Ma & Ortolano, 2000), relieving pressure on the government by educating civil society on environmental issues (Spires, 2011). The central government has become increasingly aware of its environmental challenges. For instance, the former State Environmental Protection Administration (SEPA) was officially promoted to the highest level of governance in the Chinese political structure, and became the Ministry of Environmental Protection (MEP) in 2008. Clear, obligatory environmental targets were set in the 11th Five-Year Plan in 2006, whereas the 12th Five-Year Plan in 2011 and the 13th Five-Year Plan in 2016 tightened them further. In the latest Plan, “Green Development” has been promoted to one of the five crucial development concepts to facilitate building a moderately prosperous society in China. The level of attention given to environmental protection considerations by the Plan’s developers is unprecedented, and went up by 70% as compared to the 12th Plan. As shown in Figure 2, almost one-eighth of the central government’s 2017 annual report was focused on environmental protection, as compared to only 1% in 1985.

In China, both local governments and the central state have the power to allocate significant resources to the development of industries and regions (Luo et al., 2017; Marquis & Qian, 2014). Policy enforcement differs across administrative hierarchical levels, however, as local governments have pursued development strategies that vary from those of the central government for historical reasons. After the establishment of the People’s Republic of China in 1949, priority was given to the development of heavy industry for economic reconstruction. The 1978 Open Door Policy, with its decentralization of revenue appropriation and investment allocation from the provincial governments down to individual enterprises, was conducive to the establishment of a market regime (Oi, 1995). When local governments began to be evaluated primarily in terms of GDP growth from 1985 onward, environmental protection laws and regulations effectively became dead letters. Local governments had “strong incentives to circumvent those policies adopted in Beijing that might constrain local growth” (Lieberthal, 1995, p. 316). Profitable firms in heavy industry

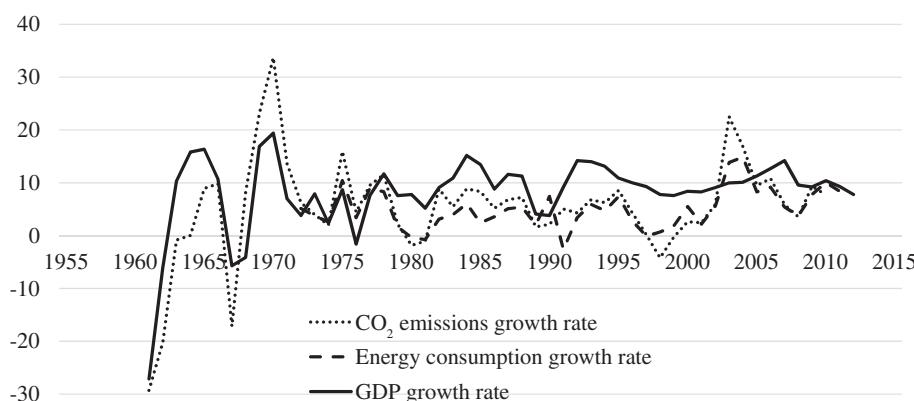


FIGURE 1 Growth rates of CO₂ emission, energy consumption, and GDP in China (World Bank, 2014)

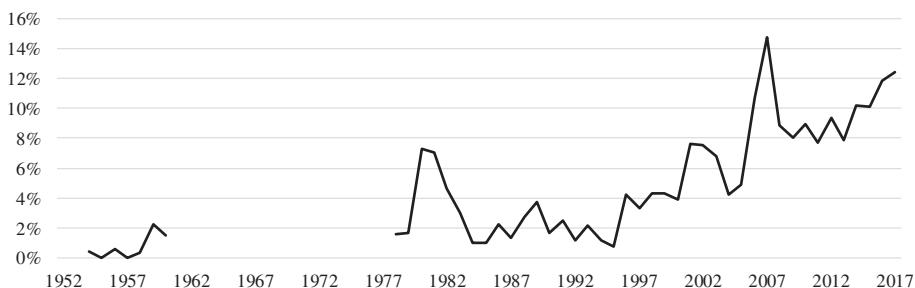


FIGURE 2 Proportion of environment-related issues in Chinese annual government reports (Central Government of the People's Republic of China, 2017)

often enjoyed the protection of local governments (Chang & Wu, 2014; Marquis, Zhang, & Zhou, 2011). Differences in regional development policies between central and local governments quickly became apparent. As the Chinese saying states: “Local policies trump central governmental policies” (*shang you zheng ce, xia you dui ce*). When the central government later began to regulate environmental issues, local governments thus rarely followed in lockstep (Child et al., 2007).

Next to these differences, there is also consistency within the administrative system. The state categorically uses a variety of policy instruments, such as obligatory targets, rules and regulations, penalties and subsidies, and environmental performance disclosure, implemented through local ministerial branches, to achieve its environmental protection targets. An overview of the Chinese environmental governance structure is presented in Figure 3.

3 | GOVERNMENT INFLUENCE ON CORPORATE ENVIRONMENTAL ACTIONS

Firms adopt environmental strategies to maintain legitimacy in light of compliance pressures from the government, local communities, and the market (Delmas & Toffel, 2011). Cited as the greatest source of pressure on firms (Henriques & Sadorsky, 1996), government influence manifests itself in a variety of ways (Kemp et al., 2012), including the enforcement of regulation (Delmas & Montes-Sancho, 2011; Russo, 1992) and signaling desired behaviors (Marquis & Qian, 2014). As firms seek to reduce uncertainty and advance private ends (Hillman, Keim, & Schuler, 2004), they must meet governmental expectations.

The Chinese case offers an extraordinary opportunity to investigate how firms respond to the multifaceted demands of the state to obtain legitimacy and avoid penalties (Marquis & Qian, 2014). Corporate political strategies are complex in China, where grassroots movements without official supervision are restricted (Spires, 2011), the administrative hierarchy is rife with struggles (Carter & Mol, 2006), and multiple policy instruments are used in conjunction but not always in concert (Shi & Zhang, 2006). We develop new arguments on how Chinese firms respond to multiple government demands.

3.1 | Hierarchical government influence

Two concurrent, opposing forces drive the cumulative impact of all administrative hierarchical layers on corporate environmental practices. We label the first *mounting pressure*. Firms feel pressed to increasingly engage in environmental practices as administrative hierarchical distance rises

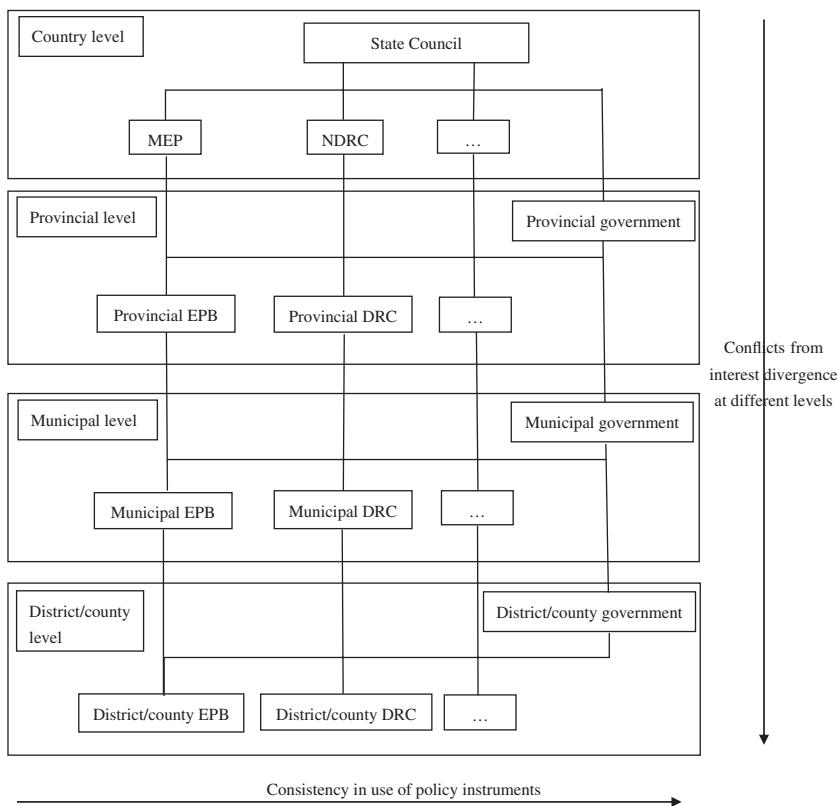


FIGURE 3 The Chinese environmental governance structure¹

because each government layer adds its own regulatory requirements, although additional pressure will accumulate at a diminishing rate as the ultimate control over firms travels down the administrative hierarchy. As distance from the central government grows, a larger number of governmental bodies at different hierarchical levels are simultaneously involved in firm supervision (Xu, Tiannyi, & Hitt, 2017). Firms that are controlled directly by the central government only face a singular set of compliance pressures, leading to fewer constraints on corporate behavior (Gedajlovic & Shapiro, 1998). Many firms in China, however, are controlled by local governments, which serve as delegates (Qi et al., 2008) or agents (Wong, 2000) of their superior authorities. The central government delegates power and responsibilities to the provincial governments, requiring the latter to implement centrally formulated targets and plans in all policy areas, including environmental protection. Seen from the perspective of firms controlled directly by the provinces, however, provincial governments add a layer of environmental compliance pressure, cumulating on top of the central government's dictums (Luo et al., 2017; Marquis & Qian, 2014). These pressures keep mounting with additional administrative hierarchical distance, as provincial governments, in their turn, delegate power to municipal governments, and so on. Delegating governmental bodies retain the right to intervene in lower-order affairs and continue to regulate the relevant larger policy areas. The

¹For the sake of simplicity, we do not distinguish between municipalities, districts, and towns that are at or under subprovincial municipality levels in Figure 3. Abbreviations EPB and (N)DRC stand for Environmental Protection Bureau and (National) Development and Reform Commission, respectively.

compliance pressures cumulate in a monotonically increasing shape, albeit with diminishing margins, as higher-level agencies in China's centralized political system (Lin, 2011) are primarily rule makers, whereas lower-level bodies are mostly rule takers. Since governmental bodies at very decentral levels hardly add any environmental regulation of their own, the mounting pressure effect eventually levels off as it gets closer to the decentral end of the hierarchical spectrum.

The second, opposing force we identify is *increasing autonomy*, which captures the effect that local governments tend to wield their discretionary power to prioritize economic growth over environmental conservation. Lower levels of Chinese local governments are more incentivized than the higher levels to facilitate market development, for two reasons. First, they have to rely primarily on their own fiscal revenues for local development (Lin & Liu, 2000). Second, local officials are compelled to promote economic growth due to the economic-performance-based competition for promotion in the Chinese political system (Chang & Wu, 2014; Cull, Xu, Yang, Zhou, & Zhu, 2017). Moreover, with increasing administrative hierarchical distance, the central government becomes less able to oversee the extent to which local governments enforce its intentions rigorously. Governmental pressure on environmental practices will thus be lower for firms controlled by bodies at a greater administrative hierarchical distance from the central government. Centrally developed environmental regulations are often intentionally crafted in ambiguous terms to offer discretion to local governments, and the latter use this power pragmatically (Ma & Ortolano, 2000). When lower-level governments control firms, environmental policy instruments tend to be implemented only partially to favor local employment, boost fiscal revenues, and advance lower-tiered magistrates' careers, which heavily rely on economic performance (Morduch & Sicular, 2002; Oi, 1992; Qi et al., 2008; Zheng, Singh, & Mitchell, 2015). When profitable firms display environmentally disruptive behavior, local governments often avoid taking measures that would lead to environmental compliance at the expense of local employment and tax revenues (Morduch & Sicular, 2002; Shi & Zhang, 2006). This effect is more pronounced at more decentral levels, because the incentives to prioritize economic performance are stronger and central-government oversight is lower. Ultimate corporate control by more decentral governmental bodies implies that more intermediate bureaucratic levels are involved. We expect the increasing autonomy effect to be linear, because each additional hierarchical layer constitutes another delegation-reporting interface that proportionately enhances the distance between the ultimately controlling body and the central government. Consequently, the increasing autonomy effect continues to augment with administrative hierarchical distance.

While the mounting pressure effect is monotonically increasing with diminishing margins, firms' autonomy vis-à-vis local governments linearly rises at the same time. In conjunction, the two opposing forces produce an inverted U-shaped relationship (Haans, Pieters, & He, 2016) between administrative hierarchical distance and corporate environmental actions. Figure 4 plots the combined effect. The first part of the curve is dominated by the mounting pressure effect, inducing firms to increasingly conduct environmental practices. At higher levels of administrative hierarchical distance, the cumulative pressure levels off and is overtaken by the steadily increasing autonomy effect, resulting in the decrease of corporate environmental actions.

Hypothesis 1 (H1) *Administrative hierarchical distance has an inverted U-shaped effect on corporate environmental actions.*

3.2 | Moderating effects on hierarchical influence

To further probe into the influence of the state, we explore how several government-related factors moderate the impact of administrative hierarchical distance on corporate environmental actions.

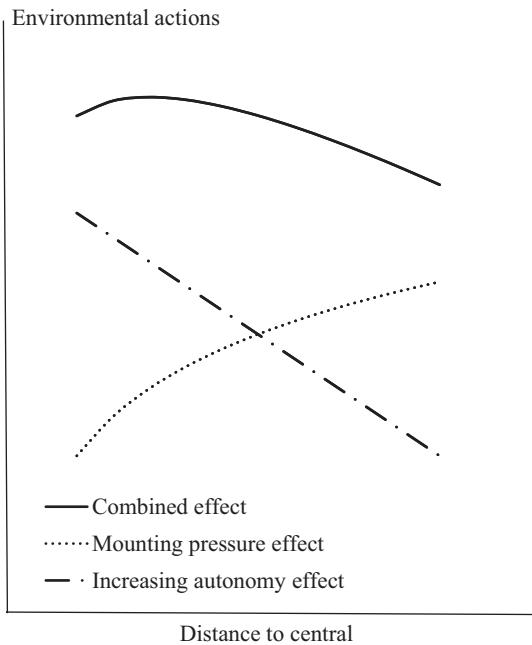


FIGURE 4 Combined effect of hierarchical distance and environmental actions

Drawing on insights from corporate political strategies (Hillman et al., 2004) and corporate environmentalism (Delmas & Montes-Sancho, 2011; Marquis & Qian, 2014), we argue that the focal relationship is likely to be moderated by two contextual factors: the stringency of environmental regulation and environmental monitoring capacity.

3.2.1 | Regulatory stringency

Governments frequently rely on regulation to promote, facilitate, or enforce environmentally benign corporate behavior (Kemp et al., 2012). We expect that both the mounting pressure and increasing autonomy effects associated with environmental actions will be intensified by the stringency of environmental regulation, resulting in a steepened inverted U-shaped relationship (cf. Jourdan & Kivleniece, 2017).

Regulation intensifies the mounting pressure effect, as firms in sectors subjected to more stringent state regulation have to be more proactive to show their compliance vis-à-vis the governmental bodies that regulate them. Governments use regulation to control inputs (e.g., banning toxic substances), production (e.g., requiring cleaner production technologies), and outputs (e.g., establishing bounds on pollution levels). A higher level of environmental actions is especially critical in environmentally disruptive sectors as it signals corporate compliance with stringent requirements and helps firms acquire, retain, or regain their legitimacy (Marquis & Qian, 2014; Porter & Van der Linde, 1995). The enhanced magnitude and urgency of environmental challenges in environmentally disruptive sectors (Child et al., 2007; Luo et al., 2017) have driven the central state to set strong policies. Lower-tiered magistrates are also led to more stringently enforce environmental regulations in sectors with large environmental impact (Lo & Tang, 2006). Firms in these sectors are therefore urged to meet higher environmental standards (Shi & Zhang, 2006). In sum, the increased cumulative compliance pressure exerted by the higher-level government bodies in more stringently regulated sectors has strengthened the mounting pressure effect, inducing targeted firms to engage more in environmental practices.

While the environmental stakes are higher in environmentally disruptive sectors, so are the economic interests. These sectors have majorly contributed to the Chinese economy's sustained growth (Li & Leung, 2012), generating ample employment and tax revenues for local governments. Against the backdrop of China's decentralized fiscal and investment policies (Oi, 1995), local governments have been the primary beneficiaries of this economic expansion (Qi et al., 2008; Zheng et al., 2015). Given their high economic interests in environmentally disruptive sectors, lower-tiered magistrates will make every effort to shield targeted firms from environmental pressures to ensure the achievement of their economic goals. Therefore, controlling bodies at more decentral levels will be more lenient to avoid compromising the economic benefits that accrue to the local state. Regulatory stringency thus reflects not only the existence of larger environmental challenges, but also the presence of higher economic stakes in the targeted sectors, driving lower-tiered magistrates to prioritize economic gains even more over environmental protection. In sum, the opposing effects of mounting pressure and increased autonomy are both magnified in highly regulated sectors.

Hypothesis 2 (H2) *The inverted U-shaped relationship between administrative hierarchical distance and corporate environmental actions is intensified by the stringency of sectorial regulation.*

3.2.2 | Monitoring capacity

We expect environmental monitoring capacity to attenuate the focal relationship because it homogenizes the state's compliance pressure across administrative hierarchical levels. A region that allocates more budget, staff, and equipment to assess the environmental compliance of local firms will induce these firms to engage in more environmental activities (Carroll, 1989; Kassinis & Vafeas, 2006; Kim & Lyon, 2015). This will mitigate the mounting pressure effect because firms under the administrative control of more central government bodies will begin to experience additional pressure to perform environmental activities. These firms, which are subjected to a lower amount of cumulative pressure due to the involvement of fewer administrative layers (see Hypothesis 1), will experience additional pressure when their activities get to be more intensively monitored. Since regional monitoring capacity reflects the state's overall commitment to the environment and is independent of the administrative level of a firm's ultimately controlling government body (Kassinis & Vafeas, 2006; Kim & Lyon, 2015), firms controlled by governments at different hierarchical levels will begin to experience more similar environmental performance pressures as this monitoring capacity increases. Enhanced monitoring capacity will flatten the mounting pressure effect since it reduces the relative importance of the cumulative administrative influence on corporate environmental actions.

Firms controlled at more decentral levels will also face more pressure to expand their environmental actions. While lower-tiered magistrates may be inclined to tolerate noncompliance in order to secure local economic benefits, administrative-level-independent monitoring capacity will reduce the discretionary power of local governments to fiddle with environmental regulation (Kassinis & Vafeas, 2006; Kim & Lyon, 2015). Therefore, firms controlled at more decentral levels will experience enhanced pressure to meet regulatory requirements and deploy a higher level of environmental activities. The downward slope of the increasing autonomy effect is thus flattened because a higher monitoring capacity erodes the discretionary power of more decentral government bodies to ignore environmental regulations, inducing targeted firms to be more environmentally proactive.

Hypothesis 3 (H3) *The inverted U-shaped relationship between administrative hierarchical distance and corporate environmental actions is attenuated by monitoring capacity.*

4 | METHODOLOGY

4.1 | Sample and data

We chose China as our research setting for three reasons. First, the country is highly dependent on (heavy) industrial production, meaning that it will have to address difficult environmental challenges while working on its economic development. Second, the power of the state is pervasive in China as it permeates nearly all economic, political, and cultural institutions (Child et al., 2007). Third, China is a transitioning economy. The structural transformations of most sectors have profoundly impacted industrial dynamics and corporate behavior (Luo, 2003).

To test our hypotheses, we developed a longitudinal data set of Chinese listed firms in the period between 2008 and 2012. The year 2008 marks a turning point for the Chinese political system in terms of environmental protection, as the former SEPA was transformed into the MEP. This promotion to ministerial agency entitled the MEP to draft laws and make top decisions for the country, which gave a major impetus to the planned restructuring of key sectors. Furthermore, the development of Strategic Emerging Industries, many of which were involved with environmentally friendly technologies, became a national strategic priority in 2008 (Report on the Work of the Government, 2010). Moreover, under the supervision of the China Securities Regulatory Commission, the Shenzhen Stock Exchange (SZSE) and the Shanghai Stock Exchange (SSE) issued notices and guidelines on corporate social responsibility and environmental information disclosure for listed firms in the years 2006 and 2008, respectively, which made corporate environmental reports much more detailed from 2008 onward.

We compiled our sample from the 1,425 firms listed on the Main Boards of both SSE and SZSE. We excluded firms that received a “Special Treatment” (ST) tag from the stock exchanges, which is given in response to irregularities such as reporting financial losses for two consecutive years or failing to provide an audit report from a certified accounting firm (Javin Press, 2008). We did this because ST firms face various trading and financial restrictions (such as suspension of trading, losing their right to issue new shares, and even getting delisted [Peng, Wei, & Yang, 2011]) that may incentivize them to manipulate their reports to come out of the designation (Firth, Rui, & Wu, 2011; Jiang & Wang, 2008).

To ensure that our sample covered all relevant sectors of firms listed on Chinese stock exchanges, we identified three groups. First, firms manufacturing products that protect the natural environment and/or save energy. Second, firms employing environmentally demanding core technologies or being listed as major polluters. Third, firms belonging to neither of the aforementioned sectors. To identify the sectors included in the first group, we used the CNI TEDA Environmental Protection Index issued in 2008. These sectors comprise sewage disposal, emission reduction equipment, energy saving equipment and material, and recycling and renewable energy (wind, hydro, and biomass). This first group consisted of 36 listed firms in total. Due to the intensive nature of our data collection strategy, we used random sampling to select firms in the other two groups (Feldman, Amit, & Villalonga, 2016; Philippe & Durand, 2011). We identified the sectors included in the second group using the Directory of Industrial Classifications for Listed Firms Subject to Environmental Protection Inspections, issued by the MEP in 2008. These sectors

consisted of thermal power, iron and steel, cement, electrolyzed aluminum, coal, metallurgy, construction materials, mining, chemicals, petrifaction, pharmaceuticals, light industry, textiles, and leather goods. This second group consisted of 388 listed firms in total, which we reduced to 36 (equivalent amount to the first group) using systematic sampling, a random sampling technique that uses a constant interval, k , on a criterion variable to compile a sample (Bellhouse, 1988). In our case, we set k at $388/36 \approx 10.78$ and rank-ordered the group-2 firms in terms of annual turnover. Starting with the 11th-ranked firm, we collected our remaining observations by selecting firms at the next integer position rounded up from $2*k$, $3*k$, and so forth. We used the same sampling criterion to select 36 firms for group 3, which spanned sectors like information technology, financial institutions, and media companies.

We dropped observations in case firm-level strategic restructuring decisions caused major changes in a firm's product portfolio, resulting in firms initially included in one group migrating to one of the two others. This winnowing procedure reduced our final sample size to 480 firm-year observations involving 107 unique firms (group 1: 151 firm-year observations, 36 firms; group 2: 159 firm-year observations, 35 firms; group 3: 170 firm-year observations, 36 firms).

4.2 | Variables and measures

4.2.1 | Dependent variable

Corporate environmental actions

To measure our dependent variable, we explored detailed descriptions of actual corporate environmental actions. Eligible actions include specific efforts to save energy and decrease pollution as well as activities aimed at propagating environmental protection concepts. We conducted a content analysis of firms' annual financial reports and corporate social responsibility (CSR) reports (sometimes also called "sustainability reports" or "environmental responsibility reports") as obtained from CNINFO and firms' official websites.

Illustrative sentences include: "Our firm reduced X tons of sulfide in the past year"; "We organized environmental protection activities Y times in our district"; and "Z RMB were spent to reduce emissions and energy consumption." To avoid the inclusion of greenwashing instances in our analysis, we only included substantively specified actions into our counts of corporate environmental actions. The variable was coded in several steps, using the qualitative data analysis software NVivo 10. First, we engaged in an open coding process by reading through 10 randomly selected annual reports issued by firms in our sample, noting the environmental issues firms focused on. Second, we labeled the aspects identified in the first step. Additional labels were added during the coding process when new aspects were found in other firms. Third, we calculated the total number of words covered by each label. To correct for the fact that some firms' reports are wordier than others, we calculated the percentage of words related to corporate environmentalism out of the total words in the relevant annual financial reports and CSR reports. To reduce heteroskedasticity, we log-transformed the variable. Table 1 presents the list of final labels used to assess corporate environmental actions.

4.2.2 | Independent variables

Administrative hierarchical distance

To test Hypothesis 1, we calculated the administrative hierarchical distance from the firm to the central government. It reflects the number of governmental levels separating the central government from the level of government that holds the monitoring and/or control rights of a given firm, and thus is responsible for implementing environmental policy for that specific firm. This variable

TABLE 1 Labels used to measure corporate environmental actions in Chinese listed firms

Corporate environmental actions
1. Corporate focus on environmental protection
1.1. Alternative resources or power, healthy materials
1.2. Actual emission amount or emission reduction amount
1.3. Actual energy consumption amount or energy saving amount
1.4. Contribution to the community as to environmental issues
1.5. Environmental protection project tracking
1.6. Energy saving and emission reduction amount (ESER)
1.7. Execution of the environmental protection system
1.8. Expenditures on environmental performance
1.9. Meeting certain environmental standards or regulations
1.10. Participation in events, organizing one-off or routine events for popularizing ESER
1.11. Paperless office
1.12. Recycling
1.13. Relevant equipment used for ESER
1.14. Requirements for corporate actors as to environmental issues
1.15. Welcoming supervision from the community
1.16. Waste disposal amount
2. Requirements vis-à-vis business partners
2.1. Green supply chain
2.2. Green distribution and/or transportation
2.3. Green after-sales service

was computed differently for state-owned enterprises (SOEs) than for non-SOEs, because SOEs in China have a political status comparable to governmental organs. A firm located in a town might be governed directly by the State Council, making it difficult for the local government to exert influence over its activities. Lower-level governmental bodies thus can hardly influence firms with a higher political status. We therefore calculated the administrative hierarchical distance for SOEs as the number of tiers separating the controlling governmental organ (the ultimate owner) and the central government. As non-SOEs do not have political status, their locations determine who regulates and controls their environmental performance. Therefore, we computed the score on the administrative hierarchical distance variable by adding an additional step (indicating that non-SOEs are under the monitoring power of their local governments) to the distance score of the geographically nearest and administratively lowest governmental jurisdiction in which they were embedded (i.e., the ultimate monitor) to capture their subordinate status. Larger values on this variable thus represent greater administrative hierarchical distance. For SOEs, ultimate owner data was obtained from annual reports. For non-SOEs, the relevant jurisdiction was taken from the annual report, which specifies the corporate working address and the governmental body responsible for monitoring the firm. The distance variable was calculated according to the scale presented in Table 2. In the appendix, we provide two detailed examples of how this measure was computed.

Regulatory stringency

To test Hypothesis 2, we calculated the percentage of waste gas emission reduction over the past five years by industry to indicate the level of regulatory stringency faced by a firm, as prior studies

TABLE 2 Hierarchical distance to the central government

	SOE	Non-SOE ^a
Village	5	6
Town	4	5
Town under subprovincial municipality	3.5	4.5
District/county	3	4
District/county under subprovincial municipality	2.5	3.5
Municipality	2	3 ^b
Subprovincial municipality ^c	1.5	
Province	1	
Central state	0	

^a The value of hierarchical distance is one unit more in non-SOEs than in SOEs because there is also one unit of distance from a firm to its nearest local government for non-SOEs.

^b Private firms are not directly owned by municipalities, provinces, or the central state. Therefore, they are under the control of all levels, the highest of which is the region/county in a municipality. Such a region or county has an equivalence level with municipality. This is why the distance of non-SOEs starts at value 3.

^c Subprovincial municipalities are those cities that are designated to be at the same level as a province when economic development and social development are prioritized by the central government.

have found that stricter regulatory stringency in a sector reduces emissions faster than in sectors with weaker regulatory stringency (Brunel & Levinson, 2016; Javorcik & Wei, 2004). We opted for waste gas emissions, in particular, industrial soot and dust emissions by firms during their production processes, because these emissions are the main regulatory targets to combat air pollution given their high nuisance levels in China (Zhang, He, & Huo, 2012). Sectorial emission data was collected from the Environmental Statistics Dataset disclosed annually by the National Bureau of Statistics of the People's Republic of China on its official website. The variable was log-transformed.

Monitoring capacity

To test Hypothesis 3, we used the number of staff working in the environmental monitoring stations in the province a focal firm is located in to measure monitoring in a local area. The variable was retrieved annually from the China Environment Yearbook and was log-transformed.

4.2.3 | Control variables

Environmental subsidies

We calculated the log-transformed ratio of governmental environmental subsidies received divided by the firm's revenues in a focal year. The variable was retrieved and calculated from the table specifying "details for subsidies from the government," which is provided in the firm's annual reports.

Environmental malpractice disclosure

We counted the number of times a firm was disclosed by the local environmental protection bureaus (EPBs) or MEP to have violated environmental regulations. We collected the data from the website of the Institute of Public and Environmental Affairs, an environmental NGO that collects and discloses governmental environmental penalty reports.

Political connections

We log-transformed the percentage of top management team (TMT) members of the focal firm who also work for a governmental organ or who are members of the National People Congress (NPC) or the Chinese People's Political Consultative Conference (CPPCC). The variable was collected from the TMT profiles in the annual reports of listed firms.

Number of firms in a province

We controlled for the number of industrial enterprises located in each province that are subjected to environmental monitoring. The variable was taken for all relevant years from the China Environment Yearbook.

Local government fiscal power

Total provincial government revenue, obtained from the National Bureau of Statistics of the People's Republic of China (2015), was used to measure the fiscal power of the local government. The variable was log-transformed.

State ownership

When a firm was specified to be state-owned in the mandatory figure detailing ultimate ownership in its annual report, the value for this variable is 1, and 0 otherwise.

Firm size

We used annual turnover to measure firm size. The variable was collected from the CSMAR data set and was log-transformed.

Export percentage

We used the amount of revenues a firm obtains from exports as a percentage of total sales to capture its dependence on international markets. The variable was collected from the firm's annual reports and was log-transformed.

Years in the field

We computed the number of years a firm had been operative in its current field. This variable was manually collected from the firm's annual reports and official websites.

Free float percentage

We used the measurement specified by CSINDEX (2010) to calculate the free float percentage (i.e., the share of freely tradable equity) to capture capital market influences. The variable was collected from annual reports and log-transformed.

Environmental quality

We took the average concentration of particulate matter 10 pollutants (i.e., noxious solid or liquid particles with a diameter of 10 µm or less) in the air of the capital city of the province in which a firm is headquartered to measure regional environmental quality. The data was derived from the China Statistical Yearbook and was log-transformed.

CSR report

We used a dummy variable to capture this effect, assigning a value of 1 when a firm issued a CSR and/or environmental report, and 0 if not. When such a report was integrated into the annual financial report, we also assigned a value of 1. But when the financial report only contained CSR or environmental paragraphs, we attributed a value of 0.

4.3 | Regression method

We analyzed our panel data using Stata 14.1. Since the main boards of SZSE and SSE only contain 36 group-1 firms, creating panel data enhances the size and richness of the data set. We used random effects models because we analyzed several variables that describe the intrinsic, time-invariant properties of firms or industries, such as administrative hierarchical distance and the sector to which a firm belongs. Using a fixed effects model would eliminate these time-invariant effects as the impact of variables with a constant value over time would be eliminated by the fixed effects transformation (Wooldridge, 2008). The Hausman (1978) specification test confirmed that a random effects model was more appropriate than a fixed effects model ($p = .61$). The Breusch and Pagan (1979) Lagrangian multiplier test confirmed that a random effects model yields better results than a pooled regression model ($p = .00$).

4.4 | Supplementary interviews

To triangulate our quantitative data and to facilitate the interpretation of our statistical results, we conducted 56 in-depth interviews, amounting to over 60 hr of conversations, with key informants in 2013 and 2014. Interviewees included representatives of 15 major Chinese firms, three different levels of government, and two environmental NGOs. Interview locations ranged from the Eastern coastal cities to the Western inland cities in Mainland China. Interviews were conducted on the premises of the interviewees' organizations and lasted between 45 min and 2.5 hr, with a median of approximately 1 hr. All but one of the interviews were recorded and transcribed in Mandarin. We then read the transcripts, retrieved excerpts relevant to our three hypotheses, translated them into English, and added examples to our description of the results.

5 | RESULTS

5.1 | Statistical results

5.1.1 | Hypothesized results

Table 3 reports descriptive statistics and correlations. Table 4 presents our regression results. Model 1 contains control variables. Model 2 adds the linear and squared terms of the administrative hierarchical distance variable (pertinent to Hypothesis 1). Models 3 and 4 contain separate regressions involving the interactions of regulatory stringency and monitoring capacity with administrative hierarchical distance and its square term (relevant to Hypotheses 2 and 3). Model 5 contains the full model. Year effects are included in all models.

As shown in Model 2, *Hypothesis 1 was supported*. We found an inverted U-shaped effect of administrative hierarchical distance on environmental actions. Mounting pressure due to the involvement of multiple governmental bodies initially leads to more extensive actions. However, this accumulation effect is eventually outweighed by the increasing autonomy effect, resulting in reduced

TABLE 3 Descriptive statistics and correlations^a

Variables	Mean	S.D.	Min.	Max.	1	2	3	4	5	6	7
1. Environmental actions [*]	0.20	0.27	0.00	1.49							
2. Distance to central	2.00	1.56	0.00	5.00	-0.12						
3. Regulatory stringency [*]	2.91	1.54	0.00	4.44	-0.02	-0.04					
4. Monitoring capacity [*]	4.65	0.37	3.47	5.29	-0.07	-0.22	0.00				
5. Subsidy [*]	0.11	0.32	0.00	2.22	0.11	0.04	0.00	-0.02			
6. Malpractice	0.68	2.25	0.00	31.00	0.14	-0.12	0.02	-0.02	0.01		
7. Political connections [*]	2.16	1.22	0.00	4.04	-0.05	-0.24	-0.01	0.20	-0.02	0.10	
8. Firms in a province	5334.74	4147.03	27.00	15907.00	0.04	0.20	-0.02	-0.09	-0.09	-0.04	0.05
9. State-owned	0.69	0.46	0.00	1.00	0.15	-0.81	0.02	0.09	-0.04	0.09	0.13
10. Firm size [*]	7.85	1.58	2.83	14.85	0.25	-0.33	-0.03	0.19	0.05	0.28	0.17
11. Export percentage [*]	1.02	1.38	0.00	4.47	-0.10	0.22	-0.04	-0.18	0.06	-0.12	-0.29
12. Years in the field	21.92	18.12	0.00	109.00	0.21	-0.13	0.01	-0.14	-0.09	0.04	0.04
13. Free float percentage [*]	3.89	0.35	2.44	4.54	-0.04	0.18	0.07	-0.14	-0.13	-0.13	-0.12
14. Fiscal power [*]	7.54	0.80	3.25	8.74	-0.02	0.08	-0.04	0.41	-0.01	0.03	0.02
15. Environmental quality [*]	-2.39	0.22	-3.22	-1.90	0.00	-0.18	0.01	0.06	0.11	0.12	0.09
16. CSR report	0.43	0.49	0.00	1.00	0.52	-0.10	-0.04	0.08	0.12	0.13	-0.09
	8	9	10	11	12	13	14				15
9. State-owned		-0.01									
10. Firm size [*]		-0.10	0.15								
11. Export percentage [*]		0.02	-0.14	-0.04							
12. Years in the field		0.15	0.15	0.19	0.11						
13. Free float percentage [*]		0.15	-0.11	-0.33	0.15	0.06					
14. Fiscal power [*]		0.51	-0.04	0.24	0.08	0.06	-0.05				
15. Environmental quality [*]		-0.37	0.13	0.35	0.01	0.02	-0.16	0.02			
16. CSR report		-0.04	0.07	0.32	-0.01	0.10	-0.04	0.06	-0.08		

^a N = 480. Correlations with an absolute value greater than 0.09 are significant at $p < .05$. *Log transformed.

TABLE 4 Random effects regression for corporate environmental actions

	(1)	(2)	(3)	(4)	(5)
Distance to central		0.09 (0.04)	0.08 (0.04)	0.78 (0.37)	0.82 (0.38)
Distance to central square		-0.02 (0.01)	-0.02 (0.01)	-0.17 (0.07)	-0.17 (0.07)
Regulatory stringency			-0.05 (0.02)		-0.05 (0.02)
Regulatory stringency * distance			0.05 (0.02)		0.06 (0.02)
Regulatory stringency * distance square			-0.01 (0.00)		-0.01 (0.00)
Monitoring capacity				0.07 (0.08)	0.08 (0.09)
Monitoring capacity * distance				-0.15 (0.08)	-0.16 (0.08)
Monitoring capacity * distance square				0.03 (0.01)	0.03 (0.02)
Environmental subsidies	0.13 (0.03)	0.14 (0.04)	0.14 (0.04)	0.13 (0.04)	0.13 (0.04)
Malpractice disclosure	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Political connections	-0.03 (0.01)	-0.03 (0.01)	-0.02 (0.01)	-0.03 (0.01)	-0.02 (0.01)
Firms in a province	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
SOE	0.04 (0.04)	0.03 (0.07)	0.05 (0.07)	0.04 (0.07)	0.05 (0.07)
Firm size	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)
Export percentage	-0.02 (0.01)	-0.02 (0.01)	-0.01 (0.01)	-0.02 (0.01)	-0.01 (0.01)
Years in the field	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Free float percentage	0.02 (0.04)	0.01 (0.04)	0.01 (0.04)	0.01 (0.04)	0.00 (0.04)
Fiscal power	-0.03 (0.03)	-0.04 (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.02 (0.03)
Environmental quality	0.05 (0.07)	0.07 (0.08)	0.06 (0.08)	0.06 (0.08)	0.06 (0.08)
CSR report	0.24 (0.03)	0.25 (0.03)	0.25 (0.03)	0.25 (0.03)	0.25 (0.03)
Constant	0.20 (0.32)	0.16 (0.34)	0.11 (0.34)	-0.20 (0.48)	-0.28 (0.49)
Year effect	Yes	Yes	Yes	Yes	Yes
Wald Chi square	110.17	116.33	121.55	120.58	125.77

Number of observations = 480, number of firms = 107. Standard errors in parentheses.

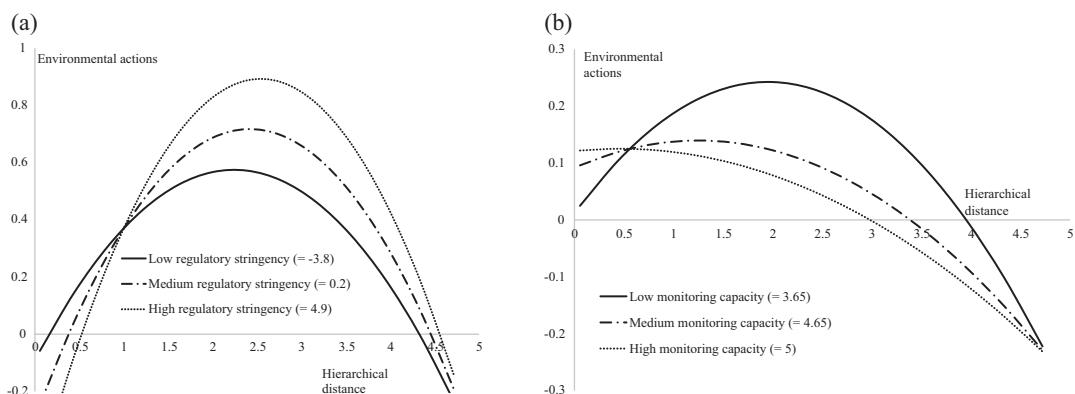


FIGURE 5 Moderating effects of (a) regulatory stringency and (b) monitoring capacity²

enforcement of centrally developed environmental policies by lower-tiered local governments. The coefficient for the linear term is positive and significant ($b = 0.09$, s.e. = 0.04, $p = .02$), whereas for the squared term it is negative and significant ($b = -0.02$, s.e. = 0.01, $p = .05$), implying an inverted U-shape. The turning point of the curvilinear relationship is situated at an administrative hierarchical distance value of 2.25 (i.e., -0.09 divided by $2*(-0.02)$). Table 2 shows what this means: firms — both SOEs and non-SOEs — controlled by governmental bodies below the district/county level engage less in environmental actions as the hierarchical distance between the central government and the controlling body increases. In contrast, firms that are supervised by governmental bodies above the district/county level become increasingly responsive to the central government's environmental policies as the distance from their controlling organs to the central state increases.

Hypothesis 2 was supported as shown by the consistent results of the interaction of regulatory stringency and the administrative hierarchical distance variables in Models 3 and 5. The latter shows that the coefficient of the interaction between regulatory stringency and the squared term of administrative hierarchical distance was negative and significant ($b = -0.01$, s.e. = 0.00, $p = .02$), suggesting a steepening of the curve (Haans et al., 2016). Figure 5a shows how low, medium, and high degrees of regulatory stringency moderated the distance-actions relationship (Dawson, 2014). Figure 5a illustrates that firms in sectors that are subject to stringent regulations experienced a steeper inverted U-shaped effect between administrative hierarchical distance and corporate environmental actions. At the apex of the curve, the effect of administrative hierarchical distance on environmental actions increased by about 56% (0.57 vs. 0.89) from firms in relatively lowly to highly regulated sectors.

Models 4 and 5 showed support for *Hypothesis 3*. The coefficient for the interaction between the quadratic term of administrative hierarchical distance and monitoring capacity was positive and significant ($b = 0.03$, s.e. = 0.02, $p = .03$). This means that the inverted U-shaped relationship is attenuated when the state has a greater monitoring capacity in the local area, supporting the idea that monitoring capacity negatively moderates the inverted U-shaped effect (Haans et al., 2016). Figure 5b shows how the degrees of monitoring capacity affected the main relationship. At the apex of the curve, the effect of administrative hierarchical distance on environmental actions was reduced by about 50% (0.24 vs. 0.12) when comparing firms in provinces with lower monitoring capacity to those in provinces closely overseeing corporate environmental performance.

²The low, medium, and high values of the moderators were identified according to the min., mean, and max. values of the variables, respectively.

5.1.2 | Robustness checks

We performed multiple tests to establish the robustness of our findings. First, we merged the firms under the control of any subprovincial municipality, district under subprovincial municipality, and town under subprovincial municipality with their subordinate levels (i.e., municipality, district, and town, respectively). Second, we calculated the percentage of waste gas, water, and solid emission reductions over the past five years by region as alternatives to waste gas emissions when measuring regulatory stringency by sector (Brunel & Levinson, 2016). Furthermore, to control for the possibility that sectorial production growth and cost changes in the inputs or processing technology may also cause sectorial emission reductions, we added several sectorial variables separately to our models (except for the third sample group, for which no sectorial data were available), including the number of enterprises, total profits, turnover of current assets, the ratio of profits to total industrial costs, and the growth rate of the above mentioned four variables. We also used the same set of variables at the provincial level to gauge robustness when regulatory stringency is measured at the regional level. Third, we replaced monitoring capacity with the number of monitoring stations located per province. We also divided the monitoring capacity variable by the provincial GDP per capita to rule out the possibility that a more developed region would require more monitoring staff for the same monitoring intensity. In addition, we also performed several robustness checks using alternative measurements for the control variables. We replaced political connections with a dummy variable for a CEO/Chair who also works for a governmental organ or is a member of the NPC/CPPCC. We also replaced fiscal power with provincial GDP per capita in order to measure local economic development. We removed the state ownership variable considering its high correlation with the hierarchical distance variable.

Most of the ensuing results and significance levels proved robust. One exception involved the effect for regulatory stringency when we used solid waste reduction as a proxy variable. This is plausible as our qualitative evidence suggested that solid waste lacked an effective monitoring system in China and had received limited attention from the government and civil society.

5.2 | Qualitative evidence

5.2.1 | General overview

Our interview data added further insights into our hypothesized relationships. Corporate interviewees recognized the crucial role the Chinese government played in enabling and constraining their business activities. Several interviewees remarked: “You need to get approval from the government for everything you run in the local area” and “As a person or firm in Chinese society, you cannot be independent of the government. Love it or hate it, you have to face it.” Respondents also pointed out that both the government and the corporate sector are increasingly addressing environmental challenges: “The effectiveness of the government [in terms of stimulating pro-environmental behavior] has surely improved” and “Environmental issues are getting more attention and more budget in every firm.” At the same time, these efforts have not kept up with the deterioration of the natural environment. As the general manager of a refractory firm argued: “Although we are now more developed, pollution has intensified. Our minds are changing against this backdrop. (...) It is, of course, difficult to fix it immediately. (...) More promising outcomes may materialize in three to five, or even ten, years.”

5.2.2 | Qualitative evidence for Hypothesis 1

Interviewees echoed that the pressure to engage in environmental actions initially increases with administrative hierarchical distance, but eventually tapers off as this distance becomes larger. The

observations that “the higher the governmental level, the more importance is attached to environmental issues” (provincial government official) and “higher-level decisions or policies are extremely impactful on subordinates” (municipal environmental protection bureau chair) suggest that environmental governmental policies are implemented top-down. The mounting pressure mechanism was illustrated by a statement like: “Every lower [government] level implements some part of the policies of superior levels” (CEO of a diversified business group), and “lower levels of government set higher targets to make sure that targets from above can be met” (manager in the Department of Environmental Protection of a coal-based chemical firm).

However, the evidence also suggests that central government influence dissipates, and even gets challenged, at lower levels. Local governments are seen as “small emperors (...) whose local policies trump central ones” (CEO of an environmentally proactive firm). A municipal EPB chair explained, “at the local level, economic development is for sure prioritized” because “the local government is evaluated on the basis of GDP.” The CEO of an environmentally proactive firm also argued, “looking at GDP growth is much easier and faster for [a local government official’s] promotion.” This is enhanced by the dependence of the local EPBs on local governments as the former have to “coordinate with the municipal government on many things.”

5.2.3 | Qualitative evidence for Hypothesis 2

The idea that regulatory stringency in more polluting sectors enhances the mounting pressure effect on environmental actions was supported by our qualitative evidence. Most firms in the traditional industries, categorized as “heavily polluting,” are obliged to adopt online monitoring equipment for waste gas and waste water emissions, from which the EPBs can instantly observe any abnormal emissions. Firms must report excess emissions immediately, explaining the situation and the plan to solve the incident within a day. Firms in sectors characterized as environmentally friendly do not have such obligations, even though they may still harm the natural environment. According to a municipal government official, “the [environmental] awareness is stronger in potentially very polluting firms.” In a similar vein, the CFO of an environmentally disruptive chemical firm argued that “environmental protection policy is coercive: it is not possible to ignore it because punishment [of non-compliance] is severe.” The Vice General Manager of a coal-mining firm said, “Every level of government is watching us. (...) I feel like our local EPB is hitting my head with a stick about this [environmental protection] every day. (...) They [the local EPB] have become more and more strict since the [central] state has emphasized the importance of emission reduction in recent years.” In contrast, firms in sectors that face less regulatory pressure to reduce their emissions are not very concerned over environmental outcomes, as illustrated by the CEO of a garbage disposal firm: “The government is pushing us to develop [without invasive legislation]. (...) We do not address environmental issues in our firms that much as our product already helps [to protect the environment].”

Regulatory stringency also strengthened the increasing autonomy effect. This was especially observable among firms that the central government had designated as highly polluting, subjecting them to stringent regulation, but for which the ultimate control rights were delegated to lower levels of government. For instance, “When the local environmental protection bureau wants to close our factories because of violation of environmental regulations, the punishment will be waived because [the municipal government] needs our tax revenues” (CEO of a refractory firm). A manager in a municipal EPB echoed: “I have seen many civil servants at the municipal level making money through channels other than their salaries. They do not run highly polluting firms, such as paper mills, themselves. But they get the money through kinship.”

5.2.4 | Qualitative evidence for Hypothesis 3

Our interviews suggested that monitoring capacity attenuated the mounting pressure effect in the distance-action relationship. As a higher monitoring capacity exerts a homogenizing effect across administrative hierarchical levels, firms controlled by governments at different levels showed less difference in their environmental actions. For example, the Vice President of an affiliate of a large, central-state-owned power generation business group affirmed: “The pressure from the monitoring [by the government] is also pushing us [to act in an environmentally friendly way]. (...) There are environmental monitoring groups in every region of China. They do random inspections every now and then in our factories. If we get caught because of our misconduct on serious environmental issues, our business group will lose its financing rights immediately.” The Vice Chief Engineer of a coal-chemical firm echoed: “The strategic location of our firm ensures that the central government pays special attention to this geographic area, as the lake near our plants is the pivot of the South-to-North Water Transfer Project. (...) Neither our local government nor the managers of our firm dare to take environmental risks. (...) So the local government is actually very content [with our level of environmental vigilance], because no matter who comes at what time, there should not be any violations to the environmental regulations in our plants.”

We also found evidence of the attenuating effect of monitoring capacity on the increasing autonomy effect in the distance-action relationship. The Chief Engineer of a chemical firm indicated: “They used to be lenient. (...) Last year there was a case of severe corporate environmental misconduct in our province. To prevent that from happening again, several levels of EPBs are here to do random checks from time to time. (...) We have to pay more attention to our environmental practices.” A civil servant working in a provincial Environmental Protection Bureau contended: “the biggest problem for us now is that we are short of budget and staff. Without sufficient staff, the scheduled investigations and routine checks by our department were not carried out efficiently, and the targets set by the central state were not achieved (...) Firms at the local levels [just] cannot be monitored without sufficient staff.” The attenuating effect brought about by monitoring capacity is also supported by the recent shift in environmental monitoring rights from local to central levels of government. Since 2015, the Chinese state has transferred the right to monitor environmental conditions in local areas back to the central state level, restricting the autonomous and looser monitoring by lower government levels.

6 | DISCUSSION AND CONCLUSION

6.1 | The multifaceted influence of the Chinese state

The rapidly increasing importance of emerging economies has not only led to a reshuffling of the geo-economic landscape, it has also proliferated important environmental challenges like increased natural resource depletion, pollution of the natural environment, and greenhouse gas emissions. In our study, we explored how the state seeks to ensure effective environmental governance in the context of the world’s largest emerging economy, China. Our quantitative evidence clearly suggests that the Chinese government indeed has a “green grip” on listed firms.

This grip is not equally strong at all levels of administrative hierarchical distance, however. When the governmental body supervising a company is itself subordinate to higher authorities, the effects of its position in the political hierarchy initially tend to accumulate with distance. This leads to mounting compliance pressures, as manifested in additional corporate environmental actions. However, this effect is countered and eventually overtaken by another effect, the increasing degree

of autonomy firms enjoy due to the divergent policy priorities of governmental organs operating at a certain distance from the central government. These opposing forces produce an inverted U-shaped relationship between administrative hierarchical distance and corporate environmental actions. Furthermore, regulatory stringency strengthens this curvilinear effect, whereas monitoring capacity weakens it. Taken together, our study demonstrates the multifaceted influence of emerging market governments on corporate environmental practices.

6.2 | Toward a phenomenological understanding of state influence in China

We make a plea for more qualitative work in the Chinese context, as our phenomenological understanding of the culturally conditioned human motivations behind state influence and firms' compliance behaviors is currently still underdeveloped.

We conducted extensive interviews with representatives of major Chinese firms, the Chinese EPB (at different levels), and Chinese environmental NGOs. These interviews taught us that individuals, organizations, and society, in general, are constantly aware of the influence of the administrative hierarchy. For example, each time the first author, who conducted the interviews, was introduced to an interviewee, he/she would point up and say, "she's arranged by the top (*shang mian*)," and nobody would question the interview process anymore. Our interviews also suggest that Chinese firms feel they have little influence over the content of environmental policies by the central government, even though there may be some room to bargain with local governments over the pace and scope of their implementation. Our interviews also taught us that environmental compliance behavior in China occurs in a somewhat superficial and opportunistic (*fu zao*) sphere in the society, in which results are prioritized over due process. Civil servants look for ways of maximizing their political achievements to get personal promotions and benefits, and firms keep a close watch on the consequences of others' compliance behaviors, using these extrinsic cues to decide on their own level of conformity and commitment.

We would also welcome more qualitative work on the NGO sector in China. Slowly but surely, grassroots organizations are becoming increasingly effective. Several civil protests against paraxylene projects have been successful since 2007. However, such events are being treated as outliers: singular and extreme cases of how civil society impacts environmentalism in China. Importantly: Not a single interviewee saw the pressure from citizens' initiatives as being anywhere near to that from the government, which they took as unavoidable and intimidating.

6.3 | Contributions

Our main theoretical contribution is to disentangle the multiple facets of government influence. Existing studies have acknowledged that different policy instruments may have dissimilar effects on corporate practices (e.g., Kemp et al., 2012) or that different stakeholders may express divergent claims (e.g., Delmas & Toffel, 2008; Sharma & Henriques, 2005), but have typically assumed that stakeholders like the government act in coherent and consistent ways. Our study demonstrates that the nature of government influence differs across hierarchical levels, leading governmental bodies at different echelons to prioritize dissimilar policies. This may be counterproductive, in particular, when lower tiers in the administrative hierarchy foster unconstrained industrial expansion, whereas the upper tiers promote environmental sustainability. Rather than observing decoupling between (government) policy and (corporate) practice (Bromley & Powell, 2012), we gauged a certain degree of environmental "*policy-policy decoupling*" between higher and lower levels of government. Such inconsistencies may also occur in developed countries. For instance, the former federal government

of the United States sought to mitigate climate change, whereas states richly endowed with fossil fuels developed conflicting public policies (Vogel, Toffel, Post, & Uludere, 2012). We thus go beyond the view of government as a unitary entity that puts forth consistent policies, and move toward an understanding of government influence as being contingent on the divergent interests of governments at different hierarchical levels. China might even be a conservative case in this respect: If we already found multifaceted state influences in a one-party autocratic state, the degree of heterogeneity and complexity is likely to be even more pronounced in pluralistic federal states like the United States and Germany. It is of great theoretical and empirical importance that this complexity is explored further in future research.

Our key empirical contribution is to examine environmental governance in an emerging market context. This research is one of the few large-scale, cross-sectorial empirical studies of corporate environmentalism in an emerging economy. Most studies of government influence on corporate environmental practices focus on developed countries (Bansal & Hoffman, 2012; Wijen et al., 2012) or offer only anecdotal evidence on specific emerging market cases (e.g., Child & Tsai, 2005). Gauging the influence of the government on the environmental actions of listed firms in China has helped us develop a deeper understanding of how grave environmental challenges can be contained more effectively. However, we have also shown that the simultaneous pursuit of economic growth and environmental protection straddles governmental policy, with different priorities attributed at different administrative levels. This suggests that environmental protection in this emerging economy is only semi-institutionalized (Child et al., 2007; Marquis & Raynard, 2015), situated at the stages of regulatory compliance and strategic environmentalism (Bansal & Hoffman, 2012). We thus add to the corporate environmentalism literature by assessing the contemporary impact of government intervention on the corporate environmental practices in the world's largest emerging economy.

6.4 | Limitations

Our study has some limitations, the first of which involves our reliance on publicly disclosed information. We relied on annual reports for information about environmental practices. While we made every effort to triangulate this information with other sources, we did not have access to intrafirm data, such as emissions at the plant level (Delmas & Toffel, 2008). When environmental policies have more firmly taken root in China, more fine-grained data will likely become available. Second, some of our evidence is indirect. In the absence of a direct measure, we took changes in sectorial emissions as a proxy for regulatory stringency (Brunel & Levinson, 2016). Future research may shed more light on the corporate perception of regulatory stringency (Kalamova & Johnstone, 2012). Third, heavily regulated companies may report their environmental practices more ostentatiously to demonstrate compliance (Reid & Toffel, 2009). This may have biased our observations somewhat, although we have sought to mitigate this effect by including as many other factors as possible in our regression models. Finally, our study was situated in the world's largest emerging economy. While other economies with underdeveloped institutional capacity (Guillén & Capron, 2015) may share a number of characteristics with China, the idiosyncratic political system of the latter may limit the generalizability of our findings to other emerging economies.

6.5 | Conclusion

Our study shows the "green grip" of the Chinese government to be multifaceted. This may be indicative of how governments of emerging economies have to make difficult policy choices to reconcile

the objectives of sustaining economic growth and prioritizing environmental sustainability. Our findings have several public policy implications. Since both very low and very high administrative hierarchical distance yield relatively low levels of corporate environmental actions, (central) governments eager to enhance environmental performance should focus their efforts more on companies supervised by governmental bodies situated at the extremities of the administrative hierarchy spectrum. Furthermore, our findings show that as long as environmental protection is only semi-institutionalized in China, governments may wish to tighten their environmental regulations across sectors and regions. This may entail revising the processes of performance assessment of and resource allocation to lower-level governmental bodies. Finally, since environmental actions tend to be lower at the tails (i.e., in firms controlled at very central or very decentral administrative levels), governments should concurrently expand their monitoring capacity, thereby inducing firms at the extremities of the control spectrum to intensify their environmental actions.

ACKNOWLEDGEMENTS

We appreciate the insightful comments and suggestions from Editor Brian Wu and two anonymous reviewers, Pratima Bansal, Harry Barkema, Gerard George, Royston Greenwood, Jochem Kroezen, Christopher Marquis, Cuili Qian, Mia Raynard, Patrick Reinmoeller, Pengfei Wang, Jeffrey York, and participants at the 2014 European Group for Organization Studies Colloquium and the 2015 Alliance for Research on Corporate Sustainability Conference.

REFERENCES

- Bansal, P., & Hoffman, A. (Eds.) (2012). *The Oxford handbook of business and the natural environment*. Oxford, England: Oxford University Press.
- Beeson, M. (2010). The coming of environmental authoritarianism. *Environmental Politics*, 19(2), 276–294.
- Bellhouse, D. R. (1988). Systematic sampling. In P. R. Krishnaiah & C. R. Rao (Eds.), *Handbook of statistics* (Vol. 6, pp. 125–145). Amsterdam, North Holland: Elsevier.
- Breusch, T. S., & Pagan, A. R. (1979). A simple test for heteroskedasticity and random coefficient variation. *Econometrica*, 47(5), 1287–1294.
- Bromley, P., & Powell, W. (2012). From smoke and mirrors to walking the talk: Decoupling in the temporary world. *Academy of Management Annals*, 6(1), 483–530.
- Brunel, C., & Levinson, A. (2016). Measuring the stringency of environmental regulations. *Review of Environmental Economics and Policy*, 10(1), 47–67.
- Carroll, A. B. (1989). *Business and society: Ethics and stakeholder management*. Cincinnati, OH: South-Western.
- Carter, N., & Mol, A. (2006). China and the environment: Domestic and transnational dynamics of a future hegemon. *Environmental Politics*, 15(2), 330–344.
- Chang, S. J., & Wu, B. (2014). Institutional barriers and industry dynamics. *Strategic Management Journal*, 35(8), 1103–1123.
- Child, J., Lu, Y., & Tsai, T. (2007). Institutional entrepreneurship in building an environmental protection system for the People's Republic of China. *Organization Studies*, 28(7), 1013–1034.
- Child, J., & Tsai, T. (2005). The dynamic between firms' environmental strategies and institutional constraints in emerging economies: Evidence from China and Taiwan. *Journal of Management Studies*, 42(1), 95–125.
- Cull, R., Xu, L. C., Yang, X., Zhou, L. A., & Zhu, T. (2017). Market facilitation by local government and firm efficiency: Evidence from China. *Journal of Corporate Finance*, 42, 460–480.
- Dawson, J. F. (2014). Moderation in management research: What, why, when, and how. *Journal of Business and Psychology*, 29(1), 1–19.
- Delmas, M., & Montes-Sancho, M. (2011). US state policies for renewable energy: Context and effectiveness. *Energy Policy*, 39(5), 2273–2288.
- Delmas, M., & Toffel, M. (2004). Stakeholders and environmental management practices: An institutional framework. *Business Strategy and the Environment*, 13(4), 209–222.
- Delmas, M., & Toffel, M. (2008). Organizational responses to environmental demands: Opening the black box. *Strategic Management Journal*, 29, 1027–1055.

- Delmas, M., & Toffel, M. (2011). Institutional pressures and organizational characteristics: Implications for environmental strategy. In P. Bansal & A. Hoffman (Eds.), *The Oxford handbook of business and the natural environment* (pp. 231–247). Oxford, England: Oxford University Press.
- Earnhart, D. H., Khanna, M., & Lyon, T. P. (2014). Corporate environmental strategies in emerging economies. *Review of Environmental Economics and Policy*, 8(2), 164–185.
- Feldman, E. R., Amit, R. R., & Villalonga, B. (2016). Corporate divestitures and family control. *Strategic Management Journal*, 37(3), 429–446.
- Firth, M., Rui, O. M., & Wu, W. (2011). Cooking the books: Recipes and costs of falsified financial statements in China. *Journal of Corporate Finance*, 17(2), 371–390.
- Gedajlovic, E., & Shapiro, D. M. (1998). Management and ownership effects: Evidence from five countries. *Strategic Management Journal*, 19(6), 533–553.
- Guillén, M. F., & Capron, L. (2015). State capacity, minority shareholder protections, and stock market development. *Administrative Science Quarterly*, 61(1), 125–160.
- Haans, R. F., Pieters, C., & He, Z. L. (2016). Thinking about U: theorizing and testing U-and inverted U-shaped relationships in strategy research. *Strategic Management Journal*, 37(7), 1177–1195.
- Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica*, 46, 1251–1271.
- Henriques, I., & Sadorsky, P. (1996). The determinants of an environmentally responsive firm: An empirical approach. *Journal of Environmental Economics and Management*, 30(3), 381–395.
- Hillman, A. J., Keim, G. D., & Schuler, D. (2004). Corporate political activity: A review and research agenda. *Journal of Management*, 30(6), 837–857.
- Hoskisson, R., Eden, L., Lau, C. M., & Wright, M. (2000). Strategy in emerging economies. *Academy of Management Journal*, 43(3), 249–267.
- International Monetary Fund. (2014). *World economic outlook database. Web-based dataset*. Retrieved from <https://www.imf.org/external/pubs/ft/weo/2015/01/weodata/index.aspx>
- Javvin Press. (2008). *China stock market handbook*. Saratoga, NY: Javvin Press.
- Javorcik, B. S., & Wei, S. J. (2004). Pollution havens and foreign direct investment: Dirty secret or popular myth? *Contributions to Economic Analysis and Policy*, 3(2), 1–32.
- Jiang, G., & Wang, H. (2008). Should earnings thresholds be used as delisting criteria in stock market? *Journal of Accounting and Public Policy*, 27(5), 409–419.
- Jourdan, J., & Kivleniece, I. (2017). Too much of a good thing? The dual effect of public sponsorship on organizational performance. *Academy of Management Journal*, 60(1), 55–77.
- Kalamova, M., & Johnstone, N. (2012). Environmental policy stringency and foreign direct investment. In F. Wijen, K. Zoeteman, J. Pieters, & P. Van Seters (Eds.), *A handbook of globalisation and environmental policy: National government interventions in a global arena* (2nd ed., pp. 34–56). Cheltenham, England: Edward Elgar.
- Kassinis, G., & Vafeas, N. (2006). Stakeholder pressures and environmental performance. *Academy of Management Journal*, 49(1), 145–159.
- Kemp, R., Soete, L., & Weehuizen, R. (2012). Towards an effective eco-innovation policy in a globalised setting. In F. Wijen, K. Zoeteman, J. Pieters, & P. Van Seters (Eds.), *A handbook of globalisation and environmental policy: National government interventions in a global arena* (2nd ed., pp. 211–240). Cheltenham, England: Edward Elgar.
- Kim, E., & Lyon, T. P. (2015). Greenwash vs. Brownwash: Exaggeration and undue modesty in corporate sustainability disclosure. *Organization Science*, 26(3), 705–723.
- Li, J., & Shui, B. (2015). A comprehensive analysis of building energy efficiency policies in China: Status quo and development perspective. *Journal of Cleaner Production*, 90, 326–344.
- Li, R., & Leung, G. C. (2012). Coal consumption and economic growth in China. *Energy Policy*, 40, 438–443.
- Lieberthal, K. (1995). *Governing China: From revolution through reform*. New York, NY: W.W. Norton and Co.
- Lin, J. Y., & Liu, Z. (2000). Fiscal decentralization and economic growth in China. *Economic Development and Cultural Change*, 49(1), 1–21.
- Lin, N. (2011). Capitalism in China: A centrally managed capitalism (CMC) and its future. *Management and Organization Review*, 7(1), 63–96.
- Lo, C. W., & Tang, S. Y. (2006). Institutional reform, economic changes, and local environmental management in China: The case of Guangdong Province. *Environmental Politics*, 15(2), 190–210.
- Luo, X. R., Wang, D., & Zhang, J. (2017). Whose call to answer: Institutional complexity and firms' CSR reporting. *Academy of Management Journal*, 60(1), 321–344.
- Luo, Y. (2003). Industrial dynamics and managerial networking in an emerging market: The case of China. *Strategic Management Journal*, 24(13), 1315–1327.
- Ma, X., & Ortalano, L. (2000). *Environmental regulation in China: Institutions, enforcement, and compliance*. Lanham, MD: Rowman and Littlefield.
- Marquis, C., & Qian, C. (2014). Corporate social responsibility reporting in China: Symbol or substance. *Organization Science*, 25(1), 127–148.

- Marquis, C., & Raynard, M. (2015). Institutional strategies in emerging markets. *The Academy of Management Annals*, 9(1), 291–335.
- Marquis, C., Zhang, J., & Zhou, Y. (2011). Regulatory uncertainty and corporate responses to environmental protection in China. *California Management Review*, 54(1), 39–63.
- Mol, A., & Carter, N. (2006). China's environmental governance in transition. *Environmental Politics*, 15(2), 149–170.
- Morduch, J., & Sicular, T. (2002). Rethinking inequality decomposition, with evidence from rural China. *The Economic Journal*, 112(476), 93–106.
- National Bureau of Statistics of the People's Republic of China (2015). *Web-based dataset*. Retrieved from <http://data.stats.gov.cn/>
- Oi, J. C. (1992). Fiscal reform and the economic foundations of local state corporatism in China. *World Politics*, 45(01), 99–126.
- Oi, J. C. (1995). The role of the local state in China's transitional economy. *The China Quarterly*, 144(1), 1132–1149.
- Peng, W. Q., Wei, K. C. J., & Yang, Z. (2011). Tunneling or propping: Evidence from connected transactions in China. *Journal of Corporate Finance*, 17(2), 306–325.
- Philippe, D., & Durand, R. (2011). The impact of norm-conforming behaviors on firm reputation. *Strategic Management Journal*, 32(9), 969–993.
- Porter, M., & Van der Linde, C. (1995). Toward a new conception of the environment-competitiveness relationship. *Journal of Economic Perspectives*, 9(4), 97–118.
- Qi, Y., Ma, L., Zhang, H., & Li, H. (2008). Translating a global issue into local priority China's local government response to climate change. *The Journal of Environment and Development*, 17(4), 379–400.
- Reid, E., & Toffel, M. (2009). Responding to public and private politics: Corporate disclosure of climate change strategies. *Strategic Management Journal*, 30, 1157–1178.
- Report on the Work of the Government. (2010). *The eleventh national people's congress of PRC*. Retrieved from http://www.gov.cn/english/official/2010-03/15/content_1556124.htm
- Russo, M. V. (1992). Power plays: Regulation, diversification, and backward integration in the electric utility industry. *Strategic Management Journal*, 13(1), 13–27.
- Sharma, S., & Henriques, I. (2005). Stakeholder influences on sustainability practices in the Canadian forest products industry. *Strategic Management Journal*, 26(2), 159–180.
- Shi, H., & Zhang, L. (2006). China's environmental governance of rapid industrialisation. *Environmental Politics*, 15(2), 271–292.
- Spires, A. J. (2011). Contingent symbiosis and civil society in an authoritarian state: Understanding the survival of China's grassroots NGOs. *American Journal of Sociology*, 117(1), 1–45.
- UNEP (2012). *Global environment outlook 5: Environment for the future we want*. Nairobi, Kenya: United Nations Environment Programme.
- Vogel, D., Toffel, M., Post, D., & Uludere, N. (2012). Environmental federalism in the European Union and the United States. In F. Wijen, K. Zoeteman, J. Pieters, & P. Van Seters (Eds.), *A handbook of globalisation and environmental policy: National government interventions in a global arena* (2nd ed., pp. 321–361). Cheltenham, England: Edward Elgar.
- Wijen, F., Zoeteman, K., Pieters, J., & Van Seters, P. (Eds.) (2012). *A handbook of globalisation and environmental policy: National government interventions in a global arena* (2nd ed.). Cheltenham, England: Edward Elgar.
- Wong, C. P. (2000). Central-local relations revisited: The 1994 tax-sharing reform and public expenditure management in China. *China Perspectives*, 31, 52–63.
- Wooldridge, J. M. (2008). *Introductory econometrics: A modern approach* (4th ed.). Chula Vista, CA: South-Western College.
- World Bank. 2014. *World development indicators*. *Web-based dataset*. Retrieved from <http://data.worldbank.org/data-catalog/world-development-indicators>
- Xu, K., Tihanyi, L., & Hitt, M. A. (2017). Firm resources, governmental power, and privatization. *Journal of Management*, 43(4), 998–1024.
- Zhang, Q., He, K., & Huo, H. (2012). Policy: Cleaning China's air. *Nature*, 484(7393), 161–162.
- Zheng, W., Singh, K., & Mitchell, W. (2015). Buffering and enabling: The impact of interlocking political ties on firm survival and sales growth. *Strategic Management Journal*, 36, 1615–1636.

SUPPORTING INFORMATION

Additional Supporting Information may be found online in the supporting information tab for this article.

How to cite this article: Wang R, Wijen F, Heugens PP. Government's green grip: Multi-faceted state influence on corporate environmental actions in China. *Strat Mgmt J*. 2018;39:403–428. <https://doi.org/10.1002/smj.2714>

Copyright of Strategic Management Journal is the property of John Wiley & Sons, Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.

Copyright of Strategic Management Journal (John Wiley & Sons, Inc.) is the property of John Wiley & Sons, Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.