State Ownership, Managerial Political Ties and ESG Performance: Evidence from China

Abstract

This study explores how state ownership and managerial political ties affect Environmental, Social and Corporate Governance (ESG) performance. Using a sample of Chinese listed firms, we document an inverted U-shaped association between state ownership and ESG performance, whereby ESG performance improves as state ownership initially rises, but further increases in state ownership beyond the tipping point lead to deteriorating ESG performance. Our analysis further shows that managerial political ties moderate this relationship: managerial political ties substitute for state ownership when state ownership is low, and complement state ownership when state ownership is high. Our study highlights the complexity of the impact state ownership has on ESG performance in the Chinese context, and findings of an inverted U-shape challenge the status quo—specifically the presumptive linear relationship in prior literature. Our results also provide insights into the nuanced role of managerial political ties by revealing how joint effects of managerial political ties and state ownership on firm performance may be affected by the nature of state ownership.

Keywords: ESG performance; State ownership; Political ties; Corporate governance

1. Introduction

Environmental, social and governance (ESG) has become mainstream business practice (Christensen et al., 2022; Kim & Yoon, 2023), and is of increased interest to investors (Christensen et al., 2022; Krueger et al., 2020), government and regulators (Rajgopal & Tantri, 2023), and other stakeholders (Dai et al., 2021; Houston & Shan, 2022). When considering the factors that drive corporate ESG performance, prior studies find that the government and political context within which a firm exists is critical in shaping corporate ESG performance (Cai et al., 2016; Li & Lu, 2020; Liang & Renneboog, 2017; Luo et al., 2017; Marquis & Qian, 2014).

In China, the government and political context is particularly important in influencing corporate organisational activities, including ESG performance, with political and economic systems in China are inextricably intertwined (Hsu et al., 2023; Wang et al., 2008; Zhou et al., 2017). Recent years have witnessed a surge in government-led ESG initiatives, resulting in unprecedented regulatory oversight and influence over corporate ESG practices (Chen et al., 2018; Liu et al., 2021). In addition to regulation and policy, government can also influence business operations, including ESG performance, through both ownership of corporations (Grosman et al., 2016; Inoue et al., 2013; Musacchio et al., 2015; Sun & Tong, 2003) and political ties managers hold (Fan et al., 2007; Peng & Luo, 2000; Zhang et al., 2016).

Our study explores the dual roles that state ownership[1] and managerial political ties[2] play in shaping ESG performance within Chinese firms. Specifically, we investigate two questions:

[1] State ownership refers to share holdings by governments (Wang et al., 2022; Zhou et al., 2017).

[2] Managerial political ties refer to managers' personal-level connections to governments (Sun et al., 2015). A firm has managerial political ties if its board members or senior managers are either current or former government officials, or political council representatives (Marquis & Qian, 2014; Zhang et al., 2016).

RQ1: What is the association between state ownership and corporate ESG performance in Chinese listed firms?

RQ2: How do state ownership and managerial political ties interact—either complementing or substituting for one another—in driving ESG performance?

State ownership is a common phenomenon in China and other economies and countries (Bruton et al., 2015; Hsu et al., 2023; Li & Lu, 2020; Musacchio et al., 2015; Tihanyi et al., 2019) and plays a significant role in the global economy (Bruton et al., 2015; Musacchio et al., 2015). The Chinese government leverages state ownership to affect ESG performance in several ways (Grosman et al., 2016; Musacchio et al., 2015; Sun & Tong, 2003). The government has an incentive to use ownership to pursue social and political interests (Hsu et al., 2023; Prabowo et al., 2018), with state ownership also providing funds to support corporate ESG initiatives (Boubakri et al., 2019). However, state ownership can undermine ESG performance because it can lead to immature corporate governance structures (Kavadis & Thomsen, 2023; R. Zhang et al., 2010), inhibiting regulatory enforcement (Jiang et al., 2014) and supervision (Eaton & Kostka, 2017).

Research exploring the association between state ownership and ESG performance in China has exhibited mixed results, with a potential reason for this likely to be the dichotomous construct used to measure state ownership in prior research (Bruton et al., 2015; Gupta, 2005; Musacchio & Lazzarini, 2014). The dichotomous measure commonly used in prior studies (e.g. Fan et al., 2007; Wang et al., 2018) may not fully capture the complexity of ownership for two reasons. First, firms increasingly adopt a more complex form, with varying proportions of both private and government ownership (Bruton et al., 2015; Gupta, 2005; Musacchio et al., 2015). Second, there are various ways in which managers can be tied with the government[3] (Marquis

[3] Managerial political ties could be held at the central or local government level (Liu et al., 2017; Qian & Chen, 2021); management may serve as government officials in various government departments and agencies or council representatives in the National People's Congress (NPC) and the Chinese People's Political Consultative

& Qian, 2014; Qian & Chen, 2021; Zhang et al., 2016). Given the multifaceted nature of political connections—which can vary by level of government, type of appointment, and hierarchical position within the firm (Marquis & Qian, 2014; Qian & Chen, 2021; Zhang et al., 2016)—a binary measure is insufficient to capture their full complexity. We address this limitation by using a more comprehensive, continuous measure to better capture the complexity of the managerial political ties construct.

We predict, and find, an inverted U-shape association between state ownership and ESG performance in Chinese listed firms. Specifically, we posit that the beneficial effects of state ownership in enhancing ESG—such as resource provision and enhanced legitimacy—prevail at lower levels of state ownership, whereas the detrimental impacts of state ownership on ESG—stemming from governance inefficiencies and regulatory shirking—become dominant as state ownership further increases, leading to a nonlinear, inverted U-shaped association.

Managerial political ties, prevalent in China, are another important mechanism by which businesses obtain institutional support, political and financial resources and competitive advantage —including access to policy and industry development information, scarce resources, greater political legitimacy and stronger government endorsement (Faccio et al., 2006; Fan et al., 2007; Li et al. 2015; Peng & Luo, 2000; Sheng et al., 2011; Wang & Qian, 2011). In China, such ties enable the government to influence corporate activities, including ESG performance (Fan et al., 2007; Lin et al., 2015; Peng & Luo, 2000). However, prior research on managerial political ties and ESG issues yields mixed findings (Faccio & Hsu, 2017; Li et al., 2015; Marquis & Qian, 2014; Muttakin et al., 2018; Qian & Chen, 2021). On the one hand, these ties may facilitate preferential treatment, resource acquisition (Muttakin et al., 2018) and help mitigate penalties for poor ESG performance (Marquis & Qian, 2014), resulting in a negative association with ESG performance. On the other hand, to maintain favourable governmental

Conference (CPPCC; Dang et al., 2022; Zhang et al., 2016); and managerial political ties could be hold by CEO, chair, board members or senior managers (Qian & Chen, 2021; Zhang et al., 2016).

relations and secure political legitimacy, firms may be incentivised to align their practices with government expectations (Marquis & Qian, 2014; Qian & Chen, 2021; Zhang et al., 2016), thereby enhancing ESG outcomes.

The extant research explores state ownership and managerial political ties separately, which limits our understanding of the ways in which government influences corporate outcomes. Joint tests of state ownership and managerial political ties have produced inconsistent results. Some studies show that state ownership and managerial political are complementary, with the latter reinforcing adherence to state expectations and amplifying the impact of state ownership (Park & Luo, 2001; Wu et al., 2012). In contrast, other studies show that state ownership and managerial political ties substitute for each other in that managerial political ties diminish the marginal impact of state ownership by providing similar resources. (Young et al., 2008). However, as previously noted, prior research measures both state ownership and political ties as dichotomous constructs, underestimating the complexity and diversity of state ownership and managerial political ties, which obscure the inherent complexity and heterogeneity of both constructs and their relationship (Li & Lu, 2020; Qian & Chen, 2021; Rajgopal & Tantri, 2023; Wickert, 2021; Zhang et al., 2016).

Our study addresses these broad limitations in prior research, and offers new insights on how state ownership and managerial political ties complement or substitute for each other in driving ESG performance. We predict and find that managerial political ties moderate the association between state ownership and ESG performance. At lower levels of state ownership, these ties may serve as a substitute—providing similar resources and support that diminish the incremental benefits of state ownership on ESG outcomes. Conversely, at higher levels of state ownership, managerial political ties may function as a complement, offsetting potential agency conflicts and mitigating the adverse effects of excessive government control.

Our study contributes to the literature and to practice in several ways. First, it extends the literature on state ownership and ESG performance examining firms with mixed ownership structures using a continuous measure of state ownership, thereby better capturing its nuanced effects (Boubakri et al., 2019; Bruton et al., 2015; Hsu et al., 2023). Second, we extend the literature on the impact of political ties on firm outcomes (Dang et al., 2022; Marquis & Qian, 2014; Muttakin et al., 2018; Qian & Chen, 2021; Wang et al., 2018; Xiao & Shen, 2022; Zhang et al., 2016) by employing a refined measure that captures the heterogeneity of political ties which allows us to distinguish among government levels (local versus central), types of appointments (representative versus official), and hierarchical positions within the firm (executive versus supervisory). By exploring the interplay between state ownership and these nuanced measures, we provide a better understanding of the nature and complexity of these two measures of government influence.

Finally, this research addresses the growing need to understand the context-specificity dynamics of ESG practices in emerging economies (Ioannou & Serafeim, 2012; Li & Lu, 2020; Wickert, 2021). Our results offer practical insights for investors evaluating ESG performance based on state ownership and political ties, for policymakers designing informed interventions, and for other stakeholders who have a vested interested in ESG navigating the complexities of government influence on corporate ESG outcomes.

The remainder of the paper is organised as follows. The next section presents the theoretical framework and hypotheses development. Section 2 presents the theoretical framework and hypothesis development, Section 3 outlines the research design, Section 4 details the empirical results, and Section 5 concludes with a discussion of the key findings and their implications.

2. Theory and Hypotheses

In developing testable hypotheses our study uses both agency and resource dependence theories.

2.1. Theoretical Framework

2.1.1 Agency theory

In the situation where firms have a proportion of state ownership, agency theory suggests that because the state needs managers, creating several potentially serious agency problems (Bruton et al., 2015; Jia et al., 2019; Jiang & Kim, 2015; Lin et al., 1998; Tihanyi et al., 2019). First, in the presence of state ownership, it is difficult to evaluate managers solely based on their performance (Kato & Long, 2006; Lin et al., 1998). This is because governments may allocate resources to firms through administrative measures, appointing specific managers or pursuing projects based on political criteria instead of efficiency and profitability (Dharwadkar et al., 2000; Lin et al., 1998; Zou & Adams, 2008). Thus, even if managers pursue their own self-interest, the government may not notice this inappropriate behaviour (Jiang & Kim, 2020; Lin et al., 1998).

Second, it could be expensive for governments to monitor managers' behaviour (Lin et al., 1998). State owners often monitor businesses ineffectively because state bureaucracy tends to lack expertise, and monitoring duties among bureaucrats may be dispersed across state agencies, which expands managerial discretion (Bai et al., 2006; Du et al., 2012; Sapienza, 2004). Third, incentives to align management's interests with government interests may be insufficient for managers. Although giving ownership to managers can decrease managerial opportunism (Jensen & Meckling, 1976), when firms are primarily owned by the state, managers rarely receive stock or options (Jiang & Kim, 2015). In addition, because firms with state ownership often have the task of maintaining social balance, management compensation relates to workers' salaries and managers do not enjoy high pay (Chen et al., 2010; Firth et al.,

2006, 2007). Weak incentives such as fixed salaries and a small pay gap between organisation levels are common in firms with state ownership, and managers' compensation is not aligned with performance, resulting in managers being less accountable for firm performance and government interests as (Chen et al., 2011; Cull & Xu, 2005; Firth et al., 2006; Inoue et al., 2013; Jiang & Kim, 2015; Lazzarini et al., 2021).

Private ownership has been considered to alleviate agency problems (Megginson & Netter, 2001). If governments are minority shareholders in a firm, the control of the firm will be transferred to private owners who hold majority stakes. These private owners will closely monitor managers to help reduce agency conflicts and agency problems will be moderate to low. But if governments are majority shareholders in a firm, managers usually lack strong incentives and the firm is not subject to close monitoring by private owners, meaning that agency problems remain as major liabilities (Gupta, 2005; Inoue et al., 2013; Musacchio & Lazzarini, 2014; Musacchio et al., 2015).

Managerial political ties also influence the principle-agent relationship where managerial political ties can create incentives to align managers with the state's interests. That is, firms and managers seek to maintain and manage linkages with the government and show their compliance to the government if they have dependence on the government (Haveman et al., 2017; Marquis & Qian, 2014; Dang et al., 2022; Zhang et al., 2016). For example, Marquis and Qian (2014) note that managers with managerial political ties are more likely to act in accordance with government positions and issue ESG reports. Zhang et al. (2016) find that to avoid losing managerial political ties and in response to the political recognition and prestige provided by the government, firms are accountable to government demands and take the lead in donations. Dang et al. (2022) note that to maintain their relationship with the government, managers can use ESG as a signal to show their compliance with the government. Managerial political ties are also a symbol of reputation from the government, and—to maintain their

reputation—managers are more likely to respond to government objectives (Marquis & Qian, 2014; Dang et al., 2022).

2.1.2. Resource Dependence Theory

Resource dependence theory proposes that organisations depend on resources from their environment, consisting of the society in general, other businesses, interest groups and the government (Pfeffer & Salancik, 1978). The government profoundly affects businesses, and firms have high level of resource dependence on the government (Galaskiewicz, 1985; Hillman et al., 1999; Malatesta & Smith, 2011; Pfeffer & Salancik, 1978). Dependence can be achieved through ownership (Pfeffer & Salancik, 1978), and state ownership creates a dependent relationship between governments and firms (Xia et al., 2014).

State ownership makes firms dependent on the government for important resources and government support (Musacchio & Lazzarini, 2014; Xia et al., 2014). Capital and resources, preferential treatment and government guarantees are more likely to be provided to firms with state ownership (Lazzarini et al., 2021; Okhmatovskiy, 2010; Opper et al., 2017; Peng & Heath, 1996; Sun et al., 2021). The government also provides government guarantees (Musacchio & Lazzarini, 2014) that can help firms cope with external uncertainties (Hillman et al., 2009; Pfeffer & Salancik, 1978) and rescue firms in times of crisis (Borisova et al., 2015; Borisova & Megginson, 2011; Boubakri et al., 2013).

Resource dependence theory states that when firms receive recourses from the external environment, they are constrained by that external environment (Burt, 1982; Pfeffer, 1987). Compliance acts as an adaptation strategy to cope with external constraints (Pfeffer & Salancik, 1978), and firms' decision-making autonomy depends on external constraints (Oliver, 1991; Pfeffer, 1972). The dependence of firms on the government leads to a power imbalance between firms and the government (Casciaro & Piskorski, 2005; Finkelstein, 1997; Pfeffer, 1972), resulting in government constraints on corporate behaviour (Hillman et al., 2009). In this case,

the business activities of firms are influenced by the government (Lioukas et al., 1993), and the decision-making autonomy of firms will be reduced (Bradley et al., 2011; Jacobs, 1974; Lioukas et al., 1993; Pfeffer & Salancik, 1978).

Firms with state ownership are strongly affected by government constraints because they are not only heavily dependent on the government for important resources (Musacchio & Lazzarini, 2014), but the government is also one of their important owners (Cuervo-Cazurra et al., 2014). The government controls strategies and activities of firms with state ownership (Lin et al., 1998; Lioukas et al., 1993) and uses state ownership to achieve its political and social goals (Boyd & Solarino, 2016; Cuervo-Cazurra et al., 2014; Lin et al., 1998). Therefore, firms with state ownership face strong pressure and constraints from the government and need to comply and adapt to the government's goals.

With respect to managerial political ties, resource dependence theory highlights the importance of status in interpersonal and inter-organisational relations (Blau, 1964; Emerson, 1962). Inter-organisational cooperation is crucial to acquire external resources, with formal and informal agreements between organisations helping secure reliable resource flows (Biermann & Harsch, 2017). The government appears powerful to firms because it can constrain firms' access to critical resources and subsequently affect their survival (Galaskiewicz, 1985; Hillman, 2005; Hillman et al., 1999; Malatesta & Smith, 2011). In this case, firms seeking to create linkages with the government through boards will purposefully seek those directors who have the best ability to manage this interdependence (Pfeffer & Salancik, 1978).

According to resource dependence theory, the board of directors is viewed as a strategic resource of the firm, providing a link between the firm and its external environment (Hillman et al., 2000). Managerial political ties bring critical resources to firms, such as government support, policy and industry development information, access to scarce resources, political legitimacy and government endorsement (Faccio et al., 2006; Faccio & Hsu, 2017; Fan et al.,

2007; Lester et al., 2008; Li et al., 2015; Peng & Luo, 2000; Sheng et al., 2011; Wang & Qian, 2011).

2.2. State ownership and ESG Performance

Most firms in China feature both state and private ownership, and the level of ownership and government control can vary widely (Bruton et al., 2015; Inoue et al., 2013; Musacchio & Lazzarini, 2014), with enterprises experiencing a mix of government and private control where state owners coexist with other shareholders (Huang & Zhu, 2015. The government may hold a majority or a minority of shares (Bruton et al., 2015; Grosman et al., 2016; Inoue et al., 2013; Musacchio et al., 2015), with Government owners representing central, provincial, municipal and county governments, state-owned asset management bureaus and finance bureaus (Wang et al., 2022).

Ownership structure is important in shaping corporate behaviour, and shareholders can use their voting rights to influence business decisions (Shleifer & Vishny, 1997). Bradshaw et al. (2019) note that the state plays an important role in corporate governance and that its influence increases with ownership. Minority state-owned equity can play a governance role (Attig et al., 2009) and ease financing constraints (Inoue et al., 2013). Conversely, when the proportion of state ownership is high, firms may face severe agency issues that impede firm performance and efficiency (Musacchio et al., 2015).

According to resource dependence theory, state ownership provides firms with fewer financial constraints, higher risk-taking capacity, better access to resources and stronger incentives to engage in ESG activities, which can further enhance ESG performance (Acemoglu et al., 2016; Borisova & Megginson, 2011; Boubakri et al., 2013, 2019; Chen et al., 2018; Faccio, 2006; Hsu et al., 2023; Prabowo et al., 2018). However, according to agency theory, state ownership can also negatively influence ESG performance, entailing agency problems between managers and governments as shareholders (Bruton et al., 2015; F. Jiang & Kim, 2015).

Agency theory suggests that, because the state cannot operate by itself, state ownership creates a host of distortions caused by different interests between the state and management (Bruton et al., 2015; Lin et al., 1998; Tihanyi et al., 2019). For instance, although the state has the interest of pursuing social benefits and achieving superior ESG performance (Hsu et al., 2023; Prabowo et al., 2018), management has the interest of pursuing personal benefits (Crilly et al., 2012; Gomez-Mejia et al., 2005; Jensen & Meckling, 1976). This can mean that management take opportunistic behaviours rather than improving ESG performance for the interests of the state (Crilly et al., 2012; Eisenhardt, 1989; Fama, 1980; Jensen & Meckling, 1976).

Further, when the state is the owner, firms have weaker governance and the monitoring of corporate behaviour and performance is often ineffective (Boyd & Solarino, 2016; Du et al., 2012; Jia et al., 2019). It is difficult for the state to monitor managers' self-interested behaviours—such as managerial slack and on-the-job consumption—because the monitoring duties among bureaucrats are dispersed across state agencies, which expands managerial discretion (Bai et al., 2006; Du et al., 2012; Jiang & Kim, 2020; Sapienza, 2004). It is also difficult to evaluate managers according solely to firm performance when the firm is owned, or partially owned, by the state (Kato & Long, 2006; Lin et al., 1998). It is more difficult for the state as an owner to assess ESG performance because, unlike financial performance such as profit maximisation, ESG performance involves more complex, variable and subjective measurements (H. B. Christensen et al., 2021) and the state bureaucracy tends to lack expertise.

Although private owners may be concerned with agency problems, they may not be able to effectively monitor corporate behaviour and improve corporate governance. With the increase of private owners' shareholding ratio, their voice and decision-making power within a firm gradually increase, creating conditions for private owners to monitor and reduce agency problems (Tian et al., 2023). However, there is usually a weak participation of private owners

in corporate governance when they are minority shareholders (Bharath et al., 2013; Grossman & Hart, 1980; Tian et al., 2023).

Weak incentives also make managers less motivated to align their interests with the state interests of pursuing ESG performance. To align the interests of managers and shareholders, shareholders should provide incentives to managers to facilitate them acting in the interests of shareholders (Jensen & Meckling, 1976). When shareholders have the interests of ESG, they can incorporate ESG criteria and targets in compensation structures (Cohen et al., 2023). Linking managers' compensation to ESG criteria can enhance managers' long-term orientation and improve ESG performance (Flammer et al., 2019; Hong et al., 2016; Ikram et al., 2023). However, when the Chinese state is the owner, managers' compensation is usually not subject to their performance (Firth et al., 2006; Jiang & Kim, 2015). Because managers are less accountable for ESG performance and do not benefit from increased ESG performance, they lack incentives to pursue the state's ESG interests and improve ESG performance (Harris & Bromiley, 2007; Wiseman et al., 2012).

Therefore, we argue that the positive and negative influences from state ownership coexist but separately dominate each other at different level of state ownership. Different levels of state ownership may affect ESG performance differently, meaning that there is likely to be a nonlinear relationship between state ownership and ESG performance. Following Haans et al. (2016), this study conceptualises these positive and negative influences jointly, where they reflect an inverted U-shaped association between state ownership and ESG performance.

The positive influences of state ownership reflect a convex association. When firms have no state ownership or a minority of state-owned equity, firms face various difficulties when running businesses, such as limited access to financing and resources (McMillan & Woodruff, 2003), unpredictable external business environments (Tan & Litsschert, 1994) and transaction discrimination (Hay & Shleifer, 1998; McMillan & Woodruff, 1999) because of

limited links with the government. In this situation, firms lack enough support to perform ESG well. With an increase of state ownership, marginal benefits from state support are important to firms and can largely increase ESG performance (Claessens et al., 2008; Inoue et al., 2013). Because the Chinese government has been one of the most influential institutional drivers of ESG (Chen et al., 2018; Li & Lu, 2020; Liu et al., 2021), when firms have no state ownership or a minority of state-owned equity, an increase of state ownership with marginal benefit from government incentives to adopt ESG activities can largely increase ESG performance (Boubakri et al., 2019).

However, marginal benefits from an increase of state ownership will not remain the same. According to marginal utility theory (Gordon, 1964; Kauder, 1953), for firms that use resources as inputs, when the total amount of resources increases, the marginal benefits obtained by the newly added resources become fewer (Gordon, 1964; Kauder, 1953). When firms have a majority of state-owned equity, marginal benefits from state ownership decline because advantages and support gained from additional state-owned shares become redundant and negligible (Wu et al., 2012).

Conversely, the negative influences take on a concave shape. Negative influences, such as agency problems between managers and the state as the owner, diminish ESG performance at an increasing rate. When firms have no state ownership or a minority of state-owned equity, although the agency problems between managers and the state increase with the increase of state ownership, private shareholders are likely to effectively monitor managerial performance (Musacchio et al., 2015). Monitoring by a broader range of shareholders reduces the negative influences of agency problems between managers and the state (Inoue et al., 2013; Musacchio et al., 2015), and the marginal costs of agency problems increase slowly.

However, marginal costs from the increase of state ownership will not stay the same. When firms have a majority of state-owned equity, agency problems will become more severe

(Bruton et al., 2015; Inoue et al., 2013; Musacchio et al., 2015). In such circumstances, the state remains a controlling shareholder, but the state's supervision of management behaviour is often ineffective (F. Jiang & Kim, 2020; Musacchio et al., 2015). Firms are subject to less external shareholder monitoring because other shareholders with smaller shareholdings do not actively participate in corporate governance and exert profit pressure on management (Bharath et al., 2013; Grossman & Hart, 1980; Tian et al., 2023). Therefore, when the state ownership increases, agency problems increase rapidly and marginal costs rise from the newly added unit.

As a result, the net effect of positive and negative influences constitutes an inverted U-shaped association between state ownership and ESG performance. Figure 1 provides an illustration of how positive and negative influences collaboratively construct an inverted U-shaped association. It is expected that, with the increase of state ownership, marginal benefits at first exceed marginal costs, meaning that state ownership is likely to have a positive association with ESG performance in this situation. However, with the increase of state ownership, marginal costs come to exceed marginal benefits—that is, the increases in negative agency problems outweigh any increases in positive government support, meaning that state ownership is likely to have a negative association with ESG performance in this situation. Hence, we formally hypothesise:

> **Hypothesis 1.** There is an inverted U-shape association between state ownership and ESG performance in Chinese listed firms.

[FIGURE 1 ABOUT HERE]

2.3. State Ownership, Managerial Political Ties, and ESG Performance

In addition to government shareholdings, Chinese firms often recruit managers with political ties (Faccio et al., 2006; Sun et al., 2012). There is considerable overlap between state ownership and managerial political ties, yet the interaction between these channels of political

connection remains underexplored (Sun et al., 2015). Similar to state ownership, managerial political ties afford firms access to preferential treatment and critical government resources (Faccio & Hsu, 2017; Muttakin et al., 2018; H. Wang & Qian, 2011).

The joint effects of managerial political ties and state ownership on firm performance may be affected by the nature of state ownership (Chen et al., 2017; Li, Song & Wu, 2015; Wu et al., 2012). When state ownership is low, managerial political ties may substitute for state ownership by providing similar government benefits (Xin & Pearce, 1996). In contrast, at high levels of state ownership, the stable and direct connection provided by state equity typically surpasses the benefits of political ties—rendering these ties complementary rather than substitutive (Li et al., 2015; Wu et al., 2012; Xiao & Shen, 2022). Under such conditions, where managerial incentives may be misaligned due to ineffective government oversight (Musacchio et al., 2015) and weak alignment with state interests (Jiang & Kim, 2015; Lazzarini et al., 2021), the presence of managerial political ties can prompt managers to align their actions with government expectations. Such incentives may include opportunities for career advancement (Kong et al., 2020) or the preservation of personal reputation and political connections (Marquis & Qian, 2014; Zhang et al., 2016).

These lines of argument lead us to predict that managerial political ties moderate the association between state ownership and ESG performance. Specifically, we draw on resource dependence theory and propose that in terms of driving ESG performance, when the level of state ownership is low, managerial political ties substitute for state ownership; when the level of state ownership is high, managerial political ties complement state ownership.

From a resource dependence perspective, establishing linkages with vital external resources reduces firm risk and uncertainty (Haveman et al., 2017; Pfeffer & Salancik, 1978). Managerial political ties can secure important resources, preferential treatment, and government endorsements (Faccio & Hsu, 2017; Lester et al., 2008; Peng & Luo, 2000; Sheng

et al., 2011; Wang & Qian, 2011). Firms with low state ownership may be disadvantaged in obtaining such support (Boubakri et al., 2013; Bruton et al., 2015; Okhmatovskiy, 2010), thereby amplifying the positive impact of even slight increases in state ownership on ESG performance. However, for firms that already benefit from strong managerial political ties, the additional benefits from increased state ownership become less critical—indicating a substitutive relationship.

Moreover, managerial political ties can mitigate the adverse effects of high state ownership on ESG performance by alleviating agency conflicts between managers and the state. To reap the benefits associated with political connections—such as enhanced reputations, greater stakeholder trust, and competitive advantages (Piotroski & Zhang, 2014)—firms are incentivised to comply with government regulations and pursue public policy objectives (Marquis & Qian, 2014; Piotroski & Zhang, 2014; Zhang et al., 2016). Additionally, managers with political ties typically face stronger government monitoring and compliance pressure (Li, Song & Wu, 2015; Luo et al., 2017; Qian & Chen, 2021). Given the prominent role of the Chinese government in driving ESG initiatives (Chen et al., 2018; Li et al., 2015; Liu et al., 2019), these ties help realign managerial incentives with goverment priorities, thereby enhancing ESG performance. Thus, in firms with high state ownership—where governance challenges may otherwise lead to poorer ESG outcomes—managerial political ties can complement state ownership by offsetting ineffective oversight and aligning managerial behavior with state interests.

The moderating effect of managerial political ties on the inverted U-shaped relationship between state ownership and ESG performance is depicted in Figure 2. At low levels of state ownership, managerial political ties substitute for state ownership by providing government-related benefits, thereby reducing the marginal impact of state support in firms that already have such ties. In contrast, at high levels of state ownership, managerial political ties complement

state ownership by supplying additional incentives and supervisory mechanisms that mitigate agency problems. Consequently, the adverse effects of high state ownership on ESG performance are more pronounced in firms lacking managerial political ties. We formally hypothesise:

> **Hypothesis 2**. Managerial political ties moderate the association between state ownership and ESG performance in affecting ESG performance: when the level of state ownership is low, managerial political ties substitute for state ownership; when the level of state ownership is high, managerial political ties complement state ownership.

[FIGURE 2 ABOUT HERE]

3. Research Method

3.1. Sample selection and data collection

The samples of firms are firms listed on the China A-share market. The period covered by this study is 2009 to 2022.[4] Financial data are drawn from the China Stock Market & Accounting Research (CSMAR) Database, which is a credible source of information on Chinese stock markets and listed firms and has been widely used in previous studies (Wang & Qian, 2011; Zhang et al., 2016). ESG scores and ratings that are used to measure ESG performance are collected from Sino-Securities and the Hexun website.[5] Data to measure political ties are manually collected from firms' annual reports. Whether board members and senior managers have political ties is identified and manually collected from firms' annual reports (personnel information can be found in the 'Directors, Supervisors, Senior Management

[4] From 2008, the SSE and the SZSE officially required listed firms to disclose ESG information (Chen et al., 2018). Given data availability, the sample period of test using Sino-Securities ESG ratings is from 2009 to 2022, the sample period of robustness test using Hexun ESG scores is from 2010 to 2020.

[5] Sino-Securities ESG ratings are used in the main tests and Hexun ESG scores are used in the robustness test. Sino-Securities ESG ratings are provided by Sino-Securities (https://www.chindices.com), and Hexun ESG scores are provided by Hexun (http://stock.hexun.com/). ESG ratings and the scores of each firm in each year are manually collected from their websites.

and Employees' [6] section in annual reports), and cross-checked by publicly disclosed information using Baidu, the largest search engine (equivalent to Google) in China[7]. Consistent with previous studies (Gul et al., 2013; Ren et al., 2023; Tian & Pan, 2024; Wang et al., 2018; Wen et al., 2021), the following firms were excluded from the sample: (i) firms in abnormal conditions (e.g., firms marked as ST or ST*), (ii) firms operating in the finance sector, and (iii) firm-year observations with missing values of variables. Table 1 summarises the sample selection procedure. Sample attrition occurs when matching Chinese firms with control variables from the CSMAR database. The final sample comprises 35,799 firm-year observations.

[TABLE 1 ABOUT HERE]

3.2. Models

Hypothesis 1 predicts that there is an inverse U-shaped relationship between state ownership and ESG performance in Chinese listed firms. In doing so, it adapts the method proposed by Lind and Mehlum (2010) and Haans et al. (2016) to identify whether an inverted U-shaped relationship exists. To test hypothesis 1, the following regression model is established using observations for firm i in year t.

$$\mathrm{ESG}_{i,t} = \beta_0 + \beta_1 SO_{i,t} + \beta_2 {SO^2}_{i,t} + \sum \gamma_1 Controls_{i,t} + \sum \gamma_2 Year + \sum \gamma_3 Industry + \sum \gamma_4 Region + \varepsilon_{i,t} \quad (1)$$

To measure ESG performance (ESG), the Sino-Securities ESG rating—a third-party score evaluating ESG performance in China—is used. An alternative third-party score, the Hexun ESG score, is used to measure ESG performance in robustness tests. To measure state

[6] Chinese listed firms are required by the CSRC to disclose in annual reports biographical information on executive managers and board members. In this section, whether directors, supervisors and senior management are current or former government officials, and whether they are current or former representatives of the party, the NPC or the CPPCC can be found in these descriptions.

[7] The name of board members and senior managers are searched online to look through their working experience. Baidu Baike contains rich individual profiles and sometimes has more details than annual reports. Truex (2014), which collects NPC deputy information via Baidu, claims that Baidu profiles are quite reliable.

ownership (SO), a continuous variable—the sum of the shareholding proportions of state-owned shareholders among the top ten shareholders—is used (Bruton et al., 2015; Gupta, 2005; Zhou et al., 2017).

To test hypothesis 1, we add the square of state ownership (SO^2) to model (1) to capture the nonlinear relationship between state ownership and ESG performance. The coefficients β_1 and β_2 measure the significance of state ownership in explaining ESG performance. If there is an inverted U-shaped relationship between state ownership and ESG performance, the coefficient β_1 should be positive and β_2 should be negative (Haans et al., 2016).

Hypothesis 2 predicts that managerial political ties moderate the association between state ownership and ESG performance. To test hypothesis 2, the following regression model is established using observations for firm i in year t.

$$\mathrm{ESG}_{i,t} = \beta_0 + \beta_1 SO_{i,t} + \beta_2 {SO^2}_{i,t} + \beta_3 SO_{i,t} * PT_{i,t} + \beta_4 {SO^2}_{i,t} * PT_{i,t} + \beta_5 PT_{i,t} + \sum \gamma_1 Controls_{i,t} + \sum \gamma_2 Year + \sum \gamma_3 Industry + \sum \gamma_4 Region + \varepsilon_{i,t} \quad (2)$$

The moderating variable managerial political ties (PT) captures the political ties of board members and senior managers. A firm-level index is developed to different important dimensions of a firm's managerial political ties, such as the political ranks of political ties and the company ranks of managers holding political ties (Chen et al., 2017; Sun et al., 2015).

To test hypothesis 2, we use model (2) to capture the moderating effect of managerial political ties on the nonlinear relationship between state ownership and ESG performance. For model (2), the coefficient β_4 illustrates hypothesis 2: whether the moderating variable managerial political ties flatten or steepen the inverted U-shaped relationship. A flattening occurs when β4 is positive and a steepening occurs when β4 is negative (Haans et al., 2016).

3.3. Variables

Dependent Variable: ESG Performance

We utilise the Sino-Securities ESG rating to capture ESG performance. The Sino-Securities ESG rating has the largest coverage of Chinese listed companies across the sample period (Cui & Li, 2023; He et al., 2023; Zheng et al., 2023), collects corporate ESG performance data from comprehensive resources (Feng et al., 2022; Wang et al., 2023), evaluates firms' ESG performance in a comprehensive way (Feng et al., 2022; Wang et al., 2023; Zheng et al., 2023), and has been widely used in prior studies to measure ESG performance (Cui & Li, 2023; Feng et al., 2022; He et al., 2023; Sha et al., 2022; Wang et al., 2023; Zheng et al., 2023).

The Sino-Securities ESG ratings system uses three first-level indicators, E, S, G, and refined lower-level indicators to evaluate ESG performance of listed companies (Feng et al., 2022; Wang et al., 2023; Zheng et al., 2023). A comprehensive ESG rating is developed according to the weighted average of the scores of each indicator (Feng et al., 2022). Sino-Securities ESG ratings have nine levels: 'C', 'CC', 'CCC', 'B', 'BB', 'BBB', 'A', 'AA' and 'AAA'. Following previous research (Cui & Li, 2023; Feng et al., 2022; He et al., 2023; Sha et al., 2022; K. Wang et al., 2023), each classification level is converted into a numerical variable. That is, 9 to 1 are assigned to ESG rating grades from high to low, respectively 'AAA', 'AA', 'A', 'BBB', 'BB', 'B', 'CCC', 'CC' and 'C'. The higher the ESG score, the better the ESG performance. The average of ESG ratings for each firm for four-quarters each year is used to measure ESG performance of the firm for the corresponding year.

Independent Variable: State Ownership

As firms today are adopting a more complex form that includes both private and government ownership, this study uses a continuous variable—a total proportion of the state-owned shareholding among the top ten shareholders to measure state ownership (Bruton et al., 2015; Gupta, 2005; Zhou et al., 2017).

Moderating Variable: Managerial Political Ties

The moderating variable used to test hypothesis 2 is managerial political ties (PT). Political ties exist in various ways, depending on the level of the government with which they are connected (Chen et al., 2017; Dai et al., 2018; Liu et al., 2017; Qian & Chen, 2021), the rank of political position in the state authority (Chen et al., 2017; Sun et al., 2015; Yu & Zheng, 2019), the type of ties that are held (Dang et al., 2022; Marquis & Qian, 2014) and the company position and decision-making power of the connected person (Liu et al., 2017; Qian & Chen, 2021; Sun et al., 2015). Therefore, this study develops a firm-level index to capture the strength of political ties.

To calculate a firm-level political ties index, first, a personal score is calculated for each member of the firm, reflected in model (3), utilising two main dimensions of political ties (Sun et al., 2015; Yu & Zheng, 2019).

$$\text{Personal\_score} = 0.5 * \text{government\_score} + 0.5 * \text{company\_score} \quad (3)$$

Government_score measures the level of the government with which directors and managers are connected, as well as the rank of political position in the state authority. There is a pyramid-like government structure in China (Bo, 2020; Jia et al., 2021). In this hierarchy, the central government is at the highest level of authority and power, with various local governments at lower levels. With respect to the NPC or CPPCC systems, representatives do not have political ranks, and their political ties rely on government level. With respect to the administrative government system, there is a hierarchy of official ranks, ranging from the premier of the State Council to ministers and administrative clerks. Higher political ranks play a more significant role in government management of business affairs (P. Sun et al., 2015). Therefore, when calculating personal government_scores, if the political ties channel is the administrative government system, both political rank and government level are considered. However, if the political ties channel is the NPC or CPPCC system, only government level is considered (political rank is not considered).

As shown in Table 2, a personal government_score is assigned to each CEO, chair, directors and other senior managers of each sample firm, depending on political rank and government level. Following Sun et al. (2015), Chen et al. (2017) and Yu and Zheng (2019), if a board member or senior manager works or worked in the administrative government as an official, a political rank score is assigned according to his or her rank of political position (Organization Department of the CPC Central Committee, 2020)—from 1 as deputy section (*fuke* in Chinese) rank officials to 10 as a country rank (*guo* in Chinese). A government level score is assigned according to his or her connection-level of government—3 for a connection at the central level, 2 for a connection at the provincial level and 1 for a connection at the local level. A government_score is the sum of the political rank score and the government level score. If a board member or senior manager works or worked in the NPC or CPPCC as a representative, a government_score of 6, 4 or 2 is assigned according to his or her level of connection to government. If a board member or senior manager never worked as a government official or a council representative, a score of 0 is assigned.

[TABLE 2 ABOUT HERE]

Company_score measures the company position level of the connected person. Traditional Chinese culture emphasises authority and high power distance, and Chinese firms are characterised by a centralised decision-making structure, meaning that personnel with higher ranking have prominence in decision-making (J. Zhu et al., 2016). Because decisions are determined by managerial characteristics (Chang et al., 2020; Wang et al., 2015) and according to corporate positions, personnel may have different levels of power in decision-making. Political ties will be stronger if the connected person holds a more important position with greater decision-making power in the company (Qian & Chen, 2021; Sun et al., 2015). The CEO and board chair have the greatest power in decision-making (Jiang & Kim, 2015). Executive directors and senior managers have less power than the CEO and chair, but they are

also important in decision-making (Balogun et al., 2015; Denis et al., 1996; Kanter et al., 1992; Knights & Willmott, 1992; McDermott et al., 2013). The power of independent directors and the supervisory board may be limited, and they may only play a symbolic role (Jiang & Kim, 2015; Sun et al., 2015).

Therefore, company roles with political ties are divided into three categories. Company_score is assigned as 3 if the politically connected person is a CEO or a chair, 2 if the person is an executive director or a senior manager and 1 if the person is an independent director or a supervisory board member. If a board member or senior manager never worked as a government official or council representative, a score of 0 is assigned. By considering the company position, connections are expected to generate more effects when held by people of higher rank.

After calculating the personal political ties scores of the CEOs, chairs, board directors and senior managers, a firm-level political ties index is generated by aggregating the personal scores across all board members and senior managers. The firm-level political ties index considers the scores for all the channels through which a firm's CEO, board chair, directors and other senior officers are politically connected with politicians or bureaucrats at the central, provincial, local level or all three levels of China's political regime. Considering the size of board, the sum of all personal political ties scores is divided by the board size. Model (4) shows the calculation process for a firm-level political ties index.

$$PT = \sum Personal\_score \ / \text{numbers of executive directors, non-executive directors, supervisory board and senior managers} \quad (4)$$

Control variables

Control variables that are potentially related to firms' ESG performance are also controlled for (Boubakri et al., 2016; Boulouta, 2013; Dai et al., 2018; Del Bosco & Misani, 2016; Lin et al., 2015; Qian & Chen, 2021). These include firm size, firm age, ROA, leverage,

board size, the dual position of chair and CEO, board independence and cross-listing. Industry, year and region fixed effects are included (Chang et al., 2020; Chen et al., 2018; Claessens et al., 2008; Liu et al., 2018). All continuous variables are winsorized at 1%. Definitions of variables are provided in Appendix 1.

4. Results

4.1. Descriptive statistics

Table 3 presents the distribution of sample firms across industries and years. Panel A provides the distribution of firms by year. The number of Chinese listed firms ranges from 1,223 in 2009 to 4,379 in 2022, reflecting the growth in the number of listed firms in China during the sample period. Panel B provides the distribution of firms by industry sector. Manufacturing is the largest industry sector, accounting for about 65% of listed firms. The sample distribution aligns with that observed by Chen et al. (2018).

[TABLE 3 ABOUT HERE]

The correlations of variables are assessed to ensure that the dependent and independent variables have the predicted signs in their associations, and multicollinearity is not evident. Pearson (lower diagonal) and Spearman (upper diagonal) correlation coefficients (unreported) among variables, indicate that the independent variable and the dependent variable have a significant relationship, and all coefficient values among variables are less than 0.5, indicating multicollinearity between the explanatory variables is not a concern (Hair et al., 2010; Sekaran, 2000).

Table 4 presents the variable descriptive statistics. The mean ESG performance (ESG) is 4.122, reflecting that the average ESG performance in Chinese listed firms is at a relatively low level. The range of ESG is from 1 to 8, which is consistent with Lau et al. (2016), who find that because ESG practices have only been adopted in China in recent years and are still in the early stages, there are differences in ESG perceptions and practices among Chinese firms.

Statistics for the dependent variable are similar to those found by He et al. (2022). The mean SO is 0.178 and the range of SO is from 0 to 0.794, indicating that the state maintains some proportion of shares to keep its status in Chinese listed firms. The standard deviation of SO is 0.235, indicating that the level of state ownership and government control vary widely. The results are aligned with Gupta (2005), Inoue et al. (2013), Bruton et al. (2015) and Musacchio et al. (2015), who note that ownership is more diversified and that it is important to use a continuous proxy to capture state ownership more precisely. The mean managerial PT is 1.203 and the range of PT is from 0 to 2.667, indicating that managerial political ties are prevalent and diverse in Chinese listed firms. The results are aligned with Marquis and Qian (2014) and Zhang et al. (2016), who note that managers can be tied with the government in the various ways. Statistics for control variables are consistent with those observed by Cheng et al. (2021).

[TABLE 4 ABOUT HERE]

4.2. Regression results of hypothesis 1

To test hypothesis 1, we follow the three-step U-shaped relationship identification method proposed by Lind and Mehlum (2010) and Haans et al. (2016), which includes: significant coefficient for the quadratic term, the slope of the dependent variable with respect to the independent variable being sufficiently steep at the minimum and maximum values of the independent variable and the 95% confidence interval of the extremum point being within the range of the independent variable. Table 5 shows the regression results of hypothesis 1, which posit an inverted U-shaped relationship between state ownership and ESG performance. The coefficient of SO^2 is −1.372, which is significant at the 1% level, and the coefficient of SO is 1.205, which is significant at the 1% level. Because the coefficient of the quadratic term of state ownership (SO^2) is negative and significant and the coefficient of the linear term (SO) is positive, the results are consistent with the characteristics of an inverted U-shaped relationship (Haans et al., 2016; Lind & Mehlum, 2010). The results indicate that there is an inverted U-

shaped relationship between state ownership and ESG performance—that is, ESG performance increases with the increase of state ownership but decreases up to a certain threshold.

[TABLE 5 ABOUT HERE]

To more accurately identify whether an inverted U-shaped relationship exists between state ownership and ESG performance, we use the U-test method to further test the inverted U-shaped relationship (Lind & Mehlum, 2010). Following Haans et al. (2016), we utilise the Fieller method (Fieller, 1954) to construct the confidence interval of the turning point to account for finite sample bias and correct for biases caused by departure from normality. As shown in Table 6, the turning point of SO is 0.439, the 99% confidence interval for [0.391, 0.524], which falls within the range of 0 to 0.795. The slopes of the left and right endpoints are in [1.205, −0.975], respectively. Both endpoint slopes were nonzero and had opposite signs. The significance and confidence intervals passed the tests. The U-shaped test reveals that the 95% confidence interval of the extremum point is within the range of the independent variable, and the slope of the dependent variable with respect to the independent variable is positive on the left and negative on the right. This satisfies the criteria for an inverted U-shaped relationship (Lind & Mehlum, 2010) and indicates an inverted U-shaped relationship between state ownership and ESG performance.

[TABLE 6 ABOUT HERE]

Overall, the results are in line with the expectations and support hypothesis 1, showing that there is an inverted U-shaped relationship between state ownership and ESG performance. That is, when the proportion of state ownership is low, state ownership has a positive association with ESG performance; when the proportion of state ownership reaches 43.9%, state ownership has a negative association with ESG performance at this time. The results align with the prediction that positive influences from government resources and the negative influences of weak governance coexist but separately dominate each other at different levels of

state ownership: positive influences from government resources exceed the disadvantage of weak governance at low state ownership level, and negative influences of weak governance exceed the advantage from government resources at high state ownership level.

4.3. Regression results of hypothesis 2

Table 7 shows the regression results of hypothesis 2, which posits that managerial political ties are likely to moderate the association between state ownership and ESG performance: when the level of state ownership is low, managerial political ties substitute for state ownership; when the level of state ownership is high, managerial political ties complement state ownership. As shown in Table 8, the coefficient of SO^2 * PT is 0.448, which is significant at the 10% level, indicating a flattening occurs in the inverted U-shaped curve and that managerial political ties moderate the association between state ownership and ESG performance. Figure 3 shows the fitting plot of the inverted U-shaped association between state ownership and ESG performance under different managerial political ties. The results can be interpreted as the moderating variable weakens the latent curvilinear mechanism, meaning that the curvature of the inverted U-shaped relationship is weakened (Haans et al., 2016). When state ownership is low, managerial political ties weaken the positive influences of state ownership and the rate of recourses from marginal benefits slows down. This is because managerial political ties also bring similar benefits from the government to firms and substitute for state ownership. When state ownership is high, managerial political ties weaken the negative influences of state ownership and marginal costs' rate of agency problems slows down. This is because managerial political ties align managers' interests with the state's interests and complement state ownership.

[TABLE 7 ABOUT HERE]

[FIGURE 3 ABOUT HERE]

Overall, the results are in line with the expectations and support hypothesis 2, showing that, in terms of driving ESG performance, when the level of state ownership is low, managerial political ties substitute for state ownership; when the level of state ownership is a high, managerial political ties complement state ownership. The results indicate that the joint effects of state ownership and managerial political ties depend on the nature of state ownership.

4.4. Robustness tests

U-shape subsample test

Following Haans et al. (2016), the data are split according to the empirically determined turning point and to check whether the two linear regressions give slopes that are consistent with the predicted shape of the curve. The results are shown in Table 8. Column (1) shows the regression results of the subsample below the turning point and column (2) shows the regression results of the subsample above the turning point 0.439. In the regression on the subsample with state ownership below the turning point, the coefficient of SO is 0.743, which is significant at the 1% level and indicates a positive relationship between state ownership and ESG performance. In the regression on the subsample above the turning point, the coefficient of SO is −0.446, which is significant at the 5% level and indicates a negative relationship. These results provide support and corroborating evidence for an inverted U-shaped association between state ownership and ESG performance.

[TABLE 8 ABOUT HERE]

Alternative proxies

Following previous research, the Hexun ESG score (ESG_HX) is used as an alternative measure of firms' ESG performance (Gong et al., 2021; Sha et al., 2022; B. Xiong et al., 2016). Column (1) of Table 9 shows the regression results using alternative proxies for ESG performance. The coefficient of SO^2 is −3.192, which is significant at the 10% level, and the coefficient of SO is 2.758, which is significant at the 5% level. The results remain stable.

Lagged variables

To address the reverse causality issue that ESG performance may affect state ownership, this study regresses model 1 again using the independent variable and control variables lagged over a one-year period. Column (2) of Table 9 shows the regression results using lagged variables. The coefficient of L_SO^2 is −1.415, which is significant at the 1% level, and the coefficient of L_SO is 1.311, which is significant at the 1% level. The results remain stable.

Firm-level fixed effects

To further control for unobserved firm factors, this study further refines the fixed effects to the firm level. Column (3) of Table 9 shows the regression results using firm-level fixed effects. The coefficient of SO^2 is –0.612, which is significant at the 1% level, and the coefficient of SO is 0.286, which is significant at the 5% level. The results remain stable.

Entropy balancing matching

Endogeneity problems could arise because the results are driven by some covariates—that is, not only state ownership could explain the results. Following previous research (Hainmueller, 2012; Hainmueller & Xu, 2013; McMullin & Schonberger, 2020), entropy balancing matching is used to address this endogeneity issue. To achieve covariate balance, the sample is first divided into two groups (treatment group and control group) according to the median of state ownership. Next, each firm-year observation is matched according to all control variables to equalise the distribution of determinants across treatment and control samples.

Table 10 shows the distribution of covariates before and after entropy balancing matching. Following McMullin and Schonberger (2022), the table also presents summary statistics for standardised differences in means to assess differences between the two groups. All standardised differences are within the +/−0.1 bound suggested by Rubin (2001), indicating covariates are well-balanced between the treatment group and the control group. Compared

with the original sample, the entropy balancing matching sample exhibits a more comparable composition across treatment firms and control firms.

Column (4) of Table 9 presents the regression results after entropy balancing matching has been applied. The coefficient of SO2 is −0.677, which is significant at the 1% level, and the coefficient of SO is 0.620, which is significant at the 1% level. The results remain stable.

[TABLE 9 ABOUT HERE]

[TABLE 10 ABOUT HERE]

PT index sensitivity

To mitigate the concern that the results are only specific to the choice of indexation scheme, and to further test if the results are sensitive to the score assignment mechanism, an alternative PT index is generated following a method employed by W. Qian and Chen (2021). The alternative PT index calculates CEO, chair, directors and other senior managers' connections with all three levels of administrative government systems and the NPC and CPPCC system, but treats the different government position and different company position as the same. Table 11 shows the regression results using alternative proxies for managerial political ties. The coefficient of SO^2 * PT is 0.061, which is significant at the 10% level. The results remain consistent.

[TABLE 11 ABOUT HERE]

5. Conclusion

This study examines how state ownership and managerial political ties influences corporate ESG performance among Chinese listed firms. Specifically, we investigate two questions: (1) What is the association between state ownership and corporate ESG performance in Chinese listed firms? (2) How do state ownership and managerial political ties complement or substitute for each other in driving ESG performance?

We find an inverted U-shape association between state ownership and ESG performance in Chinese listed firms. At lower levels, increases in state ownership are associated with improvements in ESG performance, consistent with the expected enhanced access to resources and institutional support. However, beyond the tipping point, further increases in state ownership lead to deteriorating ESG outcomes, likely due to agency problems and governance challenges. Moreover, our analysis demonstrates that managerial political ties moderate this relationship. Specifically, when state ownership is low, managerial political ties substitute for state ownership by providing alternative channels of government support; in contrast, at high levels of state ownership, these political ties complement state ownership by mitigating agency conflicts and aligning managerial incentives with governmental objectives. Our results remain robust across a battery of robustness tests.

Our study contributes to the ongoing academic debate on the factors affecting corporate ESG performance. Our study highlights the complexity of the impact state ownership has on ESG performance in the Chinese context, and findings of an inverted U-shape challenge the status quo—specifically the presumptive linear relationship in prior literature. By using a continuous proxy to capture state ownership and considering the dual impacts of resource dependency and agency problems, this study sheds light on the mixed empirical evidence in the literature and emphasises that state ownership not only has positive influences on ESG performance because of government incentives and resources, but also negative influences on ESG performance because of agency conflicts between managers and governments. That is, positive and negative influences coexist but separately dominate each other at different levels of state ownership

Our study also contributes to our understanding of the interactions between state ownership and managerial political ties. It sheds light on the mixed empirical evidence in the literature by using a comprehensive managerial political ties measurement to better capture the

complexity of managerial political ties and better understand how state ownership and managerial political ties complement or substitute for each other in driving ESG performance. Our results provide insights into the nuanced role of managerial political ties by revealing how joint effects of managerial political ties and state ownership on firm performance may be affected by the nature of state ownership. These findings enrich the ongoing debate on corporate ESG performance by highlighting the delicate balance between state support and governance challenges. These insights have practical implications for a wide range of stakeholders—including investors, regulators, and policymakers—who are keen to foster improved corporate sustainability and accountability. Future research may build on these findings by exploring additional contextual factors and alternative mechanisms through which political and institutional forces shape ESG outcomes.

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Table 1
Sample Selection Procedures

Procedures	Number of observations
Initial sample	42,187
Minus observations in abnormal conditions	1,582
Minus observations operating in the finance sector	1,017
Minus observations with missing values of variables	3,789
Final sample	35,799

Table 2

Personal Government_score

Panel A: Political rank score in administrative government system	
Political rank	Political rank score
Country (GUO)	10
Deputy country (FUGUO)	9
Ministry (BU)	8
Deputy ministry (FUBU)	7
Bureau (TING/JU/SI)	6
Deputy bureau (FUTING/JU/SI)	5
Division (CHU)	4
Deputy division (FUCHU)	3
Section (KE)	2
Deputy section (FUKE) and below	1
Panel B: Government level score in administrative government system	
Government level	Government level score
Central-level official	3
Provincial level official	2
Local level official	1
Panel C: Government_score in administrative government system	
Government_score in government system = Political rank score + Government level score	
Panel D: Government_score in NPC system	
Government level	Government_score
Central-level representative	6
Provincial level representative	4
Local level representative	2
Panel E: Government_score in CPPCC system	
Government level	Government_score
Central-level representative	6
Provincial level representative	4
Local level representative	2
Panel F: Personal government_score	
Government_score = government_score in government system + government_score in NPC system + government_score in CPPCC system	

Note: GUO, BU, TING, JU, SI, CHU and KE are simple phonetic translations from Chinese pinyin.

Table 3

Sample Distribution

Panel A: Distribution of firms by year		
Year	Number of listed firms	Percentage of listed firms
2009	1223	3.42%
2010	1360	3.80%
2011	1704	4.76%
2012	1969	5.50%
2013	2137	5.97%
2014	2160	6.03%
2015	2273	6.35%
2016	2457	6.86%
2017	2737	7.65%
2018	3100	8.66%
2019	3156	8.82%
2020	3305	9.23%
2021	3839	10.72%
2022	4379	12.23%
Firm-year observations	35799	100%
Panel B: Distribution of firms by industry		
Industry	Number of listed firms	Percentage of listed firms
Accommodation and catering	101	0.28%
Agriculture, forestry, animal husbandry and fishery	467	1.30%
Construction	916	2.56%
Culture, sports and entertainment	463	1.29%
Education	50	0.14%
Extractive	836	2.34%
Information Technology	2395	6.69%
Manufacturing	23469	65.56%
Other	356	0.99%
Production and supply of electricity, gas and water	1163	3.25%
Real estate	1340	3.74%
Residential services, repairs and other services	30	0.08%
Rental and business services	446	1.25%
Scientific research and technical services	409	1.14%
Transportation and warehousing	1100	3.07%
Water, environment and public facilities management	480	1.34%
Wholesale and retail trade	1778	4.97%
Total	35799	100%

Note: This table presents the sample distribution. Panel A provides the distribution of firms by year. Panel B provides the distribution of firms by industry sector.

Table 4

Descriptive Statistics of Variables

Variables	N	Mean	SD	Min	Q25	Q50	Q75	Max
ESG	35799	4.122	0.942	1.000	3.750	4.000	4.750	8.000
SO	35799	0.178	0.235	0.000	0.000	0.023	0.366	0.794
PT	35799	1.203	0.377	0.000	0.917	1.100	1.375	2.667
SIZE	35799	22.220	1.293	19.313	21.294	22.027	22.947	26.511
AGE	35799	2.137	0.818	0.000	1.609	2.303	2.833	3.401
ROA	35799	0.041	0.065	−0.375	0.014	0.039	0.072	0.250
LEV	35799	0.425	0.203	0.035	0.263	0.419	0.578	0.909
BS	35799	2.124	0.197	1.609	1.946	2.197	2.197	2.708
DUAL	35799	0.278	0.448	0.000	0.000	0.000	1.000	1.000
INDEP	35799	0.376	0.054	0.333	0.333	0.364	0.429	0.600
CL	35799	0.028	0.164	0.000	0.000	0.000	0.000	1.000

Note: This table presents the descriptive statistics of variables. *ESG* denotes the Sino-Securities ESG rating. *SO* denotes the sum of the shareholding proportions of state-owned shareholders among the top ten shareholders. *PT* denotes managerial political ties, which include all of the connection channels through which a firm's CEO, board chair, directors and other senior managers are politically connected with politicians or bureaucrats at the central, provincial or local level or all three levels of China's political regime. *SIZE* denotes the natural logarithm of total assets. *AGE* denotes the natural logarithm of the difference between the year of firm-year observation and the year that the firm was first listed. *ROA* denotes the ratio of net income before extraordinary items to total assets. *LEV* denotes the ratio of total debt to total assets. *BS* denotes the natural logarithm of the total number of board members. *DUAL* denotes a dummy that equals 1 if the CEO and chair is the same person, 0 otherwise. *INDEP* denotes the proportion of independent board members to the total number of board members. *CL* denotes a dummy that equals 1 if the firm is listed in both Chinese and foreign market, 0 otherwise.

Table 5

Regression Results of Hypothesis 1

Variables	ESG	
SO^2	–1.372***	(–11.466)
SO	1.205***	(15.685)
SIZE	0.260***	(51.405)
AGE	–0.222***	(–31.794)
ROA	1.570***	(20.253)
LEV	–0.850***	(–28.655)
BS	0.099***	(3.341)
DUAL	–0.026**	(–2.493)
INDEP	1.524***	(15.085)
CL	0.255***	(8.629)
_cons	–1.762***	(–14.312)
Year FE	Yes	
Industry FE	Yes	
Region FE	Yes	
Observations	35799	
R-squared	0.221	

Notes: This table shows the regression results of hypothesis 1. *ESG* denotes the Sino-Securities ESG rating. *SO* denotes the sum of the shareholding proportions of state-owned shareholders among the top ten shareholders. SO^2 denotes the quadratic term of *SO*. *SIZE* denotes the natural logarithm of total assets. *AGE* denotes the natural logarithm of the difference between the year of firm-year observation and the year that the firm was first listed. *ROA* denotes the ratio of net income before extraordinary items to total assets. *LEV* denotes the ratio of total debt to total assets. *BS* denotes the natural logarithm of the total number of board members. *DUAL* denotes a dummy that equals 1 if the CEO and chair is the same person, 0 otherwise. *INDEP* denotes the proportion of independent board members to the total number of board members. *CL* denotes a dummy that equals 1 if the firm is listed in both Chinese and foreign market, 0 otherwise. t statistics are in parentheses. ***, **, * denote significance at $p < 0.01$, $p < 0.05$ and $p < 0.10$, respectively.

Table 6

U-Test Results

	Lower bound	Upper bound
Interval	0	0.795
Slope	1.205	−0.975
Slope P > |t|	(7.662) ***	(−3.986) ***
Extreme point	0.439	
Fieller interval (99%)	0.391	0.524
Total P > |t|	(3.99) ***	

Note: This table presents the U-test results. t statistics are in parentheses. ***, **, * denote significance at $p < 0.01$, $p < 0.05$ and $p < 0.10$, two-tailed, respectively.

Table 7

Regression Results of Hypothesis 2

Variables	ESG
SO2	–1.917*** (–5.660)
SO	1.732*** (7.935)
SO2*PT	0.448* (1.809)
SO*PT	–0.432*** (–2.667)
PT	0.119*** (6.413)
SIZE	0.256*** (50.159)
AGE	–0.224*** (–31.979)
ROA	1.580*** (20.390)
LEV	–0.844*** (–28.462)
BS	0.088*** (2.989)
DUAL	–0.022** (–2.037)
INDEP	1.511*** (14.950)
CL	0.254*** (8.540)
_cons	–1.789*** (–14.442)
Year FE	Yes
Industry FE	Yes
Region FE	Yes
Observations	35799
R-squared	0.222

Notes: This table shows the regression results of hypothesis 2. *ESG* denotes the Sino-Securities ESG rating. *SO* denotes the sum of the shareholding proportions of state-owned shareholders among the top ten shareholders. SO^2 denotes the quadratic term of *SO*. *PT* denotes managerial political ties, which include all of the connection channels through which a firm's CEO, board chair, directors and other senior managers are politically connected with politicians or bureaucrats at the central, provincial or local level or all three levels of China's political regime. *SIZE* denotes the natural logarithm of total assets. *AGE* denotes the natural logarithm of the difference between the year of firm-year observation and the year that the firm was first listed. *ROA* denotes the ratio of net income before extraordinary items to total assets. *LEV* denotes the ratio of total debt to total assets. *BS* denotes the natural logarithm of the total number of board members. *DUAL* denotes a dummy that equals 1 if the CEO and chair is the same person, 0 otherwise. *INDEP* denotes the proportion of independent board members to the total number of board members. *CL* denotes a dummy that equals 1 if the firm is listed in both Chinese and foreign market, 0 otherwise. t statistics are in parentheses. ***, **, * denote significance at $p < 0.01$, $p < 0.05$ and $p < 0.10$, respectively.

Table 8

U-Shape Subsample Regression Results of Hypothesis 1

Variables	(1) Subsample below the turning point	(2) Subsample above the turning point
	ESG	ESG
SO	0.743*** (8.266)	–0.446** (–1.984)
Control Variables	Yes	Yes
_cons	–1.784*** (–6.267)	–1.676*** (–3.425)
Year FE	Yes	Yes
Industry FE	Yes	Yes
Region FE	Yes	Yes
Observations	28699	7100
R-squared	0.210	0.310

Notes: This table shows the subsample regression results of hypothesis 1. *ESG* denotes the Sino-Securities ESG rating. *SO* denotes the sum of the shareholding proportions of state-owned shareholders among the top ten shareholders. Control variables include *SIZE*, *AGE*, *ROA*, *LEV*, *DUAL*, *INDEP*, *CL*. t statistics are in parentheses. ***, **, * denote significance at $p < 0.01$, $p < 0.05$ and $p < 0.10$, respectively.

Table 9

Regression Results of Hypothesis 1 Using the Alternative ESG Score, Lagged Variables, Firm-Level Fixed Effects, Matched Sample

Variables	ESG_HX	ESG	ESG	ESG
	(1)	(2)	(3)	(4)
SO^2	−3.192* (−1.805)		–0.612*** (–3.309)	–0.677*** (–3.633)
SO	2.758** (2.445)		0.286** (2.122)	0.620*** (5.442)
L_SO^2		–1.415*** (–5.501)		
L_SO		1.311*** (7.864)		
Control Variables	Yes	Yes	Yes	Yes
_cons	−20.595*** (−11.430)	–1.814*** (–6.711)	–0.951*** (–4.187)	–1.107*** (–5.565)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	No	Yes
Region FE	Yes	Yes	No	Yes
Firm FE	No	No	Yes	No
Observations	26310	30801	35799	35799
R-squared	0.260	0.237	0.526	0.191

Notes: This table shows the regression results of hypothesis 1 using the alternative ESG score. *ESG* denotes the Sino-Securities ESG rating. *SO* denotes the sum of the shareholding proportions of state-owned shareholders among the top ten shareholders. SO^2 denotes the quadratic term of SO. L_*SO* denotes the sum of the shareholding proportions of state-owned shareholders among the top ten shareholders lagged over a one-year period. L_SO^2 denotes the quadratic term of L_*SO*. Control variables include *SIZE*, *AGE*, *ROA*, *LEV*, *DUAL*, *INDEP*, *CL*. In column (2), all control variables lagged over a one-year period. t statistics are in parentheses. ***, **, * denote significance at $p < 0.01$, $p < 0.05$ and $p < 0.10$, respectively.

Table 10

Distribution of Determinants Before and After Entropy Balancing Matching

Panel A: Before entropy balancing matching							
	Treatment group			Control group			Balance Stats
	Mean	Variance	Skewness	Mean	Variance	Skewness	Std. Diff.
SIZE	21.8	1.06	0.798	22.64	1.923	0.511	−0.695
AGE	1.786	0.611	−0.081	2.488	0.480	−1.168	−0.951
ROA	0.046	0.005	−1.252	0.037	0.003	−0.711	0.140
LEV	0.373	0.036	0.373	0.478	0.041	−0.046	−0.536
BS	2.071	0.035	−0.634	2.178	0.036	−0.183	−0.567
DUAL	0.396	0.239	0.424	0.160	0.134	1.855	0.547
INDEP	0.381	0.003	0.962	0.372	0.003	1.671	0.168
CL	0.006	0.006	12.69	0.049	0.047	4.155	−0.267
Panel B: After entropy balancing matching							
	Treatment group			Control group			Balance Stats
	Mean	Variance	Skewness	Mean	Variance	Skewness	Std. Diff.
SIZE	21.8	1.06	0.798	21.8	1.295	0.872	0.001
AGE	1.786	0.611	−0.081	1.786	0.831	−0.164	0.001
ROA	0.046	0.005	−1.252	0.046	0.004	−1.186	0.000
LEV	0.373	0.036	0.373	0.373	0.039	0.375	0.001
BS	2.071	0.035	−0.634	2.071	0.042	−0.584	0.001
DUAL	0.396	0.239	0.424	0.396	0.239	0.424	0.000
INDEP	0.381	0.003	0.962	0.381	0.003	1.209	0.001
CL	0.006	0.006	12.69	0.006	0.006	12.66	0.000

Notes: This table shows distribution of covariates before and after entropy balancing matching. *SIZE* denotes the natural logarithm of total assets. *AGE* denotes the natural logarithm of the difference between the year of firm-year observation and the year that the firm was first listed. *ROA* denotes the ratio of net income before extraordinary items to total assets. *LEV* denotes the ratio of total debt to total assets. *BS* denotes the natural logarithm of the total number of board members. *DUAL* denotes a dummy that equals 1 if the CEO and chair is the same person, 0 otherwise. *INDEP* denotes the proportion of independent board members to the total number of board members. *CL* denotes a dummy that equals 1 if the firm is listed in both Chinese and foreign market, 0 otherwise.

Table 11

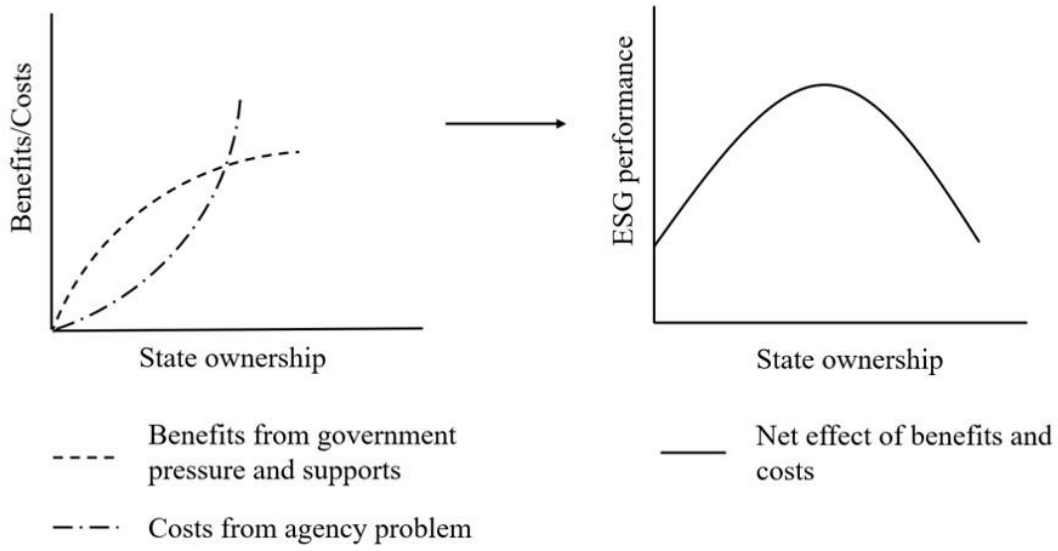
Regression Results of Hypothesis 2 Using the Alternative PT Index

Variables	ESG
SO^2	–1.488*** (–9.657)
SO	1.316*** (13.510)
SO^2*ALPT	0.061* (1.672)
SO*ALPT	–0.058** (–2.357)
ALPT	0.014*** (4.106)
Control Variables	Yes
_cons	–1.709*** (–13.688)
Year FE	Yes
Industry FE	Yes
Region FE	Yes
Observations	35799
R-squared	0.221

Notes: This table shows the regression results of hypothesis 2 using the alternative PT index. *ESG* denotes the Sino-Securities ESG rating. *SO* denotes the sum of the shareholding proportions of state-owned shareholders among the top ten shareholders. SO^2 denotes the quadratic term of *SO*. *ALPT* denotes managerial political ties, which include all of the connection channels through which a firm's CEO, board chair, directors and other senior managers are politically connected with politicians or bureaucrats at the central, provincial or local level or all three levels of China's political regime, but treat the different government position and different company position as the same. Control variables include *SIZE*, *AGE*, *ROA*, *LEV*, *DUAL*, *INDEP*, *CL*. t statistics are in parentheses. ***, **, * denote significance at $p < 0.01$, $p < 0.05$ and $p < 0.10$, respectively.

Figure 1

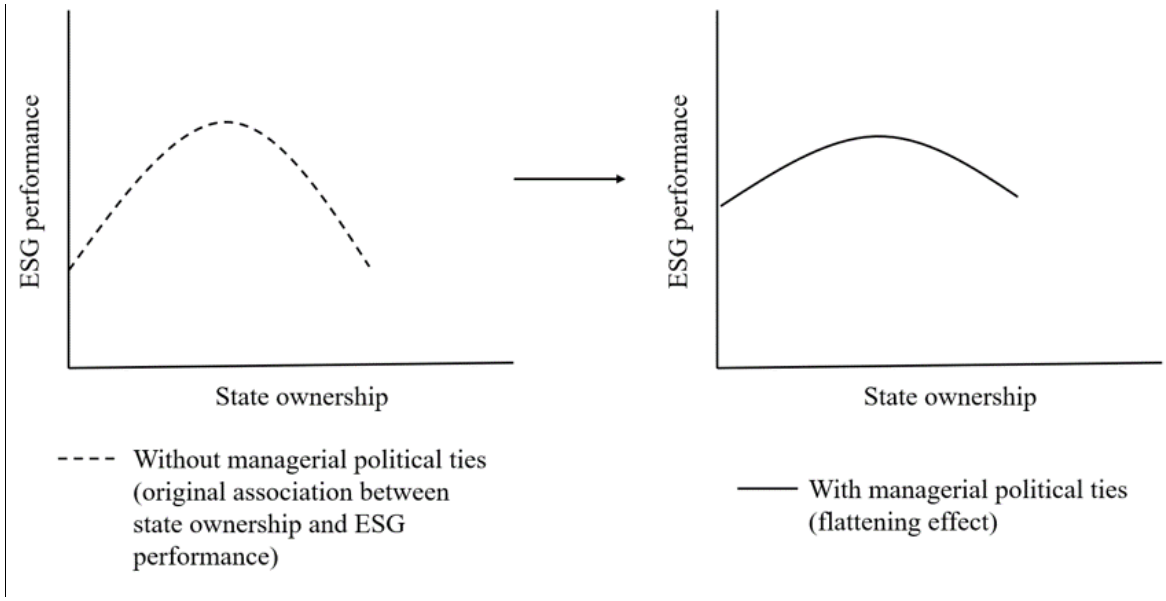
An Illustration of Latent Mechanisms Resulting in an Inverted U-Shaped Association



Note: Figure adapted from Haans et al. (2016).

Figure 2

An Illustration of how Managerial Political Ties Change the Shape of the Inverted U-Shaped Association Between State Ownership and ESG Performance



Note: Figure adapted from Haans et al. (2016).

Figure 3

Fitting Plot of the Inverted U-Shaped Association Between State Ownership and ESG Performance

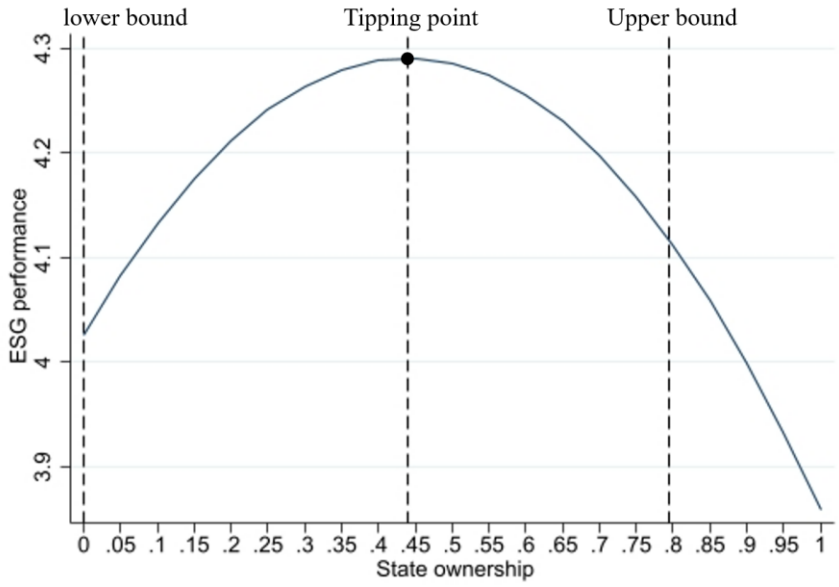
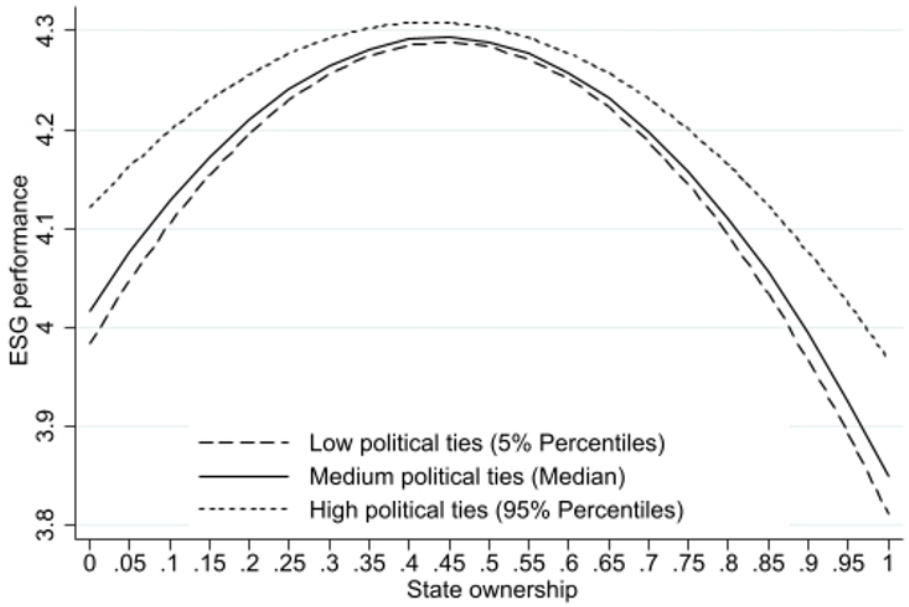


Figure 4

Fitting Plot of the Inverted U-Shaped Association Between State Ownership and ESG Performance Under Different Managerial Political Ties



APPENDIX 1

Description of Variables

Variables	Definitions
Independent variable	
SO	The sum of the shareholding proportions of state-owned shareholders among the top ten shareholders to measure state ownership.
SO^2	SO^2 denotes the quadratic term of SO.
L_SO	L_SO denotes the sum of the shareholding proportions of state-owned shareholders among the top ten shareholders over a lagged one-year period.
L_SO^2	L_SO^2 denotes the quadratic term of L_SO.
Dependent variable	
ESG	Assign the Sino-Securities ESG rating grades from high to low respectively with a value of nine to one, namely 'AAA', 'AA', 'A', 'BBB', 'BB', 'B', 'CCC', 'CC' and 'C' are defined as ordinal variables 9, 8, 7, 6, 5, 4, 3, 2, 1.
ESG-HX	Employees, customers and suppliers, environment and society dimension of the Hexun ESG score.
Moderating variable	
PT	Firm PT index. (The sum of personal scores for all of the connection channels through which a firm's CEO, board chair, directors and other senior managers are politically connected with politicians or bureaucrats at the central, provincial or local level or all three levels of China's political regime) / numbers of executive directors, non-executive directors, supervisory board and senior managers. PT index is calculated according to model (3) and model (4).
ALPT	Alternative firm PT index. (The sum of personal scores for all of the connection channels through which a firm's CEO, board chair, directors and other senior managers are politically connected with politicians or bureaucrats at the central, provincial or local level or all three levels of China's political regime) / numbers of executive directors, non-executive directors, supervisory board and senior managers. PT index is calculated according to Table 5.9.
Control variables	
SIZE	Firm size, the logarithm of total assets.
AGE	Firm age, the difference between the data year and the year that the firm was listed.
ROA	Return on assets, the ratio of net income before extraordinary items to total assets.
LEV	Leverage, the ratio of total debt to total assets.
BS	The natural logarithm of the total number of board members.
DUAL	The dual position of chair and CEO, a dummy that equals 1 if the CEO and chair is the same person, 0 otherwise.
INDEP	The proportion of independent board members to the total number of board members.
CL	A dummy that equals 1 if the firm is cross-listed, and 0 if the firm is a domestic listed firm according to cross-listing effective and termination dates
YEAR	Year.
INDUSTRY	Industry of a firm.
REGION	The province where a firm is located.