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**Unfolding China's State-owned Corporate Empires and Mitigating Agency Hazards:
Effects of Foreign Investments and Innovativeness**

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Abstract

Integrating agency and institutional perspectives, we describe how China's socio-political institutions create state-owned corporate empires with unique agency conflicts. We develop a framework demonstrating how economically unjustified firm expansion, i.e. empire building, mediates the relationship between state ownership and performance. We uncover the instrument in empire building and appropriate corporate governance and strategic management remedies. An empirical study on 29,638 Chinese firms evidences that (1) increased state ownership drives higher management expenses and lower firm profitability though empire building; (2) long-term debt is used to finance empire building; and (3) foreign capital investments and innovativeness can mitigate these agency conflicts.

Keywords: empire building; agency hazards; institutional theory; state-ownership; innovativeness; foreign capital

Unfolding China's State-owned Corporate Empires and Mitigating Agency Hazards: Effects of Foreign Investments and Innovativeness

INTRODUCTION

The 2017 Fortune Global 500 list consisted of 109 Chinese companies, second only to the U.S.'s 132. More striking than this spectacular upswing from only 10 Chinese firms in 2010, is the fact that the vast majority of these firms (79 out of 109) are state-owned enterprises (SOEs). This prevailing trend of maintaining state ownership and steadily growing big in an emerging economy has invited controversial arguments on firms' managerial and economical effectiveness (Guo, Chan, & Huang, 2018). With the government as their largest shareholders, SOEs in China enjoy massive state support to foster their growth and insulate them from competition. Through waves of reforms, some firms with state ownership have grown successfully huge (Li and Putterman, 2008; Qian, 2000), becoming major contributors and stabilizers of China's economy (Qian, 1996; 2000). Their unrestricted resources drive their robust growth, turning them into attractive investment opportunities (Guthrie, 2005). This model of growth and expansion has often become exemplars for managers and policy-makers in other emerging economies. Even though growing big may be justifiable in China's SOE context (Keith et al., 2014), this concern for empire building has received limited research attention (e.g. Tan and Tang, 2016). Literature defines empire building as the economically unjustifiable corporate growth of a firm (Iskandar-Datta and Jia, 2014; Jensen, 1986; Schumpeter, 1934; Stulz, 1990). It is a suboptimal managerial strategy when viewed under a shareholders' perspective as it underscores the violation of fiduciary obligations of top executives (Iskandar-Datta and Jia, 2014; Zhang, 2014), and deviates from operational and economic efficiency (Chen and Young, 2010; Picone and Dagnino, 2016; Wojahn, 2012).

Findings on how state-ownership and corporate governance affect firm performance in typical emerging economies like China are mixed (Li and Putterman, 2008). A majority of studies have found that state-ownership negatively impacts firm performance in terms of return on sales (Wei and Lau, 2008), return on assets (Song and Yao, 2004), Tobin's Q (Tian and Estrin, 2008), stock volatility and return on equity (Zou and Adams, 2008), and attribute this underperformance to agency costs (Wei and Lau, 2008; Park, Li, and Tse, 2006), ineffective strategic management (Young et al., 2008), and fulfillments of administrative tasks (Li and Xia, 2008). However, some studies have shown insignificant relationships between the two (e.g. Yusuf, Nabeshima, and Perkins, 2006), while a few studies have even provided counter-evidences that state ownership can positively contribute to firm performance (e.g. Dong, Putterman, and Unel, 2006; Sun, Tong and Tong, 2002) due to ownership concentration

(Tian and Estrin, 2008), effective knowledge spillover (Liu, Wang, and Wei, 2009), and perceived improvements in global competitiveness (Ralston et al., 2006). Despite the empirical evidences, these studies suffer from inherent limitations due to simplified and insufficient theorizations in explaining a complicated causal relationship. Most studies predominantly base their arguments on ownership and governance structure (e.g. Li and Putterman, 2008; Li and Xia, 2008; Tian and Estrin, 2008; Zou and Adam, 2008) while others rely on resource allocation (Park et al., 2006), productivity spillover (Ralston et al., 2006), market orientation (Wei and Lau, 2008), or signaling (Sun, Tong and Tong, 2002). Few studies have conceptualized a comprehensive mechanism to explain the performance of SOEs in conjunction with the unique institutional factors. To achieve a more profound understanding, studies must move beyond merely analyzing the straightforward and direct nexus between an input (state-ownership) and an output variable (performance), and reveal the “black box” that lies in between. This calls for the exploration of a potential intermediary mechanism to channel the effect, as well as moderators that cause the variability in the relationship.

To provide insights into the murky relationship between state ownership and firm performance outcomes, this study draws from both agency theory (Bruton et al., 2015) and institutional theory (Meyer, et. al., 2009; Peng et al., 2017), and focuses on the intermediating role of empire building (Iskandar-Datta and Jia, 2014) for firms with state ownership. We aim to demonstrate the evidence linking state ownership of a firm to empire building, which in turn leads to negative performance consequences. In line with contemporary developments in agency theory (Arthurs et al., 2008; Dharwadkar et al., 2000; Young et al., 2008), we develop our postulates by incorporating both vertical (principal-agency, i.e. PA) and horizontal (principal-principal, i.e. PP) agency conflicts. We conceptualize that both principal-agent (i.e. managers pursue self-interests against owner’s interest) and principal-principal (i.e. state owners deprive other owners’ rights to appropriate investment returns) problems can co-exist in influencing enterprises in China, a large exemplary emerging economy context. Adopting an institutional perspective, we rationalize why conventional agency solutions (Dalton et al., 2007) such as the independence of boards of directors, equity alignment, and markets for corporate control (Fama, 1980; Fama and Jensen, 1983a, b; Jensen and Meckling, 1976) are ineffective in curbing empire building given the different social, regulatory, and political institutions in emerging economies. This institutional analysis further enables us to identify long-term debt as an instrument for firms to achieve empire building, as opposed to the conventional wisdom that it invites external monitoring and curtails opportunistic behavior (Rajan and Winton, 1995). Finally, considering the unique institutional environment in China such as management board controls and market mechanisms (Peng et al., 2017), we posit that foreign

capital investment and a firm's pursuit for innovativeness serve as mitigating constraints on empire building. The functional mechanisms of the two moderators differ in that foreign capital exerts its effect on firm's acquisition of long-term debt while innovativeness affects the utilization of the financial resources of long-term debt for empire building. Thus, our study addresses important research questions that arise from the phenomena, and which require solid theoretical grounding and analysis (Ahlstrom, 2015).

Using a large panel database of China's manufacturing firms from 2001 to 2007, our study provides insights into this contemporary issue within a rich institutional and dynamic setting. We find that (1) a firm's state-ownership drives its empire building (reflected through both assets and employee numbers); (2) empire building mediates the negative impact of state ownership on two economic consequences (management expenses and ROA), which is evidence for this sub-optimal strategic behavior and exploitation of personal financial interests by managers; (3) long-term debt is used to instrument for empire building; and finally (4) foreign capital investment and firm innovativeness curtail empire building in firms with state ownership, as governance and managerial solutions, respectively.

Based on the differential and extended foci of this current study, this study makes a number of contributions to existing literature. First, this study combines agency theory with institutional theory in conceptualizing the performance impact of state ownership on firm performance. We extend existing knowledge by going beyond merely modeling the direct causal link between state-ownership and performance. Our comprehensive conceptual framework reveals the "black box" in the middle and the mediating role of a key hidden node - empire building - in the relationship. This fills the theoretical void of the missing underlying mechanism and advances our understanding of ownership structures in the underdeveloped institutional environments of emerging economies. Second, we extend the literature on empire building in emerging economies by identifying the instrument (i.e. long term debt) that firms use in their excessive growth, championing the view that weak institutions encourage the misuse of state financial resources for inefficient operations. Thus, this study underscores the issue of the incongruent pace of ownership structure reform and institutional development in developing economies. Third, the study offers a new perspective on the applicability of potential solutions to fix empire building, by verifying how empire building can be mitigated by foreign capital, a firm governance approach, and firm innovativeness, a business strategy approach (Tomizawa, Zhao, Bassellier, & Ahlstrom, 2019). In so doing, we discuss how established governance mechanisms for agency conflicts (i.e. independent directorship, equity alignment, and open market for corporate

control; Jensen and Meckling, 1976) are nullified due to the unique institutional characteristics of an emerging market. The boundary conditions enrich the theoretical underpinnings of how the drawbacks in ownership structure due to poor institutions can be alleviated managerially. Lastly, our study investigates the relationship between state ownership and firm performance with a unique large-scaled panel dataset from China which provides sufficient and robust empirical evidence to validate the proposed theoretical framework centered on empire building. As such, our work provides insights for researchers, managers and policy-makers into the phenomenon of empire building and how to tackle the issue in emerging economies.

THEORETICAL BACKGROUND

State government ownership, agency hazards and institutional environments

In this study, we adopt an integrative view based on agency theory and institutional theory to understand, explain, and theorize the relationship among state ownership, empire building and firm performance. Agency relationships refer to principals (owners) who delegates tasks to agents to perform on their behalf (Eisenhardt, 1989). It is "a theory of ownership" (Jensen and Meckling, 1976), that assumes agents are competent (Hendry, 2002), but self-interested with goals that may diverge from those of the principals (Eisenhardt, 1989). A vertical agency conflict refers to situations in which managers undertake risky decisions and opportunistic behaviors at the expense of the principal's interests, i.e. a principal-agency (PA) conflict (Gomez-Mejia and Balkin, 1992). All principals are assumed to hold a homogenous goal, aiming to maximize returns on their investments. Yet, this assumption needs to be reassessed upon contextual differences. Recent developments extend the agency problem to a horizontal level and also to developing economies (Dharwadkar et al., 2000; Young et al., 2008). Horizontal agency problems occur when some owners assume the control of the firm and deprive other owners the right to appropriate returns on their investments, i.e. a principal-principal (PP) conflict (Young et al., 2008). Two horizontal agency problems are well recognized: the conflicts between debt- and equity-holders (Williamson, 1988; Hart and Moore, 1995), and the expropriation of minority shareholders by the majority shareholder (Cho, 1999).

An equally, if not more relevant, view to management issues in emerging economy centers on institutional theory (e.g. Li, et al, 2018; Meyer et al, 2009; Meyer and Peng 2005; Peng 2002, 2003; Peng et al., 2017). Institutions are the shared, collective understandings or rules of conduct reflected in laws, governance mechanisms, and capital markets (DiMaggio and Powell 1991; Scott, 2001). These include explicit rules and implicit norms, regulatory regimes and enforcement, property rights, legal framework, information systems, and shared social

cognitions of a particular context (Meyer et al., 2009). Institutional theory emphasizes the power of the environment, and has developed into a popular perspective to explain organizational behaviors that defy economic rationality (Suddaby, 2010). Institutions help organizations to define patterns and relationship of market exchange (Doherty, Chen, and Alexander, 2014), play an essential role in a market economy to support the effective functioning of the social, market, and political mechanisms, by motivating and constraining certain strategic actions (Meyer, Mudambi, and Narula 2011; Park et al., 2006; Peng, Wang, and Jiang, 2008). The specific social, regulatory, and political institutions (Meyer, et al., 2009; Peng, et al., 2017) that characterize emerging economies give rise to a unique form of the agency problem that differs from that of developed economies.

Extant research shows that agency problems can be mitigated by three mechanisms proven to be effective in developed economies (Dalton et al., 2007). However, the institutional characteristics of an emerging economy like China are likely to neutralize the effects of these mechanisms (Meyer, et al., 2009; Peng, et al., 2017). First of all, independent directors are expected to monitor managers and assure that their interests do not diverge substantially from those of the owners (Fama, 1980; Fama and Jensen, 1983a; 1983b). In an emerging economy like China, this assumption is invalid when state owners have mostly gained control over the appointment of key management positions (Clarke, 2003; Holz, 2007). These appointees are de facto state representatives and many of them are former political party officials. In these director boards, seats for non-state shareholders and independent directors are often limited (Xu and Wang, 1999). This appointment system has traditionally weakened the very essence of monitoring by independent directors (Tian and Lau, 2001). Even though continuous reforms in China have begun to call for greater independent directorship and supervisory monitoring on management boards, recent studies have still found these mechanisms to be ineffective (Hu et al., 2010). In studying management buyouts of listed Chinese firms, Li, Wright, and Scholes (2010) found that outside directors often lack skills, relevant knowledge, or the voice to enact changes to firm leadership and direction. In addition, supervisory boards which are supposed to provide additional monitoring, have been found to be largely passive and ineffective against unethical management behaviors (Jia et al., 2009).

Secondly, it is assumed that if managers possess equity in the firm, they will uphold the interests of other equity holders (Fama and Jensen, 1983b; Jensen and Meckling, 1976). In China, using equity to align the interests of managers with the shareholders proves largely ineffective. Chen, Guan and Ke (2013) show that most of these stock options in state-owned firms are fake (unreasonably high execution price) and are seldom executed. In addition, the

evaluation of and rewards to (e.g., compensation, promotion) these managers are determined by the state government in opaque ways, rather than through the board of directors or market forces (Zou and Adams, 2008). This further alienates managers' interest from those of the non-state shareholders.

Thirdly, acquisitions and takeovers in open corporate markets may help discipline managers who abuse their power and cause a firm to underperform (Fama and Jensen, 1983a; Jensen and Ruback, 1983). In China, firms with state ownership are unlikely to be takeover targets. During China's SOE reforms and privatizations, China adopted a policy of 'grasping the large and letting go of the small' (Li and Putterman, 2008), leading to the privatization of many problematic SOEs. After that period, state equity shares could be traded through private negotiations but not in the open market (Xu and Wang, 1999). In strategically important industries such as petroleum, metallurgy, telecommunication, etc., China's state government exercised strong and persistent controls on the ownership of the domestic enterprises (Clarke, 2003; Li and Putterman, 2008). Thus, there exists no open market for corporate control to discipline nonperforming managers in these enterprises. As such, this corporate market governance mechanism is similarly ineffective in emerging economies such as in China.

In our study context in China, non-state minority shareholders refer to minority shareholders of widely dispersed individual investors, urban collectives and rural "township and village enterprises" that are not ultimately controlled by the State Council, and foreign financial institutions (Broadman, 2000; Chen and Young, 2010). Figure 1 depicts the both PP and PA agency hazards for firms with state ownership within the weak institutions in China.

--- Insert Figure 1 about here ---

A theoretical framework of empire building

In emerging economies with such weak institutions, agency problems are often associated with ownership type (state, collective, private, or foreign ownership) and ownership concentration (Su, Xu, and Phan, 2007). Research has shown that in making and justifying decisions, managers may not allocate resources efficiently to maximize investor return (Eisenhardt, 1989; Hendry, 2002). One of these suboptimal decisions is "empire building" (Schumpeter, 1934; Jensen, 1986), that is, expansion that goes beyond economic justifications for the firm. Labeled as over-investment, these actions put a firm at higher risks and lower the optimal return for the shareholders at the same time (Hope and Thomas, 2008; Hughes et al., 2003). These empire building actions occur when decision making is not properly restrained by governance mechanisms (Baumol, 1959; Jensen and Meckling, 1976) and is regarded as a fundamental agency problem (Dominguez-Martinez et al., 2008; Hope and Thomas, 2008).

Extant literature has investigated empire building from different angles. For example, scholars have identified and demonstrated that empire building is one of the managerial drivers for corporate strategic decision-making in unrelated diversification (Picone and Dagnino, 2016) and overinvestment (Wojahn, 2012). A number of studies have shed light on how firm level antecedents of cash holding (Iskandar-Datta and Jia, 2014) and SG&A costs stimulate empire building within the context of managerial discretion and investor protection (Namitha and Shijin, 2016). Other studies have focused on the regulating mechanisms for empire building such as exogenous shocks like independent director death (Shi, Hoskisson and Zhang, 2017), earnings disclosure (Hope and Thomas, 2008), financial control (Prezas, 2009), management contracts (Zhu and Zhu, 2012) and internal composition of corporate boards (Baldenius, Melumad and Meng, 2014). Still, other studies have revealed the presence of empire building within the context of mergers and acquisitions by investigating strategic rationale (Öberg and Holtström, 2006; Trautwein, 1990), effectiveness of takeover directives (Humphery-Jenner, 2012), takeover waves (Martynova and Renneboog, 2008), and top management turnover (Krug, Wright and Kroll, 2014).

A stream of research further extended the investigation to the topic of state ownership and empire building. Taking a theoretical perspective, Bruton et al. (2015) discusses the differentiation of ownership from control by the state, and hints at how both principal-agency (PA) and principal-principal (PP) conflicts may lead to the type of suboptimal strategic decisions characteristic of excessive growth. Large state ownership in firms is shown as a driving factor in management having greater incentives to make suboptimal expansion decisions such as questionable cross-border acquisitions (Chen and Young, 2010) and overseas investments (Zhang, 2014). These actions serve the purposes of private rent-seeking and achieving opportunistic goals (Zou and Adams, 2008), which allow firm managers to enjoy benefits at the expense of minority shareholders (Young et al. 2008). Empire building thrives even under media scrutiny in unique institutional environments. Guo, Chan and Huang's (2017) revealed a counter intuitive positive relationship between media coverage and empire building and attributed it to the unique social and political goals of China's state government.

By integrating agency theory with an institutional perspective, we develop our theoretical framework centering on the mediation effect of empire building on the state-ownership firm performance relationship (Figure 2). A study on the relationship among state ownership, empire building and performance outcomes may help to resolve the inconclusive findings in literature between state ownership and performance as noted earlier. This comprehensive framework reveals an enriched mechanism encompassing the sequential link of state ownership,

empire building, and economic consequences, as well as identifies the empire building instrument and moderators. We postulate that a firm's state-ownership leads to unfavorable economic consequences (i.e. high management expenses and low/negative profitability) through empire building, measured as total assets to sales ratio and sales adjusted number of employees (Cao, 2008; Hughes et al., 2003). We further identify and validate long term-debt as the instrument that managers use to expand corporate empires. Lastly, we propose two moderators with different functional mechanisms to mitigate empire building in enterprises with state ownership, i.e. foreign capital affects firms' acquisition of long-term debt while innovativeness affects firms' utilization of the financial resources from long-term debt for empire building. Table 1 summarizes and compares this study with the latest notable studies on empire building related topics.

--- Insert Figure 2 and Table 1 about here ---

Using a large panel database of China's manufacturing firms from 2001 to 2007, our study provides insights into this contemporary issue within a rich institutional and dynamic setting. Figure 3 offers a preliminary and overall picture of the problems of state ownership based on a large database of China's manufacturing firms employed in this study. The general correlational pattern with our data shows that: the higher the percentage of state-ownership (proxied by total assets to sales ratio¹), the larger the firm; the larger the firm, the more management expenses and poorer profitability (ROA). This indicates the effect of percentage of state-ownership on firm performance, and the possible mediation through empire building. There is also a positive chain relationship of state-ownership, long-term debt and firm size, which implies a possible instrumentation of empire building through long-term debt. Next, we will layout our hypotheses and discuss our empirical context and testing.

--- Insert Figure 3 about here ---

HYPOTHESES DEVELOPMENT

State ownership, empire building and firm performance

The magnitude of agency hazards is likely to be high in economies where regulatory systems are characterized by poorly drafted laws, lack of shareholder protection regulations, and ineffective law enforcement (Coffee, 2000; Gomes, 2000). China exemplifies these typical hazards, where social and political relationships (*guanxi*) often overrides formal institutions and legal rules in business and market interactions especially regarding relations with the government (Keith et al., 2014; Meyer, et al., 2009; Peng, et al., 2017). As a rapidly growing

¹ The patterns are consistent if we use sales adjusted number of employees as the proxy for empire building.

economy, the situation of China's state-owned enterprises as well as the relations between the state as the owner, and the managers of these companies are complex and diverse. Despite the challenges, existing studies have investigated a number of relevant agency problems and their effect on firm performance. Young et al. (2008) used a principal-principal perspective to theorize that majority shareholders develop strategies and enjoy benefits at the expense of minority shareholders (e.g. excessive growth, shirking, and excessive compensation). Zou and Adams (2008) found evidence that SOEs incentivize managers who normally receive little incentive-based compensation to engage in private rent-seeking and opportunistic activities that lead to unhealthy growth and poor return on equity. Chen and Young (2010) showed that increased state ownership in an acquiring firm will be associated with unfavorable perception of a cross-border merger deal by investors due to principal-principal conflicts and suboptimal expansion decisions. Guo, et al. (2017) showed a counterintuitive result of a positive effect of media coverage on empire building in Chinese SOEs. Most relevantly, Bruton et al. (2015) proposed a new definition of state-owned enterprises, i.e. hybrid organizations, which have different institutional logics as a result of varying levels of ownership and control by the state. This study extends this line of inquiry by theorizing that empire building mediates the negative relationship between state ownership and firm performance.

State ownership and empire building

In emerging economies like China, as state shareholding of a firm increases, the state increases its power within the firm and moves towards a controlling shareholder position. Even though the state ownership is below 50%, the state shareholder may still gain substantial power in influencing firm decisions as a blockholder. Literature defines blockholders as entities holding at least 5% of a firm's common share (Morck, Shleifer, and Vishny, 1988). When there is a wide dispersion of shares among shareholders, blockholders' real voting power can be augmented and often exceeds the level of its ownership stake (Basu, Paeglis, and Rahnamaei, 2016; Konijn, Kräussl, and Lucas, 2011). Prior research found that the relationship between ownership and power is positive but nonlinear (Basu et al., 2016). The power increases exponentially when ownership stakes reach up to the 50% point, and becomes maximized when the state shareholding reaches over 50% because of the majority ownership. Therefore, as the percentage of state ownership increases, the consequent voting power is amplified. This in turn enables the state to monitor managers and directly intervene in corporate decisions. Three forces drive firms with high state ownership to pursue empire building.

First, China's institutional context encourages firms with state ownership to engage in empire building. China's form of social capitalism uniquely hinges on a high level of social embeddedness (i.e. markets shaped by social networks/connections) and the influence of both formal and informal institutions that dictate business and political relationships (Keith et al., 2014; Meyer, et al., 2009; Peng, et al., 2017). The country's rise to prominence can be viewed as a result of the government's efforts to construct its own form of capitalism distinct from other neoliberal and socialist market approaches, one in which the state plays a significant role in the market economy through its state-owned enterprises. When the state government revitalized its inefficient SOEs, it encouraged them to restructure and grow (Li and Putterman, 2008). In these reforms, the economically performing enterprises were asked to take over problematic counterparts within their industries (Zhu, 1999). These planned take-overs drove the performing enterprises to grow in size and equity. When the country entered into the WTO in 2001, Chinese firms were exposed to global competition (Child and Tse, 2001). The state government responded by further expanding these enterprises to control natural resources (Li and Putterman, 2008), to compete with incoming global firms (Geng et al., 2009), and to strengthen overseas investments (Li, Cui, and Lu, 2014). Their expansion also helped accommodate China's fast-growing workforce. To support their growth, these enterprises received favoritism via national development plans (to ensure market access) and asymmetrical policies. Even more to the point, some well-performing SOEs or those in sensitive industries are nurtured and protected as part of China's strategy to uphold its 'national champions' as core to China's global influence (Hemphill and White, 2013). While political favoritism and bureaucracy are present in many emerging economies (Luo and Junkunc, 2008), this form of favoritism continues to be a distinctive feature in China and has led to unjustified expansions for prominent firms with state ownership.

Second, within a unique political and social institutional framework, the management in firms with state ownership may be motivated to make decisions to follow more political (e.g. acquiring weak state-owned-enterprises) and social objectives (reducing unemployment) than economic efficiency and profit maximization (Clarke, 2003). Since top management in state-owned enterprises are normally appointed by the state based on their political rank (Wang, 2012) and are evaluated, compensated and promoted through standardized state rules (Zou and Adams, 2008), they often seek their future career prospects within the state system rather than rely solely on their performance in the enterprise they are serving (Li and Putterman, 2008). Therefore, they are politically encouraged and personally motivated to follow the state's guidance in decision making. Under the separation of voting and cash

flow rights, the state, as the controlling shareholders can exploit corporate resources to pursue state goals at the expense of other shareholders (Burkart, Gromb, and Panunzi, 1997).

Third, when the three deterring mechanisms of agency conflicts - independence of boards of directors, equity alignment, and open market for corporate control - fail to function due to institutional factors (as detailed in previous section), managers go unchecked as they build empires for power and self-reward. By expanding a corporate empire, managers can increase the resources under their control, raise their prestige, and gain financial reward (often tied to sales growth and firm expansion) (Bebchuk and Grinstein, 2005; Jensen and Murphy, 1990; Rose and Shepard, 1997; Stulz, 1990). The theory of “managerialism” indicates that the increase in corporate size makes managers-in-charge more indispensable to the firm. Empire building decreases managers’ unemployment risks and improves their job prospect (Amihud and Lev, 1981; Shleifer and Vishny, 1989). As such, high state ownership in a firm leads to empire building.

Empire building and firm performance

We further postulate that as the firms grow in excessive size, empire building leads to two unfavorable economic consequences of poor return on investment (ROA) and high managerial expenses. In addition to firm profitability, we focus on management expenses as an important performance indicator. This is because managers are motivated to build a corporate empire, increase the resources under their control, and secure private gains (Bebchuk and Grinstein, 2005; Jensen and Murphy, 1990). The private rent-seeking activities, e.g. overly generous employment and benefit terms, perks, allowances, etc. (Chang and Wong, 2004; Guo et al., 2017), increases management expenses that chips away at operational income. Management expenses reflect managerial discretion in spending company resources related to management functions such as managerial salaries, rents, insurance, utilities, supplies, and marketing costs (Florackis, 2008; Florackis and Ozkan, 2009). Management often use managerial expenses to camouflage expenditures on extravagant perquisites (Singh and Davidson III, 2003). Higher levels of managerial expenses act as a close approximation of managerial pay and perquisite consumption with respect to higher salaries, large office complexes, and other organizational support facilities (Chen, Lu, and Sougiannis, 2012). Therefore, management expenses have been used as a closer indicator for agency costs (Florackis and Ozkan, 2009). As such, management expenses reflect an important measure to show the detrimental effect of empire building. In a developing economy setting, state ownership-induced empire building can lead to suboptimal business strategies and impact negatively a firm’s financials in three ways.

First, firms' expansion that serves administrative tasks can suffer from high political costs. Under state influence, if a profit driven enterprise made its growth through economically unjustified cross-subsidization, in order to achieve other goals such as social welfare and employment protection, it goes against achieving market value or establishing competitive advantage and can therefore erode its financial prospects (Chang and Wong, 2004; Gul, 1999). All of these can lead to deviations from operational efficiency. Some managers do so with a political instead of financial rationale, as well as the belief that their firms would become "too big to fail" (Lavargna, 1993) due to the state's support and policy to maintain social harmony (Walter and Howie, 2003).

Second, in firms with state ownership, the state invariably controls personnel appointments (Fan and Wong, 2004; Wang, 2012), and indirectly exercises intervention into important strategic decisions. With a lack of monitoring, corporate governance is deemed ineffective, and such politically connected CEOs are often challenged for lack of the necessary knowledge, experience or finesse to effectively lead the firm in a complex competitive environment, but continue to stay in power (Chen and Young, 2010). The governance issue eventually results in management's poor oversight on operational efficiency. To make matters worse, these CEOs become inclined to engage in nepotism and organize boards with other politically networked bureaucrats, who don't have sufficient professional business and management backgrounds. Conceivably, the low level of business professionalism and expertise hinders the firms' achieving operational efficiency and maximizing return on investments.

Third, for firms to engage in excessive growth in size, the lack of effective managerial monitoring provides managers opportunities to perform private rent-seeking activities such as overly generous employment terms and fringe benefits, on-the-job perks, nepotism, and favor reciprocation (Bertrand and Mullainathan, 2003; Chang and Wong, 2004; Guo et al., 2017). Although it is true that managers of SOEs in China are commonly appointed by the state administration based on their political rank (Wang, 2012), they receive civil-servant salaries in exchange of job security, and their compensation are independent of firm performance or market consideration (Zou and Adam, 2008). It is also possible for candidates to accept these positions as they are interested in achieving social goals instead of monetary rewards. Despite the "low" payroll they publicly receive on the surface, it is well documented that these managers' power and prestige, disposable expense budgets, job related allowances and other indirect compensation will likely follow the growth of their enterprises (Kanninen, 2000). Managers engage in various unethical behavior to make up for their low salaries and maximize their economic gains, including luxurious entertainment, on-the-job perks, and other overhead expenses (Chang and Wong, 2004; Fan et al., 2007), often at the

expense of firm efficiency and shareholder value. This will lead to high management expenses related to management salaries, bonus and perks, and other expenses related to managerial activities such as management meetings, entertainment, travel expenses, etc. (Chen, et al., 2012; Florackis and Ozkan, 2009; Koch and McGrath, 1996). Thus, as the firms grow in excessive size, empire building induces two unfavorable economic consequences of poor profitability and high managerial expenses.

The mediation of empire building

The preceding arguments theorize on how state ownership may trigger empire building and how empire building is associated with high management expenses and poor profitability. As engaging in empire building helps firms to grow and fulfill social and administrative tasks (Li and Xia, 2008), and as managers may take advantage of these risky and excessive firm growths for pursuit of personal power and financial reward (Hope and Thomas, 2008; Kanniainen, 2000), empire building contributes to transferring the effect of ownership and weak governance into inferior operational and managerial decisions that lead to suboptimal financial results. Given the positive associations between state ownership and empire building, and the positive/negative relationships between empire building and management expenses/profitability, we thus propose that empire building mediates the effects of state ownership on firm's financial performance. In sum, we postulate that:

H1a: Empire building mediates the positive relationship between state ownership percentage and management expenses.

H1b: Empire building mediates the negative relationship between state ownership percentage and firm profitability.

Instrument for empire building

Literature on agency conflicts and empire building has yet to identify the sources of how these firms build their empires. In not only extending upon but contrasting existing literature, we identify long-term debt as a potential instrument for empire building, rather than a corporate governance tool against it. Conventionally, long-term debt serves to guard against agency problems in two ways (Dalton et al., 2007). First, it is an indicator for organizational health and thus constrains managerial indiscretions (Rajan and Winton, 1995). Jensen (1986) suggests that debt reduces cash flows thus forcing managers to focus investments on profitable projects. Second, as an institutional instrument, debt brings an independent party, the debt holder, as a monitor for firm actions (e.g., fund usage and strategies) which reduces the risk of managers' self-serving behaviors (Dalton et al., 2007).

However, the two functions for debt fail to perform in the weak institutions of China, where banks and firms often do not grasp the essence of commercial debts and related risks (Li and Putterman, 2008). By way of

policy favoritism, enterprises with state ownership have high loan capacities and are given low interest rates (Li and Xia, 2008). As free cash flow theory (Jensen, 1986) postulates, long-term debts thus functions as low-cost resources encouraging these enterprises to grow beyond their optimal size (McConnell and Muscarella, 1986). Through acquiring long-term debt, managers may be equipped to over-invest and expand the corporate empire, instead of screening for profitable opportunities. With the endorsement from the state government, these enterprises perceive low bankruptcy risks. The more long-term debt a firm accumulates, the more serious the agency problem becomes.

In addition, the largest Chinese banks are also state owned. They align with government policies to provide support for enterprises with state shareholding, thus further complicating the matter. With a common bureaucratic network of state ownership, these banks tend to view their responsibilities in the same way such that the monitoring role of Chinese banks is relaxed, allowing long-term debt to become a free resource to borrowers. Thus, we posit:

H2: Firms use long-term debt as an instrument to finance empire building, that is, long-term debt mediates the relationship between state ownership percentage and empire building

Mitigating empire building

If the aforementioned unique institutional influences nullify the conventional agency control mechanisms (independent directorship, equity alignment, and open corporate market) in China, then what can be effective tools to intervene against empire building in firms? We identify two moderators that may alleviate empire building: foreign capital investment and firm innovativeness. Foreign capital investment reflects the governance structure of a firm and impacts a firm's strategic orientation (Pan and Chi, 1999), managerial transparency (Zou and Adams, 2008), and adherence to economic logics and global standards (Qi et al., 2000). It therefore helps to regulate the managerial activities and restrains opportunistic behavior in enterprises within the weak institutional environment of China. In comparison, firm innovativeness is a business strategy gravitating a firm towards technology and new product development (Zhou and Li, 2012), exploitation of existing capability (March, 1991), exploration of potential market and opportunity (Atuahene-Gima, 2005). It focuses on optimal allocation of resources (Sorescu, Chandy, and Prabhu, 2003), and forces a firm to improve managerial and operational efficiency, which restrains the firm from over spending and expanding in a counter-productive way. Moreover, we differentiate the functioning of these two moderators, namely, that foreign capital serves to emphasize strong governance in restricting firm's acquisition for excessive financial resources (i.e. long-term debt), while firm innovativeness takes its effect by competing for and absorbing firms' available financial and managerial resources that can otherwise be used to build corporate empires.

Foreign investment as a moderator to empire building

Foreign capital can enhance firm governance and thus curtail empire building for several reasons. First, many foreign investors in these Chinese enterprises are generally experienced with diversified and multi-country portfolios. Their global diversity enables them to benchmark how the invested enterprises perform against global standards in terms of capital structure and costs. As a result, managers in these firms are more compelled to focus on well-developed product–market strategies and profitable investment opportunities (Pan and Chi, 1999). Unbalanced capital structures toward excessive growth, suboptimal expansion, and exorbitant management expenses will be more heavily scrutinized. As Stulz (1990) points out, ownership globalization (i.e., foreign investment) mitigates agency problems by increasing firm monitoring, accountability and disclosure.

Second, foreign investors in these enterprises with state ownership in China will likely demand a higher level of transparency in major corporate decisions (Zou and Adams, 2008). In an emerging economy like China, foreign investors (e.g., fund managed by Warren Buffett) will aim for long-term investment horizon and high profit returns (Qi et al., 2000). Some of these investments are directly or indirectly linked to investment funds that operate with tight control and strong transparency demands and standards. Compared with China's indigenous governance system in firms, their reporting requirements both in quantity and in quality will be more stringent. We posit that detailed reporting required by foreign investors helps detect and prevent unnecessary capital requirements in earlier stages. As such, even though the influence of state ownership in firms may allow firms to more easily receive long-term debt, this excessive acquisition of resources may be stymied by foreign investors who view risky leveraging as inefficient and sub-optimal to firm operations.

Lastly, foreign investors carry more influence because of their links to the global investment community. Emerging markets, especially China, are increasingly attracting foreign investments due to their growth prospects (Child and Tse, 2001). For managers in enterprises with state ownership, they welcome foreign investors because these investments hold endorsement value in addition to synergetic contributions. Yet this strong endorsement value can go both ways. If the invested enterprises fail to perform well or engage in opportunistic behaviors, foreign investors may speak against or even exit from the enterprises, thus damaging the enterprises in question especially if the enterprises aim to internationalize. Thus, we posit that *ceteris paribus*, the presence and influence of foreign capital investment will act as a governance mechanism against empire building in curtailing the firms' likelihood of acquiring firm resources (i.e. long-term debt) for empire building:

H3a: Foreign capital will curtail empire building by negatively moderating the effect of state ownership on the empire building instrument (long-term debt).

Firm innovativeness as a moderator to empire building

Firm innovativeness, on the other hand, serves as a business strategy rather than a governance mechanism in deterring empire building. The demands in the pursuit of innovation competes with and depletes firm's available financial and managerial resources that can otherwise be used to build empire. We thus posit that firm innovativeness may be another effective mitigating mechanism against empire building for two reasons.

It is well understood that innovation is a key driver of firm performance and growth (Ahlstrom, 2010; Sorescu et al., 2003; Tomizawa et al., 2019). Accordingly, firms are urged to be innovative, continuously introducing new products to meet the country's rising consumption needs. To be innovative, firms actively engage in knowledge acquisition and sharing to develop technical and professional expertise (Zhou and Li, 2012). To improve its innovation capability, firms need to exploit existing competences to find solutions for customers (March, 1991), and to explore other markets for long-term benefits (Atuahene-Gima, 2005). Beyond this, managers need to promote inter-functional coordination in order to effectively transform resources into desired innovation outputs (Gatignon and Xuereb, 1997). These actions need substantial investment and managerial attention. Accordingly, a firm's focus on technological breakthrough and/or new product development would divert resources away from economically inefficient empire building and produce superior market and financial performance (Ahlstrom, 2010).

Moreover, innovation is often associated with advancement in technology and intensified market competition. Advanced technology tends to boost operational and managerial efficiency leading to superior performance. The pursuit of innovation is in line with firms' desire to enter more competitive markets, where players compete for market share with better developed products. To maintain performance momentum and to excel in competition, intentions to expand the firm inefficiently to serve non-operational and financial goals run counter to the desire for innovation (Wang, Ahlstrom, Nair, & Hang, 2008). *Ceteris paribus*, an innovation focus will likely keep management's attention on allocating resources for innovation-oriented activities such as R&D, productivity improvements, process renovations, technology transfer, organization learning, etc. Thus, firm innovativeness competes for the capital resources (i.e. long-term debt) needed for size expansion, as well as takes away the firm's incentive for empire building and its related misconducts. Thus, we propose:

H3b: Firm innovativeness will curtail empire building by negatively moderating the effect of the empire building instrument (long-term debt) on empire building (expansion).

METHOD

Sample and data

During China's rise to become one of the world's influential economic powers, the impact of state ownership on firm growth, operations, and performance has attracted consistent research attention. To investigate this timely issue, we use data from the Annual Industrial Survey conducted by the National Bureau of Statistics of China (NBS). This dataset provides a comprehensive set of operational and financial information on all enterprises in the manufacturing section with annual sales above RMB 5,000,000 (or USD 620,000) with and without state ownership in China. Collectively, this database accounts for the majority of China's industrial value-added output. It has been shown to be reasonably accurate and reliable due to the strict double-checking procedures in data collection (Cai and Liu, 2009), and has been widely used in research on international business (e.g., Buckley et al., 2007; Tian, 2007; Tse, Yu and Zhu, 2017), economics (e.g., Cai and Liu, 2009) and strategy (e.g., Chang and Xu, 2008; Zhang et al., 2010). Our dataset contains 29,638 firms over a period from 2001 to 2007², spanning 29 two-digit SIC manufacturing industries (or 195 narrowly defined three-digit manufacturing industries) and China's 31 provinces and municipalities.

Measures

Dependent variables

Empire building

Consistent with the concept of empire building as firms' economically unjustified expansion that sub-optimizes owner's interests (Jensen and Meckling, 1976; Jensen, 1986) we use the (log-transformed) ratio of total assets/total sales (*sales adjusted assets*) to capture the extent of unjustified corporate asset expansion (Cao, 2008; Hughes et al., 2003). A high asset-sales ratio reflects a firm's suboptimal and inefficient usage of assets in

² In 2007-2008, there was new statistical law passed that affected the way in which these annual surveys were conducted, so that after this period the survey contents became quite different. This makes the data after 2008 not suitable for the current research. Despite this, our data should be valid and sufficient for our study purpose. First, the empire building phenomenon we study is fundamental and deeply embedded in an emerging economy like China. Despite the steady economic growth of China, the issues we focused on don't seem to change with the continuation of the economic and political policies since the new millennium. This dataset can thus be regarded as the most updated and representative to study the focal issue. Second, our 2001-2007 dataset is also ideal in that data beyond 2008 would have been affected by the global financial crisis which broke out initially in the US and led to the subsequent financial and fiscal stimulus given in China in 2008. The crisis and government's reaction would have potentially changed SOEs' growth trajectories.

generating revenue, demonstrating empire building behavior by the firm. We log-transform the ratio to map the non-negative ratio into an appropriate range $(-\infty, +\infty)$ suitable for regression analysis. Log-transformation is used for other dependent variables with similar characteristics.

In addition, overstaffing exemplifies managerial inefficiency and represents empire building from the angle of human capital. Number of employees adjusted by sales has been widely used as a proxy for firm size (Baum, et al., 2001; Calof, 1994; Collins and Clark, 2003; Sørensen and Stuart, 2000). Thus, we adopt the (log-transformed) ratio of number of employees/sales (*number of employees*) to capture empire building as the suboptimal managerial decision toward overstaffing. We report analyses using this alternative measure as additional studies.

Management expenses

We used a firm's (log transformed) management expenses divided by sales to capture expenses on production management and business administration (Florackis, 2008; Singh and Davidson III, 2003). These expenses occur to support the organization and management of production and operation of the firm, and include mainly the salary and benefits of the management, expenses on travel, office operations, business entertainment, union management, etc. (Florackis and Ozkan, 2009). Higher levels of management expenses after controlling for firm size and business growth are a close approximation of managerial pay and perquisite consumption in terms of higher salaries, large office complexes, and other organizational support facilities (Chen, et al., 2012)

Profitability (ROA)

As for our second measure reflecting the economically unjustified aspect of empire building, we use return on assets (ROA) to capture the marginal value of investments after controlling the size effect of the firm. It is the (log-transformed) ratio of net profit to the total assets of the firm (c.f., Douma et al., 2006; Ho et al., 2011).

Independent variables

State ownership (State %)

Ownership percentage reflects the strength of the owner's power in firm control (Amihud and Lev, 1981). Consistent with existing literature (e.g., Su et al., 2007), we use the percentage of state shareholding - to reflect the magnitude of state ownership.

Long-term debt (LT Debt)

Long-term debt reflects a reliable source of funding for enterprises with state ownership (Li and Xia, 2008), without much concern about solvency and financial leverage (Reuer and Ragozzino, 2006). Following finance

literature (e.g., Barclay and Smith, 1995), we define long-term debt as debt with repayment of over a year, which includes long-term loans, long-term payables, and bonds payable. We standardize the raw measure by using long-term debt to total assets ratio in our analysis.

Foreign capital (Foreign cap.)

Independent foreign ownership enhances the monitoring from daily operations to firm governance (Qi et al., 2000) in enterprises with state ownership, which lead to better market strategy and investment management (Pan and Chi, 1999). Following Zou and Adams (2008), we use a continuous measure of foreign ownership percentage to study the effects.

Innovativeness

We measure firm innovativeness by a firm's new product sales scaled by its total sales. The terms "innovation" and "new product development" have been used interchangeably in literature (Iyer et al., 2006). In our research context of the manufacturing industry, "innovation" refers to the new product and relevant business development. Specifically, a firm adopts new technology and/or design to develop new products, which demonstrates significant improvement in material quality, craftsmanship, and/or functionality. Therefore, existing research has recognized new product performance as a proxy for the outcome measure of innovativeness (e.g. Gatignon and Xuereb, 1997; Sengupta, 1998).

Control variables

Our study builds on the perspective of empire building, and focuses on multiple stages of analyses, thus requiring various control variables. We created a state ownership dummy (*SO dummy*) with value 1 if state ownership is greater than 0, and 0 otherwise. The state government selectively seizes the ownership of enterprises that are relatively large in size, performing well, and have strategic importance (Li and Putterman 2008; Xu and Wang, 1999). Therefore, 0% state ownership may not merely indicate a low state share in the firm, but reflect some intrinsic features of the firm. In other words, the 1% difference of state ownership between 0 and 1% has different meaning from that of the difference between 20 and 21%. After controlling for this state ownership dummy, the continuous state ownership variable (% State) neatly captures the effect of different levels of state ownership on the dependent measures. Next, we include the log of government subsidies in RMB (*Subsidy*) in our study. For firms in China, special treatments such as government subsidies have been shown to impact their production and expansion (Eckaus, 2006). Subsidies may often take the form of tax benefits, fixed and periodical sales incentives, special

financial aid for specific industries, and so on. They help a firm improve its cost structure, daily operations, and competitive advantages that drive its productivity output. Working capital (*Working cap.*) represents operating resources with liquidity that is available to a business. Following accounting literature, we compute working capital as the log of the net value of current assets minus current liabilities. The debt-to-equity ratio (*DE ratio*) is a financial ratio indicating the relative proportion of shareholders' equity and debt used to finance a firm's assets (Hovakimian et al., 2001). Following existing literature, we include this measure as a control for a firm's financial leveraging and risk (Singh, 1986). Following accounting definitions, we also control for the total equity of a firm (*Equity*) which is based on the initial equity investment from shareholders, and the cumulative retained earnings from operations. We use the log of total equity. Following Singh and Mitchell (2005), we define and include Sales growth (*Growth*) as $(\text{Sales}(t) - \text{Sales}(t-1)) / \text{Sales}(t-1)$ to capture the effect of year-to-year sales change on a firm's managerial decisions and profitability (Luo, 2008). This is an important control for firm's legitimate growth in size in assessing unjustified size expansion in empire building. Prior studies use number of employees (in thousands - *No. Employees*³) as a proxy for firm size (Sørensen and Stuart, 2000). To capture the possible nonlinear effect of firm size, we also include a quadratic term of the size variable (*No. Employees*²) in our analysis. Firm age (*Age*) is related to a firm's organizational structure and functions, which may influence its ability in capturing dynamic market demand (Christensen and Rosenbloom, 1995). We also include a foreign capital dummy (*FC dummy*) with value 1 if foreign capital investment in the SOE is greater than 0, and 0 otherwise. This controls the fixed effect of firms with foreign capital on dependent measures. Lastly, we include dummy indicators for provinces, industries, and years to capture potential geographic, industrial and longitudinal variation in the dependent measures (Zhang et al., 2010).

Statistical method

We test our hypotheses on empire building with the following basic equation:

$$\text{Empire Building}_{it} = \beta_0 + \beta_1 \text{State \%}_{i,t-1} + \beta_2 \times \text{LT debt}_{i,t-1} + \beta_3 \times \text{Foreign Cap.}_{i,t-1} + \beta_4 \times \text{Innovativeness}_{i,t-1} + \beta_5 \times \text{SO dummy}_{i,t-1} + \beta_6 \times \text{Working cap.}_{i,t-1} + \beta_7 \times \text{Subsidy}_{i,t-1} + \beta_8 \times \text{DE ratio}_{i,t-1} + \beta_9 \times \text{Growth}_{i,t-1} + \beta_{10} \times \text{Equity}_{i,t-1} + \beta_{11} \times \text{Size}_{i,t-1} + \beta_{12} \times \text{Size}_{i,t-1}^2 + \beta_{13} \times \text{Age}_{i,t-1} + \beta_{14} \times \text{FC dummy}_{i,t-1} + \sum_j \beta_j \times \text{Controls}_{ij,t-1} + \varepsilon_{it}$$

with $\varepsilon_{it} = \rho \times \varepsilon_{i,t-1} + \eta_{it}$ and $\eta_{it} \in N(0, \sigma_i^2)$ (1)

where *i* stands for individual firm and *t* for year. *Control_{ij}* include dummy variables for province, industry, and time.

To test how *Innovativeness* influences the effect of *LT Debt* on *Empire Building*, we set:

$$\beta_{2t} = \gamma_0 + \gamma_1 \times \text{Innovativeness}_{i,t-1} \quad (2)$$

³ We replace No. Employees with log (Assets) as a proxy for firm size when we use No. of Employees as an alternative measure for empire building in our additional study.

This is implemented by adding interaction terms to Equation (1)

To test how *Foreign cap.* influences the effect of *State %* on *LT Debt*, we set:

$$\begin{aligned} \text{LT Debt}_{it} = & \beta_0 + \beta_1 \text{State \%}_{i,t-1} + \beta_2 \times \text{Foreign Cap.}_{i,t-1} + \beta_3 \times \text{Innovativeness}_{i,t-1} + \beta_4 \times \text{SO dummy}_{i,t-1} + \beta_5 \times \\ & \text{Working cap.}_{i,t-1} + \beta_6 \times \text{Subsidy}_{i,t-1} + \beta_7 \times \text{DE ratio}_{i,t-1} + \beta_8 \times \text{Growth}_{i,t-1} + \beta_9 \times \text{Equity}_{i,t-1} + \beta_{10} \times \\ & \text{Size}_{i,t-1} + \beta_{11} \times \text{Size}_{i,t-1}^2 + \beta_{12} \times \text{Age}_{i,t-1} + \beta_{13} \times \text{FC dummy}_{i,t-1} + \sum_j \beta_j \times \text{Controls}_{ij,t-1} + \varepsilon_{it} \end{aligned} \quad (3)$$

with $\varepsilon_{it} = \rho \times \varepsilon_{i,t-1} + \eta_{it}$ and $\eta_{it} \in N(0, \sigma_i^2)$

$$\beta_{1t} = \gamma_0 + \gamma_1 \times \text{Foreign Cap.}_{i,t-1} \quad (4)$$

This is implemented by adding interaction terms to Equation (3)

To test the financial impact of empire building, we have the following equation setup:

$$\begin{aligned} \text{Dependent variable}_{it} = & \beta_0 + \alpha_1 \text{EmpireBuilding}_{i,t-1} + \beta_1 \text{State \%}_{i,t-1} + \beta_2 \times \text{LT debt}_{i,t-1} + \beta_3 \times \text{Foreign Cap.}_{i,t-1} + \beta_4 \times \\ & \text{Innovativeness}_{i,t-1} + \beta_5 \times \text{SO dummy}_{i,t-1} + \beta_6 \times \text{Working cap.}_{i,t-1} + \beta_7 \times \text{Subsidy}_{i,t-1} + \beta_8 \times \text{DE ratio}_{i,t-1} + \\ & \beta_9 \times \text{Growth}_{i,t-1} + \beta_{10} \times \text{Equity}_{i,t-1} + \beta_{11} \times \text{Size}_{i,t-1} + \beta_{12} \times \text{Size}_{i,t-1}^2 + \beta_{13} \times \text{Age}_{i,t-1} + \beta_{14} \times \text{FC dummy}_{i,t-1} + \\ & \sum_j \beta_j \times \text{Controls}_{ij,t-1} + \varepsilon_{it} \end{aligned} \quad (5)$$

with $\varepsilon_{it} = \rho \times \varepsilon_{i,t-1} + \eta_{it}$ and $\eta_{it} \in N(0, \sigma_i^2)$

Dependent variables are *Management Expenses* and *Profitability* respectively. To consistently control for various firm characteristics, we use the same set of independent variables in our empirical study.

We take three steps to improve the model control and minimize possible misspecifications for all our hypotheses testing. First, we include year, industry and province dummies to control for potential variation/heterogeneity of the dependent variable across time, industries and provinces (Arellano, 2003). Second, we use the lagged term of key independent variables (e.g. *State %_{i,t-1}*) to control for their lagging effects on the dependent measures (e.g. *Empire Building_{it}*) (e.g. Salomon and Jin, 2008). Third, we control for firm-level error heteroskedasticity (i.e. η_{it} changes across firms) and autocorrelation (with ρ) to capture other possible factors that make outcomes to be systematically varying across firms and correlated across time (Ballinger, 2004; Greene, 2003). In sum, we employ a fixed-effects (FE) model (capturing time, province, and industry heterogeneity) with additional controls of autocorrection (time series) and heteroscedasticity (firm variation).

Controls for legitimate firm growth and other exogenous factors on size expansion

A challenge for our model is to control for firm's legitimate growth when detecting for unjustifiable size expansion in empire building. In other words, the estimated empire building effect should be controlled (net) of the legitimate size growth of a firm due to operational and strategic needs. We carefully address this concern with our model and measures. Empire building is defined as the ratio of assets over sales. It carries the rationale that when firms grow legitimately, total assets should increase with sales at a normal rate. Therefore, our dependent variable is

“standardized” in a way to reflect a control on legitimate growth, any abnormally higher than expected ratio of total assets is regarded as irregularly large firm size, i.e. empire building. We also included sales-growth of the firm as a control variable for the size expansion over the legitimate growth of the firm. In addition, we add a comprehensive set of other firm level characteristics to control for firm’s size expansion above the normal level, including Long-term Debt, Foreign Capital, Innovativeness, Working Capital, Subsidies, D/E ratio, Equity, Number of Employees, and Firm Age. Moreover, the Industry, Province, and Time Dummy in our model control respectively for industry/province level and longitudinal base-line firm size (comparative to sales), which reflect the industry/province level and longitudinal unobserved legitimate growth accordingly. Lastly, the control for firm level error hesteroskedasticity (i.e. firm level systematic variation) and autocorrelation (i.e. systematical variation correlated across time) for firm size (comparative to sales) that might be related to idiosyncratic legitimate growth. Moreover, there are external factors for size growth of a firm that may be potentially related directly/indirectly to the lower cost of capital, access to prime customers (consumer equity), and production capability/capacity. Our variable construction and model formulation control these effects as well. Further details can be provided upon request.

RESULTS

Table 2 shows the descriptive statistics and the Pearson correlations among the key variables. The correlations among our key variables, such as *Empire Building*, *Profitability*, *Management Expenses*, *State %*, *LT Debt*, etc. are in line with our expectations.

--- Insert Table 2 about here ---

Non-model evidences

Prior to our regression analyses, we design mean comparison tests to demonstrate the non-model pattern for our proposed effects. First, we median split our data for *State %*, *LT Debt*, *Empire Building* (proxied by sales adjusted assets⁴), and compared the key dependent measures between subsamples of high and low values of these variables. Table 3a shows that firms with high *State %* have significantly higher *Empire Building* (0.720, $p < 0.001$), higher *Management Expenses*, (0.191, $p < 0.001$) and lower *Profitability* (-0.369, $p < 0.001$), providing initial support for the relationship between *State %* and *Empire Building*. Furthermore, firms that do empire building have higher *Management Expenses*, (0.107, $p < 0.001$) and lower *Profitability* (-0.887, $p < 0.001$), in support of our

⁴ The patterns are consistent if we use sales adjusted number of employees as the proxy for empire building.

prediction. Although the performance effects of *State %* and *Empire Building* are of the same pattern, indicating the possibility that *State %* takes effect on firm performance through *Empire Building* (H1), the mediation effect needs to be subject to more stringent tests.

Moreover, as Table 3b shows, after median splitting the firms into groups with high and low *LT debt*, we found that firms with high *State %* have significantly higher *LT Debt* (0.068, $p < 0.001$) and *Empire Building* (0.720, $p < 0.001$). Firms with high *LT debt* have significantly higher *Empire Building* (0.294, $p < 0.001$). This provides initial indication for H2, in that *State %* positively affects *LT Debt*, which is in turn positively associated with *Empire Building*. Again, more strict mediation testing is needed.

To show the moderating effect of *Foreign cap.*, we median split data into 4 subsets (Table 3c) with combination of low/high *Foreign cap.* and high/low *State %*. Within the groups of firms with high or low *Foreign Cap.*, we observe that *State %* leads positively to *LT Debt*. However, across the groups of firms with high and low *Foreign Cap.*, the differences of *LT Debt* between firms with high and low *State %* is reduced from .072 to .015. This indicates that *Foreign Cap.* reduces the effect of *State %* on *LT Debt* for our model, consistent with H3a.

Similarly, we median split the data into 4 subsets (Table 3c) with combination of low/high *Innovativeness* and high/low *LT Debt*. Within the groups of firms with high or low *Innovativeness*, we observe that *LT Debt* leads positively to empire building. However, across the groups of firms with high and low *Innovativeness*, we find that the differences of *Empire Building* between firms with high and low *LT Debt* is reduced, i.e. from .467 to .210. This signals the moderation effect of *Innovativeness* which reduces the effect of *LT Debt* on *Empire Building* (H3b).

--- Insert Tables 3a-3c about here ---

Hypotheses testing

Table 4 reports the results of our H1 testing. Model 1 to Model 7 are used to test a simple mediation model (Baron and Kenny, 1986). In our setting, *State %* is the key independent variable, firm performance (*Management Expenses* and *Profitability*) the outcome variable, and *Empire Building* (proxied by sales adjusted assets) the mediator. We aim to test the indirect effect of *State %* on firm performance through *Empire Building*. Model 1 shows that the main effect of the *State %* on *Empire Building* is positive and significant ($\beta = 0.258, p < 0.001$). According to Model 2, *State %* has a significant positive effect ($\beta = 0.319, p < 0.001$) on *Management Expenses* with the exclusion of *Empire Building*. Model 3 reveals that *State %* has a significant negative impact ($\beta = -0.271, p < 0.001$) on *Profitability* with the exclusion of *Empire Building*. Model 4 and 5 reports a significantly positive effect

($\beta = 0.629, p < 0.001$) of *Empire Building* on *Management Expenses* and a significant negative impact ($\beta = -0.852, p < 0.001$) on *Profitability* with the exclusion of *State %*. Model 6 demonstrates a mitigated positive effect ($\beta = 0.174, p < 0.001$) of *State %* on *Management Expenses* after *Empire Building* is added to Model 2. We took two steps to test the mediation effect of *Empire Building*. First, a Sobel (1982) test validates a positive mediation effect ($\beta = 0.145, p < 0.001$) of *Empire Building* on the relationship between *State %* and *Management Expenses*. Second, the Hayes (2013) approach (as shown in Table 5a), which generates bootstrapped 95% confidence intervals, confirms that *Empire Building* ($\beta=0.453, p < 0.001, CI [0.431, 0.474]$) mediates the effect of *State %* on *Management Expenses*. Model 7 displays a mitigated negative effect ($\beta = -0.048, p < 0.001$) of *State %* on *Profitability* after *Empire Building* is added to Model 3. A Sobel (1982) test validates a negative mediation effect ($\beta = -0.223, p < 0.001$) of *Empire Building* on the relationship between *State %* and *Profitability*. The Hayes (2013) approach (Table 5a) confirms that *Empire Building* ($\beta=-0.437, p < 0.001, CI [-0.457, -0.417]$) mediates the effect of *State %* on *Profitability*. Moreover, the direct effect of *State %* on performance in Model 6 and Model 7 is significant but smaller than the total effect, indicating partial mediations in support of H1a and H1b (Preacher and Hayes, 2008).

--- Insert Table 4, Table 5a-5c about here ---

Table 6 reports the results of Model 8 through 11 in testing H2. To show *LT debt* as an instrument for *Empire Building*, it is necessary to show that *State %* (key independent variable) takes its effect on *Empire Building* (dependent variable) through *LT debt* (the mediator). Model 8 shows that the main effect of the *State %* on *LT debt* is positive and significant ($\beta = 0.009, p < 0.001$). Model 9 reveals that *State %* has a significant positive impact ($\beta = 0.262, p < 0.001$) on *Empire Building* with the exclusion of *LT debt*. In Model 10, *LT debt* has a significant positive impact ($\beta = 0.488, p < 0.001$) on *Empire Building* with the exclusion of *State %*. Model 11 displays a mitigated positive effect ($\beta = 0.258, p < 0.001$) of *State %* on *Empire Building* after *LT Debt* is added to Model 9. A Sobel (1982) test validates a positive mediation effect ($\beta = 0.004, p < 0.001$) of *LT Debt* on the relationship between *State %* and *Empire Building*. As reported in Table 5b, the Hayes (2013) approach confirms that *LT Debt* ($\beta=0.048, p < 0.001, CI [0.044, 0.052]$) mediates the effect of *State %* on *Empire Building* in support of H2.

--- Insert Table 6 about here ---

Model 11 through 17 in Table 7 further shows the moderating effects of *Foreign cap.* and *Innovativeness* on the *State % - LT Debt - Empire Building* relationship. Model 12 - 14 demonstrate the interaction effect between *State %* and *Foreign cap.* (Model 12), *Innovativeness* (Model 13), and both moderators (Model 14) on *LT Debt*.

Model 14 shows a significant negative interaction effect between *State %* and *Foreign cap.* on *LT Debt* ($\beta = -0.041$, $p < 0.001$), in support of H3a. There is an insignificant interaction effect between *State %* and *Innovativeness* on *LT Debt* ($\beta = -0.001$, $p = 0.85$). This indicates that *Innovativeness* has no mitigating effect on firms with state ownership in acquiring more *LT Debt*. Models 15 - 17 demonstrate the interaction effect between *LT Debt* and *Foreign cap.* (Model 15), *Innovativeness* (Model 16), and both moderators (Model 17) on *Empire Building*. Model 17 shows a significant negative interaction effect between *LT Debt* and *Innovativeness* on *Empire Building* ($\beta = -0.249$, $p < 0.01$), in support of H3b. There is an insignificant interaction effect between *LT Debt* and *Foreign cap.* on *Empire Building* ($\beta = 0.069$, $p = 0.22$). This implies that *Foreign cap.* is ineffective in restricting firms from converting acquired *LT Debt* into *Empire Building*. Formally, we adopted Hayes' (2013) bootstrap method to test the moderated mediation effect which examines the significance of the indirect effect conditional on the value of a moderator. Table 5c shows that the positive indirect effects of the key independent variables *State %* on *Empire Building* change as the values of *Foreign Cap.* and *Innovativeness* increase. We adopt different models to test the moderated mediation effect (Hayes, 2013), because the two moderation effects occur before (*Foreign Cap.*) and after (*Innovativeness*) the mediator (*LT Debt*), respectively. The results show that the positive indirect effect of *State %* on *Empire Building* through *LT Debt* weakens (from 0.052, $p < 0.001$ to -0.005, $p > 0.10$) as *Foreign cap.* increases. The bootstrap test (-0.114, $p < .001$) reveals the negative and significant moderation of *Foreign cap.* (i.e., mitigating) on the positive mediation of *LT Debt* between *State %* and *Empire Building* (95% CI [-0.133, -0.095]). Similarly, the results show that the positive indirect effect of *State %* on *Empire Building* through *LT Debt* weakens (from 0.051, $p < 0.001$ to 0.038, $p < .001$) as *Innovativeness* increases. The bootstrap test (-0.015, $p < .01$) reveals the negative and significant moderation of *Innovativeness* (i.e., mitigating) on the positive mediation of *LT Debt* between *State %* and *Empire Building* (95% CI [-0.003, -0.028]). Collectively, we show that the moderating effects of *Foreign cap.* and *Innovativeness* are unique in curtailing different stages of the empire building process, supporting H3a and H3b.

--- Insert Table 7 about here ---

Additional Studies and Robustness Checks

We run several additional analyses to complete and validate our findings. First, we re-ran our model using overstaffing (number of employees/sales) as an alternative measure of empire building. The results (Table 8-11) are consistent with those from the model with our main measure of empire building. This reveals that empire building

can be materialized through both economically unjustified asset expansion and overstaffing, which further validates and enriches our theoretical framework.

--- Insert Tables 8-11 about here ---

Second, we conducted a study to check the existence of tipping points for the relationship between state ownership and empire building, i.e. a threshold above which the effect is more pronounced and below which the effects are weak or negligible. We found that the relationship between State % and Empire Building is positive in general. However, the relationship is weak when State % is below 20%. The relationship is strengthened when State % reaches over 20%, and the relationship is further reinforced when State % is over 50%. The tipping point at around 20% of State share can be explained by the blockholder ownership effect (Basu et al., 2016). That is, when the state owner holds a large block of a company's shares, even though it is not a majority holding of over 50%, these owners are often able to influence the company decision with the voting rights awarded with their holdings. In addition, the second “kink” point at 50% can be explained by the majority holding of state ownership, when the state has dominant decision power and absolute control over the company to build a corporate empire. The detailed analytical approach and results are reported in the Online Appendix 1 and Table A1.

Third, studies have found that the state government selectively chooses firms for ownership from industries that have political and strategic significance (Li and Putterman, 2008; Zhu, 1999). This indicates a potential endogenous decision of state-ownership and the endogeneity of this “treatment effect” may bias our estimation results (Frazis and Loewenstein, 2003). For this typical linear regression with endogenous binary explanatory variables (i.e. *SO Dummy*), we follow Angrist (2001) to rerun our analysis using a two-stage treatment effects model. We included the percentage of enterprises with state-ownership at provincial and industry levels as instruments. These variables reflect local and policy trends for the state to seize ownership in enterprises (the endogenous variable), but do not necessarily determine individual firm decisions and performance (dependent variable). The results are consistent with our findings and reported in Online Appendix Tables A2-A4.

Fourth, in a similar vein, when foreign investors bring capital to China, they will select areas where the investment will provide the best returns and may negotiate for their rights and terms with respect to the firms' future operations before they invest their money in these firms. This indicates a potential endogenous selection of foreign capital investments, thus requiring us to adopt a treatment effects model to control for this bias (Angrist, 2001; Frazis and Loewenstein, 2003). We included the percentage of enterprises with foreign capital investment at

provincial and industry levels as instruments. These variables reflect local and business trends for foreign investors to seize ownership (the endogenous variable), but do not necessarily determine individual firm decisions and performance (dependent variable). The results remain consistent as seen in Online Appendix Tables A5-A7.

Fifth, there is much literature on the decisions and strategies by SOEs, i.e. enterprises with dominant state ownership (normally >50%) in China (e.g. Tan and Peng, 2003; Zou and Adams, 2008). Our study provides a more general coverage of state ownership at all levels (>0%). However, it can be argued that the majority state holding exacerbates the exploitation of minority non-state shareholders (Young et al., 2008). This leads to systematic differences in firm characteristics and outcomes such as empire building, performance and management expenses etc. We test this effect by introducing an additional dummy of state-owned enterprise (SOE), which indicates a majority (>50%) state ownership. The results are consistent with our findings (Online Appendix Tables A8-A10).

Sixth, a comparison between firms with state ownership and privately-owned firms may provide additional insights into the impact of state ownership on empire building. We conducted a propensity score matching analysis (Rosenbaum and Rubin, 1983), a useful method that makes comparisons between comparable sets of firms with state ownership and privately-owned firms and further helps to establish the causality between state ownership percentage and empire building. In general, we found that empire building is more severe, long term debt is more utilized, ROA is poorer, and management expenses are higher for firms with state ownership than for private firms. We included the detailed testing procedures in the Online Appendix 2 and the results are consistent with our findings (Table A11).

Lastly, we test several parsimonious error variance-covariance structures for our model by separately relaxing the assumption(s) of heteroskedasticity or (and) autocorrelation. The estimation results are consistent with our proposed model, which are not included due to space limitations but are available upon request.

DISCUSSION

Theoretical Contributions

This study developed insights into a contemporary issue on state ownership within a rich institutional and dynamic setting. In revisiting the complicated and seemingly inconclusive relationship between state ownership and firm performance in literature, we drew from both agency theory (Bruton et al. 2015) and institutional theory (Meyer, et. al, 2009; Peng et al., 2017) to develop and validate a comprehensive framework based on vertical and horizontal agency problems within a relational context of state-owners, non-state owners, and managers. Rather than

analyzing the straightforward and direct nexus between an input (state-ownership) and output variable (performance) as prior research has done, we revealed the “black box” in the middle by focusing on the mediating role of empire building (Iskandar-Datta and Jia, 2014) in firms with state ownership. This endeavor has produced several contributions.

First, by shedding light on the tendency of firms with state ownership to engage in empire building, we contribute to the literature on both agency and institutional theories. As reviewed by Dalton et al. (2007), agency theory is a proven paradigm on agency issues, solutions and firm governance. Its prerequisites and mechanisms, largely socio-institutional dependent, are applicable in developed economies. Yet attempts to apply it to emerging economies are few (Young et al., 2008) and little has been done to reconceptualize its key mechanisms within the unique socio-institutional complexities of these economies (Child and Tse, 2001; Hoskisson et al., 2000). These external institutional environments together with the internal organizational complexities violate assumptions of agency theory. The state owner, rather than pursuing goals consistent with other share-holders are found to engage in agency behaviors to the detriment of minority shareholders. This is further worsened by managers exploiting the situation for personal gains. By identifying the special features that characterize agency issues in these economies and uncovering possible solutions, our study contributes to the universality of agency theory, corporate governance, and business ethics from an institutional perspective within the context of China and other similar emerging economies (Filatotchev et al., 2013).

Secondly, we advance the empire building literature by theorizing and empirically capturing the empire building effect, as well as the causes and the performance consequences. We conceptualized the empire building problem based on agency theory with an institutional perspective, and argued that due to the weak institutions in China, conventional deterrents for agency problems, that is, independent directorship, equity alignment, and open market for corporate control, fail to function because state owners interfere with management appointments and compensation. This escalates the problem of empire building as the state owners influence the firm managers into expanding the firm so as to fulfill social goals at the expense of other shareholders' interests. As a result, firms with state ownership choose to engage in suboptimal expansion leading to inferior financial performance. We identified asset to sales ratio and number of employees to sales ratio of firms as two proxy measures of empire building to respectively capture economically unjustified asset expansion and overstaffing by firms with state ownership. Our

study has shed light on the cause of empire building in a developing institutional environment and propose systematic ways to detect and quantify empire building.

Thirdly, this study has surpassed existing studies by investigating the instrument of empire building for firms with significant state ownership in China (Iskandar-Datta and Jia, 2014). We identified long-term debt as a source through which these enterprises build empires. This finding opposes conventional wisdom that long-term debt can act as an independent monitoring mechanism against empire building (Jensen and Meckling, 1976). We postulated that the unique institutional environment in China enables empire building through borrowing from the banks which are under state administration. Due to government favoritism, firms with state ownership may elude independent monitoring by the debt owner (i.e. bank), and gain excessive financial resources to build their empire.

Lastly, we significantly advanced the existing literature by identifying and demonstrating two moderators that help to offset the negative effect of agency problem and underdeveloped institutional environment to curtail empire building: the influence of foreign capital investment to the firm and the firm's strategic focus on innovation. We proposed and ascertained possible solutions to the unique agency problem in emerging markets from different angles. Foreign capital investment to the firm takes effect by refining corporate governance, and intervenes more with the process of long-term debt acquisition. In comparison, firm's focus on innovation is a managerial strategy that alters the allocation of capital and managerial resources, thus taking these resources away from empire building. These findings are of paramount importance for emerging economies where established governance mechanisms for agency conflicts (i.e. independent directorship, equity alignment, and open market) are nullified.

Managerial Implications

The robust findings from our study on the prevalence of empire building in China has significant managerial relevance (Ahlstrom, 2015) that should alert managers, investors, policy makers and researchers. First, we highlighted the prevalence of empire building in Chinese enterprises with state ownership. Our findings demonstrate a system of reactions among the state government, the firm and the managers. With increased state ownership, firms under the administration of managers may enjoy soft budget constraints with the favoritism from the government. Specifically, easy access to cheaper capital (i.e. long-term debt) by these firms facilitates their over-growth in size. This leads to greater success in pursuing state's administrative tasks and goals but will negatively impact firm performance. Meanwhile, achieving growth in firm size incentivizes firm managers to pursue private gains such as driving up management expenses to the detriment of the firm. The understanding of this relationship

and underlying mechanisms can help relevant parties (i.e. company boards and top management) to make more objective judgments and optimal decisions in managing firms going forward. Second, our finding that long-term debt can facilitate rather than curb empire building in these Chinese enterprises is important for the policy makers. It indicates that imposing constraints on the availability of capital for these enterprises can potentially cut out an important instrument to empire building and can therefore mitigate empire building behavior. Tighter monitoring and accountability on the part of banks should be called for. Third, our findings implicate that foreign investments and firm innovation helps to mitigate empire building. This provides more reasons for non-state shareholders, investors and policy makers to push for these corporate governance and business strategy mechanisms. Fourth, as the failure of traditional corporate governance mechanism can largely be attributed to the special relationship between the state and the managers, an effective remedy would be to rebuild the independence of boards of directors. To achieve this, the practice of recruiting managers outside the state system and decoupling manager's promotion incentive from senior government positions, should be encouraged. As market uncertainty and competition intensifies, empire building exposes firms to extremely risky positions; if such behaviors go undetected and ungoverned, these corporate empires may eventually fall. Lastly, it is important to emphasize that the 'rules of the game' in China are largely determined by the institutional environment. The functioning mechanism in one emerging economy can be fundamentally different from those in other emerging economies, and thus empire building behaviors may be understandable or even deemed as justifiable (Keith et al., 2014). In other words, the negative aspects of empire building should be carefully and objectively assessed within the unique cultural and institutional backgrounds of that economy.

Limitations and Future Research

Our study has several limitations. First, we investigated this model of empire building in China and have stressed the unique institutional characteristics of the Chinese context under which empire building behaviors can be seen as understandable to a certain extent. Yet we believe empire building to be a phenomenon that exists in other emerging economies as suggested by other studies (e.g. Haber, 2002; Johnson and Mitton, 2003; Young et al., 2008). Further studies using other emerging country data are warranted to assure the generalizability of our postulates and findings. Second, although we have carefully constructed our measures and model estimation with scrutiny, we admit that we cannot fully control the firm size changes which many be purely due to legitimate growth. Future studies with richer data information and advanced model specification may be able to improve on

this. By the same token, many other external factors that may drive firm expansion, such as access to lower cost of capital, political support, and prime customers/factors of production are not directly captured in our study. Future research may want to employ qualitative methods to incorporate these factors. Third, the nature of our secondary data somewhat limits our ability to capture important constructs to test our suggested model as well as extending our framework. For example, our approach does not allow us to directly examine the behavior of or interactions between the three actors (state owner, non-state owner, and manager) implicated in our study on empire building. Future studies employing surveys or qualitative approaches to examine the internal issues associated with empire building from the manager's perspective would also be extremely valuable. In addition, future research should incorporate more information on foreign and local non-state principals, their financial and strategic background, expertise and the interactions between them. Fourth, besides debt financing, firms may benefit from soft budget constraints and access to non-financial subsidies, such as access to prime product/factor markets, which is not directly captured in our study. It will be rewarding to understand the role of non-financial subsidies in a similar study context. Lastly, our data is truncated due to the change in collection methods since 2007 in China. It may be worth studying how the empire building phenomenon may be impacted by exogenous shocks (e.g. the 2008 global financial crisis) and changes in institutional environments, if similar data is available.

CONCLUSION

Is there a missing link between state ownership and firm performance, and what exactly is in this “black box?” Our answer is that (1) empire building (funded by long term debt) mediates the link between state ownership and firm performance, and (2) this effect is moderated by foreign ownership and firm innovativeness. Our theoretical framework shows that empire building arises from the simultaneous impacts of both agency problems and institutional characteristics on firms' governance structure, market efficiency, resource acquisition and allocation, as well as strategic orientations. In conclusion, this study highlights one important message, that is, that managerial phenomena associated with agency issues in emerging economies can be better understood, explained, predicted, and controlled by integrating the agency perspective with an institutional-based view.

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Figure 1
The horizontal and vertical agency problems in firms with state ownership

Figure 2
Theoretical Framework

Figure 3
State-ownership and key firm indexes (our data sample)

3(a) State Ownership & Empire Building

3(b) Empire Building & Management Expenses

3(c) Empire Building & Profitability

3(d) State Ownership & Long-term Debt

3(e) Long-term Debt & Empire Building

Note: the patterns are consistent if we use sales adjusted number of employees as the proxy for empire building

Table 1. Comparison of notable studies on empire building

Literature	Theme	Study Topics on Empire Building						Empirical Testing
		Emerging Economy	State Ownership	Antecedent	Instrument	Performance Outcomes	Moderators	
Baldenius, Melumad and Meng, 2014	Board composition, CEO power and entrenchment in decision making	No	No	Yes	No	No	Yes	No
Bruton, et al., 2015	Factors that mediate and moderate the strategy, structure and outcomes of state owned hybrid firms using agency and institutional perspectives	Yes	Yes	No	No	Yes	Yes	No
Chen and Young, 2010	Government ownership and cross-border mergers and acquisitions by Chinese listed companies using a principal-principal perspective	Yes	Yes	Yes	No	Yes	Yes	Yes
Guo, Chan, Huang, 2017	Relationship between media coverage on empire building and quiet life seeking for SOEs from China	Yes	Yes	No	No	Yes	Yes	Yes
Hope and Thomas, 2008	Geographic earnings disclosures and managerial empire building	No	No	Yes	No	No	Yes	Yes
Humphery-Jenner, 2012	Effects of EU takeover directives on empire building and takeover performance	No	No	No	No	Yes	Yes	Yes
Iskandar-Datta and Jia, 2014	Cash holding as a tool for control of empire building and investor protection	No	No	No	Yes	No	Yes	Yes
Krug, Wright and Kroll, 2014	Top management turnover following mergers and acquisitions	No	No	No	No	Yes	No	No
Martynova and Renneboog, 2008	Pattern and profitability of takeover waves and managerial decision making	No	No	Yes	No	Yes	No	Yes
Meyer, 2008	Managers' rent seeking activity, post-merger shareholder value leakage, and the remedies	No	No	Yes	No	Yes	Yes	Yes
Namitha and Shijin, (2016)	Impact of managerial discretion on agency cost (SGA) and the moderating effect of corporate governance	Yes	No	Yes	No	Yes	Yes	Yes
Öberg and Holtström, 2006	Matching, dependence and power balance as reasons for mergers and acquisitions	No	No	Yes	No	No	No	Yes

Table 2
Descriptive statistics and correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) Empire Building	1.000													
(2) Profitability	-0.588	1.000												
(3) Management Expenses	0.609	-0.209	1.000											
(4) State %	0.348	-0.124	0.340	1.000										
(5) LT Debt	0.210	-0.068	0.096	0.236	1.000									
(6) Foreign Cap.	-0.026	0.004	0.017	-0.152	-0.104	1.000								
(7) Innovativeness	0.056	-0.014	0.066	0.012	0.011	-0.005	1.000							
(8) Working Cap.	-0.010	0.045	-0.005	-0.027	-0.002	0.121	0.085	1.000						
(9) Subsidies	0.104	-0.096	0.072	0.058	0.040	-0.051	0.098	0.026	1.000					
(10) D/E Ratio	0.014	-0.077	-0.033	0.010	0.198	-0.103	-0.006	-0.176	-0.023	1.000				
(11) Sales Growth	-0.182	0.152	-0.161	-0.016	0.005	-0.021	0.011	-0.011	0.012	0.016	1.000			
(12) Equity	0.315	-0.157	0.117	0.142	0.024	0.200	0.174	0.271	0.247	-0.400	0.026	1.000		
(13) No. Employees	0.127	-0.083	0.032	0.141	0.105	0.041	0.143	0.101	0.201	-0.015	0.032	0.630	1.000	
(14) Age	0.244	-0.080	0.290	0.412	0.184	-0.231	0.064	-0.052	0.083	0.069	-0.022	0.103	0.234	1.000
Mean	-0.032	-1.940	-2.922	0.161	0.064	0.119	0.038	0.007	1.193	2.371	0.187	9.729	0.009	26.294
S.D.	0.866	1.019	1.062	0.347	0.124	0.296	0.146	0.050	2.556	3.614	0.438	1.589	0.154	13.575

-Based on 165,000 observations. All correlations are significant at the level of 0.01.

Table 3
Non-model evidence: mean differences

Table 3a: Main effect: relationships between state %, empire building and firm performance

	Empire Building	Management Expenses	Profitability (ROA)		Management Expenses	Profitability (ROA)
Low State %	-0.179	0.078	-1.867	Low Empire Building	.050	-1.504
High State %	0.541	0.269	-2.236	High Empire Building	.157	-2.391
Difference (High-Low)	0.720	0.191	-0.369		0.107	-0.887

-All differences are significant at the level of 0.001

Table 3b: Main effect: relationships between state %, LT debt and empire building

	LT Debt	Empire Building		Empire Building
Low State %	0.050	-0.179	Low LT Debt	-0.175
High State %	0.118	0.541	High LT Debt	0.119
Difference (High-Low)	0.068	0.720		0.294

-All differences are significant at the level of 0.001

Table 3c: Moderating effect: relationship between state % and LT debt

	LT Debt			Empire Building
Low Foreign Cap. Low State %	0.054	Low Innovativeness	Low LT Debt	-0.199
High State %	0.126		High LT Debt	0.268
Difference (High-Low)	0.072		Difference (High-Low)	0.467
High Foreign Cap. Low State %	0.033	High Innovativeness	Low LT Debt	-0.106
High State %	0.048		High LT Debt	0.104
Difference (High-Low)	0.015		Difference (High-Low)	0.210
Change of Difference (Moderating effect)	-0.057			-0.257

- All differences are significant at the level of 0.001

Note: For Table 3a-Table 3c, empire building is proxied with sale adjusted assets. The patterns are consistent if we use sales adjusted number of employees as the proxy for empire building.

Table 4
Estimation results: Effect of state ownership on firm performance through empire building

Dependent Variable	Hypothesis	Empire Building Model 1	Management Expenses Model 2	Profitability (ROA) Model 3	Management Expenses Model 4	Profitability (ROA) Model 5	Management Expenses Model 6	Profitability (ROA) Model 7
Empire Building	H1a, H1b				0.629*** (0.004)	-0.852*** (0.004)	0.604*** (0.003)	-0.847*** (0.004)
State %	H1a, H1b	0.258*** (0.012)	0.319*** (0.015)	-0.271*** (0.020)			0.174*** (0.013)	-0.048** (0.017)
LT debt		0.471*** (0.015)	0.104*** (0.020)	-0.371*** (0.025)	-0.144*** (0.018)	0.022 (0.021)	-0.166*** (0.018)	0.029 (0.021)
Foreign cap. %		-0.003 (0.012)	0.160*** (0.016)	0.052** (0.019)	0.163*** (0.014)	0.050** (0.017)	0.163*** (0.014)	0.045** (0.017)
Innovativeness		-0.011 (0.010)	0.087*** (0.012)	0.132*** (0.015)	0.105*** (0.010)	0.113*** (0.012)	0.092*** (0.010)	0.114*** (0.012)
SO dummy		0.010 (0.009)	0.080*** (0.012)	0.055*** (0.015)	0.178*** (0.005)	0.022*** (0.007)	0.073*** (0.010)	0.058*** (0.013)
Working Capital		-0.843*** (0.033)	-0.348*** (0.043)	1.237*** (0.053)	0.197*** (0.036)	0.508*** (0.044)	0.114** (0.037)	0.471*** (0.044)
Subsidy		0.004*** (0.001)	0.008*** (0.001)	-0.005*** (0.001)	0.006*** (0.001)	-0.002* (0.001)	0.006*** (0.001)	-0.001 (0.001)
D/E ratio		0.035*** (0.001)	-0.005*** (0.001)	-0.038*** (0.001)	-0.011*** (0.001)	-0.006*** (0.001)	-0.024*** (0.001)	-0.006*** (0.001)
Growth		-0.099*** (0.003)	-0.074*** (0.004)	0.112*** (0.005)	0.039*** (0.004)	0.026*** (0.004)	-0.024*** (0.003)	0.021*** (0.004)
Equity		0.241*** (0.002)	-0.001 (0.003)	-0.183*** (0.003)	-0.038*** (0.002)	0.027*** (0.002)	-0.139*** (0.003)	0.026*** (0.003)
No. Employees		0.207*** (0.014)	0.387*** (0.018)	0.006 (0.021)	-0.004 (0.017)	-0.161*** (0.022)	0.265*** (0.015)	0.175*** (0.018)
No. Employees ²		-0.031*** (0.001)	-0.032*** (0.002)	0.011*** (0.002)	-0.018*** (0.002)	-0.017*** (0.002)	-0.014*** (0.001)	-0.016*** (0.002)
Age		0.007*** (0.000)	0.014*** (0.000)	-0.005*** (0.000)	0.009*** (0.000)	0.001* (0.000)	0.009*** (0.000)	0.001*** (0.000)
FC dummy		-0.035*** (0.010)	0.010 (0.012)	0.090*** (0.015)	0.041*** (0.011)	0.062*** (0.012)	0.028* (0.011)	0.057*** (0.012)
Constant		-2.387*** (0.046)	-3.458*** (0.060)	-0.046 (0.070)	-1.641*** (0.052)	-2.009*** (0.065)	-2.079*** (0.053)	-2.097*** (0.061)
Industry dummy		Included	Included	Included	Included	Included	Included	Included
Province dummy		Included	Included	Included	Included	Included	Included	Included
Year dummy		Included	Included	Included	Included	Included	Included	Included
No of Observations		165,000	165,000	165,000	165,000	165,000	165,000	165,000
R-squared		0.320	0.398	0.228	0.528	0.465	0.537	0.465

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

Table 5
Mediation and moderated mediation test

Table 5a
Mediation effect of empire building on the relationship between of State % and firm performance

Mediator	Indirect Effect	Bootstrap SE	Bootstrap LLCI	Bootstrap ULCI
Mediation of State %'s Effect on Management Expenses				
Empire Building	0.453***	0.011	0.431	0.474
Mediation of State %'s Effect on Profitability				
Empire Building	-0.437***	0.010	-0.457	-0.417

Table 5b
Mediation effect of LT Debt on the relationship between state % and empire building

Mediator	Indirect Effect	Bootstrap SE	Bootstrap LLCI	Bootstrap ULCI
Mediation of State %'s Effect on Empire Building				
LT Debt	0.048***	0.002	0.044	0.052

Table 5c
Moderated mediation of LT debt on the relationship between State % and empire building

Mediator	Moderated Mediation Index	Boot-strap SE	Boot-strap LLCI	Boot-strap ULCI	Level of Moderator	Value of Moderator	Conditional Mediation Effect	Boot-strap SE	Boot-strap LLCI	Boot-strap ULCI
Moderated by Foreign Cap.										
Lt Debt	-0.114***	0.010	-0.133	-0.095	Low (-1 SD)	0.001	0.052	0.002	0.048	0.057
					Mean	0.119	0.028	0.003	0.024	0.034
					High (+1 SD)	0.415	-0.005	0.005	-0.015	0.004
Moderated by Innovativeness										
Lt Debt	-0.015**	0.006	-0.003	-0.028	Low (-1 SD)	0.001	0.051	0.002	0.046	0.056
					Mean	0.038	0.048	0.002	0.044	0.053
					High (+1 SD)	0.183	0.038	0.002	0.034	0.042

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

Table 6
Estimation results: long-term debt as an instrument for empire building

Dependent Variable	Hypothesis	LT Debt	Empire Building	Empire Building	Empire Building
		Model 8	Model 9	Model 10	Model 11
State %	H2	0.009*** (0.002)	0.262*** (0.012)		0.258*** (0.012)
LT debt	H2			0.488*** (0.015)	0.471*** (0.015)
Foreign cap. %		0.008*** (0.002)	0.001 (0.012)	-0.021+ (0.012)	-0.003 (0.012)
Innovativeness		0.003* (0.002)	-0.009 (0.010)	-0.008 (0.010)	-0.011 (0.010)
SO dummy		0.003* (0.002)	0.012 (0.009)	0.128*** (0.005)	0.010 (0.009)
Working Capital		0.234*** (0.006)	-0.743*** (0.033)	-0.848*** (0.033)	-0.843*** (0.033)
Subsidy		0.000*** (0.000)	0.005*** (0.001)	0.005*** (0.001)	0.004*** (0.001)
D/E ratio		0.005*** (0.000)	0.037*** (0.001)	0.035*** (0.001)	0.035*** (0.001)
Growth		-0.001+ (0.000)	-0.098*** (0.003)	-0.098*** (0.003)	-0.099*** (0.003)
Equity		-0.003*** (0.000)	0.240*** (0.002)	0.242*** (0.002)	0.241*** (0.002)
No. Employees		-0.001 (0.002)	0.207*** (0.014)	0.181*** (0.014)	0.207*** (0.014)
No. Employees ²		0.001*** (0.000)	-0.031*** (0.001)	-0.029*** (0.001)	-0.031*** (0.001)
Age		0.001*** (0.000)	0.007*** (0.000)	0.009*** (0.000)	0.007*** (0.000)
FC dummy		-0.009*** (0.002)	-0.040*** (0.010)	-0.027** (0.010)	-0.035*** (0.010)
Constant		0.063*** (0.009)	-2.361*** (0.046)	-2.273*** (0.047)	-2.387*** (0.046)
Industry Dummy		Included	Included	Included	Included
Province Dummy		Included	Included	Included	Included
Year Dummy		Included	Included	Included	Included
No of Observations		165,000	165,000	165,000	165,000
R-squared		0.140	0.315	0.310	0.320

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

Table 7
Estimation results: moderators of empire building

Dependent Variable	Hypothesis	LT Debt Model 12	LT Debt Model 13	LT Debt Model 14	Empire Building Model 15	Empire Building Model 16	Empire Building Model 17
<i>Interaction Effect</i>							
Foreign cap. % x State %	H3a	-0.041*** (0.010)		-0.041*** (0.010)			
Innovativeness x State %			-0.001 (0.005)	-0.001 (0.005)			
Foreign cap. % x LT debt					0.069 (0.056)		0.069 (0.056)
Innovativeness x LT debt	H3b					-0.250** (0.084)	-0.249** (0.084)
<i>Control Variables</i>							
State %		0.007** (0.002)	0.009*** (0.002)	0.007** (0.002)	0.258*** (0.012)	0.258*** (0.012)	0.258*** (0.012)
LT debt					0.466*** (0.016)	0.463*** (0.015)	0.458*** (0.016)
Foreign cap. %		0.007*** (0.002)	0.008*** (0.002)	0.007*** (0.002)	-0.005 (0.012)	-0.003 (0.012)	-0.005 (0.012)
Innovativeness		0.003* (0.002)	0.003* (0.002)	0.003* (0.002)	-0.011 (0.010)	0.027* (0.011)	0.027* (0.011)
SO dummy		0.006** (0.002)	0.003* (0.002)	0.006** (0.002)	0.009 (0.009)	0.010 (0.009)	0.009 (0.009)
Working Capital		0.235*** (0.006)	0.235*** (0.006)	0.235*** (0.006)	-0.843*** (0.033)	-0.845*** (0.033)	-0.845*** (0.033)
Subsidy		0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)
D/E ratio		0.005*** (0.000)	0.005*** (0.000)	0.005*** (0.000)	0.035*** (0.001)	0.035*** (0.001)	0.035*** (0.001)
Growth		-0.001+ (0.000)	-0.001+ (0.000)	-0.001+ (0.000)	-0.099*** (0.003)	-0.099*** (0.003)	-0.099*** (0.003)
Equity		-0.003*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)	0.241*** (0.002)	0.241*** (0.002)	0.241*** (0.002)
No. Employees		-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	0.207*** (0.014)	0.207*** (0.014)	0.207*** (0.014)
No. Employees ²		0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	-0.031*** (0.001)	-0.031*** (0.001)	-0.031*** (0.001)
Age		0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.007*** (0.000)	0.007*** (0.000)	0.007*** (0.000)
FC dummy		-0.007*** (0.002)	-0.009*** (0.002)	-0.007*** (0.002)	-0.036*** (0.010)	-0.035*** (0.010)	-0.036*** (0.010)
Constant		0.063*** (0.009)	0.063*** (0.009)	0.063*** (0.009)	-2.386*** (0.046)	-2.386*** (0.046)	-2.386*** (0.046)
Industry Dummy		Included	Included	Included	Included	Included	Included
Province Dummy		Included	Included	Included	Included	Included	Included
Year Dummy		Included	Included	Included	Included	Included	Included
No of Observations		165,000	165,000	165,000	165,000	165,000	165,000
R-squared		0.140	0.140	0.140	0.320	0.320	0.320

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

Table 8
Additional Study: Effect of state ownership on firm performance through
empire building (alternative measure: number of employees)

Dependent Variable	Hypo-thesis	Empire Building Model 1	Management Expenses Model 2	Profitability (ROA) Model 3	Management Expenses Model 4	Profitability (ROA) Model 5	Management Expenses Model 6	Profitability (ROA) Model 7
Empire Building	H1a, H1b				0.467*** (0.003)	-0.386*** (0.004)	0.465*** (0.003)	-0.385*** (0.004)
State %	H1a, H1b	0.319*** (0.015)	0.312*** (0.015)	-0.265*** (0.020)			0.157*** (0.013)	-0.131*** (0.019)
LT debt		0.224*** (0.018)	0.133*** (0.020)	-0.233*** (0.025)	0.027 (0.019)	-0.142*** (0.024)	0.025 (0.019)	-0.140*** (0.024)
Foreign cap. %		-0.001 (0.016)	0.142*** (0.016)	0.039* (0.019)	0.143*** (0.014)	0.034+ (0.019)	0.137*** (0.014)	0.039* (0.019)
Innovativeness		-0.059*** (0.012)	0.107*** (0.012)	0.141*** (0.015)	0.129*** (0.010)	0.113*** (0.014)	0.131*** (0.010)	0.111*** (0.014)
SO dummy		-0.044*** (0.011)	0.091*** (0.012)	0.050** (0.015)	0.216*** (0.006)	-0.059*** (0.008)	0.109*** (0.010)	0.031* (0.015)
Working Capital		-0.674*** (0.043)	-0.244*** (0.043)	0.837*** (0.054)	0.082* (0.038)	0.527*** (0.051)	0.083* (0.038)	0.525*** (0.051)
Subsidy		0.006*** (0.001)	0.010*** (0.001)	-0.004*** (0.001)	0.007*** (0.001)	-0.002+ (0.001)	0.007*** (0.001)	-0.002+ (0.001)
D/E ratio		-0.003* (0.001)	0.001 (0.001)	-0.001 (0.002)	0.002+ (0.001)	-0.002 (0.002)	0.002+ (0.001)	-0.002 (0.002)
Growth		-0.075*** (0.004)	-0.074*** (0.004)	0.115*** (0.005)	-0.033*** (0.003)	0.072*** (0.005)	-0.033*** (0.003)	0.072*** (0.005)
Equity		-0.029*** (0.007)	0.038*** (0.007)	0.080*** (0.010)	0.052*** (0.007)	0.064*** (0.009)	0.052*** (0.007)	0.064*** (0.009)
Size (Asset)		0.471*** (0.022)	0.604*** (0.022)	-0.714*** (0.033)	0.377*** (0.020)	-0.517*** (0.031)	0.378*** (0.020)	-0.519*** (0.031)
Size (Squared)		-0.029*** (0.001)	-0.029*** (0.001)	0.023*** (0.001)	-0.015*** (0.001)	0.011*** (0.001)	-0.015*** (0.001)	0.012*** (0.001)
Age		0.014*** (0.000)	0.014*** (0.000)	-0.003*** (0.000)	0.008*** (0.000)	0.002*** (0.000)	0.008*** (0.000)	0.002*** (0.000)
FC dummy		-0.133*** (0.012)	0.021+ (0.012)	0.080*** (0.015)	0.075*** (0.011)	0.030* (0.014)	0.083*** (0.011)	0.023 (0.014)
Constant		-6.274*** (0.117)	-5.820*** (0.113)	2.593*** (0.161)	-2.841*** (0.103)	0.092 (0.152)	-2.868*** (0.103)	0.115 (0.152)
Industry dummy		Included	Included	Included	Included	Included	Included	Included
Province dummy		Included	Included	Included	Included	Included	Included	Included
Year dummy		Included	Included	Included	Included	Included	Included	Included
No of Observations		165,000	165,000	165,000	165,000	165,000	165,000	165,000
R-squared		0.617	0.401	0.230	0.512	0.301	0.513	0.302

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

Table 9
Estimation results: long-term debt as an instrument for empire building (alternative measure: number of employees)

Dependent Variable	Hypothesis	LT Debt Model 8	Empire Building Model 9	Empire Building Model 10	Empire Building Model 11
State %	H2	0.011*** (0.002)	0.322*** (0.015)		0.319*** (0.015)
LT debt	H2			0.228*** (0.018)	0.224*** (0.018)
Foreign cap. %		0.011*** (0.002)	0.001 (0.016)	0.009 (0.016)	-0.001 (0.016)
Innovativeness		-0.000 (0.002)	-0.058*** (0.012)	-0.063*** (0.012)	-0.059*** (0.012)
SO dummy		0.001 (0.002)	-0.044*** (0.011)	0.174*** (0.006)	-0.044*** (0.011)
Working Capital		0.267*** (0.006)	-0.615*** (0.043)	-0.677*** (0.043)	-0.674*** (0.043)
Subsidy		0.000 (0.000)	0.006*** (0.001)	0.006*** (0.001)	0.006*** (0.001)
D/E ratio		-0.003*** (0.000)	-0.003** (0.001)	-0.003* (0.001)	-0.003* (0.001)
Growth		-0.002*** (0.000)	-0.076*** (0.004)	-0.075*** (0.004)	-0.075*** (0.004)
Equity		-0.059*** (0.001)	-0.043*** (0.007)	-0.030*** (0.007)	-0.029*** (0.007)
Size (Asset)		0.066*** (0.004)	0.486*** (0.022)	0.469*** (0.023)	0.471*** (0.022)
Size (Squared)		-0.000 (0.000)	-0.029*** (0.001)	-0.029*** (0.001)	-0.029*** (0.001)
Age		0.000*** (0.000)	0.014*** (0.000)	0.015*** (0.000)	0.014*** (0.000)
FC dummy		-0.012*** (0.002)	-0.135*** (0.012)	-0.149*** (0.012)	-0.133*** (0.012)
Constant		-0.051** (0.019)	-6.288*** (0.116)	-6.241*** (0.117)	-6.274*** (0.117)
Industry Dummy		Included	Included	Included	Included
Province Dummy		Included	Included	Included	Included
Year Dummy		Included	Included	Included	Included
No of Observations		165,000	165,000	165,000	165,000
R-squared		0.173	0.617	0.617	0.617

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

Table 10
Estimation results: moderators of empire building (alternative measure: number of employees)

Dependent Variable	Hypothesis	LT Debt Model 12	LT Debt Model 13	LT Debt Model 14	Empire Building Model 15	Empire Building Model 16	Empire Building Model 17
<i>Interaction Effect</i>							
Foreign cap. % x State %	H3a	-0.034*** (0.010)		-0.034*** (0.010)			
Innovativeness x State %			-0.004 (0.005)	-0.004 (0.005)			
Foreign cap. % x LT debt					0.0298 (0.071)		0.0298 (0.071)
Innovativeness x LT debt	H3b					-0.226* (0.095)	-0.228* (0.095)
<i>Control Variables</i>							
State %		0.009*** (0.002)	0.011*** (0.002)	0.010*** (0.002)	0.318*** (0.015)	0.319*** (0.015)	0.318*** (0.015)
LT debt					0.244*** (0.018)	0.217*** (0.018)	0.237*** (0.019)
Foreign cap. %		0.011*** (0.002)	0.011*** (0.002)	0.011*** (0.002)	0.007 (0.016)	-0.001 (0.016)	0.007 (0.016)
Innovativeness		-0.000 (0.002)	0.000 (0.002)	0.000 (0.002)	-0.059*** (0.012)	0.073*** (0.013)	0.073*** (0.013)
SO dummy		0.003† (0.002)	0.001 (0.002)	0.003† (0.002)	-0.044*** (0.011)	-0.044*** (0.011)	-0.044*** (0.011)
Working Capital		0.267*** (0.006)	0.267*** (0.006)	0.267*** (0.006)	-0.675*** (0.043)	-0.676*** (0.043)	-0.677*** (0.043)
Subsidy		0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.006*** (0.001)	0.006*** (0.001)	0.006*** (0.001)
D/E ratio		-0.003*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)	-0.003* (0.001)	-0.003* (0.001)	-0.003* (0.001)
Growth		-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.075*** (0.004)	-0.075*** (0.004)	-0.075*** (0.004)
Equity		-0.059*** (0.001)	-0.059*** (0.001)	-0.059*** (0.001)	-0.030*** (0.007)	-0.029*** (0.007)	-0.030*** (0.007)
Size (Asset)		0.066*** (0.004)	0.066*** (0.004)	0.066*** (0.004)	0.470*** (0.022)	0.470*** (0.022)	0.470*** (0.022)
Size (Squared)		-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.029*** (0.001)	-0.029*** (0.001)	-0.029*** (0.001)
Age		0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.014*** (0.000)	0.014*** (0.000)	0.014*** (0.000)
FC dummy		-0.010*** (0.002)	-0.012*** (0.002)	-0.010*** (0.002)	-0.132*** (0.012)	-0.133*** (0.012)	-0.132*** (0.012)
Constant		-0.052** (0.019)	-0.051** (0.019)	-0.052** (0.019)	-6.273*** (0.117)	-6.272*** (0.117)	-6.271*** (0.117)
Industry Dummy		Included	Included	Included	Included	Included	Included
Province Dummy		Included	Included	Included	Included	Included	Included
Year Dummy		Included	Included	Included	Included	Included	Included
No of Observations		165,000	165,000	165,000	165,000	165,000	165,000
R-squared		0.173	0.173	0.173	0.617	0.617	0.617

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

Table 11
Mediation and moderated mediation test
(alternative measure of empire building: number of employees)

Table 11a
Mediation effect of empire building on the relationship between of State % and firm performance

Mediator	Indirect Effect	Bootstrap SE	Bootstrap LLCI	Bootstrap ULCI
Mediation of State %'s Effect on Management Expenses				
Empire Building	0.252***	0.004	0.244	0.259
Mediation of State %'s Effect on Profitability				
Empire Building	-0.131***	0.003	-0.136	-0.126

Table 11b
Mediation effect of LT Debt on the relationship between state % and empire building

Mediator	Indirect Effect	Bootstrap SE	Bootstrap LLCI	Bootstrap ULCI
Mediation of State %'s Effect on Empire Building				
LT Debt	0.024***	0.002	0.021	0.028

Table 11c
Moderated mediation of LT debt on the relationship between State % and empire building

Mediator	Moderated Mediation Index	Bootstrap SE	Bootstrap LLCI	Bootstrap ULCI	Level of Moderator	Value of Moderator	Conditional Mediation Effect	Bootstrap SE	Bootstrap LLCI	Bootstrap ULCI
Moderated by Foreign Cap.										
Lt Debt	-0.062***	0.005	-0.072	-0.051	Low (-1 SD)	0.001	0.031	0.002	0.027	0.035
					Mean	0.119	0.023	0.001	0.021	0.026
					High (+1 SD)	0.415	0.005	0.002	0.002	0.008
Moderated by Innovativeness										
Lt Debt	-0.082***	0.013	-0.106	-0.055	Low (-1 SD)	0.001	0.044	0.003	0.039	0.050
					Mean	0.038	0.032	0.002	0.029	0.036
					High (+1 SD)	0.183	0.029	0.002	0.025	0.033

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

Online Appendix

Appendix 1: Tipping point

We conducted a study to check the existence of tipping points for the relationship between state ownership and empire building, i.e. a threshold above which the effect is more pronounced and below which the effects are weak or negligible.

Our original model tests only the linear relationship between state ownership percentage and empire building. To accommodate the possible change of the strength of the relationship, we added and implemented with two new specifications for our model as follows:

First, we added a **Dummy_Tipping** to the model (Equation 1 in our manuscript), and had it interact with State %. When the State % is above the tipping point, the **Dummy_Tipping** is set to be 1 and 0 otherwise.

$$\begin{aligned} \text{Empire Building}_{it} = & \beta_0 + \beta_1 \text{State \%}_{i,t-1} + \theta_1 \times \text{State \%}_{i,t-1} \times \text{Dummy_Tipping}_{i,t-1} + \theta_2 \times \text{Dummy_Tipping}_{i,t-1} \\ & + \beta_2 \times \text{LT debt}_{i,t-1} + \beta_3 \times \text{Foreign Cap.}_{i,t-1} + \beta_4 \times \text{Innovativeness}_{i,t-1} + \beta_5 \times \text{SO dummy}_{i,t-1} + \beta_6 \times \\ & \text{Working cap.}_{i,t-1} + \beta_7 \times \text{Subsidy}_{i,t-1} + \beta_8 \times \text{DE ratio}_{i,t-1} + \beta_9 \times \text{Growth}_{i,t-1} + \beta_{10} \times \text{Equity}_{i,t-1} + \beta_{11} \\ & \times \text{Size}_{i,t-1} + \beta_{12} \times \text{Size}_{i,t-1}^2 + \beta_{13} \times \text{Age}_{i,t-1} + \beta_{14} \times \text{FC dummy}_{i,t-1} + \sum_j \beta_j \times \text{Controls}_{ij,t-1} + \varepsilon_{it} \end{aligned}$$

with $\varepsilon_{it} = \rho \times \varepsilon_{i,t-1} + \eta_{it}$ and $\eta_{it} \in N(0, \sigma_i^2)$ (R1)

Therefore, the slope (i.e. the strength of relationship between State % and Empire Building) below the Tipping point is captured by β_1 , while the slope above the tipping point is captured by $\beta_1 + \theta_1$. In other words, if there is a major change of the slope after the tipping point, we will see a significant θ_1 , and the sign of θ_1 indicates the slope becomes significantly more positive (steeper) or negative (flatter).

To have a thorough investigation, we picked 9 potential Tipping points to be 10%, 20%,, and 90%. The results (Table A1) shows that statistically, 20%, 30%, 40%, 50%, 60%, 70%, 80% all can potentially be the Tipping Point. Choosing any of these values will give a kink in the slope, i.e. a steeper slope after the tipping point. Therefore, we have reasons to believe that the tipping points exist. However, we are not able to tell which one(s) is(are) the real tipping point(s). This is because if the real tipping point is 50%, i.e. the slope is indeed stronger for firms with state ownership >50%, when we segment the data at 40%, the observations of state ownership > 50% will influence the estimation for the segment of observations with state ownership >40%. The regression might also result in a steeper slope for the “>40%” section. The same rationale may apply to the estimation and results interpretation for other tipping points as well. For this reason, we developed another model for further and more refined exploration.

Second, we picked 9 potential Tipping points (10%, 20%,, and 90%), and added simultaneously all the 9 **Dummy_Tipping** variables to the model, and had them interact with State %. Thus, we have

$$\begin{aligned} \text{Empire Building}_{it} = & \beta_0 + \beta_1 \text{State \%}_{i,t-1} + \sum_k \theta_{1k} \times \text{State \%}_{i,t-1} \times \text{Dummy_Tipping}_{ik,t-1} + \sum_k \theta_{2k} \times \\ & \text{Dummy_Tipping}_{ik,t-1} + \beta_2 \times \text{LT debt}_{i,t-1} + \beta_3 \times \text{Foreign Cap.}_{i,t-1} + \beta_4 \times \text{Innovativeness}_{i,t-1} + \beta_5 \times \\ & \text{SO dummy}_{i,t-1} + \beta_6 \times \text{Working cap.}_{i,t-1} + \beta_7 \times \text{Subsidy}_{i,t-1} + \beta_8 \times \text{DE ratio}_{i,t-1} + \beta_9 \times \text{Growth}_{i,t-1} \\ & + \beta_{10} \times \text{Equity}_{i,t-1} + \beta_{11} \times \text{Size}_{i,t-1} + \beta_{12} \times \text{Size}_{i,t-1}^2 + \beta_{13} \times \text{Age}_{i,t-1} + \beta_{14} \times \text{FC dummy}_{i,t-1} + \sum_j \beta_j \times \\ & \text{Controls}_{ij,t-1} + \varepsilon_{it} \end{aligned}$$

with $\varepsilon_{it} = \rho \times \varepsilon_{i,t-1} + \eta_{it}$ and $\eta_{it} \in N(0, \sigma_i^2)$, and $K, h \in (1, 2, \dots, 9)$ (R2)

When we add all **Dummy_Tipping** variables into the model at once, by reading θ_{1k} , we can study the incremental slope change from the first (0-10%) to the last (90% to 100%) section with a sectional increment of 10% in State %.

Our results in Table A1 shows that there are two significant “kinks” at State % of 20% and 50% (Model 10, Full Model).

Therefore, we may conclude that the relationship between State % and Empire Building is positive in general. However, the relationship (the effect of State% on Empire Building) is weak when State % is

below 20%. The relationship is strengthened when State % reaches over 20%, and the relationship is further reinforced when State % is over 50%.

These findings are intriguing, consistent with other empirical evidences, and in line with existing management literature for four reasons.

First, the revealed pattern is, to large extent, consistent with our non-model evidence which is demonstrated in Figure 3a of the manuscript.

Second, the tipping point at around 20% of State share can be explained by the blockholder ownership effect (for definition and detailed explanation please see manuscript p.9), i.e. when an owner (in our study context, the State) holds a large block of a company's shares, even though it is not a majority holding of over 50%, these owners are often able to influence the company decision with the voting rights awarded with their holdings. Our empirical data shows that, if the state holds 20% or more shares of the company, they can start to enforce their preferred managerial decisions (specifically empire building) with their practical control power.

Third, the second “kink” point at 50% can be explained by the majority holding of state ownership. Traditionally, we define a state-owned enterprise as an enterprise with 50% or more ownership by the State. Under this circumstance, the State has dominant power in decision making and absolute control over the company. They will receive minimal resistance to pass and implement firm size growth decisions, even if it turns out to be an excessive growth, i.e. empire building.

Fourth, the reason the relationship between State % and Empire Building is stronger when State % is over 50% than the relationship when State % ranges between 20% and 50% is because even though for the latter situation, State becomes the blockholder, it is still not the majority shareholder. For firms with State % between 20% and 50%, State’s voting power is not negligible, but for some of them, and under some circumstances, the state owner’s proposal toward building an empire can be nullified by the majority shareholder in the firm or other allied shareholders with more voting power.

Appendix 2: Matching Analysis

A comparison between firms with state ownership and privately-owned firms may provide additional insights into the impact of state ownership on empire building. We conducted a propensity score matching analysis (Rosenbaum and Rubin, 1983), a useful method that makes comparisons between comparable sets of firms with state ownership and privately-owned firms and further helps to establish the causality between state ownership percentage and empire building. Since our data consists of both private firms and firms with state ownership, we can apply a matching method on it. We conducted a propensity score matching analysis and the results are consistent with our proposed findings. This was done in several steps.

1. We created a dummy variable to code firms with state ownership. We coded firms with state ownership to be 1 and private firm otherwise (i.e. 0)
2. We ran a probit model to generate propensity scores for each observation. We use all variables other than the State % and Empire Building to predict the propensity of each observation to be a firm with state ownership.
3. For each firm with state ownership, we found a matching private firm(s) with similar propensity score. For the matching algorithm, we used three methods - nearest neighbor matching, radius matching and stratified matching.
4. For the matching pairs, we compare the value of their Empire Building variable. The matching pairs are comparable in terms of their propensity to be a firm with state ownership, but by randomness, one gets into the treated group (with state ownership) and the other to the control group (private firm). Therefore, the difference of their Empire Building measure is neatly caused by the treatment effect of having state ownership.

To have a thorough investigation, we extended our analysis by doing the following:

5. We repeated the analysis describe in Steps 1 to 4, for other measures of interest: Long-term Debt, ROA, and Managerial Expenses
6. We not only made comparisons between firms with state ownership and private firms, but also repeated Steps 1-5 on firms with high state ownership versus firms with low state ownership. We operationalized the definition of high versus low state ownership by trying the cut off of 10%, 20% to 90% for State %.

We summarized our results in Table A11. All results are consistent with our central hypotheses. Specifically, we find that empire building is more severe, long term debt is more utilized, ROA is poorer, and management expenses are higher for firms with state ownership than for private firms, and for firms with high rather than low state ownership.

Table A1.
Tipping Point Analysis

Dependent Variable	Model 1 Tipping at 10%	Model 2 Tipping at 20%	Model 3 Tipping at 30%	Model 4 Tipping at 40%	Model 5 Tipping at 50%	Model 6 Tipping at 60%	Model 7 Tipping at 70%	Model 8 Tipping at 80%	Model 9 Tipping at 90%	Model 10 Full Model
State %	-0.038 (0.461)	-0.344+ (0.180)	-0.087 (0.097)	-0.069 (0.063)	-0.021 (0.044)	0.024 (0.036)	0.072* (0.030)	0.116*** (0.025)	0.155*** (0.022)	0.011 (0.461)
<i>Interaction State% and DummyTipping</i>										
DummyTipping10%	0.331 (0.462)									-1.070 (0.675)
DummyTipping20%		0.663*** (0.181)								1.218+ (0.647)
DummyTipping30%			0.437*** (0.099)							-0.280 (0.601)
DummyTipping40%				0.439*** (0.068)						-0.705 (0.552)
DummyTipping50%					0.414*** (0.054)					1.641** (0.562)
DummyTipping60%						0.373*** (0.056)				-1.003 (0.670)
DummyTipping70%							0.351*** (0.069)			1.233 (0.783)
DummyTipping80%								0.236+ (0.138)		-0.973 (0.865)
DummyTipping90%									0.470 (0.341)	0.503 (0.724)
<i>Control Variables</i>										
DummyTipping10%	-0.112*** (0.031)									0.139+ (0.082)
DummyTipping20%		-0.157*** (0.025)								-0.188 (0.136)

Table A1.
Tipping Point Analysis (Cont'd)

Dependent Variable	Model 1 Tipping at 10%	Model 2 Tipping at 20%	Model 3 Tipping at 30%	Model 4 Tipping at 40%	Model 5 Tipping at 50%	Model 6 Tipping at 60%	Model 7 Tipping at 70%	Model 8 Tipping at 80%	Model 9 Tipping at 90%	Model 10 Full Model
DummyTipping30%			-0.166*** (0.024)							0.071 (0.185)
DummyTipping40%				-0.183*** (0.025)						0.355 (0.225)
DummyTipping50%					-0.198*** (0.030)					-0.809** (0.286)
DummyTipping60%						-0.194*** (0.042)				0.611 (0.412)
DummyTipping70%							-0.209*** (0.060)			-0.880 (0.555)
DummyTipping80%								-0.127 (0.134)		0.782 (0.699)
DummyTipping90%									-0.389 (0.339)	-0.468 (0.643)
LT debt	0.471*** (0.015)	0.471*** (0.015)	0.471*** (0.015)	0.471*** (0.015)	0.471*** (0.015)	0.471*** (0.015)	0.471*** (0.015)	0.471*** (0.015)	0.471*** (0.015)	0.470*** (0.015)
Foreign cap. %	-0.006 (0.012)	-0.007 (0.012)	-0.009 (0.012)	-0.010 (0.012)	-0.010 (0.012)	-0.010 (0.012)	-0.010 (0.012)	-0.010 (0.012)	-0.008 (0.012)	-0.011 (0.012)
Innovativeness	-0.011 (0.010)	-0.011 (0.010)	-0.011 (0.010)	-0.011 (0.010)	-0.011 (0.010)	-0.011 (0.010)	-0.011 (0.010)	-0.011 (0.010)	-0.011 (0.010)	-0.011 (0.010)
SO dummy	0.090** (0.029)	0.112*** (0.022)	0.092*** (0.018)	0.090*** (0.016)	0.084*** (0.014)	0.075*** (0.013)	0.065*** (0.012)	0.053*** (0.012)	0.042*** (0.011)	0.090** (0.029)
Working capital	-0.843*** (0.033)	-0.842*** (0.033)	-0.842*** (0.033)	-0.842*** (0.033)	-0.842*** (0.033)	-0.842*** (0.033)	-0.843*** (0.033)	-0.844*** (0.033)	-0.844*** (0.033)	-0.843*** (0.033)
Subsidy	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)

Table A1.
Tipping Point Analysis (Cont'd)

Dependent Variable	Model 1 Tipping at 10%	Model 2 Tipping at 20%	Model 3 Tipping at 30%	Model 4 Tipping at 40%	Model 5 Tipping at 50%	Model 6 Tipping at 60%	Model 7 Tipping at 70%	Model 8 Tipping at 80%	Model 9 Tipping at 90%	Model 10 Full Model
Growth	-0.099*** (0.003)	-0.099*** (0.003)	-0.099*** (0.003)	-0.099*** (0.003)	-0.099*** (0.003)	-0.099*** (0.003)	-0.099*** (0.003)	-0.099*** (0.003)	-0.098*** (0.003)	-0.099*** (0.003)
Equity	0.241*** (0.002)	0.241*** (0.002)	0.241*** (0.002)	0.241*** (0.002)	0.241*** (0.002)	0.241*** (0.002)	0.241*** (0.002)	0.241*** (0.002)	0.241*** (0.002)	0.241*** (0.002)
No. Employees	0.207*** (0.014)	0.207*** (0.014)	0.207*** (0.014)	0.207*** (0.014)	0.207*** (0.014)	0.207*** (0.014)	0.206*** (0.014)	0.207*** (0.014)	0.207*** (0.014)	0.207*** (0.014)
No. Employees ²	-0.031*** (0.001)	-0.031*** (0.001)	-0.031*** (0.001)	-0.031*** (0.001)	-0.031*** (0.001)	-0.031*** (0.001)	-0.031*** (0.001)	-0.031*** (0.001)	-0.031*** (0.001)	-0.031*** (0.001)
Age	0.007*** (0.000)	0.007*** (0.000)	0.007*** (0.000)	0.007*** (0.000)	0.007*** (0.000)	0.007*** (0.000)	0.007*** (0.000)	0.007*** (0.000)	0.007*** (0.000)	0.007*** (0.000)
FC dummy	-0.033*** (0.010)	-0.032** (0.010)	-0.030** (0.010)	-0.030** (0.010)	-0.029** (0.010)	-0.030** (0.010)	-0.030** (0.010)	-0.030** (0.010)	-0.031** (0.010)	-0.029** (0.010)
Constant	-2.387*** (0.046)	-2.387*** (0.046)	-2.387*** (0.046)	-2.387*** (0.046)	-2.387*** (0.046)	-2.386*** (0.046)	-2.386*** (0.046)	-2.387*** (0.046)	-2.387*** (0.046)	-2.388*** (0.046)
Industry Dummy	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Province Dummy	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Year Dummy	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Observations	165,000	165,000	165,000	165,000	165,000	165,000	165,000	165,000	165,000	165,000
R-squared	0.320	0.321	0.321	0.321	0.321	0.321	0.321	0.320	0.320	0.321

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

Table A2
Robustness check: corrected for selection bias of state ownership- main effect

Dependent Variable	Hypothesis	Empire Building Model 1	Management Expenses Model 2	Profitability (ROA) Model 3	Management Expenses Model 4	Profitability (ROA) Model 5	Management Expenses Model 6	Profitability (ROA) Model 7
Empire Building	H1a, H1b				0.607*** (0.003)	-0.847*** (0.004)	0.605*** (0.003)	-0.847*** (0.004)
State %	H1a, H1b	0.303*** (0.011)	0.376*** (0.014)	-0.296*** (0.019)			0.203*** (0.012)	-0.036* (0.016)
LT debt		0.468*** (0.015)	0.107*** (0.020)	-0.363*** (0.025)	-0.147*** (0.018)	0.031 (0.021)	-0.161*** (0.018)	0.034 (0.021)
Foreign cap. %		0.000 (0.012)	0.151*** (0.016)	0.039* (0.019)	0.133*** (0.014)	0.039* (0.017)	0.152*** (0.014)	0.036* (0.017)
Innovativeness		-0.010 (0.010)	0.089*** (0.012)	0.132*** (0.015)	0.091*** (0.010)	0.115*** (0.012)	0.093*** (0.010)	0.115*** (0.012)
SO dummy ^ε		-0.019*** (0.005)	0.016** (0.006)	0.045*** (0.008)	0.099*** (0.003)	0.014*** (0.004)	0.026*** (0.005)	0.027*** (0.007)
Working Capital		-0.842*** (0.033)	-0.350*** (0.043)	1.232*** (0.053)	0.103** (0.037)	0.470*** (0.044)	0.112** (0.037)	0.468*** (0.044)
Subsidy		0.004*** (0.001)	0.008*** (0.001)	-0.005*** (0.001)	0.006*** (0.001)	-0.001 (0.001)	0.006*** (0.001)	-0.001 (0.001)
D/E ratio		0.035*** (0.001)	-0.004*** (0.001)	-0.038*** (0.001)	-0.024*** (0.001)	-0.006*** (0.001)	-0.024*** (0.001)	-0.006*** (0.001)
Growth		-0.098*** (0.003)	-0.075*** (0.004)	0.110*** (0.005)	-0.027*** (0.003)	0.021*** (0.004)	-0.025*** (0.003)	0.020*** (0.004)
Equity		0.241*** (0.002)	0.001 (0.003)	-0.181*** (0.003)	-0.135*** (0.003)	0.027*** (0.003)	-0.137*** (0.003)	0.027*** (0.003)
No. Employees		0.208*** (0.014)	0.385*** (0.018)	0.003 (0.021)	0.251*** (0.015)	0.175*** (0.018)	0.263*** (0.015)	0.173*** (0.018)
No. Employees ²		-0.032*** (0.001)	-0.032*** (0.002)	0.011*** (0.002)	-0.012*** (0.001)	-0.016*** (0.002)	-0.013*** (0.001)	-0.016*** (0.002)
Age		0.007*** (0.000)	0.014*** (0.000)	-0.004*** (0.000)	0.011*** (0.000)	0.001*** (0.000)	0.010*** (0.000)	0.001*** (0.000)
FC dummy		-0.037*** (0.010)	0.018 (0.012)	0.099*** (0.015)	0.046*** (0.011)	0.063*** (0.012)	0.037*** (0.011)	0.065*** (0.012)
Constant		-2.395*** (0.046)	-3.461*** (0.060)	-0.036 (0.070)	-2.023*** (0.053)	-2.103*** (0.060)	-2.077*** (0.053)	-2.093*** (0.061)
Industry dummy		Included	Included	Included	Included	Included	Included	Included
Province dummy		Included	Included	Included	Included	Included	Included	Included
Year dummy		Included	Included	Included	Included	Included	Included	Included
No of Observations		165,000	165,000	165,000	165,000	165,000	165,000	165,000
R-squared		0.320	0.398	0.228	0.527	0.465	0.528	0.465

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

^ε SO dummy is the endogenous treatment variable which reflects the endogenous firm-level decision to have state ownership in our two-stage treatment regression.

Table A3
Robustness check: corrected for selection bias of state ownership- instrument

Dependent Variable	Hypothesis	LT Debt Model 8	Empire Building Model 9	Empire Building Model 10	Empire Building Model 11
State %	H2	0.047*** (0.002)	0.326*** (0.011)		0.303*** (0.011)
LT debt	H2			0.491*** (0.015)	0.468*** (0.015)
Foreign cap. %		0.012*** (0.002)	0.006 (0.012)	-0.028* (0.012)	0.000 (0.012)
Innovativeness		0.004* (0.002)	-0.007 (0.010)	-0.013 (0.010)	-0.010 (0.010)
SO dummy [€]		-0.018*** (0.001)	-0.027*** (0.005)	0.092*** (0.003)	-0.019*** (0.005)
Working Capital		0.235*** (0.006)	-0.741*** (0.033)	-0.854*** (0.033)	-0.842*** (0.033)
Subsidy		0.000*** (0.000)	0.005*** (0.001)	0.005*** (0.001)	0.004*** (0.001)
D/E ratio		0.005*** (0.000)	0.037*** (0.001)	0.035*** (0.001)	0.035*** (0.001)
Growth		-0.000 (0.000)	-0.097*** (0.003)	-0.101*** (0.003)	-0.098*** (0.003)
Equity		-0.004*** (0.000)	0.239*** (0.002)	0.244*** (0.002)	0.241*** (0.002)
No. Employees		0.000 (0.002)	0.209*** (0.014)	0.191*** (0.014)	0.208*** (0.014)
No. Employees ²		0.001*** (0.000)	-0.031*** (0.001)	-0.030*** (0.001)	-0.032*** (0.001)
Age		0.000*** (0.000)	0.007*** (0.000)	0.009*** (0.000)	0.007*** (0.000)
FC dummy		-0.011*** (0.002)	-0.042*** (0.010)	-0.022* (0.010)	-0.037*** (0.010)
Constant		0.056*** (0.009)	-2.372*** (0.046)	-2.314*** (0.047)	-2.395*** (0.046)
Industry Dummy		Included	Included	Included	Included
Province Dummy		Included	Included	Included	Included
Year Dummy		Included	Included	Included	Included
No of Observations		165,000	165,000	165,000	165,000
R-squared		0.143	0.315	0.316	0.320

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

€ SO dummy is the endogenous treatment variable which reflects the endogenous firm-level decision to have state ownership in our two-stage treatment regression.

Table A4
Robustness check: corrected for selection bias of state ownership- moderating effect

Dependent Variable	Hypothesis	LT Debt Model 12	LT Debt Model 13	LT Debt Model 14	Empire Building Model 15	Empire Building Model 16	Empire Building Model 17
<i>Interaction Effect</i>							
Foreign cap. % x State %	H3a	-0.055*** (0.010)		-0.055*** (0.010)			
Innovativeness x State %			-0.002 (0.005)	-0.002 (0.005)			
Foreign cap. % x LT debt					0.072 (0.056)		0.071 (0.056)
Innovativeness x LT debt	H3b					-0.247** (0.084)	-0.247** (0.084)
<i>Control Variables</i>							
State %		0.048*** (0.002)	0.047*** (0.002)	0.048*** (0.002)	0.304*** (0.011)	0.303*** (0.011)	0.303*** (0.011)
LT debt					0.463*** (0.016)	0.460*** (0.015)	0.456*** (0.016)
Foreign cap. %		0.014*** (0.002)	0.012*** (0.002)	0.014*** (0.002)	-0.002 (0.012)	-0.000 (0.012)	-0.002 (0.012)
Innovativeness		0.004* (0.002)	0.004* (0.002)	0.004* (0.002)	-0.010 (0.010)	0.026* (0.011)	0.026* (0.011)
SO dummy [€]		-0.019*** (0.001)	-0.018*** (0.001)	-0.020*** (0.001)	-0.019*** (0.005)	-0.019*** (0.005)	-0.019*** (0.005)
Working Capital		0.235*** (0.006)	0.235*** (0.006)	0.235*** (0.006)	-0.841*** (0.033)	-0.844*** (0.033)	-0.843*** (0.033)
Subsidy		0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)
D/E ratio		0.005*** (0.000)	0.005*** (0.000)	0.005*** (0.000)	0.035*** (0.001)	0.035*** (0.001)	0.035*** (0.001)
Growth		-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.098*** (0.003)	-0.098*** (0.003)	-0.098*** (0.003)
Equity		-0.004*** (0.000)	-0.004*** (0.000)	-0.004*** (0.000)	0.241*** (0.002)	0.241*** (0.002)	0.241*** (0.002)
No. Employees		0.000 (0.002)	0.000 (0.002)	0.000 (0.002)	0.208*** (0.014)	0.209*** (0.014)	0.209*** (0.014)
No. Employees ²		0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	-0.032*** (0.001)	-0.032*** (0.001)	-0.032*** (0.001)
Age		0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.007*** (0.000)	0.007*** (0.000)	0.007*** (0.000)
FC dummy		-0.013*** (0.002)	-0.011*** (0.002)	-0.013*** (0.002)	-0.037*** (0.010)	-0.036*** (0.010)	-0.037*** (0.010)
Constant		0.056*** (0.009)	0.056*** (0.009)	0.056*** (0.009)	-2.394*** (0.046)	-2.394*** (0.046)	-2.393*** (0.046)
Industry Dummy		Included	Included	Included	Included	Included	Included
Province Dummy		Included	Included	Included	Included	Included	Included
Year Dummy		Included	Included	Included	Included	Included	Included
No of Observations		165,000	165,000	165,000	165,000	165,000	165,000
R-squared		0.143	0.140	0.143	0.320	0.320	0.320

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

€ SO dummy is the endogenous treatment variable which reflects the endogenous firm-level decision to have state ownership in our two-stage treatment regression.

Table A5
Robustness check: corrected for selection bias of foreign capital investment- main effect

Dependent Variable	Hypo-thesis	Empire Building Model 1	Management Expenses Model 2	Profitability (ROA) Model 3	Management Expenses Model 4	Profitability (ROA) Model 5	Management Expenses Model 6	Profitability (ROA) Model 7
Empire Building	H1a, H1b				0.606*** (0.003)	-0.848*** (0.004)	0.604*** (0.003)	-0.847*** (0.004)
State %	H1a, H1b	0.259*** (0.012)	0.315*** (0.015)	-0.278*** (0.020)			0.170*** (0.013)	-0.054** (0.017)
LT debt		0.471*** (0.015)	0.103*** (0.020)	-0.373*** (0.025)	-0.166*** (0.018)	0.027 (0.021)	-0.167*** (0.018)	0.027 (0.021)
Foreign cap. %		-0.053*** (0.011)	0.148*** (0.014)	0.145*** (0.017)	0.161*** (0.012)	0.097*** (0.015)	0.177*** (0.012)	0.093*** (0.015)
Innovativeness		-0.012 (0.010)	0.087*** (0.012)	0.134*** (0.015)	0.089*** (0.010)	0.116*** (0.012)	0.092*** (0.010)	0.115*** (0.012)
SO dummy		0.008 (0.009)	0.083*** (0.012)	0.062*** (0.015)	0.192*** (0.005)	0.027*** (0.007)	0.076*** (0.010)	0.064*** (0.013)
Working Capital		-0.843*** (0.033)	-0.345*** (0.043)	1.240*** (0.053)	0.117** (0.037)	0.475*** (0.044)	0.117** (0.037)	0.475*** (0.044)
Subsidy		0.004*** (0.001)	0.008*** (0.001)	-0.005*** (0.001)	0.006*** (0.001)	-0.001 (0.001)	0.006*** (0.001)	-0.001 (0.001)
D/E ratio		0.035*** (0.001)	-0.004*** (0.001)	-0.038*** (0.001)	-0.024*** (0.001)	-0.006*** (0.001)	-0.024*** (0.001)	-0.006*** (0.001)
Growth		-0.099*** (0.003)	-0.075*** (0.004)	0.112*** (0.005)	-0.024*** (0.003)	0.021*** (0.004)	-0.024*** (0.003)	0.021*** (0.004)
Equity		0.241*** (0.002)	0.001 (0.003)	-0.182*** (0.004)	-0.138*** (0.003)	0.028*** (0.003)	-0.137*** (0.003)	0.028*** (0.003)
No. Employees		0.208*** (0.014)	0.386*** (0.018)	0.005 (0.021)	0.260*** (0.015)	0.175*** (0.018)	0.264*** (0.015)	0.174*** (0.018)
No. Employees ²		-0.031*** (0.001)	-0.032*** (0.002)	0.011*** (0.002)	-0.013*** (0.001)	-0.016*** (0.002)	-0.014*** (0.001)	-0.016*** (0.002)
Age		0.007*** (0.000)	0.014*** (0.000)	-0.005*** (0.000)	0.010*** (0.000)	0.001** (0.000)	0.009*** (0.000)	0.001*** (0.000)
FC dummy [‡]		0.006 (0.005)	0.013* (0.006)	0.003 (0.008)	0.015** (0.005)	0.006 (0.007)	0.009 (0.005)	0.008 (0.007)
Constant		-2.390*** (0.046)	-3.466*** (0.060)	-0.048 (0.070)	-2.056*** (0.053)	-2.111*** (0.061)	-2.084*** (0.053)	-2.102*** (0.061)
Industry dummy		Included	Included	Included	Included	Included	Included	Included
Province dummy		Included	Included	Included	Included	Included	Included	Included
Year dummy		Included	Included	Included	Included	Included	Included	Included
No of Observations		165,000	165,000	165,000	165,000	165,000	165,000	165,000
R-squared		0.320	0.398	0.228	0.527	0.465	0.528	0.465

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

‡ *FC_dummy* is the endogenous treatment variable which reflects the endogenous firm-level decision to have foreign capital investment in our two-stage treatment regression.

Table A6
Robustness check: corrected for selection bias of foreign capital investment- instrument

Dependent Variable	Hypothesis	LT Debt Model 8	Empire Building Model 9	Empire Building Model 10	Empire Building Model 11
State %	H2	0.006* (0.002)	0.262*** (0.012)		0.259*** (0.012)
LT debt	H2			0.472*** (0.015)	0.471*** (0.015)
Foreign cap. %		-0.026*** (0.002)	-0.066*** (0.011)	-0.076*** (0.011)	-0.053*** (0.011)
Innovativeness		0.002 (0.002)	-0.010 (0.010)	-0.017+ (0.010)	-0.012 (0.010)
SO dummy		0.005** (0.002)	0.010 (0.009)	0.185*** (0.005)	0.008 (0.009)
Working Capital		0.236*** (0.006)	-0.742*** (0.033)	-0.843*** (0.033)	-0.843*** (0.033)
Subsidy		0.000** (0.000)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)
D/E ratio		0.005*** (0.000)	0.037*** (0.001)	0.035*** (0.001)	0.035*** (0.001)
Growth		-0.001* (0.000)	-0.098*** (0.003)	-0.098*** (0.003)	-0.099*** (0.003)
Equity		-0.002*** (0.000)	0.241*** (0.002)	0.240*** (0.002)	0.241*** (0.002)
No. Employees		-0.001 (0.002)	0.207*** (0.014)	0.201*** (0.014)	0.208*** (0.014)
No. Employees ²		0.001*** (0.000)	-0.031*** (0.001)	-0.031*** (0.001)	-0.031*** (0.001)
Age		0.000*** (0.000)	0.007*** (0.000)	0.007*** (0.000)	0.007*** (0.000)
FC dummy [‡]		0.014*** (0.001)	0.013* (0.005)	0.016*** (0.005)	0.006 (0.005)
Constant		0.055*** (0.009)	-2.368*** (0.046)	-2.347*** (0.046)	-2.390*** (0.046)
Industry Dummy		Included	Included	Included	Included
Province Dummy		Included	Included	Included	Included
Year Dummy		Included	Included	Included	Included
No of Observations		165,000	165,000	165,000	165,000
R-squared		0.141	0.314	0.318	0.320

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

‡ *FC_dummy* is the endogenous treatment variable which reflects the endogenous firm-level decision to have foreign capital investment in our two-stage treatment regression.

Table A7
Robustness check: corrected for selection bias of foreign capital investment- moderating effect

Dependent Variable	Hypothesis	LT Debt Model 12	LT Debt Model 13	LT Debt Model 14	Empire Building Model 15	Empire Building Model 16	Empire Building Model 17
<i>Interaction Effect</i>							
Foreign cap. % x State %	H3a	-0.087*** (0.010)		-0.087*** (0.010)			
Innovativeness x State %			-0.001 (0.005)	-0.001 (0.005)			
Foreign cap. % x LT debt					0.062 (0.056)		0.061 (0.056)
Innovativeness x LT debt	H3b					-0.250** (0.084)	-0.250** (0.084)
<i>Control Variables</i>							
State %		0.002 (0.002)	0.006* (0.002)	0.002 (0.002)	0.259*** (0.012)	0.259*** (0.012)	0.259*** (0.012)
LT debt					0.466*** (0.016)	0.463*** (0.015)	0.459*** (0.016)
Foreign cap. %		-0.028*** (0.002)	-0.026*** (0.002)	-0.028*** (0.002)	-0.055*** (0.011)	-0.053*** (0.011)	-0.054*** (0.011)
Innovativeness		0.002 (0.002)	0.003 (0.002)	0.003 (0.002)	-0.012 (0.010)	0.028* (0.011)	0.028* (0.011)
SO dummy		0.010*** (0.002)	0.005** (0.002)	0.010*** (0.002)	0.008 (0.009)	0.008 (0.009)	0.008 (0.009)
Working Capital		0.236*** (0.006)	0.236*** (0.006)	0.236*** (0.006)	-0.843*** (0.033)	-0.845*** (0.033)	-0.845*** (0.033)
Subsidy		0.000* (0.000)	0.000** (0.000)	0.000* (0.000)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)
D/E ratio		0.005*** (0.000)	0.005*** (0.000)	0.005*** (0.000)	0.035*** (0.001)	0.035*** (0.001)	0.035*** (0.001)
Growth		-0.001* (0.000)	-0.001* (0.000)	-0.001* (0.000)	-0.099*** (0.003)	-0.099*** (0.003)	-0.099*** (0.003)
Equity		-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	0.241*** (0.002)	0.241*** (0.002)	0.241*** (0.002)
No. Employees		-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	0.208*** (0.014)	0.208*** (0.014)	0.208*** (0.014)
No. Employees ²		0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	-0.031*** (0.001)	-0.031*** (0.001)	-0.031*** (0.001)
Age		0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.007*** (0.000)	0.007*** (0.000)	0.007*** (0.000)
FC dummy [‡]		0.015*** (0.001)	0.014*** (0.001)	0.015*** (0.001)	0.006 (0.005)	0.006 (0.005)	0.006 (0.005)
Constant		0.054*** (0.009)	0.055*** (0.009)	0.054*** (0.009)	-2.389*** (0.046)	-2.389*** (0.046)	-2.389*** (0.046)
Industry Dummy		Included	Included	Included	Included	Included	Included
Province Dummy		Included	Included	Included	Included	Included	Included
Year Dummy		Included	Included	Included	Included	Included	Included
No of Observations		165,000	165,000	165,000	165,000	165,000	165,000
R-squared		0.142	0.141	0.142	0.320	0.320	0.320

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

[‡] *FC_dummy* is the endogenous treatment variable which reflects the endogenous firm-level decision to have foreign capital investment in our two-stage treatment regression.

Table A8
Robustness check: corrected for majority state ownership - main effect

Dependent Variable	Hypothesis	Empire Building Model 1	Management Expenses Model 2	Profitability (ROA) Model 3	Management Expenses Model 4	Profitability (ROA) Model 5	Management Expenses Model 6	Profitability (ROA) Model 7
Empire Building	H1a, H1b				0.605*** (0.003)	-0.847*** (0.004)	0.604*** (0.003)	-0.847*** (0.004)
State %	H1a, H1b	0.264*** (0.024)	0.291*** (0.030)	-0.329*** (0.039)			0.139*** (0.026)	-0.094** (0.033)
LT debt		0.471*** (0.015)	0.104*** (0.020)	-0.371*** (0.025)	-0.166*** (0.018)	0.029 (0.021)	-0.166*** (0.018)	0.029 (0.021)
Foreign cap. %		-0.003 (0.012)	0.161*** (0.016)	0.053** (0.019)	0.165*** (0.014)	0.044** (0.017)	0.163*** (0.014)	0.046** (0.017)
Innovativeness		-0.011 (0.010)	0.087*** (0.012)	0.132*** (0.015)	0.091*** (0.010)	0.115*** (0.012)	0.092*** (0.010)	0.114*** (0.012)
SO dummy		0.008 (0.010)	0.084*** (0.012)	0.063*** (0.016)	0.117*** (0.008)	0.039*** (0.010)	0.078*** (0.011)	0.065*** (0.014)
Working Capital		-0.844*** (0.033)	-0.348*** (0.043)	1.237*** (0.053)	0.115** (0.037)	0.471*** (0.044)	0.115** (0.037)	0.471*** (0.044)
Subsidy		0.004*** (0.001)	0.008*** (0.001)	-0.005*** (0.001)	0.006*** (0.001)	-0.001 (0.001)	0.006*** (0.001)	-0.001 (0.001)
D/E ratio		0.035*** (0.001)	-0.005*** (0.001)	-0.038*** (0.001)	-0.024*** (0.001)	-0.006*** (0.001)	-0.024*** (0.001)	-0.006*** (0.001)
Growth		-0.098*** (0.003)	-0.074*** (0.004)	0.112*** (0.005)	-0.024*** (0.003)	0.021*** (0.004)	-0.024*** (0.003)	0.021*** (0.004)
Equity		0.241*** (0.002)	-0.001 (0.003)	-0.183*** (0.003)	-0.139*** (0.003)	0.026*** (0.003)	-0.139*** (0.003)	0.026*** (0.003)
No. Employees		0.207*** (0.014)	0.387*** (0.018)	0.007 (0.021)	0.264*** (0.015)	0.175*** (0.018)	0.265*** (0.015)	0.175*** (0.018)
No. Employees ²		-0.031*** (0.001)	-0.032*** (0.002)	0.011*** (0.002)	-0.014*** (0.001)	-0.016*** (0.002)	-0.014*** (0.001)	-0.016*** (0.002)
Age		0.007*** (0.000)	0.014*** (0.000)	-0.005*** (0.000)	0.010*** (0.000)	0.001*** (0.000)	0.009*** (0.000)	0.001*** (0.000)
FC dummy		-0.035*** (0.010)	0.010 (0.012)	0.090*** (0.015)	0.025* (0.011)	0.058*** (0.012)	0.027* (0.011)	0.057*** (0.012)
SOE [‡]		-0.008 (0.017)	0.023 (0.021)	0.048+ (0.027)	0.115*** (0.009)	-0.021+ (0.012)	0.028 (0.018)	0.038+ (0.022)
Constant		-2.387*** (0.046)	-3.458*** (0.060)	-0.046 (0.070)	-2.072*** (0.053)	-2.101*** (0.060)	-2.079*** (0.053)	-2.097*** (0.061)
Industry dummy		Included	Included	Included	Included	Included	Included	Included
Province dummy		Included	Included	Included	Included	Included	Included	Included
Year dummy		Included	Included	Included	Included	Included	Included	Included
No of Observations		165,000	165,000	165,000	165,000	165,000	165,000	165,000
R-squared		0.320	0.398	0.228	0.528	0.465	0.528	0.465

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

‡ SOE is a dummy variable for state-owned-enterprises with dominant state ownership (>50%)

Table A9
Robustness check: corrected for majority state ownership - instrument

Dependent Variable	Hypothesis	LT Debt Model 8	Empire Building Model 9	Empire Building Model 10	Empire Building Model 11
State %	H2	0.004** -0.002	0.268*** (0.024)		0.264*** (0.024)
LT debt	H2			0.471*** (0.015)	0.471*** (0.015)
Foreign cap. %		0.008*** (0.002)	0.001 (0.012)	0.002 (0.012)	-0.003 (0.012)
Innovativeness		0.003* (0.002)	-0.009 (0.010)	-0.013 (0.010)	-0.011 (0.010)
SO dummy		0.004* (0.002)	0.011 (0.010)	0.082*** (0.007)	0.008 (0.010)
Working Capital		0.235*** (0.006)	-0.743*** (0.033)	-0.842*** (0.033)	-0.844*** (0.033)
Subsidy		0.000*** (0.000)	0.005*** (0.001)	0.004*** (0.001)	0.004*** (0.001)
D/E ratio		0.005*** (0.000)	0.037*** (0.001)	0.035*** (0.001)	0.035*** (0.001)
Growth		-0.001+ (0.000)	-0.098*** (0.003)	-0.098*** (0.003)	-0.098*** (0.003)
Equity		-0.003*** (0.000)	0.240*** (0.002)	0.240*** (0.002)	0.241*** (0.002)
No. Employees		-0.001 (0.002)	0.207*** (0.014)	0.206*** (0.014)	0.207*** (0.014)
No. Employees ²		0.001*** (0.000)	-0.031*** (0.001)	-0.031*** (0.001)	-0.031*** (0.001)
Age		0.001*** (0.000)	0.007*** (0.000)	0.007*** (0.000)	0.007*** (0.000)
FC dummy		-0.009*** (0.002)	-0.040*** (0.010)	-0.040*** (0.010)	-0.035*** (0.010)
SOE [‡]		0.005+ (0.003)	-0.005 (0.017)	0.159*** (0.008)	-0.008 (0.017)
Constant		0.063*** (0.009)	-2.361*** (0.046)	-2.375*** (0.046)	-2.387*** (0.046)
Industry Dummy		Included	Included	Included	Included
Province Dummy		Included	Included	Included	Included
Year Dummy		Included	Included	Included	Included
No of Observations		165,000	165,000	165,000	165,000
R-squared		0.141	0.315	0.320	0.320

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

‡ SOE is a dummy variable for state-owned-enterprises with dominant state ownership (>50%)

Table A10
Robustness check: Additional control for majority state ownership- moderating effect

Dependent Variable	Hypothesis	LT Debt Model 12	LT Debt Model 13	LT Debt Model 14	Empire Building Model 15	Empire Building Model 16	Empire Building Model 17
<i>Interaction Effect</i>							
Foreign cap. % x State %	H3a	-0.040*** (0.010)		-0.040*** (0.010)			
Innovativeness x State %			-0.001 (0.005)	-0.001 (0.005)			
Foreign cap. % x LT debt					0.069 (0.056)		0.069 (0.056)
Innovativeness x LT debt	H3b					-0.250** (0.084)	-0.249** (0.084)
<i>Control Variables</i>							
State %		0.004** -0.002	0.004** -0.002	0.004** -0.002	0.268*** (0.024)	0.268*** (0.024)	0.268*** (0.024)
LT debt					0.466*** (0.016)	0.463*** (0.015)	0.459*** (0.016)
Foreign cap. %		0.007*** (0.002)	0.008*** (0.002)	0.007*** (0.002)	-0.005 (0.012)	-0.003 (0.012)	-0.005 (0.012)
Innovativeness		0.003* (0.002)	0.003* (0.002)	0.003* (0.002)	-0.011 (0.010)	0.027* (0.011)	0.027* (0.011)
SO dummy		0.006*** (0.002)	0.004* (0.002)	0.006*** (0.002)	0.008 (0.010)	0.008 (0.010)	0.008 (0.010)
Working Capital		0.235*** (0.006)	0.235*** (0.006)	0.235*** (0.006)	-0.843*** (0.033)	-0.846*** (0.033)	-0.845*** (0.033)
Subsidy		0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)
D/E ratio		0.005*** (0.000)	0.005*** (0.000)	0.005*** (0.000)	0.035*** (0.001)	0.035*** (0.001)	0.035*** (0.001)
Growth		-0.001+ (0.000)	-0.001+ (0.000)	-0.001+ (0.000)	-0.099*** (0.003)	-0.099*** (0.003)	-0.099*** (0.003)
Equity		-0.003*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)	0.241*** (0.002)	0.241*** (0.002)	0.241*** (0.002)
No. Employees		-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	0.207*** (0.014)	0.207*** (0.014)	0.207*** (0.014)
No. Employees ²		0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	-0.031*** (0.001)	-0.031*** (0.001)	-0.031*** (0.001)
Age		0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.007*** (0.000)	0.007*** (0.000)	0.007*** (0.000)
FC dummy		-0.007*** (0.002)	-0.009*** (0.002)	-0.007*** (0.002)	-0.036*** (0.010)	-0.035*** (0.010)	-0.035*** (0.010)
SOE [‡]		0.005 (0.003)	0.006+ (0.003)	0.005 (0.003)	-0.008 (0.017)	-0.008 (0.017)	-0.008 (0.017)
Constant		0.063*** (0.009)	0.063*** (0.009)	0.063*** (0.009)	-2.386*** (0.046)	-2.386*** (0.046)	-2.386*** (0.046)
Industry Dummy		Included	Included	Included	Included	Included	Included
Province Dummy		Included	Included	Included	Included	Included	Included
Year Dummy		Included	Included	Included	Included	Included	Included
No of Observations		165,000	165,000	165,000	165,000	165,000	165,000
R-squared		0.142	0.141	0.142	0.320	0.320	0.320

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.

‡ SOE is a dummy variable for state-owned-enterprises with dominant state ownership (>50%)

Table A11
Matching analysis

Cutoff Point	Match Method	Number of Treatment	Number of Control	Difference	Difference	Difference	Difference
% of State Ownership		(High State Ownership)	(Low State Ownership)	Empire Building	Long-term Debt	ROA	Managerial Expenses
0%	Nearest Neighbor	33,581	22,868	0.433 ***	0.002 **	-0.038 ***	0.605 ***
	Radius	33,578	131,341	0.714 ***	0.071 ***	-0.071 ***	0.878 ***
	Stratified	33,581	131,341	0.432 ***	0.003 **	-0.038 ***	0.603 ***
10%	Nearest Neighbor	32,047	22,052	0.450 ***	0.003 *	-0.041 ***	0.625 ***
	Radius	32,044	132,111	0.731 ***	0.073 ***	-0.073 ***	0.906 ***
	Stratified	32,047	132,111	0.445 ***	0.004 **	-0.040 ***	0.624 ***
20%	Nearest Neighbor	30,725	21,219	0.463 ***	0.004 *	-0.043 ***	0.645 ***
	Radius	30,721	132,433	0.746 ***	0.074 ***	-0.075 ***	0.927 ***
	Stratified	30,725	132,433	0.456 ***	0.004 ***	-0.041 ***	0.638 ***
30%	Nearest Neighbor	29,400	20,487	0.466 ***	0.003 **	-0.043 ***	0.650 ***
	Radius	29,395	131,371	0.764 ***	0.076 ***	-0.076 ***	0.948 ***
	Stratified	29,400	131,371	0.470 ***	0.004 ***	-0.043 ***	0.649 ***
40%	Nearest Neighbor	27,854	19,515	0.487 ***	0.005 **	-0.046 ***	0.665 ***
	Radius	27,849	127,399	0.787 ***	0.078 ***	-0.080 ***	0.975 ***
	Stratified	27,854	127,399	0.491 ***	0.004 ***	-0.046 ***	0.666 ***
50%	Nearest Neighbor	26,042	18,327	0.500 ***	0.004 *	-0.048 ***	0.670 ***
	Radius	26,041	123,713	0.810 ***	0.081 ***	-0.082 ***	1.004 ***
	Stratified	26,042	123,713	0.507 ***	0.003 **	-0.049 ***	0.677 ***
60%	Nearest Neighbor	24,483	17,336	0.525 ***	0.003 **	-0.049 ***	0.697 ***
	Radius	24,479	122,735	0.830 ***	0.082 ***	-0.084 ***	1.031 ***
	Stratified	24,483	122,735	0.527 ***	0.003 **	-0.051 ***	0.692 ***
70%	Nearest Neighbor	23,360	16,687	0.542 ***	0.004 *	-0.052 ***	0.698 ***
	Radius	23,358	122,384	0.837 ***	0.082 ***	-0.085 ***	1.044 ***
	Stratified	23,360	122,384	0.538 ***	0.003 *	-0.053 ***	0.698 ***
80%	Nearest Neighbor	22,081	15,858	0.550 ***	0.002 *	-0.053 ***	0.706 ***
	Radius	22,081	117,841	0.853 ***	0.084 ***	-0.084 ***	1.066 ***
	Stratified	22,081	117,841	0.551 ***	0.003 **	-0.053 ***	0.710 ***
90%	Nearest Neighbor	21,271	15,483	0.551 ***	0.004 *	-0.049 ***	0.713 ***
	Radius	21,271	117,546	0.855 ***	0.083 ***	-0.084 ***	1.071 ***
	Stratified	21,271	117,546	0.551 ***	0.003 *	-0.052 ***	0.714 ***

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001; all two-tailed tests; standard errors listed in parentheses.