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Published in:
Journal of Business Research

DOI:
[10.1016/j.jbusres.2014.11.010](https://doi.org/10.1016/j.jbusres.2014.11.010)

Published: 01/06/2015

[Link to publication](#)

Citation for published version (APA):

WEI, L., & Ling, Y. (2015). CEO characteristics and corporate entrepreneurship in transition economies: Evidence from China. *Journal of Business Research*, 68(6), 1157-1165.
<https://doi.org/10.1016/j.jbusres.2014.11.010>

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**CEO characteristics and corporate entrepreneurship in transition
economies: Evidence from China**

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Submission: May 2013

Revision: October 2013

Accepted: April 2014

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CEO characteristics and corporate entrepreneurship in transition economies: Evidence from China

ABSTRACT

Corporate entrepreneurship leads a path to competitive advantages for firms in transition economies such as China. To better understand how corporate entrepreneurship can be developed, we design this study to examine the importance of CEOs' institution-related characteristics, which reflect their human and relational capital, for corporate entrepreneurship in transition economies. Integrating the upper echelons and corporate entrepreneurship literature, this study proposes and tests CEOs' appointment modes, their work experience, and their network ties as antecedents of the level of corporate entrepreneurship in Chinese firms. It also examines whether the effect of CEO characteristics on corporate entrepreneurship tends to be stronger when firm-level and environmental conditions allow the CEO greater managerial discretion. Results from a survey in 198 Chinese firms indicate that CEOs who are openly recruited and have foreign experiences are more associated with corporate entrepreneurship. Moreover, both the political focus of a CEO's network ties and his/her focus on ties outside the industry more positively relate to CE when he/she has more discretion. Our findings have both theoretical and practical implications, especial to the research on the role of corporate leaders in corporate entrepreneurship and the practices of CEO recruitment and selection.

Key Words: CEO characteristics, China, corporate entrepreneurship, transition economies

CEO characteristics and corporate entrepreneurship in transition economies: Evidence from China

1. Introduction

China is one of the largest emerging markets and is an important transition economy that is experiencing an institutional change from central planning to market competition (Wang & Tanaka, 2011; Xia & Walker, 2014). The ongoing entry of foreign competitors after the opening-up policy and the emergence and growth of local businesses have constantly reshaped the competition landscape and resulted in substantial uncertainties that Chinese firms have to address and conquer both domestically and globally (Bao, Chen, & Zhou, 2012). Even state enterprises have to face the fact that the protection from government is decreasing and they must undertake change and learn to compete in the market (Zhang & Keh, 2010). Given the increasing competitive complexity, research has suggested that corporate entrepreneurship (CE), which is defined as the sum of a firm's innovation, venturing and strategic renewal activities (Zahra, 1996), is a new but critical practice at which firms in transition economies must become proficient (Kelley, 2011). Indeed, firms that undertake intensive levels of CE have been found to possess greater power to reconfigure their resources shape their factor or output markets and create new and favorable market imperfections (Kuratko, 2010). These reconfigurations inside and outside a firm is posited to contribute to its competitiveness and enhance its ability to thrive and succeed in the turbulent and transitional era (Tajudin, Aziz, Mahmood, & Abdullah, 2014).

Despite its importance, the promotion of CE in transition economies has received little attention by researchers especially from a top management perspective (Dess, Ireland, Zahra, Floyd, Janney, & Lane, 2003). Upper-echelons research has long stressed the critical role played by top managers and particularly chief executive officers (CEOs) in firms' strategic processes and activities, such as innovation and entrepreneurship (Hambrick, 2007). However, the research has inadequately explained the issue as it relates to transition economies for two reasons (Li & Tang, 2010). First, although upper-echelons researchers have paid much

attention to CEO characteristics, which signify their human capital (i.e., what they can do), much less attention has been paid to CEOs' relational capital (i.e., who they know), a factor of crucial importance in a transition economy, in particular China (Boisot & Child, 1999). Evidence (Ismail, Ford, Wu, & Peng, 2013; Peng & Luo, 2000) shows that the emergence of a transitional economy has not changed the prominent role played by guanxi in Chinese culture, which emphasizes harmony and collectivism. Resource allocation and exchange often occur on the basis of personal connections rather than on needs or competence (Boisot and Child, 1999; Xin and Pearce, 1996). Second, studies have mostly focused on CEOs' functional background, education background and tenure as the key indicators of their human capital (Hambrick, 2007), overlooking the possibility that the institutional factors that characterize transition economies may offer CEOs chances to develop human capital from sources that are not prevalent in developed economies.

Recognizing this void, this paper provides a more tailored understanding of the influence of CEO characteristics on CE in China, the largest transition economy and fastest-growing economy in the world (Luo, Zhou, & Liu, 2005). Drawing on the CE and managerial capital literature, we focus on three prominent CEO characteristics: appointment background, work experience and network ties. These characteristics are more institution related and expected to reflect CEOs' human and relational capital. After examining the direct influence of these characteristics on CE, we consider the CEOs' work context to improve the accuracy of our findings. We argue that CEOs do not always have a significant influence on firms, and that the influence of their characteristics on CE is subject to the effect of the managerial discretion that firm-level and environmental conditions confer to them. We also test hypotheses using data from a multisource survey of 198 Chinese firms.

2. Theoretical background and hypotheses

2.1. CEOs and corporate entrepreneurship in China

CEOs' influence in China is more salient compared with that in developed economies (Lin, 2001). Many firms in China subscribe to heritage systems held over from the previous planned economy that encourage them to treat boards of directors as unnecessary and to consider CEOs as the foremost agents of charge. Even if boards are introduced, they are typically chaired by CEOs (Peng, Zhang, & Li, 2007). The monitoring of boards in China is constrained due to the lack of independence of board members, who often have personal relationship with the firm's top managers (Bai, Liu, Lu, Song, & Zhang, 2004; Tian & Lau, 2001). CEO duality and weak functioning of boards collectively help CEOs to retain concentrated power, allowing them an exceptionally prominent role in shaping their firms' strategies and development (Lin, 2001). Market and legal institutions in China remain underdeveloped due to their short history, and inadequate financial management practices decrease firms' disclosures. The information asymmetry between insiders and outsiders helps to free CEOs from public oversight and in turn further reinforces their power (Khanna & Palepu, 2000). Considering the unique and important role they play, CEOs in China are likely to have a significant influence on an important type of firm activity: CE.

CE requires changes in a firm's resource deployment or combinations (Guth & Ginsberg, 1990). From an organizational learning perspective, some researchers (e.g., Hayton & Kelley, 2006) have stressed that CE demands both human and relational capital from firm leaders. For the former, it is important that CEOs possess knowledge and experience that help firms to identify opportunities, and it is equally important that they have the desire to take risks and make changes that spur innovative initiatives (Dess et al., 2003). For the latter, CEOs must possess connections that help their firms gain access to resources that are crucial for entrepreneurial endeavors (Dalziel, Gentry, & Bowerman, 2011). Managerial capital research has suggested that work experience is a good indicator of one's human/relational capital because everyone learns from their past experiences (Beal & Yasai-Ardekani, 2000).

Following this logic, we chose CEOs' appointment background, work experience and network ties as our research focus, as these characteristics are more related to China's institutional factors and are likely to contribute to CEOs' human and relational capital in a way that supplements the other characteristics typically investigated by upper-echelons researchers (e.g., tenure, education and functional background).

2.2. *CEO Appointment Background and Corporate Entrepreneurship*

In the Chinese context, appointment background describes the criteria on which CEO appointments are based. This background is expected to shape the managerial expertise and skills (human capital) that a CEO can contribute to a firm (Dalziel et al., 2011). Despite Chinese firms' increasing control over executive recruitment, the state continues to control top-level staffing in firms owned by the state or other entities (Li & Tang, 2010). As a result, CEOs with the knowledge, experience and desire (human capital) required to facilitate CE are not always controlled by their firms. The state's assignment system was developed to ensure government control of important firms and their compliance with government policy.

Therefore, CEOs deployed by the state are usually chosen based on personal relationships and the trust of government administrators without an open recruiting process (Li & Tang, 2010). However, these assignees may not be the best candidates available for their positions. Many may lack sufficient business management training or experience. More specifically, they may not have the research and managerial skills required to identify entrepreneurial opportunities. This human capital limitation is expected to impede a firm's pursuit of risky, growth-oriented initiatives such as innovation, ventures and strategic renewal (Ling, Simsek, Lubatkin, & Veiga, 2008a). Research has found that firms with politically appointed CEOs or CEOs chosen by a government authority based on *guanxi* financially underperform firms led by openly recruited CEOs (Fan, Wong, & Zhang, 2007).

Deployed CEOs may also have less of a desire to undertake product innovation or strategic renewal. Because of their government deployment background and their good relationships with the relevant authorities, deployed CEOs are likely to consider their positions secure. Further, they are likely to focus more on maintaining relationships that have benefited or will benefit them, rather than on the growth of their firms (Lin, Cai, & Li, 1998). In contrast, a CEO selected from within or outside a firm based on open competence-based competition did not rely on guanxi to obtain his/her position and does not have the benefit of relationship protection if the firm fails to perform well. Because he/she was openly selected based on competence, he/she may feel more pressure to demonstrate an ability to justify the appointment. CEOs recruited out of open competence-based competition are therefore expected to have a stronger motivation to efficiently allocate resources to support strategic change and to restructure their businesses to capture entrepreneurial opportunities. As such, we make the following hypothesis.

H1. Chinese firms whose CEOs were openly recruited experience higher levels of CE than those with CEOs deployed by the government.

2.3. CEO Work Experience and Corporate Entrepreneurship

Work experience shapes a CEO's managerial expertise and skills (human capital) (Dalziel et al., 2011). In China, privatization and enhanced market competition has increased the need for managerial expertise (Child & Markoczy, 1993). However, due to decades of central planning, Chinese managers may have excellent educational attainments but relatively little entrepreneurial knowledge or skill (Smallbone & Welter, 2006). Due to society's general scarcity of knowledge related to market competition and innovation management, managers' experience of working at foreign companies has become a precious managerial resource (Li & Tang, 2010). Previous studies have indicated that learning from Western companies is an

important way for Chinese managers to accumulate market knowledge and contemporary managerial skills (i.e., human capital) that improve a firm's CE (Li & Zhang, 2007).

Chinese CEOs who have worked in foreign firms are exposed more often to modern, competition-based strategic decision making. This is likely to provide them with knowledge related to innovation management and familiarity with the managerial approaches that foster entrepreneurial pursuits in firms. Using the foreign firms they know as a benchmark, such CEOs are also more likely to see the need for change and be more comfortable with spending money on entrepreneurial projects. Joint ventures led by managers with foreign experience have been found to be more likely to be innovative in China (Luo, 2002; Tsang, 2002).

H2. Chinese firms whose CEOs have experience working at foreign firms experience higher levels of CE than those with CEOs who have worked only at domestic firms.

2.4. CEO Network Ties and Corporate Entrepreneurship

In China, an executive's network ties strongly influence his/her relational capital or ability to bring resources to the firm. Access to resources is crucial for a firm's CE, and this is particularly true when formal market institutions are not well established (Peng, Lee, & Wang, 2005). Under structural turbulence, firms require ties with the government or with more powerful companies to establish legitimacy and to obtain access to resources, information, markets and technologies (Yiu & Lau, 2008). Particularly in China, a society characterized by *guanxi*, there is a direct micro-macro linkage (Peng & Luo, 2000), and resource exchanges are facilitated by managers' personal relationships. It should be noted, however, that the network ties of Chinese CEOs vary in nature. We argue that the focus of a CEO's network ties influences his/her firm's CE endeavors.

2.4.1 Political and business ties.

In China, managers' networks allow their firms to derive political and social capital

(Peng et al., 2005; Yiu & Lau, 2008). Political ties consist of a CEO's personal relationships with government officials at various administration levels, and business ties consist of a CEO's personal connections with the leaders of other firms (Li, Zhou, & Shao, 2009; Peng & Luo, 2000). These two types of ties differ fundamentally in terms of the resources they provide. A CEO's political ties give his/her firm the legitimacy required to pursue new products or ventures (Yiu & Lau, 2008). In a transition market such as China, the patronage networks between the state and the business would provide the firm with advantages such as lower transaction costs and increased certainty, in addition to access to non-tradable political resources and government protection (Boisot & Child, 1999). A firm's relational networks with the government also help to clarify the government and other stakeholders' expectations of the firm and the rules and norms (Oliver, 1997). This kind of information helps a firm to obtain approval and support from key constituents in the institutional environment. In transition economies such as China, firms usually have to seek government approval when they engage in new ventures, whether domestic or international. A CEO's political networks thus help a firm to obtain the political capital required for entrepreneurial endeavors.

CEOs' connections with business partners conversely provide their firms with access to market resources. Business ties such as interlocking directorships provide firms with inexpensive, trustworthy and credible business information and facilitate knowledge transfers between firms (Sheng, Zhou, & Li, 2011). Despite this, some researchers suggest that in China business ties may not be as effective as anticipated due to the inefficient corporate governance mechanisms of firms. The society's general lack of proper regulatory systems could cause business ties among managers to breed cronyism and collusion (Khatri, Tsang, & Begley, 2006), whereby the management elite exploits business connections for its personal gain rather than for a firm's economic success. In addition, the new knowledge obtained from business ties must be "absorbed" by the firm to materialize and facilitate innovations (Tang &

Xi, 2006). Chinese firms are low on technology and managerial capability due to the short history of the market economy (Gao, Xu, & Yang, 2008). Thus, while business ties request CEOs' time and energy to develop and manage, a firm's low level of absorptive capability prevents it from truly benefiting from the knowledge obtained through these ties. In fact, a CEO's intensive business ties may even impede his/her firm's innovation due to the resources they consume and the information overload they may cause, and could thereby decrease the firm's operational efficiency.

The social capital literature suggests that managers' network development resources are constrained (McFadyen & Cannella, 2004) and thus that a firm benefits most when its leaders direct more of their efforts to cultivating important network ties that are of more help to the firm (Cao, Simsek, & Jansen, 2014). Considering the greater benefits introduced by political ties compared with business ties, we expect that in China CE should be better facilitated when CEOs allocate more of their limited resources to establishing and sustaining political ties rather than business ties.

H3. CEOs' focus on political ties (rather than business ties) is positively related to Chinese firms' CE.

2.4.2. Outside- and inside-industry ties.

A CEO normally has ties within his/her firm's industry and with entities outside the industry, and the two types of ties function differently. Outside-industry ties are ties with universities, bankers and other business organizations, and "impart more novel information and exposure to diverse profiles and practices" (Geletkanycz & Hambrick, 1997, p. 659). A CEO's relationships with entities outside the industry help to keep the firm informed about larger issues, triggering a broader range of ideas and the exploration of more opportunities. This in turn influences the firm's strategic choices and facilitates CE. In addition to exposing

a CEO to diverse information, outside-industry ties are likely to contribute to CE in other ways. While Chinese firms are generally weak in terms of their R&D capabilities, ties with universities and research institutes can provide them with more new ideas and better R&D capabilities (Teng, 2007). Ties with venture capitalists and other resource sources can help firms to cope with the lack of resources they generally face (Peng et al., 2007). Zhang and Li (2010) find that Chinese firms' access to service intermediaries, including technology and financial service firms and talent search firms, helps them to increase innovation.

Unlike outside-industry ties, ties within the industry usually provide information about common industry practices. Thus, the help a CEO can obtain from within-industry ties is limited in terms of CE, as these ties usually help to improve current products or services rather than promote new initiatives (Geletkanycz & Hambrick, 1997). This suggests that within-industry ties contribute less than outside-industry ties to a firm's undertaking of CE. Considering that the resources possessed by a CEO for network development are constrained (Cao et al., 2014), we expect that firms whose CEOs direct more efforts to the development of outside-industry ties are more able to exploit entrepreneurial opportunities than those whose CEOs direct more efforts to the development of within-industry ties.

H4. CEOs' focus on ties outside the industry (rather than on inside-industry ties) is positively related to Chinese firms' CE.

2.5. The Moderating Role of CEO Managerial Discretion

Upper-echelons research shows that a CEO's influence may be contingent on the scope of his/her managerial discretion (latitude of action); the higher the discretion, the greater the CEO's effect on the firm (Finkelstein & Boyd, 1998). Thus, the influence of CEO characteristics on CE in China may be stronger in high-discretion rather than low-discretion situations.

Both organizational and environmental conditions constrain the managers (Finkelstein & Boyd, 1998). Of the various contextual variables, many researchers have commonly chosen firm size (e.g., Li & Tang, 2010; Ling, Simsek, Lubatkin, & Veiga, 2008b; Lubatkin, Simsek, Ling, & Veiga, 2006) and environmental instability (e.g., Li & Tang, 2010; Waldman, Ramirez, House, & Puranam, 2001) as parsimonious indicators of organization- and environment-based managerial discretion, respectively. In this study, we elaborate on how these two aspects moderate a CEO's influence on CE.

2.5.1. Firm size

The less-complex stakeholder structure of a smaller firm affords its CEO more managerial discretion (Hambrick & Finkelstein, 1987). CEOs of smaller firms are less likely to answer to a powerful governing board, as the resources in small firms are generally more lacked and the firms have less incentive to employ independent outside directors (Verdu-Jover, Llorens-Montes, & Garcia-Morales, 2006). CEOs' discretion is also enhanced in smaller firms by the dual managerial role they often play (Hambrick & Finkelstein, 1987). Such CEOs not only ratify and direct their firms' strategies, but also participate more directly in their day-to-day implementation, a role played by operating managers in larger firms (Ling et al., 2008b). This gives small-firm CEOs more opportunities to be active in the discretionary domain and to directly influence their firms' strategies.

In China, small firms were only established after the demise of central planning as outcomes of the business reform and privatization campaign (Anderson, Li, Harrison, & Robson, 2003). Being privately owned, small firms have less access to various resources due to their less favorable position, but are less constrained by the government. CEOs in small firms have more direct involvement in the promotion of many entrepreneurial initiatives, and as a result, their personal characteristics have a more salient influence on CE.

H5a. The relationship between CEO characteristics and CE is stronger in smaller Chinese

firms than in larger ones.

2.5.2. *Environmental instability*

Environmental instability refers to the rapid and often discontinuous changes in demand, competitors and technology (Eisenhardt & Bourgeois, 1988; Forbes, 2007). An unstable environment is of course risky, as “a few erroneous decisions could result in severe trouble and possibly put the survival of the organization at risk” (Waldman et al., 2001, p. 136). However, with risk often comes opportunity for innovation. Unstable environments are usually characterized by the uncertainty and ambiguity of available information, a situation that normally calls for greater executive discretion in terms of a firm’s strategic choices (Forbes, 2007; Hambrick & Finkelstein, 1987). As Hambrick (2007) points out, managerial discretion is enhanced when the means-ends ambiguity is high. In contrast, when market information is stable and reliable, the range of options available to managers is significantly constrained.

Although environmental instability is generally very high in China, its level varies by industry. Firms in high-tech industries, for instance, face greater environmental instability due to rapid changes in technology and limited state intervention (Wei & Lau, 2010).

Environmental instability also varies by region. As China is a large and unevenly developed country, firms operating along the southern and eastern coasts tend to face more instability than their inland counterparts due to the earlier and more extensive business reform in those regions and the more vigorous market competition (Wang, Gong, & Chen, 2006). In addition, Chinese firms with different ownership structures operate under different levels of state intervention and control. State-controlled companies may face less environmental instability than private and foreign-invested firms (Wei & Lau, 2008). Because the managerial discretion promoted by environmental instability allows CEOs more opportunities to follow

their wishes to make changes and implement new initiatives, the relationship between CEO characteristics and CE should be stronger in more unstable environments.

H5b. The relationship between CEO characteristics and CE is stronger when the environment is more unstable.

3. Methods

3.1. Sample and data collection

The data is part of a project investigating business strategies and human resource management in Chinese businesses in 2011. The project involves the CEOs and chief financial officers (CFOs) in enterprises across China. We focus on firms with 20 or more employees and eliminate firms that have existed for fewer than 2 years to avoid including firms that are too young to reflect their CEOs' influence. We also eliminate firms at which the CEO were changed in the past 3 years to ensure that the CEOs have enough information and knowledge to evaluate their firms' CE and environmental instability. Four thousand companies meeting these criteria are randomly selected from a database that contains firms registered with a local government in charge of innovation activities.

Most of the registered firms are manufacturing businesses. We contact the firms by phone and 750 agree to participate. Ten trained research assistants visit the CEOs of the 750 companies, explain the research purpose, assure the confidentiality of the responses and seek further cooperation. The CEOs of 576 companies in 20 provinces agree to participate, representing 14.4% of the firms initially contacted. The research assistants then personally deliver the questionnaires to these companies.

As the questionnaires are originally in English, we apply the commonly used back translation procedure to ensure equivalency of meaning (Brislin, 1980). In all, 576 packages containing 1,152 questionnaires are delivered to CEOs and CFOs in the companies that agree

to participate. 385 CEOs and 278 CFOs return their questionnaires. The response rate for the CEOs is thus 67% and 48% for the CFOs. After deleting incomplete questionnaires and matching the CEOs with the CFOs, we finally have 198 sets of usable questionnaires. A comparison of the respondent firms with the non-participating firms in terms of firm age, firm size and industry shows no systematic differences. Among the 198 firms, 104 are state-owned enterprises, 71 are private firms and the other 23 are foreign-invested enterprises. Manufacturing firms account for 75.4% of the sample, with light industry firms accounting for 29.6% and heavy industry firms accounting for 45.8%. The average firm age is 14.3 years with a range of 2-69 years. The average number of employees is 727 with a range of 21-12,000.

The CEOs provide information about their work experience and network ties (including their relationships with various external parties such as government officials, banks and executives from other businesses), CE and perceptions of environmental instability. The CFOs provide their firms' financial information (i.e., ROA, ROI, R&D spending and new product performance) and how their CEOs were appointed to their current positions. We obtain the firms' basic information (i.e., age, size, industry, location and ownership) from the database.

3.2. Measurement

3.2.1. CEOs' appointment background

We ask the CFOs whether their CEOs were selected from inside or outside the firms based on open competence-based competition or deployed by a government authority. A dummy variable is created and coded as 1 if a CEO was recruited through open competition and 0 otherwise.

3.2.2. CEOs' work experience

We ask the CEOs whether they have worked in a foreign-owned firm. A dummy

variable is coded as 1 if the answer is yes and 0 if no.

3.2.3. CEOs' network ties

Following the lead of Peng and Luo (2000) and Xin and Pearce (1996), we measure the extent of the CEOs' network ties by asking them to evaluate the strength of their relationships with various parties over the previous 3 years using a 5-point Likert scale ranging from 1 (no relationship) to 5 (close relationship). We use the CEOs' responses on their relationships with government officials to measure their *political ties*, and their responses on their relationships with executives and board members of other businesses to measure their *business ties*. The difference between the CEOs' political and business ties scores is then used to measure their *focus on political ties*. Further, we use the CEOs' responses on their relationships with executives and business board members within the industry to measure their *within-industry ties*. Their responses on their relationships with universities and research institutes, bankers and other financial agents and businesses from other industries are used to measure their *outside-industry ties*. We then use the difference between the outside- and inside-industry ties scores to measure the CEOs' *focus on outside-industry ties*.

3.2.4. Corporate entrepreneurship

This study applies a 14-item scale developed by Zahra (1996) to measure CE. The CEOs evaluate the extent of their firms' engagement in 14 types of entrepreneurial activity from 2 years ago to the point at which the data are collected using a 5-point Likert scale (1=strongly disagree, 5=strongly agree). A factor analysis indicates that the 14 items grouped into one factor; as such, the responses are averaged into the CE measure. The Cronbach's alpha is 0.86, indicating acceptable reliability. To assess the accuracy of this self-report, the CE evaluations from CEOs are then correlated with the data about each firm's investment in R&D and new product performance collected from CFOs. They demonstrate a positive and significant association. Specifically, the CFOs' estimates of R&D spending ($r = 0.24, p <$

0.01) and new product performance ($r = 0.22, p < 0.01$) are both positively and significantly correlated with their CEOs' estimates of CE, providing evidence for the validity of the CEOs' evaluations.

3.2.5. *Firm size*

The measure of this variable is the logarithm of the number of employees.

3.2.6. *Environmental instability*

Based on prior research (e.g., Eisenhardt & Bourgeois, 1988; Waldman et al., 2001), this study develops a 3-item measure to quantify the volatility of the environment in which each firm operates, and responses are on a 5-point Likert scale ranging from 1 (very low extent) to 5 (very high extent). One sample item is: "The demand of customers for the product and services keeps changing." A factor analysis shows that the three items all load onto one factor, indicating good convergent validity. The reliability of this measure is good (Cronbach's $\alpha=0.82$).

3.2.7. *Control variables*

We include several control variables that may influence CE. Firm age is measured as the age of the firm in years. Because the economic and institutional infrastructures that affect firm performance vary across areas in China, we control for firm location using three dummy variables representing China's eastern, northern and southern regions. The western area is taken as the reference. We control ownership type (i.e., state-owned, private or foreign) with two dummies, with foreign firms as the reference category. To control any potential industry effect, we also code heavy and light manufacturing firms as two dummy variables, with the remaining non-manufacturing firms as the reference. To rule out the possible overall influence of CEOs' networks on CE, we control the sum of the CEOs' political and business ties and the sum of their outside- and inside-industry ties.

4. Analyses and results

4.1. Descriptives, correlations, and regression analysis results

Table 1 reports the means, standard deviations and correlations of the major variables. Private firms are more likely to openly recruit CEOs ($r=0.23$, $p<0.01$), and state-owned firms are less likely to do so ($r=-0.25$, $p<0.01$). Firms from the south are more likely to openly recruit CEOs ($r=0.14$, $p<0.05$), and their CEOs focus less on political ties ($r=-0.14$, $p<0.05$) but more on outside industry ties ($r=0.17$, $p<0.05$).

--Table 1 here--

4.2. Regression analysis results

We use an OLS hierarchical regression to test the hypotheses. Following the advocacy of Armstrong (2012) and Woodside (2013), we first test the full model and then re-run the models to include only significant terms. Table 2 reports the parsimonious model with only significant results, but the results of the full model with both significant and insignificant terms are available upon request. In Table 2, the control variables are the first (M0), and then the four independent variables (M1) follow. Among the variables we control, only the sum of CEOs' outside- and inside-industry ties ($\beta=0.30$, $p<0.01$) and firm size ($\beta=0.15$, $p<0.05$) are significantly associated with CE. Of the four independent variables, the CEOs' open recruitment ($\beta=0.11$, $p<0.05$) and foreign experience ($\beta=0.10$, $p<0.10$) show significant associations with CE, but CEOs' focus on political ties and outside-industry ties are not significant predictors. Hence, Hypotheses 1 and 2 are supported, but Hypothesis 3 and 4 are not.

-- Table 2 here--

We enter environmental instability into M2 and it is significantly associated with CE ($\beta=0.32$, $p<0.01$). Then we enter interaction terms into M3. Four of the eight proposed interaction relationships are significant and the change in r-square is significant. The interaction between firm size and the political focus of a CEO's network ties is negative ($\beta=$

-0.15, $p < 0.05$). The interaction between firm size and the outside-industry focus of a CEO's network ties is also negative ($\beta = -0.11$, $p < 0.05$). The interaction between environmental uncertainty and the political focus of a CEO's network ties is positive ($\beta = 0.17$, $p < 0.01$), and the interaction between environmental uncertainty and the outside-industry focus of a CEO's network ties is also positive ($\beta = 0.14$, $p < 0.05$). To further validate the results, this study employs split-sample method (Gigerenzer & Brightonm 2009; Woodside, 2013) and tests the model on two randomly split sub-samples. We use the model from the first sub-sample ($n = 102$) to estimate the scores for the second sub-sample ($n = 96$) and then compute the r between the predicted and actual scores ($r = 0.45$, $p < 0.01$). We do the reverse as well from the second sub-sample to the first sub-sample ($r = 0.39$, $p < 0.01$). Table 3 illustrates the results.

-- Table 3 here --

To better observe the nature of the moderations, we provide graphs based on the values plus and minus one standard deviation. Figure 1 and 2 illustrate the interaction of firm size with the political focus of a CEO's network ties and the interaction between firm size and the outside-industry focus of the CEO's ties. Both types of focus positively associate with CE in smaller firms, and the associations become insignificant in larger firms. Thus, Hypothesis 5a on the moderating role of firm size receives partial support. Figures 3 and 4 illustrate the moderating role of environmental instability. Both the political focus of a CEO's network ties and his/her focus on ties outside the industry more positively relate to CE when environmental instability is high. Hypothesis 5b is partially supported. The results are similar when the interaction terms are entered separately.

-- Figures 1, 2, 3, 4 here --

5. Discussion

Although CEOs play an important role in general (Hambrick, 1994), the CEOs of

transition economy firms are even more likely to have “absolute power.” They exert far more influence than other executives on their firms’ strategic choices and in turn on the development of competitiveness. It is therefore surprising that despite the rapid growth of transition economy studies, few have examined the influence of CEOs in transition economies, particularly in terms of CE, which serves as the engine of firm and national economic growth. This paper examines whether CEOs’ institution-related characteristics (representing their human and relational capital) affect CE in China, the largest transition economy. It tests the proposition that in China a CEO’s appointment background, work experience and network ties predict the firm’s level of CE. It also proposes that these hypothesized influences tend to be stronger when firm-level and environmental conditions give the CEO greater managerial discretion. The findings, based on a multisource survey of CEOs and CFOs from 198 Chinese firms, support most of these hypotheses.

5.1. Implications for theory

One major implication of our paper is that researchers should consider the unique institutional factors characterizing transition economies and customize the selection of their variables accordingly if they wish to better understand CEOs and their influence in transition economy firms. For example, our findings suggest that CEO characteristics, which are more related to institutional factors in China, have strong influence on firms’ CE. Openly recruited CEOs and CEOs with foreign work experience manage firms with higher CE levels. This result implies that in China many powerful CEOs could be averse to CE because they are beholden to government for their appointment or due to their limited experience of running businesses in a free market. However, a firm may not be highly vulnerable to this problem if its CEO is selected openly based on competence competition or has worked at a foreign firm. In this way, foreign companies may be the most advantaged and state-owned companies may be the most disadvantaged if the latter has the lesser amount of control over their executive

selection.

Despite largely overlooked, CEOs' relational capital is potentially important for firms in China, especially when the firms' internal and external environments confer greater latitude of power to the leaders. We find that in China a CEO's relational capital (particularly, the focus of his/her ties) influences CE when the CEO has higher levels of managerial discretion. This finding reinforces the importance that many CEOs in China place on network development. The result also reminds these CEOs that they must allocate their limited time and efforts in a smart way, that is, by directing more resources to the cultivation of political and outside-industry ties rather than to the expansion of business and inside-industry ties.

The findings that firm size and environmental instability, which are viewed as the proxies of CEOs' managerial discretion, do not moderate the relationship between a CEO's appointment background and CE are inconsistent with our hypotheses. One speculative explanation is that the benefits introduced by the competence of openly recruited CEOs are so salient that they are not constrained by the CEOs' managerial discretion. Meanwhile, the positive association between a CEO's foreign work experience and CE is neither sensitive in smaller firms nor vary with environmental instability as hypothesized. This implication may suggest that in China CEOs' exposure to advanced, Western-style decision making is so precious that it helps firms to capture entrepreneurial opportunities in every type of environment.

5.2. Implications for practice

Our results should help governments and managers in transition economies such as China better understand how to promote CE. The findings show that open recruitment based on competence is critical, indicating the importance of decreasing the government's control of executive appointments and the necessity of careful CEO selection. The results also show that CEOs' foreign work experience to some extent matters to CE. This suggests a direction

in the search for more entrepreneurial CEOs. Finally, the results indicate that the influence of a CEO's network ties on CE is more salient in smaller firms and in more uncertain environments. This suggests that when selecting CEOs, the strength and breadth of the candidates' ties with government officials or entities outside the industry should also be important to consider. The need on this aspect is particularly strong when the firm is of smaller size or faces a highly dynamic competitive environment. In short, our findings suggest that given the increasing competition volatility in China, more attention should be paid to the selection and development of CEOs to ensure that their human and relational capital contribute as fully as possible to their firms' CE.

5.3. Limitations and future research

This study is one of the first to examine CEOs' influence on CE in transition economies, and focuses on China in particular. It would certainly be interesting to examine this topic in other transition (and even developed) economies to assess how broadly our findings can be generalized (Ismail et al., 2013). In addition, this study examines only CEOs' appointment background, work experience and network ties as examples of institution-related characteristics. Future researchers can explore other institution-related CEO attributes that may also be of importance to transition economy firms. This line of research could also be enriched by further exploring the characteristics we examine, such as by focusing on the length, intensity and relevancy of a CEO's foreign work experience or the specific criteria used in open recruitment. Likewise, future research on network ties may profit from presenting a more detailed examination of whether and how a CEO's relationships with various specific stakeholder groups (e.g., competitors, suppliers) contribute to CE.

We are mindful of this study's limitations. First, this study collects multisource data from CEOs and CFOs only. Future research may fruitfully refine this study by employing more sources or using more objective data. Second, the cross-sectional nature of this study

prevents us from inferring any causal relationship between CEO characteristics and CE. However, the possibility of reverse causality is not serious, as the CEOs' work experience and appointment backgrounds were largely determined prior to our CE measure and thus should not be influenced by it. Future research could verify our conclusions with well-designed longitudinal studies. Third, we use firm size and environmental instability as the proxies of CEOs' managerial discretion. Researchers may refine and extend our findings by gauging CEOs' managerial discretion more comprehensively or directly. Also, other individual and organizational aspects that may moderate CEOs' influence on CE through mechanisms other than managerial discretion (e.g., CEO' previous appointments in similar positions, and whether their firms are in upstream or downstream product development) may be worthy of research attention. Finally, given that the CE measurement borrowed from Zahra (1996) fit best with the manufacturing industry, we take manufacturing firms as our primary sample. However, CE levels could vary significantly across industries. Thus, we encourage more investigations with broader data collections and more comprehensive industry classifications to verify our findings and these studies can use a more generic measure of CE.

In conclusion, this study focuses on the influence of CEO characteristics on CE promotion in China. The findings demonstrate the important role of CEOs in Chinese firms and also suggest that their influence is not universal, as it may vary with organizational and environmental conditions. Scholars can explore other CEO attributes and their influence on CE in their future studies.

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Table 1
Means, standard deviations and correlations

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.Firm age	14.30	8.34																
2.Region_east	0.42	0.49	0.01															
3.Region_north	0.41	0.49	0.06	-0.71**														
4.Region_south	0.01	0.12	0.02	-0.10	-0.10													
5.State-owned firms	0.52	0.50	0.28**	-0.09	0.13	0.04												
6.Private firms	0.35	0.48	-0.24**	0.09	-0.10	-0.09	-0.77**											
7.Industrial_Light	0.30	0.46	-0.00	0.04	-0.04	-0.08	-0.19**	0.12										
8.Industrial_Heavy	0.46	0.50	-0.02	0.06	-0.07	0.13	-0.15*	-0.09	-0.60**									
9.Sum_political and business ties	6.41	1.72	-0.03	-0.17*	0.08	0.13	0.02	-0.04	-0.07	-0.05								
10.Sum_outside- and inside- industry ties	6.69	1.47	0.02	-0.13	0.00	0.04	-0.02	0.05	-0.05	-0.05	0.72**							
11.Firm size	5.91	1.21	0.40**	-0.11	0.09	-0.00	0.22**	-0.28**	-0.12	0.18**	0.03	-0.02						
12.Open recruit	0.60	0.50	0.08	-0.00	0.03	0.14*	-0.25**	0.23**	0.02	0.04	-0.07	-0.02	0.26**					
13.Foreign experience	0.25	0.44	0.05	0.04	0.07	-0.07	-0.01	-0.05	0.10	-0.12	0.04	0.07	0.01	0.20**				
14.Focus on political ties	0.16	1.21	0.03	-0.08	0.02	-0.14*	0.09	-0.10	0.00	0.01	0.50**	0.12	0.14*	-0.04	-0.05			
15.Focus on outside industry ties	0.09	0.97	-0.06	0.07	0.05	0.17*	-0.09	0.05	0.04	-0.01	-0.01	0.16*	0.04	-0.08	0.01	0.17*		
16.Environment instability	3.52	0.89	0.13	-0.04	0.01	-0.09	0.05	-0.01	-0.05	-0.12	0.19**	0.31**	0.10	0.05	-0.00	0.07	-0.10	(0.82)
17.Corporate entrepreneurship	3.01	0.74	0.06	-0.02	0.02	-0.09	-0.06	0.10	-0.01	-0.08	0.16*	0.30**	0.14*	0.13	0.10	0.08	0.04	0.38** (0.86)

N= 198; ** p < 0.01 * p < 0.05 Cronbach's alpha values appear in the brackets.

Table 2
Multiple regression results for significant predictors of corporate entrepreneurship

	Corporate Entrepreneurship			
	M0	M1	M2	M3
Control variables				
Sum of outside- and inside- industry ties	.30** (.03)	.31** (.04)	.22** (.06)	.21** (.05)
Firm size	.15* (.04)	.14* (.04)	.11* (.05)	.10* (.04)
Independent variable				
Open recruit		.11* (.10)	.11* (.11)	.11* (.11)
Foreign experience		.10[†] (.11)	.11* (.12)	.12* (.12)
Focus on political ties		.07 (.05)	.06 (.05)	.08 (.05)
Focus on outside industry ties		.06 (.06)	.08 (.06)	.11* (.06)
Moderator				
Environmental instability (EI)			.32** (.07)	.36** (.07)
Two-Way Interaction				
Focus on political ties *Firm Size				-.15* (.05)
Focus on outside-industry ties *Firm Size				-.11* (.06)
Focus on political ties*EI				.17** (.05)
Focus on outside-industry ties *EI				.14* (.05)
R ²	.10	.13	.22	.27
Adjusted R ²	.10	.10	.19	.22
F	12.25**	4.80**	7.67**	6.21**
R ² Change		.03 [†]	.09**	.05*

N= 198; ** p < 0.01; * p < 0.05; [†]p < 0.10, two-tail test.

Standardized coefficients are reported, together with standard errors in the parentheses.

Table 3
Multiple regression results on two sub-samples

	Corporate Entrepreneurship							
	Sub-sample 1 (N=102)				Sub-sample 2 (N=96)			
	M0	M1	M2	M3	M0	M1	M2	M3
Control variables								
Sum of outside- and inside- industry ties	.28** (.05)	.30* (.05)	.20* (.05)	.20* (.05)	.31** (.05)	.34** (.05)	.26* (.06)	.23* (.06)
Firm size	.20* (.08)	.18* (.09)	.11 (.06)	.09 (.08)	.07 (.06)	.12 (.07)	.10 (.05)	.07 (.06)
Independent variable								
Open recruit		.14* (.17)	.12 [†] (.11)	.13 [†] (.16)		.06 (.14)	.07 (.15)	.10 (.15)
Foreign experience		.03 (.16)	.08 (.12)	.14* (.15)		.08 (.15)	.07 (.16)	.03 (.16)
Focus on political ties		.01 (.07)	.01 (.05)	.02 (.08)		.17* (.07)	.14* (.06)	.13 [†] (.06)
Focus on outside industry ties		.06 (.08)	.11 [†] (.06)	.14* (.08)		.01 (.06)	.01 (.07)	.02 (.07)
Moderator								
Environmental instability (EI)			.35** (.08)	.38** (.08)			.27** (.09)	.34** (.09)
Two-Way Interaction								
Focus on political ties *Firm Size				-.08 (.08)				-.25** (.08)
Focus on outside-industry ties *Firm Size				-.10 (.06)				.04 (.09)
Focus on political ties*EI				.19* (.08)				.17* (.07)
Focus on outside-industry ties *EI				.15* (.06)				.08 (.07)
R ²	.07	.11	.28	.32	.10	.14	.20	.29
Adjusted R ²	.05	.05	.22	.24	.08	.08	.14	.20
F	3.36*	1.94*	5.04**	3.77**	5.10**	2.38*	3.20**	3.10**
R ² Change		.05 [†]	.16**	.08*		.04	.07**	.09*

Note: Using the first sample to predict corporate entrepreneurship for the second sample data: $r=0.45$, $p < 0.01$, $n=96$

Using the second sample to predict corporate entrepreneurship for the first sample data: $r=0.39$, $p < 0.01$, $n=102$

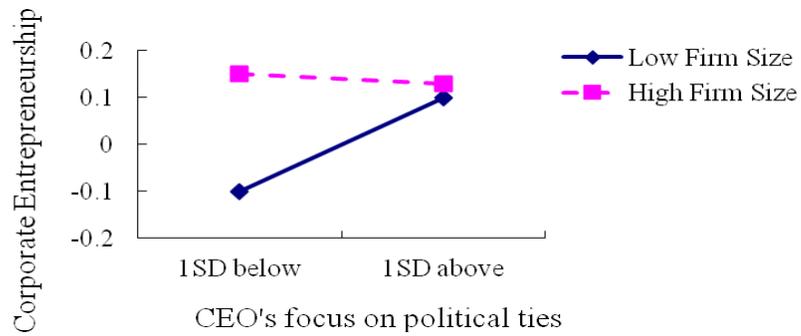


Figure 1: Moderating effect of firm size on the relationship between CEO's focus on political ties and corporate entrepreneurship

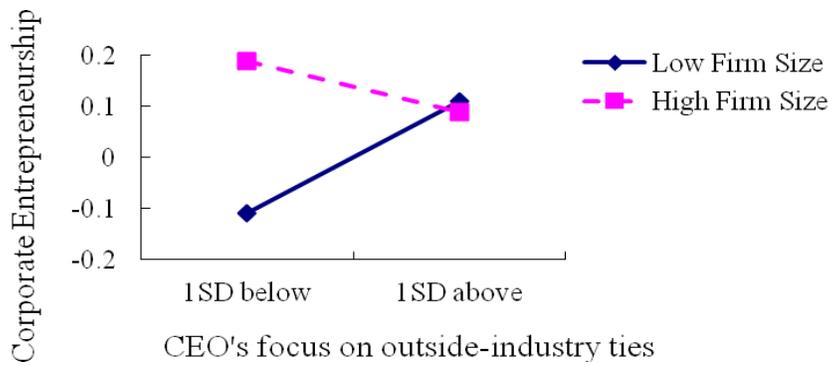


Figure 2: Moderating effect of firm size on the relationship between CEO's focus on outside-industry ties and corporate entrepreneurship

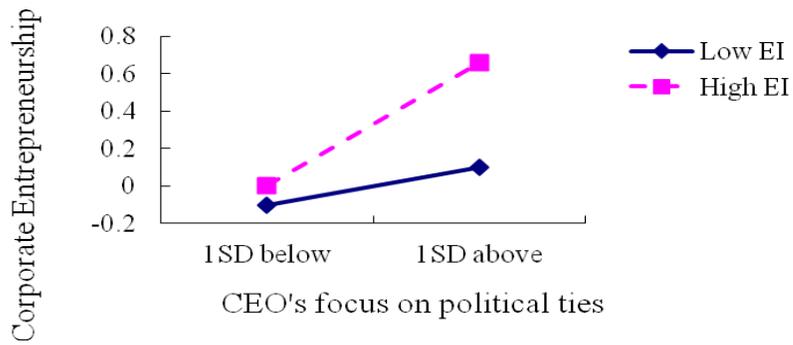


Figure 3: Moderating effect of environmental instability (EI) on the relationship between CEO's focus on political ties and corporate entrepreneurship

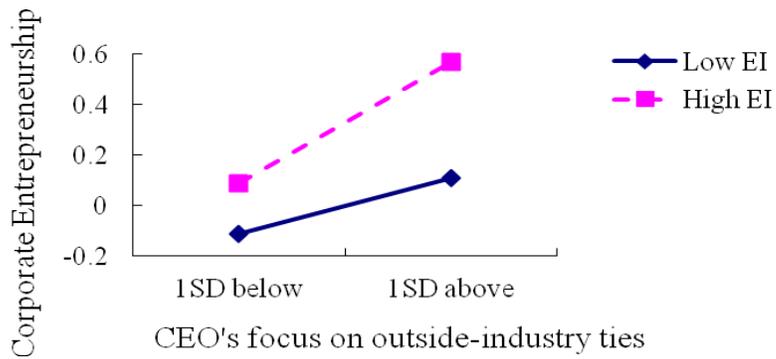


Figure 4: Moderating effect of environmental instability (EI) on the relationship between CEO's focus on outside-industry ties and corporate entrepreneurship