RISK AVERSION AND GUANXI ACTIVITIES: A BEHAVIORAL ANALYSIS OF CEOs IN CHINA

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In China, the strategic use of personal relationships is pervasive in transactions with government authorities as well as in interfirm relations. Explanations as to when and why firms rely on *guanxi* emphasize a close link between organizational resources, environment, and corporate strategic choices. Our study shifts attention to the importance of CEO preferences, specifically risk aversion, and suggests an investment theory of strategic reliance on personal relations to achieve organizational goals. To explore the association between CEO risk aversion and reliance on *guanxi* activities, we combine incentivized behavioral tasks using multiple price list formats for risk elicitation with a manager and firm survey. Our analysis focuses on 345 randomly sampled CEOs of private manufacturing companies in the Yangzi Delta region in China. The results confirm the importance of risk preferences in explaining strategic choices and performance effects: there is a negative association between risk aversion and reliance on *guanxi* activities, although company age and market orientation moderate the behavioral effect of risk preferences. However, when risk-averse CEOs utilize *guanxi*, they tend to be more successful, as measured by the firm's financial performance. More generally, our results underscore the importance of personal preferences as determinants of corporate strategy and performance.

Guanxi appears to permeate the world of business in China. It is nearly inescapable in business-to-government exchanges, and ever present in business-to-business transactions. Conceptually, *guanxi* is defined both as a form of social capital encapsulated in dyadic, particularistic ties (Tsui & Farh, 1997; Xiao & Tsui, 2007), and as a relational strategy at the organizational level (for an overview, see Chen, Chen, & Huang, 2013). Here, our focus is on the strategic utilization of personal relationships (Peng & Luo, 2000)

as a means of achieving organizational goals (Guthrie, 1998). Hereafter, we use the phrase "*guanxi* activities" to refer to the strategic development and utilization of specific ties, and "*guanxi* strategy" to refer to the overarching strategic role of organizational *guanxi*.

Strategy research has confirmed that certain organizational characteristics, and also the institutional environment, influence both the extent of reliance on *guanxi* and its relative effectiveness (Luo, Huang, & Wang, 2011). The core narrative is that *guanxi* activities stem from strategic responses in environments where markets are burdened by red tape and weak enforcement of rules (Nee & Opper, 2010, 2012; Park & Luo, 2001; Peng & Luo, 2000; Xin & Pearce, 1996). Robust evidence has supported the view that *guanxi* is effective in securing more favorable access to resources and services, and hence enables organizations to gain financial and market benefits (Luo et al., 2011; Park & Luo, 2001; Peng & Luo, 2000). Such firm-level effects are contingent on a broad set of conditions (Miller & Friesen, 1983; Mintzberg, 1973), including organizational characteristics, the specific

nature of the institutional environment, and prevailing market conditions (Li, Poppo, & Zhou, 2008; Luo, 2003; Luo et al., 2011; Park & Luo, 2001; Peng & Luo, 2000).

The environment matters in generating motivation for CEOs to call on *guanxi* ties, but what explains the sizeable between-firm differences in strategic reliance on *guanxi* once organizational features and institutional conditions are controlled for? Some CEOs seem to have an unlimited appetite for investing in *guanxi* activities, while others claim to limit investments in *guanxi* to a minimum (Nee & Opper, 2012). As with other forms of capital, investments in *guanxi* activities can be costly with respect to expenditures of the CEO's time and the firm's resources. The return on such investments is contingent not just on confidence in the reliability and trustworthiness of the *guanxi* connection, but also on exogenous events that can result, for instance, in the sudden exit of strategic actors. Various circumstances can lead to the loss of *ex ante* investments when expected returns are not provided *ex post* by the *guanxi* tie. These observations underscore the importance of personal preferences, and specifically highlight an individual's proclivity for risk-taking as a predictor of *guanxi* activities.

By bringing CEO risk preferences to the fore, we modify and extend the theoretical framework and analytical approach of prior *guanxi* research. Our behaviorally grounded approach highlights a moderating effect of individual risk preferences in strategic decision making and corresponding performance outcomes, while controlling for well-established organizational and environmental factors confirmed in prior research. The shift in analytical focus is well aligned with empirical and theoretical evidence confirming that strategic choices are influenced by personal characteristics and demographic factors (Finkelstein & Hambrick, 1996; Hambrick & Mason, 1984; Jensen & Zajac, 2004; Miller & Toulouse, 1986; Wiersema & Bantel, 1992). The behavioral vein within upper echelon theories and the emerging field of behavioral strategy (Powell, Lovallo, & Fox, 2011) have highlighted connections between behavioral preferences such as risk aversion (March & Shapira, 1987; Wiseman & Gomez-Mejia, 1998)—and also personal traits such as hubris (Hiller & Hambrick, 2005; Li & Tang, 2010) or other affective traits (Delgado-Garcia & de la Fuente-Sabaté, 2010)—and strategic choices.

Investing time and energy in *guanxi* activities may open doors to opportunities to alleviate resource constraints, but also involves distinct risks that not all decision makers are equally willing to accept. *Ex*

ante investments of strategic attention—in the form of gift-giving, banquets, and managerial effort devoted to building personal relationships—entail the risk that the resources spent in the game of *guanxi* may not bear fruit or might go awry in the future (Chen & Chen, 2004; Fan, 2002; Liu & Gao, 2014; Su, Mitchell, & Sirgy, 2007). Given the long-range temporality of *guanxi* strategies, a CEO's propensity to accept risks is therefore likely to affect his or her inclination to invest the requisite time and organizational resources in *guanxi* activities. All else being equal, risk-averse individuals—defined as decision makers who prefer the alternative with lower risk given an expected return (or who demand a higher return for any given risk) (Kahneman & Tversky, 1979)—are likely to find *guanxi* activities relatively less attractive compared to their less risk-averse peers.

Our contribution is threefold. First, we develop a behaviorally grounded perspective of *guanxi* strategies and suggest an "investment theory" (Markowitz, 1952) for *guanxi* activities. Our approach builds on insights highlighting the risky nature of strategies that rely on pursuing and utilizing particular relationships (Abdi & Aulakh, 2014; Håkansson & Ford, 2002; Ring & Van de Ven, 1992; Williamson, 1985), and on behavioral research predicting that risk averters avoid risky strategies (Kahneman & Lovallo, 1993). Specifically, strategies involving a long-range time horizon and inviting a broad range of uncertainties (Milliken, 1987) are likely to correlate with the executive's propensity for risk-taking (Das & Teng, 2001). The idea that reliance on relational strategies requires investments has been well established (Glaeser, Laibson & Sacerdote, 2002). In our theory, however, we also incorporate the intrinsic risks and the trade-offs between the risks and returns the individual decision makers are facing. From this theory we generate a number of hypotheses about individual risk preferences—along with certain situational factors that may moderate these tendencies—as individual-level predictors of organizational *guanxi*. We thereby complement the dominant view in firm-level research interpreting *guanxi* activities as driven by organizational needs and the institutional environment (Park & Luo, 2001; Peng & Luo, 2000).

Second, our study contributes to the behavioral literature on CEO risk aversion. Explorations of firm-level effects associated with risk aversion have largely focused on insurance (Giné, Townsend, & Vickery, 2008) and financial investment decisions (Castillo, Petrie, & Torero, 2010; de Mel, McKenzie, & Woodruff, 2008; Elston & Audretsch, 2011; Kremer,

Lee, Robinson, & Rostapshova, 2013; Tanaka & Sawada, 2015). Our study leaves this rather narrowly defined research framework of financial decision making, and shifts attention to the effect of CEO risk aversion on organizational *guanxi* activities. Confirmation of a close link between individual risk preferences and *guanxi* activities underscores the need for risk research to incorporate a larger set of strategies involving long-range risks (Das & Teng, 2001). It also calls for a more systematic analysis of the "behavior–strategy" fit within risk research to more fully capture the impact of executive risk preferences on a company's strategic decisions and performance.

Building on experience accumulated in lab experiments using standard pricelist formats for risk elicitation (Holt & Laury, 2002) and a growing stock of experiments conducted outside of the laboratory context (Harrison & List, 2004), we use a stratified random sample of CEOs and firms. By applying the same rigorous standards of survey sampling and execution to behavioral research involving executives, we offer a subtle methodological refinement over a convenience sample of subjects who self-select into the study population.

In summary, our contribution increases understanding of strategic utilization of *guanxi* by taking CEO risk aversion and risk perceptions into account. Support for our predictions encourages further research exploring the same mechanism in different cultural contexts. Our findings also suggest that CEO risk aversion may play a similar role in other types of relational strategies involving long-term risks of investment. Our research design—combining a firm-level survey of randomly sampled CEOs with incentivized tasks for risk elicitation—may also provide a benchmark for organizational research exploring other types of strategic decisions involving long-range time horizons, such as research and development, internationalization strategies and mergers and acquisitions (Powell et al., 2011).

THEORY AND HYPOTHESES

The Risky Nature of *Guanxi*

The utility of organizational *guanxi* activities rests on the idea that strategic utilization of personal relationships generates benefits otherwise not achievable through institutionalized channels. Such benefits may involve assistance with regulatory permits; they may also involve faster, cheaper, or assisted access to resources or services not readily attainable through market-based exchange. Organizations may also cultivate *guanxi* as a form of insurance against future government meddling and arbitrary intervention, if the rule of law does not offer sufficient protection for property rights and rule-based predictable regulatory processes (Xin & Pearce, 1996). As such, *guanxi* activities are viewed as transaction cost economizing strategies within institutional environments characterized by constrained or uncertain access to resources (Park & Luo, 2001; Peng, 2003).

Notwithstanding, given the informal nature of the personal relationships and the lack of enforceability, *guanxi* activities promise neither certain returns nor certain insurance effects. The temporal gap between sizeable investments in relationship-building and prospective outcomes (either in the form of additional returns, or as insurance against losses) adds to the intrinsic risks (Chen & Chen, 2004). Essentially "*guanxi* are a futures transaction with unspecified delivery time; also there is no guarantee in terms of the value or quality of the benefit" (Fan, 2002: 555). There are two primary sources of risk: environmental, or more precisely "state uncertainty" (Milliken, 1987), and relational. Both have been discussed in the literature on vertical integration (Sutcliffe & Zaheer, 1998), relational governance (Abdi & Aulakh, 2014), and alliance formation (Das & Teng, 1997; Ring & Van de Ven, 1992). Yet they are likely to be even more pronounced in the context of *guanxi* activities due to the lack of contractual agreements and enforceability, and the highly volatile environment, which makes predictions on future states highly uncertain. This leads to the apparent paradox that a strategy originally designed to cope with environmental uncertainties is in itself vulnerable to uncertain change dynamics of the environment and the stakeholders involved (Fan, 2002). The efforts to reduce the "state uncertainty" by *guanxi* activities may in fact reduce the ability for the involved parties to predict the effects of these activities on their own organizations, which in turn leads to an increase in "effect uncertainty" (Milliken, 1987).

Relational risks further complicate any assessment of the long-range utility of *guanxi*. The strategic alliance literature has extensively discussed behavioral threats associated with different cultural backgrounds of the exchange parties, divergent systems of meaning, strategic goals, and differences in assessments of equity and efficiency (Abdi & Aulakh, 2014). The personalized nature of *guanxi* activities adds to these risks. Because organizational *guanxi* relations still belong to people and are not "owned"

by organizations (Fan, 2002; Van Honecker, 2004), the utility of *guanxi* depends on the continuing functional responsibility of exchange partners, as well as their loyalty and commitment.

Risk Aversion and *Guanxi* with Government and Business Firms

Valuable returns from political connections to government include priority access to bank loans, technology grants, public contracts, land permits, and export licenses. However, whether such returns will be readily available in the future depends on the continuation of resource constraints and administrative barriers that allow government officials and regulators to redistribute rents to their most favored recipients (Peng & Luo, 2000; Xin & Pearce, 1996). A firm's cumulative investment in political connections with government officials and bureaucrats can be undermined by unexpected exogenous events, such as a campaign against rent-seeking and corruption, or deepening economic reforms that open market access to resources previously controlled by administrators and agents with political connections (Guthrie, 1998; Luo et al., 2011; Nee & Opper, 2010; Zhang & Keh, 2009). Uncertainty regarding the likelihood of such changes—state uncertainty (Milliken, 1987)—thus complicates predictions on the expected returns of *guanxi* strategies. Positional changes, demotions, and relocations of regulators and bureaucrats add relational risks to the management of government *guanxi*. Such changes are frequent, and often mean the loss of valuable contacts, leading to substantial sunk costs (Fan, 2002).

The uncertainty over expected returns from investments in government *guanxi* poses a standard decision-making problem resembling choice settings studied in theoretical and laboratory research. Executives can either invest time and resources to secure and maintain the political connections required for effective *guanxi* activities in the face of uncertainty about whether such investments will deliver any tangible advantages in the future, or, alternatively, abstain or rely less on *guanxi* with regulators, administrators, and bureaucrats, which involves smaller risks and more predictable returns.

The theoretical foundation for our hypotheses rests on familiar arguments developed in investment theory. All relational strategies, including *guanxi* activities, can be seen as strategic investments (Glaeser et al., 2002). Before such investments are made, a CEO is surrounded with stakeholders representing access to distinct *guanxi* activities, each

one of which is associated with an expected return and risk (i.e., an expected variance in returns). If we take into account the theoretically and empirically well-established fact that people in general are more or less risk-averse (Andersen, Harrison, Lau, & Rutström, 2008; Holt & Laury, 2002; Pratt, 1964), then investment theory (Markowitz, 1952) predicts that each CEO will choose high-return and low-risk strategies first, and at the margin make a careful trade-off between risk and return. Furthermore, if it is assumed that CEOs can choose between a nonrisky alternative (e.g., by increasing work hours or productivity) and an inherently risky *guanxi* activity, then there should be a negative correlation between risk aversion and *guanxi* activities.

Note that our theory does not deny that *guanxi* relations may reduce a firm's exposure to distinct institutional risks (Park & Luo, 2001; Peng & Luo, 2000; Xin & Pearce, 1996). Furthermore, it is important to keep in mind that we focus on *guanxi* activities and their effect at the margin. Thus, it may be the case that some initial *guanxi* activities are performed to protect the firm from serious risks, but at the margin, the *level* of *guanxi* activity is determined by the trade-offs outlined above. A likely outcome is that—all else being equal—highly risk-averse CEOs facing uncertainties over the returns to investments in *guanxi* with government will be less likely to invest heavily in these strategies compared with their less risk-averse competitors. Therefore:

> *Hypothesis 1a. CEO risk aversion is negatively associated with guanxi activities with government officials.*

Reliance on business-to-business *guanxi* to secure resources from other companies involves similar environmental and relational risks to reliance on *guanxi* with political actors. As market institutions mature and institutionalization strengthens the reliability and effectiveness of market transactions (Guthrie, 1998; Peng, 2003), contract fulfillment becomes less contingent on favorable interfirm relations, trust building, and mutual goodwill (Williamson, 1985). Nee and Opper (2012) detailed how business norms in the Yangzi Delta industrial districts exert strong pressure on managers to comply with contractually agreed-upon terms, such as delivery time, quality, and payment. As a result, it is commonplace for managers to rely on standard types of contract-based exchange rather than the strategic utilization of particular relationships. Although companies can still benefit from close interfirm relations in information exchange and organizational

learning (Li, Chen, Liu, & Peng, 2014), the potential gains from *guanxi* activities continuously decline due to institutional change in transitions to a market economy (Luo et al., 2011; Nee & Opper, 2012). In addition, technological turbulence and increasing competition threaten to undermine the stability and expected benefits of business relations (Gu, Hung, & Tse, 2008).

Relational risks add to the uncertainties associated with interfirm ties. Unless relations are carefully managed, companies can be held hostage by their own managerial staff (Gu et al., 2008) distributing favors in their personal network at the company's expense (Van Honecker, 2004). In addition, loss of business secrets and technology is not uncommon and requires costly safeguard mechanisms (Opper & Nee, 2015). Finally, the high mobility of managerial staff poses a similar threat to the turnover of government bureaucrats, leading to the loss of distinct relationships (Gu et al., 2008). Even if *guanxi* activities with other companies involve different types of risks compared to *guanxi* with government, they represent individual strategic investments with a given expected return and risk. Building on the same investment theory, we therefore expect:

Hypothesis 1b. CEO risk aversion is negatively associated with guanxi activities with other business firm leaders.

However, dispositional risk aversion of the CEO is unlikely to affect reliance on government and business *guanxi* to the same extent, as the expected returns in each domain differ. Due to the uneven progress in institutional reforms in political and economic markets (Nee & Opper, 2010), state uncertainty is not equally high for political and business *guanxi*. Specifically, regulatory changes in political markets proceed at a slower pace compared to markets for finished and unfinished products. Furthermore, China's leadership has been reluctant to loosen administrative and regulatory controls in key factor markets, such as capital and land (see Fan & Wang, 2009), which still offer politically well-connected company managers sizeable windfall profits (Nee & Opper, 2010, 2012). In competitions for government-funded technology grants, for instance, politically connected firms are generally advantaged over competitors who lack political connections (Stuart & Wang, 2016). In contrast, most product markets are fully liberalized and follow international standards of contracting and market exchange. Rapid technological innovation, growing competitive

pressure, exposure to global business cycles and increasing bankruptcy risks—specifically for private companies—create a highly dynamic market environment, which undermines the long-term stability of business-to-business *guanxi* and reduces the possibility of securing extra benefits from investments in *guanxi* activities (Guthrie, 1998; Gu et al., 2008).

In summary, we argue that potential returns in political markets are not only higher, but that the risks associated with government *guanxi* are relatively more homogenous, compared to the more heterogeneous risks associated with interfirm relations. This means that the *variation* in risk is higher in the latter type of relations, which in turn implies that the trade-off between risk and return should be more salient in business *guanxi*. Therefore:

Hypothesis 1c. The negative association of CEO risk aversion with guanxi activities will relate more strongly to guanxi with other business firm leaders than to guanxi with government officials.

Effects of Firm Age and Market Orientation

Whether risk-averse individuals choose to engage in inherently risky strategies depends not only on their general risk preference but also on the specific "situation," which may affect their *perception* of the expected risks and returns (Figner & Weber, 2011; Hanoch, Johnson, & Wilke, 2006). In the context of strategic decision making at the firm level, certain organizational characteristics are significant. Here, we focus on the age and market orientation of the firm, which can be expected to influence a CEO's perception of situational risks and returns associated with *guanxi* strategies. In a similar spirit, prior research has explored these factors as contingencies influencing the average benefits derived from *guanxi* (Li et al., 2008; Li & Sheng, 2011; Luo et al., 2011).

Newly founded firms are generally operating in a high risk situation, given their lack of internal resources, limited ties with suppliers, customers, and other key actors, as well as their lack of organizational legitimacy (Freeman, Carroll, & Hannan, 1983). As a consequence of this "liability of newness," CEOs of young firms *perceive* the reliance on *guanxi* activities as more important for their organizational survival than do their more established competitors. Our investment theory on *guanxi* relations suggests that CEOs of young firms will initially tend to make strategic investments in *guanxi*

necessary for the firm's survival, as they have not yet reached the point where the trade-off between risk and return is most important at the margin. Only as firms become more established and less dependent on access to external resources do the inherent downside risks of *guanxi* become more important (Li & Sheng, 2011). For well-established firms, continuing *guanxi* activities in an extreme form may even pose the risk of over-embeddedness, causing inertia and the loss of business opportunities (Burt 1992).[1]

The high level of resource dependence (Pfeffer & Salancik, 1978) affects both types of managerial *guanxi* of newly founded firms. In China's political markets, government and administrative ties can be effective in securing access to land rights, building leases, loans from state-owned banks, research grants, official permits such as export licenses, and other resources allocated by the state (Nee & Opper, 2010). All of these transactions are particularly important at the founding stage of a firm when the business still lacks status and public support, yet critically depends on the allocation of land rights and other resources and permits controlled by the government.

Similarly, the cultivation of *guanxi* ties within the business community tends to be more valuable for young, resource-constrained companies than for their more established competitors. To overcome their limited access to technology, capital, and human capital, managers of young companies often seek close collaboration and information exchange with established businesses (Nee & Opper, 2012). Mutual help and resource pooling within business networks can evolve as effective survival strategies. Organizational learning, moreover, is facilitated through interfirm collaborations (Li et al., 2014; Opper & Nee, 2015). At this stage, inherent risks of

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[1] One reviewer pointed out that firm size—as a correlate of firm age—might equally influence a manager's perception of *guanxi*-related risks. Unlike firm age, however, firm size does not necessarily involve similar resource constraints and the need for external resources. Once a firm has successfully survived the initial founding stage, the need for external resources depends on a manager's strategic goals, such as expansion or acquisition plans, rather than firm size per se. Many managers of small and medium-sized companies, for instance, do not in fact pursue any expansion plans and rather aim to stabilize their business. Thus, firm size does not systematically modify a manager's inclination to take on the intrinsic risks associated with *guanxi*. In contrast, the liability of newness is a general concern affecting newly founded companies.

investments in strategic business relations are typically modest, since newly founded firms have not yet acquired a sizeable market share, technology secrets, or a customer basis that could be targeted by close business partners.

On the whole, these circumstances suggest that CEOs of newly established firms will tend to perceive the possible risks associated with *guanxi* activities as relatively less important compared to CEOs of established firms. Therefore:

Hypothesis 2. The negative relationship between CEO risk aversion and guanxi *activities with government officials and other business firm leaders will be weaker for younger firms than for more established firms,* ceteris paribus.

Whether distinct risks are *perceived* as manageable is often a matter of familiarity with the available choice options and the specific risk domain (Figner & Weber, 2011). Information access and the ease of information exchange are therefore influential when choosing or retracting from risky strategies. Naturally, assessments of relational and environmental risks involved in *guanxi* strategies are more reliable if key players are well-acquainted and connected through dense social networks. Network ties not only facilitate resource flows; they also act as conduits of information as to the reliability and trustworthiness of other agents (Podolny, 2001). Social networks facilitate mutual monitoring (Campbell, 2014), and foster reciprocity and norm enforcement (Coleman, 1990). When there is a high density and spatial concentration of their members, social networks can reduce environmental and relational risks associated with distinct transactions. For this reason, risk-sharing networks tend to be characterized by geographic proximity (Fafchamps & Gubert, 2007). Indeed, it has been suggested that risk aversion is a causal factor explaining the emergence of clustered network structures (Kovarik & van der Leij, 2014).

"Localists" embedded in densely clustered production markets can draw on frequent community exchange and face-to-face contacts that help to evaluate tacit information on future policy directions and the helpfulness of distinct government officials (Nee & Opper, 2012). Potential benefits from ties with government officials situated outside of the company's immediate business environment are necessarily more difficult to assess, given the less frequent face-to-face contact and limited information channeled through joint network ties. As one of our respondents noted, cultivating close ties with

administrators situated outside of his province involves high risks and expenses that his company is no longer able to shoulder given the uncertain chances of success. Similarly, embeddedness in local markets provides information to assess risks associated with interfirm relationships and expected benefits from business *guanxi* (Zhou, Li, Zhao, & Cai, 2003). This may include information regarding a company's economic situation and business prospects, as well as information as to a CEO's adherence to norms of fairness and reciprocity (Nee & Opper 2012).

Our investment theory therefore suggests that the level and *variation* of risk in *guanxi* relations are smaller for locally embedded firms. This also means that the trade-off between risk and return will be less important for firms with a stronger local market orientation. Therefore:

Hypothesis 3. The negative relationship between CEO risk aversion and guanxi activities with government officials and with other business firm leaders will be weaker for firms with a local market orientation than for firms with a nonlocal (provincial, national, or international) market orientation, ceteris paribus.

Risk Aversion and Performance

The idea that risk-averse individuals are less likely to adopt risky strategies has enjoyed strong theoretical and empirical support across the disciplines (Kihlstrom & Laffont, 1979). Risk-averse individuals are less active investors, more likely to avoid smoking and active sports, and less likely to be self-employed (Dohmen, Falk, Huffman, Sunde, Schupp, & Wagner, 2011). Less obvious is whether they perform worse when *adopting and managing* risky strategies.

Theoretically, from our investment perspective on *guanxi* strategies, there is a strong argument supporting the view that risk-averse individuals perform *better* than the risk-prone when responding to strategic risks. The underlying logic is simple: at the margin, for any given risk, highly risk-averse individuals demand a higher expected return to get involved in a risky strategy than do people who are not as risk averse; and in parallel, for any given return, they will accept a lower risk (Kanbur, 1979). Consequently, highly risk-averse CEOs are likely to build a portfolio of *guanxi* activities yielding higher returns for a given risk, or involving lower risks for a given return, compared to their less risk-averse

competitors. The expectation of positive performance effects is reinforced by strategy research suggesting that executives who perceive uncertainty in business transactions often respond by seeking more information to clarify the circumstances surrounding the deal (Milliken, 1987). Correspondingly, we expect highly risk-averse CEOs to exercise more caution before investing in *guanxi* activities and to manage these relations more carefully. This suggests:

Hypothesis 4. The positive relationship between guanxi *activities with government officials and business firm leaders and performance is stronger for more risk-averse CEOs than for less risk-averse CEOs.*

METHOD

Study Background and Sample

For this analysis, we rely on data from a firm-level panel survey conducted in 2009 in seven municipalities of China's extended Yangzi Delta region. The survey was first conducted in 2006 and then repeated at three-year intervals (Nee & Opper, 2012). Participating private firms are located in seven municipalities (Nanjing, Changzhou, and Nantong in Jiangsu province; Hangzhou, Wenzhou, and Ningbo in Zhejiang province; and Shanghai municipality) and belong to some of the region's most important manufacturing industries (textiles, ordinary machinery, automobile and vehicle parts, pharmaceuticals, and electronic and communication appliances). The sample is stratified by city and industrial sector. Background information on the overall longitudinal research effort, including detailed accounts of questionnaires and qualitative interviews conducted for this research, are provided by Nee and Opper (2012).

To recruit participants, official records of firm registration were used in each of the municipalities. Small-scale household companies in business for less than three years, and companies with fewer than 10 salaried workers, were excluded. Medium- and large-scale companies (with more than 100 or with more than 500 employees, respectively) were oversampled in order to focus on sizeable and established business ventures. Only the CEOs were eligible for interviews. Interview requests were first sent out by mail, followed by a telephone invitation.

The 2009 survey generated a total sample of 700 respondents. Some 535 (76.4%) of these respondents had already participated in the 2006

survey, which had a response rate of 25%.[2] The second wave included 165 new respondents and firms, following the same sampling and contact strategy and yielding a response rate of 55% (Appendix A provides a breakdown of the sample by industry and city). Importantly, 86% of the 700 participating CEOs were also (co-)owners of their company. Thus, the strategic choices of the CEO are likely to reflect their preferences, rather than being a reflection of recruitment of distinct managerial types fitting a predefined company strategy.

Survey Design, Implementation, and Reliability

The 2009 CEO survey consists of two distinct parts: a standard survey collecting information on the firm and personal background information on the CEO, and a series of incentivized behavioral tasks, which all 700 CEOs completed after responding to the standard survey. The risk elicitation task was conducted in two different versions. One version elicits risk aversion; another elicits certainty preference, which we here employ for robustness considerations only.[3] Both risk elicitation methods were randomly allocated, with 350 participants completing each task. Though not utilized here, it is worth noting that the authors also conducted the incentivized behavioral tasks with a control group of 200 non-entrepreneurs living in the same cities to identify potential behavioral differences between entrepreneurs and the general population. In a prior study we showed that entrepreneurs and non-entrepreneurs do not differ in terms of risk preferences (Holm, Opper, & Nee, 2013). This is in line with other findings in risk research (List & Mason, 2011) and thereby lends further credibility to the

validity of the data generated in our incentivized task.

The questionnaire design was based on extensive face-to-face qualitative interviews and focus group discussions with CEOs and local academics. The questionnaires were first prepared in English, and then translated into Chinese. The Chinese version was then translated back into English to eliminate any deviation in content or meaning. The risk elicitation task was part of a series of four behavioral tasks that in total required about 20 minutes to complete. To test the specification of the behavioral task for the lab-in-the-field application, small-scale onsite tests were conducted with undergraduate students at Lund University. Following minor revisions to the behavioral tasks, focus group discussions with the entire team of interviewers and the local research organization in Shanghai were conducted to ascertain common understanding of the content. During a multiday training workshop, trial runs of the survey interview and behavioral tasks were conducted with all of the interviewers. The workshop was followed by a pilot study utilizing the survey questionnaire and behavioral tasks with 70 randomly sampled CEOs who managed companies in the same industrial sectors and the same region as the survey population.

All face-to-face interviews were conducted by teams of two professional interviewers (26 interviewers in total) from the locality who visited the company premises. In order to maintain a comparable standard of implementation, local field managers accompanied the entire interview process and maintained follow-up training and consultations with interviewers in the field. In addition, the local research company conducted follow-up phone calls to ensure that all interviews had been conducted and completed in line with the specified protocols.

We conducted logical checks to review the reported entries as part of our procedure to ensure the quality of self-reported data. This exercise was also intended to catch potential entry, transfer, and coding errors. If outliers or suspicious entries were identified, we applied a call-back system in which we asked to re-interview the CEO by phone, in order to clarify distinct entries. A total of 292 (85%) of the respondents who completed the risk elicitation task continued to participate in the following 2012 survey. This allowed us to explore intertemporal correlations of the main variables of interest for the present study, showing high

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[2] In total, 711 of a total of 2,842 invited entrepreneurs completed the first survey wave. The response rate of 25% is higher than the average for CEO surveys in East Asian firms (see for a meta-analysis Baruch, 1999; Baruch & Holtom, 2008). Based on a survey including 175 different studies published in the years 1975, 1985, and 1995 in top-tier academic journals in management and behavioral studies, Baruch (1999) identified a norm value of 35.5% +/-13.3 for studies involving top management, whereas mean values in non-Western societies tend to be lower.

[3] Both lists will be strongly affected by the subject's degree of risk aversion, but the second list also includes the so-called "certainty effect," which can play a role in decisions involving risk (Kahneman & Tversky, 1979).

correlations for the *guanxi* as well as the performance measures (with Pearson coefficients ranging between .63 and .97).[4]

Further, it can be noted that the decision to participate in our study does not seem to reflect a certain risk preference. To confirm this, we exploit the fact that respondents were recruited into the sample at different times (2006 and 2009), with different response rates. Standard mean comparison tests of the mean differences between the behavioral results of both recruitment groups show no significant difference between each recruitment pool (with mean values of 5.94 versus 5.95). It is therefore unlikely that a nonresponse bias affected the core findings.

Finally, we emphasize that the sample is not fully representative of private firms in China, given our regional and industrial focus. Specifically, the sample firms are slightly larger (with, on average, 130 compared to 117 employees) and more profitable (with a mean annual profit of 3.9 million CNY compared to 3.4 million nationally) (comparison data from China Statistical Bureau, 2009).

Measurement and Variables

Based on the 2009 CEO survey, we created the following variables:

Guanxi activities. Peng and Luo (2000) introduced what has become a standard measure to capture the intensity of *guanxi* activities as a deliberate corporate strategy. Using a Likert scale (1 to 7, ranking from "very little" to "very much"), respondents were asked to assess their reliance on *guanxi* in three types of business-to-business transactions (with suppliers, customers, and competitors) and three types of business-to-government transactions (with political government, industrial authorities, and other government authorities).[5] These six questions were embedded in separate modules of the survey questionnaire to reduce the risk of a method-response bias. We employ the simple averages of the three business-to-government transactions and the three business-to-business transactions to create two composite measures of government *guanxi* and

business *guanxi.*[6] We also calculated the difference between government *guanxi* and business *guanxi* so as to test whether risk aversion impacts both strategies in the same way (Hypothesis 1c).

Managerial risk preferences. The idea that individuals tend to be consistent in their risk preferences has received broad support—some individuals simply seem more comfortable incurring risks compared to others (Bromiley & Curley, 1992; Dohmen et al., 2011; Sitkin & Weingart, 1995). Risk assessments based on incentivized behavioral tasks should therefore offer a powerful though still underutilized method for behavioral strategy research (Powell et al., 2011). To elicit risk preferences, we rely on a standard price list format of risk elicitation that has been widely used in experimental and behavioral studies (Binswanger, 1980; Holt & Laury, 2002).

We invited subjects to choose between two lotteries (A and B) with different relative risks. The choice between two risky options mimics standard business decisions, where completely certain options are rarely available. Even formal market contracts cannot account for all contingencies (Hart, 1995). Option A has a possible high pay-off of 300 CNY and a possible low pay-off of 240 CNY, while option B has a possible high pay-off of 580 CNY and a possible low pay-off of 15 CNY. Subjects were asked to make 10 separate choices between options A and B. For each successive decision, the probability of the high pay-offs (initially 10%) increased by 10% while the probability of the low pay-offs (initially 90%) decreased by 10%. Appendix B presents the general instructions given to the subjects and the price list in table format. To make it easier for subjects to understand, each successive choice was described to them in prose.[7] The maximum reward to be earned was CNY 580 (approximately USD 95), which—given the modest amount of time needed for completion—presented a credible incentive even for CEOs. On average, participants earned CNY 289 (USD 47), which they received immediately after completion of the tasks. For our analysis, we code the decision number, namely when subjects switched

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[4] These measures are in the proximity of results reported by Peng and Luo (2000), who likewise re-interviewed 27 CEOs of their sample of 127 respondents, in their case 1.5 years after completion of their survey.

[5] The question is closely modeled on Peng and Luo (2000): "Please circle the number that best describes the extent to which your firm utilizes *guanxi* with "X" (1–7, with 1 indicating very little and 7 indicating very much)."

[6] To ensure that the results were not driven by any one of the three distinct measures, we also estimated all regression models using the original six *guanxi* measures as dependent variables. All baseline findings were confirmed for separate measures. Results are available upon request.

[7] We presented the task in descriptive prose (see Appendix B) rather than tables because our pretests using tables had produced a greater-than-expected ratio of questionnaires with multiple switching points.

from the presumably safer option A to the riskier option B, as a measure of risk aversion *(risk).* Values range from 1 to 10, in line with the 10 decision steps, where switching points further down the list, signifies a greater level of risk aversion. For subjects who did not switch from the initially safer option A to the lottery option B, we code the decision as 11.

The task produced five invalid questionnaires (with multiple switching points indicating that the task was not understood) that we excluded from the analysis (leaving 345 valid observations). Two subjects chose alternative A in all entries. While this behavior is irrational, we decided not to exclude these observations, as the same type of "irrationality" may also be observed in real-world strategic decisions. We have, however, ascertained that the significance of our key findings is not driven by these observations. The mean switching point for *risk* is 5.94, indicating that respondents were on average slightly risk-averse, which is in line with our theory.

Contingencies. We measure firm age as the number of years since registration as a private firm. A firm's market orientation is measured as the average of a firm's local supplies in total supplies and local sales in total sales. We define as "local" those suppliers and customers who are located in the same community, whereas "nonlocal" suppliers and customers may be located in the same province but not the same locality, or in other provinces or overseas (including Hong Kong, Macao, and Taiwan).

Performance. To test Hypothesis 4, we include two self-reported economic performance measures previously employed in the literature on organizational *guanxi*. We first calculate the three-year average of return on assets (*ROA*) (Li et al., 2008; Peng & Luo, 2000).[8] We then include the *sales growth* for the corresponding period (Park & Luo, 2001). Both measures have been confirmed as close correlates of *guanxi* (Peng & Luo, 2000).

Control variables. The vector of control variables used for all specifications covers a set of personal characteristics, firm specifics, and environmental conditions that could possibly confound the coefficient estimates of the various risk measures under review. These variables are also likely to correspond with firm performance.

We include a set of control variables that behavioral studies and survey research have confirmed as correlates of a person's propensity to accept risk.

Gender (male = 1) and the CEO's education measured by number of years of schooling are both likely to lower an individual's risk aversion (Dohmen et al., 2011; Eckel & Grossman, 2008). The CEO's age is likely to be positively associated with risk aversion (Dohmen et al., 2011). Family background is also influential: the higher the parental socioeconomic background, the lower the proclivity to risk aversion (Dohmen et al., 2011). The CEO's household registration at birth (urban = 1), offers a reliable proxy for different socioeconomic backgrounds, given China's enormous rural–urban divide (Whyte & Parish, 1984). Finally, we include a dummy variable for Chinese Communist Party (CCP) membership (party member = 1), since CEOs who are not party members may feel a greater need to make up for lack of political capital by investing in *guanxi* relations (Ma & Parish, 2006). Party affiliation may also affect a person's sense of risk aversion, as membership is associated with social and political status.[9]

Earlier research on the utility of *guanxi* activities has shown that small firms and new firms may particularly benefit from strategic investments in *guanxi* activities. We therefore include *firm size* (measured as a log of self-reported assets) and *firm age* as covariates (Li et al., 2014; Peng & Luo, 2000). A firm's *business model* may also have implications for a manager's propensity to rely on *guanxi* activities (similarly to Peng & Luo, 2000). Thus, we asked managers to identify (among the following options) the business model that best describes their company strategy: (1) creating new products for new potential markets, (2) improving upon products to sustain current market shares, (3) marketing and distribution of products, (4) combining innovation and enhancement in market competitiveness, and (5) lowering production costs. We use category 1 as the benchmark. While earlier research has highlighted firm ownership as a predictor of *guanxi* activities (Park & Luo, 2001) and performance effects (Li et al., 2008; Peng & Luo, 2000), ownership is not a relevant issue in our homogeneous sample of private companies. We acknowledge, however, the potential impact of legal firm registration (Nee & Opper, 2012). Whether firms incorporate as legal persons defines

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[8] We apply averages to smooth out performance variation over time. However, our benchmark results are also confirmed for individual years.

[9] In addition, we experimented with a whole range of other socioeconomic measures reflecting the CEO's prior occupation, individual income, and parental background characteristics, such as education and former occupation. In no case, however, could we identify any significant relationship that modified our key findings presented in Tables 2 and 3.

a firm's status and involvement with public authorities. To capture the potential impact of registration status, we control for five types of *company registration*: (1) single ownership, (2) joint ownership, (3) limited liability, (4) shareholding, and (5) subsidiary.

With reference to earlier research employing a contingency framework (Park & Luo, 2001; Peng & Luo, 2000; Xin & Pearce, 1996), we control for environmental factors that may affect a company's *guanxi* activities. Given the geographic proximity and cultural similarity of the municipalities in our sample, institutional differences are relatively limited. Their provinces are among the most liberalized and competitive regions in China (Fan & Wang, 2009). Already in 2005, the World Competitiveness Report ranked Zhejiang province 18th globally in terms of government efficiency (IMD, 2005). To capture remaining local differences, we include a set of dummy variables controlling for municipality. The industrial sectors included in our study also show little variation in competition; all are highly competitive with relatively small market entry costs. To control for remaining differences, we still include a set of five dummy variables.

To ascertain that our results are not driven by *interviewer effects,* we include dummy variables specifying the distinct main interviewer for the behavioral task. In no case are our results driven by such effects.

Analytical Approach

We apply a series of OLS regression models to test our hypotheses on the influence of risk aversion on *guanx*i activities (Hypotheses 1a–c) and employ subgroup regressions to test for contingency effects (Hypotheses 2 and 3) based on firm age and market orientation. Firms in business for up to six years (based on registration date) are defined as "*young*" (about 30.5% of all companies in our sample). To compare the effect of risk aversion on *guanxi* activities across "localists" and "nonlocalists" we split our sample along the median value (20%) of the average of local supplies and sales. We also use the mean value of 26% as an alternative cut-off point, which generates consistent findings.

Further, we introduce a set of OLS regressions including interaction effects between risk aversion and *guanxi* activities to explore the moderating impact of dispositional risk preferences on *guanxi*-related performance effects (Hypothesis 4). For this purpose, we use a binary variable, "*risk averter,*" with a value of 1 if the switching point in the risk elicitation task is 6 or larger. This measure is used to construct interaction effects between *guanxi* activities and risk aversion, in order to explore the performance effect realized by risk-averse CEOs. The use of a continuous measure of risk aversion would lead to multicollinearity problems (with variance inflation factors larger than 12) and biased parameter estimates.

RESULTS

Main Specification

Table 1 summarizes the descriptive statistics and correlation coefficients. It shows that risk aversion is negatively and significantly correlated with both forms of *guanxi* activities ($p < .001$). The mean for government *guanxi* (4.24) is slightly lower than the mean for business *guanxi* (4.50), with a statistically significant difference. Neither risk aversion nor *guanxi* activities are significantly correlated with any of the performance measures. Mean values of personal and company characteristics of CEOs participating in the risk elicitation task are—with only two exceptions (gender and new product development as main business model)—not significantly different from those of the respondents completing the certainty preference task (5% and lower) (see Appendix C).

To test Hypotheses 1a through 3, we regress *guanxi* activities with behavioral risk measures while controlling for confounding effects. For Hypotheses 1a and 1b, we first present our findings excluding the full set of control variables (M1 and M7), and then present the complete model (M2 and M8). As can be expected from the pairwise correlations (Table 1), the variance inflation factors do not suggest significant multicollinearity. Ramsey reset tests were applied throughout but rejected the existence of a misspecification at the 5% significance level for all estimations. As our dependent variables are left- and right-censored, we also considered using a Tobit specification, but did not notice critical differences in OLS estimates. For ease of interpretation, we therefore present the OLS specifications.

As predicted in Hypothesis 1a and Hypothesis 1b, higher risk aversion is associated with weaker *guanxi* activities, both with government authorities (M1 and M2) and with other firms (M7 and M8). However, risk aversion poses a stronger constraint on interfirm relations (M8) ($\beta = -0.15, p < .001$) than on cultivation of government connections (M2) $(\beta = -0.10, p < .01)$. The difference in coefficients is significant at the 10% level, thereby lending some

TABLE 1
Descriptive Statistics and Correlations (2009 Survey/participants in risk aversion task, $n = 345$)

	Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	ROA (%)	26.31	33.84																
2	Sales growth (%)	30.06	33.48	-0.09*															
3	Government *guanxi*	4.24	1.19	0.04	0.05														
4	Business *guanxi*	4.50	0.97	0.00	0.04	0.61*													
5	Risk aversion	5.94	1.80	-0.02	-0.07	-0.20*	-0.33*												
6	Male	0.81	0.39	-0.02	0.01	-0.06	-0.06	0.01											
7	Age	43.36	8.36	-0.04	0.00	-0.01	-0.05	-0.07	0.10*										
8	Urban	0.53	0.49	0.08*	-0.05	0.07	0.04	-0.09	-0.11*	0.08*									
9	Education	12.83	2.92	0.10*	-0.02	0.12*	0.05	-0.03	-0.03	-0.17*	0.38*								
10	Party member	0.23	0.42	-0.01	-0.04	-0.01	-0.07*	0.02	0.12	0.25*	-0.01	0.04							
11	Firm age	9.4	4.45	-0.05	0.11*	0.00	-0.02	-0.01	0.01	0.09*	-0.07	-0.08*	0.03						
12	Firm assets	6.66	1.26	-0.12*	0.01	0.13*	0.10*	0.04	0.00	0.06	0.02	0.19*	0.16*	0.23*					
13	New product development	0.15	0.36	-0.06	0.03	-0.01	-0.06	-0.03	0.06	-0.01	0.03	0.04	0.06	0.05	0.16*				
14	Product improvement	0.40	0.49	-0.01	-0.04	0.09*	0.14*	-0.11*	-0.06	0.03	-0.03	-0.07	0.01	0.01	-0.04	-0.39*			
15	Marketing and distribution	0.08	0.28	0.05	0.02	0.12*	0.05	-0.03	0.00	-0.07	0.05	0.06	-0.07	-0.05	-0.06	-0.13*	-0.23*		
16	Innovation and competitiveness	0.25	0.43	0.03	0.00	-0.04	0.01	0.04	-0.01	-0.01	-0.01	0.02	0.02	-0.04	0.00	-0.26*	-0.45*	-0.16*	
17	Lowering production costs	0.11	0.32	0.01	0.02	-0.18*	-0.20*	0.17*	0.04	0.04	-0.02	-0.03	-0.07	0.01	-0.10*	-0.16*	-0.28*	-0.10*	-0.19*

* $p < 0.05$

preliminary support for Hypothesis 1c, which proposes that risk aversion will relate more strongly to business-to-business ties. As a direct test, M13 estimates an OLS model to test how CEO risk aversion affects the difference between government and business *guanxi*. Our results weakly confirm (β = .05, $p < 0.1$) that more risk-averse CEOs maintain (in relative terms) stronger *guanxi* activities with government officials than with other business firm leaders.

Moving on to the contingency effects, we repeat our estimations using split samples, based on firm age (M3, M4, M9, and M10) and market orientation (M5, M6, M11, and M12). For younger firms, we find support for Hypothesis 2. In fact, risk aversion does not affect *guanxi* strategies of CEOs operating newly established firms (M3 and M9). Only CEOs operating established firms show a significant negative correlation between risk aversion and *guanxi* activities. This is the case both for government *guanxi* (M4) ($\beta = -0.12$, $p < .01$) and for business *guanxi* (M10) ($\beta = -0.17$, $p < .001$).

Results for firms sourcing and selling locally (M5 and M11) and those relying on supplies and sales further afield (M6 and M12) offer a less consistent picture. For government *guanxi*, our findings are consistent with Hypothesis 3. In fact, CEO risk aversion does not influence government *guanxi* of "localists" (M5), but is negatively linked with government *guanxi* of "nonlocalists" (M6). For business ties (M11 and M12), in contrast, the effect of risk aversion is not contingent on the company's market orientation. Both coefficient estimates are significant and negative with comparable effect size ($\beta = -0.17$, $p < .05$ and $\beta = -.14$, $p < .05$, respectively). Hypotheses 3 is thus only partly supported.

Turning to the control variables, our results reveal a modest impact of several other factors. Demographic characteristics do not show a systematic association with a manager's decision about how far to rely on *guanxi* activities. The rare exceptions we find are a positive association between the gender of managers in charge of established firms and *guanxi* activities (M4 and M10) and a negative association between education (M3, M8, M9, and M12) and *guanxi* activities. As for firm characteristics, the most consistent finding is that larger firms tend to maintain closer relationships with government (M2–M6) and other firms (M8, M9, and M11). The choice of distinct business models does not produce consistent findings that would suggest a close link between specific company strategies and *guanxi* reliance. If anything, companies that seek to reduce

production costs to maintain market share seem to be less invested in relationship building, which is consistent with the view that relationship building involves substantial costs (M5 and M10). While not reported here, sector effects are largely insignificant, which may suggest that *guanxi* activities within China's highly developed Yangzi Delta region are less reliant on contextual factors associated with sector-specific institutions and distinct product markets. We also explored the possibility of interaction effects between sector and risk aversion, but without identifying any significant relation. In our sample, risk aversion is clearly not contingent on industry.

Table 3 presents the regression results, exploring the link between *guanxi* activities, risk aversion and performance effects. Due to a high correlation between utilization of business-to-government and business-to-business *guanxi* (.61, see Table 1), we conduct separate specifications exploring the impact of both strategies one at a time.

We find no significant direct effect between *guanxi* with government and ROA or sales growth (M1–M2). While our findings may appear to be at odds with earlier empirical studies,[10] they are well aligned with market transition theory (Guthrie, 1998; Nee, 1989), predicting that *guanxi* activities—and political capital in general—will lose their salience in an increasingly marketized and institutionalized economy as government officials gradually lose control and redistributive power over crucial resources. This theoretical prediction is also in line with recent conclusions presented in a meta-analysis on *guanxi* research (Luo et al., 2012).

In our sample, a significant positive association with firm performance is found only for government *guanxi* conducted by risk-averse CEOs and ROA (M1), though not for sales growth (M2). This offers partial support for Hypothesis 4. While our analysis is not able to pinpoint the exact causal channel, our theory suggests that risk aversion may lead to more

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[10] Certain differences between our study and earlier studies may also (at least in part) influence the difference in findings. Our sample of private firms is homogenous, whereas prior studies have used mixed ownership samples (Li et al., 2008; Park & Luo, 2001; Peng & Luo, 2000). Our sample builds on only five manufacturing sectors, whereas prior work has allowed greater heterogeneity, also including services (Park & Luo, 2001; Peng & Luo, 2000) and a greater variation of industries (Li et al., 2008). The same holds for the choice of regions, which has shown greater variation in earlier work.

prudence in selecting promising ties—specifically in a fairly marketized environment—where a company's financial performance increasingly depends on market success rather than its political ties (Nee & Opper, 2010). In parallel, the direct effect of risk aversion (which obviously influences many other company decisions, such as investment, technology, etc.) is negative and significant at the 5 and 10% level for both specifications.

Direct effects of business *guanxi* on firm performance (M3–M4) are also insignificant. However, business *guanxi* utilized by risk-averse CEOs does have a positive impact on ROA (M3), though only at the 10% level of significance. When it comes to sales performance, the coefficient estimate once again remains insignificant, thereby lending partial support to Hypothesis 4's assertion that risk averters may perform better when utilizing *guanxi* activities. The direct effect of risk aversion is insignificant in both specifications (M3 and M4). An earlier study with a more diversified firm sample including different ownership forms and industries also found overall weak effects of *guanxi* on sales performance (Park & Luo 2001). In light of these relatively weak results, we should note that positive performance effects from *guanxi* activities are still not uncommon, as risk aversion is a rare preference in neither our sample nor the population at large (Holm et al., 2013). At 63%, risk averters are the dominant group in the sample, suggesting that the majority of firms does indeed realize modest benefits from *guanxi* activities both with business and government, at least when judged on the basis of their ROA.

Turning to the control variables, only education and firm size are significantly and positively associated with company performance. Larger firms are associated with a lower ROA (M1 and M3), as well as smaller sales growth (M2 and M4), and more educated managers accomplish higher sales growth (M2 and M4), while educational attainment is not associated with financial performance.

Robustness

Given the novelty of including behavioral risk measures elicited in incentivized tasks in the analysis of *guanxi* strategies, we explored the robustness of our main findings along three dimensions. First, we scrutinized the reliability of our measurement of risk aversion by comparing the distribution of switching points with results from the group of CEOs responding to the task eliciting certainty preference (Kahneman & Lovallo, 1993). Subjects assigned to

this task were asked to choose between a certain and a risky alternative, generating a measure that is cognitively easier to grasp (see Appendix B for task description). Appendix D shows that both tasks produced rather similar frequencies, with a mean value of 5.88 for *certainty preference* (as compared to 5.94 for *risk*). This gives confidence that the respondents had no problems handling the slightly more cognitively demanding task eliciting risk aversion. The individual switching points should therefore present a reliable reflection of individual risk aversion. Appendix E (M1 and M2) also presents results of the certainty effects, confirming those from our benchmark specifications (Table 2, M2 and M8).

Second, critics might question whether risk aversion actually predicts *guanxi* strategies, or whether managers are recruited to fit a distinct strategic outlook. The presence of 86% of owner CEOs and 81% of founding CEOs in our sample offers some support against a reverse causality effect. Further, statistical mean comparison tests reject a significant difference between owner CEOs and professional CEOs in terms of risk aversion or *guanxi*. In addition, re-estimation of M2 and M8 (Table 2) under the exclusion of 47 professional CEOs and 20 CEOs who are owners but not founders confirms our baseline findings establishing a link between risk aversion and *guanxi* activities (see Appendix E, M3 and M4).

Finally, we explored the intertemporal stability of our findings. A total of 82% of the respondents in the 2009 sample also participated in the third-wave survey in 2012, thereby providing the opportunity (unexplored in prior risk research) to examine the intertemporal effect of behavioral preferences on future strategic choices. In total, we obtained 287 valid observations. Importantly, the group of respondents that continued in the third survey and those present only in the second survey showed no significant differences in terms of risk attitudes (mean of risk aversion = 5.90 for respondents continuing in the 2012 survey as compared to 5.94 for the complete sample in 2009; this implies that the group of 58 respondents not participating in the 2012 survey was slightly more risk-averse, with a mean of 6.1). Appendix E summarizes our results, which still suggest a negative association between the CEO's risk aversion and business *guanxi* (M6), although the effect size is smaller and the level of significance lower ($p < .05$). These results underscore a certain stability of core beliefs and risk attitudes (Bromiley & Curley, 1992) and undermine a general concern that behavioral choices lack cross-situational stability (Ross & Nisbett, 1991). With regard to company

TABLE 2
Risk Aversion and *Guanxi,* 2009

	Government *guanxi* (G)					
	All	**All**	**Young**	**Old**	**Local**	**N-Local**
	M1	**M2**	**M3**	**M4**	**M5**	**M6**
Risk	−0.12*** (0.03)	−0.10** (0.03)	−0.01 (0.08)	−0.12** (0.04)	−0.08 (0.05)	−0.12* (0.04)
Male		−0.13 (0.17)	0.49 (0.41)	−0.41* (0.21)	−0.05 (0.28)	−0.26 (0.25)
Age		0.00 (0.01)	0.00 (0.01)	−0.01 (0.01)	0.00 (0.01)	−0.00 (0.01)
Urban		−0.01 (0.14)	0.23 (0.33)	0.02 (0.15)	−0.04 (0.19)	0.17 (0.22)
Education		−0.02 (0.03)	−0.11^{+} (0.06)	0.02 (0.03)	−0.3 (0.04)	−0.00 (0.04)
Party member		0.13 (0.15)	−0.09 (0.33)	0.30 (0.19)	0.59* (0.24)	−0.10 (0.21)
Firm age		0.01 (0.01)	0.11 (0.14)	0.02 (0.02)	−0.02 (0.02)	0.03 (0.02)
Firm size		0.18** (0.06)	0.39* (0.15)	0.14* (0.06)	0.21^{+} (0.12)	0.15* (0.07)
Improving products		0.24 (0.19)	0.60 (0.46)	0.04 (0.24)	−0.10 (0.31)	0.46 (0.33)
Marketing and distribution		0.30 (0.27)	−0.24 (0.51)	0.52 (0.35)	0.30 (0.43)	0.46 (0.42)
Innovation and quality enhancement		−0.04 (0.21)	0.09 (0.56)	−0.11 (0.26)	−0.48 (0.30)	0.25 (0.38)
Lowering production costs		−0.30 (0.26)	−0.18 (0.60)	−0.32 (0.32)	−0.75* (0.35)	0.09 (0.42)
Controls[a]	Yes	Yes	Yes	Yes	Yes	Yes
Constant	5.57*** (0.31)	4.37*** (0.69)	4.94** (1.72)	3.84*** (0.88)	4.89*** (1.14)	4.10** (0.86)
n	345	345	100	245	163	182
R^2	0.26	0.32	0.54	0.37	0.34	0.43
Model *F*	19.45	70.31	12.60	8.74	269.20	114.17
Prob. $> F$	0.000	0.000	0.000	0.000	0.000	0.000

performance, Appendix F presents a replication of the performance tests, linking risk measures generated in the 2009 survey with company and performance data collected in the 2012 survey. Here, too, we confirm that risk-averse CEOs are more successful in generating higher ROAs through government (M1) and business *guanxi* (M3), albeit with smaller effect size and a slightly lower significance (10%). Again, sales growth is not positively affected by *guanxi* activities performed by those who are risk averse.[11]

Although we acknowledge that individual risk preferences may naturally change over time in response to positive or negative external shocks, as well as in response to the overall stock of experience, our findings support the utility of measures elicited in incentivized behavioral tasks for short- and medium-range applications in strategy research.

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[11] Given the natural aging of "young" firms participating in the 2009 behavioral task, we did not retain a sufficient number of young firms in the 2012 survey that would allow splitting the sample by firm age. We are therefore not able to replicate corresponding tests on Hypothesis 2. Hypotheses 3 is not confirmed using data from the 2012 sample.

DISCUSSION AND CONCLUSION

This study develops a behaviorally informed perspective on *guanxi* strategies. We thereby complement and enrich the traditional perspective, which has focused on organizational and environmental antecedents (Chen et al., 2013) but neglected the role of the distinct preferences the CEO brings to the process. Connecting insights from behavioral research highlighting the executive's dispositional risk propensity as a likely predictor of strategic choices (Kahneman & Lovallo, 1993) with observations on the temporalities of strategic risk behavior (Das & Teng, 2001), we offer an investment theory of *guanxi* strategies (Glaeser et al., 2002; Markowitz, 1952) suggesting that the executive's dispositional risk propensity affects *guanxi* activities and corresponding performance effects. The empirical results confirm a negative association between CEO risk aversion and *guanxi*. We show, further, that executive risk aversion is moderated by organizational needs associated with firm age and market orientation. In addition, we offer evidence that risk-averse CEOs—though on average less invested in *guanxi* activities—tend to generate slightly larger benefits when they do engage in them.

TABLE 2
(continued)

Business *guanxi* (B)						(G - B)
All	All	Young	Old	Local	N-Local	All
M7	M8	M9	M10	M11	M12	M13
−0.17*** (0.03)	−0.15*** (0.03)	−0.06 (0.06)	−0.17*** (0.03)	−0.17** (0.05)	−0.14** (0.04)	.05† (0.03)
	0.18 (0.12)	−0.06 (0.37)	−0.26† (0.14)	−0.18 (0.20)	−0.21 (0.17)	0.04 (0.14)
	−0.01 (0.01)	−0.03† (0.01)	−0.01 (0.01)	−0.02† (0.01)	−0.01 (0.01)	0.01 (0.01)
	0.03 (0.12)	0.20 (0.30)	0.03 (0.12)	−0.16 (0.15)	0.22 (0.20)	−0.04 (0.12)
	−0.05* (0.02)	−0.15** (0.05)	−0.03 (0.02)	−0.03 (0.03)	−0.05† (0.03)	0.03 (0.02)
	0.07 (0.12)	−0.14 (0.27)	0.07 (0.14)	0.20 (0.20)	−0.02 (0.17)	0.05 (0.15)
	−0.01 (0.01)	0.10 (0.11)	0.00 (0.01)	0.00 (0.02)	−0.01 (0.02)	0.02 (0.01)
	0.12** (0.04)	0.39** (0.13)	0.05 (0.05)	0.17* (0.08)	0.05 (0.06)	0.06 (0.05)
	0.21 (0.16)	0.45 (0.38)	0.13 (0.18)	0.05 (0.24)	0.25 (0.28)	0.03 (0.20)
	0.08 (0.23)	0.21 (0.54)	0.20 (0.27)	0.31 (0.31)	0.05 (0.38)	0.22 (0.25)
	0.16 (0.17)	0.57 (0.49)	0.09 (0.18)	0.03 (0.24)	0.15 (0.29)	−0.20 (0.22)
	−0.40 (0.22)	0.64 (0.59)	−0.56* (0.26)	−0.37 (0.35)	−0.42 (0.35)	0.09 (0.25)
Yes	Yes	Yes	Yes	Yes	Yes	Yes
5.78*** (0.23)	5.94*** (0.53)	6.84*** (1.59)	5.94*** (0.60)	4.97*** (0.97)	6.70*** (0.64)	−1.65** (0.67)
345	345	100	245	163	182	345
0.32	0.38	0.54	0.44	0.41	0.44	0.18
42.67	87.24	20.72	.47.32	72.72	45.67	29.77
0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: Robust standard errors in parenthesis.

[a] Controls include dummy variables for legal form, city, sector, and interviewer.

† $p < .10$

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Our dataset is derived from a large-scale survey of a stratified random sample of private companies operating in five competitive industrial sectors in China's Yangzi Delta region. The recruitment of a randomly sampled survey population of established CEOs and company owners operating industrial firms represents an innovative approach to behavioral research exploring individual risk propensities with the help of incentivized tasks. Almost all prior studies bringing incentivized tasks to entrepreneurial and managerial subject pools have relied on convenience samples of subjects self-selecting into the study population, mainly drawn from micro-enterprises and small-scale companies located in developing countries (de Mel et al., 2008; Giné et al., 2008; Kremer et al., 2013; Tanaka & Sawada, 2015). Our sample should therefore enjoy a high degree of representativeness, and credibility as to the broader external validity of our findings.

Implications for Research

This study joins a still small but growing research vein in behavioral strategy emphasizing the behavioral preferences of the executive as an important factor in explaining firm-level decisions and outcomes (Powell et al., 2011). Our emphasis here is on the executive's intrinsic propensity to accept risk as a crucial antecedent of strategic choices (Das & Teng, 2001) in social networking activities.

Importantly, we add a new type of contingency to the understanding of *guanxi* choices and effects. We show that *guanxi* strategies require a fit not only with the organization and the environment, but with dispositional traits of the executive. While causal inferences based on relatively small samples always deserve some caution, the intertemporal stability of some of our core findings offers sufficient reason to explore the highlighted relationship in more detail. Specifically, it is worth exploring whether CEOs who are risk-averse select their exchange partners more carefully, and monitor and manage *guanxi* strategies more closely, and thereby may benefit relatively more from strategies in relationship building compared to their risk-embracing peers. More generally, our findings highlight that the antecedents and utilities of *guanxi* activities, as well as related contingencies and performance effects, are more complex than commonly assumed. The rapidly maturing

TABLE 3
Risk Aversion, Relational Strategies, Contingency Effects, and Performance, 2009

	Government *guanxi*		Business *guanxi*	
	ROA	Sales growth	ROA	Sales growth
	M1	M2	M3	M4
Risk	−2.10* (1.05)	−2.25[†] (1.16)	−1.73 (1.10)	−2.17 (1.32)
Guanxi	−1.34 (1.40)	0.25 (1.94)	−1.87 (1.73)	1.98 (2.46)
Guanxi × risk averter	2.72* (1.19)	1.20 (0.92)	1.96[†] (1.04)	1.39 (0.86)
Male	−1.14 (5.03)	−0.09 (3.97)	−1.38 (5.18)	0.31 (3.77)
Age	0.30 (0.31)	0.25 (0.23)	0.27 (0.30)	0.28 (0.24)
Urban	5.71[†] (3.39)	−3.97 (3.78)	5.84[†] (3.44)	−3.86 (3.75)
Education	0.64 (0.59)	2.70** (0.95)	0.59 (0.56)	2.80** (0.99)
Party member	6.97 (4.50)	−3.40 (3.92)	6.96 (4.57)	−3.50 (0.3.73)
Firm age	−0.13 (0.36)	−1.04* (0.52)	−0.17 (0.37)	−1.00[†] (0.51)
Firm size	−3.74* (1.44)	−4.64* (1.85)	−3.60* (1.39)	−4.77* (1.85)
Business model[a]	Yes	Yes	Yes	Yes
Controls[b]	Yes	Yes	Yes	Yes
Constant	27.70 (23.49)	47.86[†] (24.94)	30.16 (19.60)	37.75 (38.73)
n	345	345	345	345
R^2	0.16	0.30	0.15	0.30
Model *F* (Wald)	25.63	46.27	11.32	8.89
Prob. > *F*	0.000	0.000	0.000	0.000

Notes: Robust standard errors in parenthesis.

[a] The same dummy variables capturing distinct business models are included as in Table 2. None of the coefficient estimates is significant at conventional levels.

[b] Controls include dummy variables for legal form, city, sector and interviewer.

[†] $p < .10$

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

institutional environment is likely to further transform the role of *guanxi* in future business transactions and firm strategies (Guthrie, 1998; Nee, 1989). Attempts to better understand this transition call for large-scale, longitudinal survey efforts allowing insights into the dynamic interplay between managerial perceptions and organizational and environmental changes.

The robust association between risk aversion and *guanxi* strategies in China offers some broader lessons for behavioral research. *Guanxi* activities share many critical features with relational strategies involving economic or political actors applied elsewhere by Western corporations. Notably, rewards of *guanxi* strategies are highly uncertain and will only materialize in the long term—as is also the case with other interfirm transactions, such as research partnerships, strategic alliances, and mergers and acquisitions (Abdi & Aulakh, 2014; Håkansson & Ford, 2002; Ring & Van de Ven, 1992; Williamson, 1985), as well as the cultivation of political capital through lobbying or campaign contributions (Claessens, Feijen, & Laeven, 2008). The introduction of CEO

preferences into the analysis therefore offers a more nuanced account of relational strategies at large.

We also contribute to risk research in management studies more generally. A common notion is that entrepreneurial activities require a certain propensity to accept risk (Kihlstrom & Laffont, 1979; Knight, 2006). Yet previous firm-level research incorporating incentivized behavioral measures has focused on a limited set of applications, such as insurance and investment decisions, and often neglected performance outcomes (de Mel et al., 2008; Giné et al., 2008; Kremer et al., 2013). Our results, showing a positive moderating impact of risk aversion on company performance, suggest that dispositional risk preferences may play a more complex role in affecting strategic choices than commonly assumed. Broader applications—involving fields as diverse as research and development, internationalization strategies, and mergers and acquisitions—should help to identify more exactly how, and under which conditions, CEO risk aversion affects strategic choices and related outcomes, either positively or negatively.

Finally, the robustness of the incentivized behavioral task for risk elicitation used in this study should encourage a broader introduction of such tasks into strategy research. A central advantage is that these direct and incentivized behavioral measures of risk preference leave little room for subjective interpretation and enjoy high external validity (Binswanger, 1980; Brockhaus, 1980). The strategy field has been lagging behind parallel behavioral movements in economics and finance (Powell et al., 2011), which is surprising as strategy researchers enjoy comparative advantages in their competence and experience with conducting survey research involving relatively large populations of firms and executives. Specifically, the reductionist school within behavioral strategy building on behavioral decision theory (Kahneman & Lovallo, 1993; Kahneman & Tversky, 1979) is likely to benefit from similar multi-method approaches, merging standard behavioral tasks with survey data. Ideally, future research may venture into a broader measurement of behavioral preferences, allowing risk aversion and likely correlates to be clearly distinguished. Attention to CEO hubris and overconfidence, and also to different time preferences, may be seen as promising avenues for future research (Borghans, Duckworth, Heckman, & ter Weel, 2008).

Practical Implications

The results of this study have practical implications as well. First, they should encourage executives to carefully scrutinize the utility of *guanxi* strategies. Our results not only show that performance effects are limited, but also that they crucially depend on managerial preferences and a specific behavior–strategy fit. This undermines a rather widespread belief that business success includes *guanxi* activities as a necessary cultural component facilitating contracting and contract enforcements.

The modest performance effects also hold some lessons for government officials, who tend to justify overly close relations with business leaders as developmentally beneficial activities, helping local businesses to flourish. Quite clearly, government *guanxi* is no longer needed to "grease the wheels" as it has been in earlier periods of China's transition. This lends some support for policymakers and their ongoing political campaigns trying to further separate the business and government sphere through anticorruption campaigns and tightened regulations. These campaigns are in fact well in line with trends observable at the organizational level.

Finally, this modified perspective on the antecedents and benefits of *guanxi* activities has some important implications for management education. Specifically, training efforts preparing Western managers for cross-cultural transactions need to incorporate a more nuanced perspective on *guanxi* activities and their utilities. Our results suggest that executives in China are not in fact locked into a cultural norm of relying on *guanxi*. Whether corporate strategy places emphasis on cultivating *guanxi* networks depends not solely on organizational and institutional pressures, but also on these executives' dispositional preferences.

LIMITATIONS AND FUTURE RESEARCH

Our study's limitations offer a natural starting point for potential extensions and links for future research. Most importantly, in this study we worked with a relatively homogeneous sample of firms, in terms of both geographic location and company size and organizational form. Certain aspects of our survey population may have facilitated the identification of a behavioral link with *guanxi* strategies at the firm level. Miller and Toulouse (1986) pointed out that the link between executive traits and strategy is most pronounced in small-scale organizations, where the CEO's preferences can have a vast and decisive impact. This certainly applies to our sample, with its mean firm size of 130 employees. Moreover, the large proportion of company owners may have further reinforced this point. Owner-managers in China are known to preside over rather autocratic hierarchies, with little sharing of responsibilities in strategic decisions. Individual preferences of CEOs should therefore have a strong impact on strategic choices. Miller and Toulouse (1986) also posited that CEO preferences may be most pronounced in dynamic and rapidly changing organizational environments. Given these concerns, we would be cautious about generalizing our results beyond their application to private companies in China. Nevertheless, it is particularly these types of private, relatively new, and medium-scale companies that have been associated with intense *guanxi* activities and substantial performance implications (Park & Luo, 2001; Zhou et al., 2003). Analysis of the effect of CEO preferences on strategic choices and outcomes within this population therefore still seems highly relevant for the overall assessment of these strategies.

Our sample is located in one of China's institutionally most developed and liberalized regions

(Fan & Wang, 2009). The systematic exploration of environmental and institutional contingencies would require the application of a similar study design on a more diverse population, which should ideally also include less developed hinterland provinces and rural areas. However, we infer from the observed differences in results for government and business *guanxi* that the negative association between risk aversion and *guanxi* should be larger in liberalized markets where expected benefits are smaller.[12] This has two implications: that risk preferences may have played a much lesser role in earlier stages of the reform process, when cultivation of business and government ties was largely associated with benefits but only limited risks; and that behavioral risk preferences should become more salient as China's reform and liberalization process continues to intensify. This process will be accelerated if political campaigns continue to discourage overly close relations between government officials and business executives.

Finally, the focus on *guanxi* strategies may invite skeptics to doubt the applicability of the detected link between CEO risk aversion and strategy to other cultural contexts. China continues to be perceived as deeply influenced by idiosyncratic characteristics of the Chinese transition economy. However, our sample represents only privately owned companies in some of China's most competitive manufacturing sectors, which often collaborate and interact with international businesses. Furthermore, the interpretation of China as a collectivist society makes our discovery of a negative link between CEO risk aversion and *guanxi* activities even more likely to be of a general nature. Collectivist societies are generally associated with a more risk-seeking behavior (Hsee & Weber, 1999). The traditionally stronger emphasis on family ties, collectivism, and Confucian cultural roots should reduce the impact of an individual's risk aversion on *guanxi* strategies. One reason for this is that the heterogeneity of risk preferences in a collectivist culture is likely to be less pronounced than in an individualist culture.

Therefore, for individualist societies characterized by a culture of arms-length dealings, the variation, and thus the impact, of dispositional risk preferences on long-range strategies involving close interpersonal exchange should be larger, not smaller.

CONCLUSION

Our study brings the dispositional risk preferences of the executive into the analysis of *guanxi* activities and company performance. Our results confirm that the behavior–strategy fit is a decisive factor that needs to be taken into account when seeking to understand the organizational utilization and benefits associated with *guanxi* strategies. Given the common myth identifying risk aversion as a weakness, or rather negative personal feature, of the executive, our results call for a more comprehensive and differentiated view. Depending on the circumstances, such cautiousness in a CEO may in fact have a positive impact on company performance. Positive and negative effects are likely to differ not only with different strategies but also with a range of different types of contingencies moderating or reinforcing the effect of CEO preferences.

REFERENCES

Abdi, M., & Aulakh, P. S. 2014. Locus of uncertainty and the relationship between contractual and relational governance in cross-border interfirm relationships. ***Journal of Management***, 43: 771–803.

Andersen, S., Harrison, G. W., Lau, M. I., & Rutström, E. E. 2008. Eliciting risk and time preferences. ***Econometrica***, 76: 583–618.

Baruch, Y. 1999. Response rate in academic studies—A comparative analysis. ***Human Relations***, 52: 421–438.

Baruch, Y., & Holtom, B. C. 2008. Survey response rate levels and trends in organizational research. ***Human Relations***, 61: 1139–1160.

Binswanger, H. P. 1980. Attitudes toward risk: Experimental measurement in rural India. ***American Journal of Agricultural Economics***, 62: 395–407.

Borghans, L., Duckworth, A. L., Heckman, J. J., & ter Weel, B. 2008. The economics and psychology of personality traits. ***The Journal of Human Resources***, 43: 972–1059.

Brockhaus, R. H. 1980. Risk taking propensity of entrepreneurs. ***Academy of Management Journal***, 23: 509–520.

Bromiley, P., & Curley, S. P. 1992. Individual differences in risk taking. In J.F. Yates (Ed.), ***Risk taking behaviour***: 87–132. Chichester, U.K.: Wiley.

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[12] Clearly, we are not the first to assert and observe a link between institutional conditions and reliance on *guanxi* (Luo, 2003; Peng & Luo, 2000). The inclusion of a behavioral component, however, provides an additional factor explaining within-group differences among CEOs in response to environmental changes. It also offers a better understanding of the question as to which types of CEO are likely to continue investing in *guanxi* in spite of institutional changes.

Burt, R. 1992. *Structural holes: The social structure of competition*. Cambridge, MA: Harvard University Press.

Campbell, A. 2014. Signaling in social network and social capital formation. *Economic Theory*, 57: 303–337.

Castillo, M., Petrie, R., & Torero, M. 2010. On the preferences of principals and agents. *Economic Inquiry*, 48: 266–273.

Chen, C. C., Chen, X. P., & Huang, S. S. 2013. Chinese *guanxi*: An integrative review and new directions for future research. *Management and Organization Review*, 9: 167–202.

Chen, X. P., & Chen, C. C. 2004. On the intricacies of the Chinese *guanxi*: A process model of *guanxi* development. *Asia Pacific Journal of Management*, 21: 305–324.

China Statistical Bureau. 2009. *China statistical yearbook 2009*. Beijing: State Statistics Press.

Claessens, S., Feijen, E., & Laeven, L. 2008. Political connections and preferential access to finance: The role of campaign contributions. *Journal of Financial Economics*, 88: 554–580.

Coleman, J. 1990. *Foundations of social theory*. Cambridge, MA: Belknap Press.

Das, T. K., & Teng, B. S. 1997. Time and entrepreneurial risk behavior. *Entrepreneurship Theory and Practice*, 22: 69–88.

Das, T. K., & Teng, B. S. 2001. Strategic risk behaviour and its temporalities: Between risk propensity and decision context. *Journal of Management Studies*, 38: 515–534.

Delgado-Garcia, J. B., & de la Fuente-Sabaté, J. M. 2010. How do CEO emotions matter? Impact of CEO affective traits on strategic and performance conformity in the Spanish banking industry. *Strategic Management Journal*, 31: 562–574.

de Mel, S., McKenzie, D., & Woodruff, C. 2008. Returns to capital in microenterprises: Evidence from a field experiment. *The Quarterly Journal of Economics*, 123: 1329–1379.

Dohmen, T., Falk, A., Huffman, D., Sunde, U., Schupp, J., & Wagner, G. G. 2011. Individual risk attitudes: Measurement, determinants, and behavioral consequences. *Journal of the European Economic Association*, 9: 522–550.

Eckel, C., & Grossman, P. 2008. Differences in the economic decisions of men and women: experimental evidence. In C. Plott, & V. Smith (Eds.), *Handbook of experimental economics results*, 509–519. New York, NY: Elsevier.

Elston, J. A., & Audretsch, D. B. 2011. Financing the entrepreneurial decision: An empirical approach using experimental data on risk attitudes. *Small Business Economics*, 36: 209–222.

Fafchamps, M., & Gubert, F. 2007. Risk sharing and network formation. *The American Economic Review*, 97: 75–79.

Fan, Y. 2002. Questioning *guanxi*: Definition, classification and implications. *International Business Review*, 22: 543–561.

Fan, G., & Wang, X. 2009. *NERI index of marketization of China's provinces*. Beijing: National Economic Research Institute.

Figner, B., & Weber, E. U. 2011. Who takes risks when and why? Determinants of risk taking. *Psychological Science*, 20: 211–216.

Finkelstein, S., & Hambrick, D. C. 1996. *Strategic leadership: Top executives and their effects on organizations*. St. Paul, MN: West.

Freeman, J., Carroll, G. R., & Hannan, M. 1983. The liability of newness: age dependence in organizational death rates. *American Sociological Review*, 48: 692–710.

Giné, X., Townsend, R., & Vickery, J. 2008. Patterns of rainfall insurance participation in rural India. *The World Bank Economic Review*, 22: 539–566.

Glaeser, E., Laibson, D., & Sacerdote, B. 2002. An economic approach to social capital. *Economic Journal (Oxford)*, 112: 437–458.

Gu, F. F., Hung, K., & Tse, D. K. 2008. When does *guanxi* matter? Issues of capitalization and its dark sides. *Journal of Marketing*, 72: 12–28.

Guthrie, D. 1998. The declining significance of *guanxi* in China's economic transition. *The China Quarterly*, 154: 254–282.

Håkansson, H., & Ford, D. 2002. How should companies act in business networks. *Journal of Business Research*, 55: 133–139.

Hambrick, D. C., & Mason, P. A. 1984. Upper echelons: The organizations as a reflection of its top managers. *Academy of Management Review*, 9: 193–206.

Hanoch, Y., Johnson, J. G., & Wilke, A. 2006. Domain specificity in experimental measures and participant recruitment. *Psychological Science*, 17: 300–304.

Harrison, G., & List, J. A. 2004. Field experiments. *Journal of Economic Literature*, 42: 1013–1059.

Hart, O. 1995. *Firms, contracts, and financial structure*. Oxford, U.K.: Oxford University Press.

Hiller, N. J., & Hambrick, D. C. 2005. Conceptualizing executive hubris: The role of (hyper-) core self-evaluations in strategic decision-making. *Strategic Management*, 26: 297–319.

Holm, H., Opper, S., & Nee, V. 2013. Entrepreneurs under uncertainty: An economic experiment in China. *Management Science*, 59: 1671–1687.

Holt, C. A., & Laury, S. K. 2002. Risk aversion and incentive effects. *The American Economic Review*, 92: 1644–1655.

Hsee, C. K., & Weber, E. U. 1999. Cross-national differences in risk preference and lay predictions. *Journal of Behavioral Decision Making*, 12: 165–179.

IMD. 2005. *IMD world competitiveness yearbook 2005*. Lausanne: Institute for Management Development.

Jensen, M., & Zajac, E. J. 2004. Corporate elites and corporate strategy: how demographic preferences and structural position shape the scope of the firm. *Strategic Management Journal*, 25: 507–524.

Kahneman, D., & Lovallo, D. 1993. Timid choices and bold forecasts: A cognitive perspective on risk taking. *Management Science*, 39: 17–31.

Kahneman, D., & Tversky, A. 1979. Prospect theory: An analysis of decision under risk. *Econometrica*, 47: 263–291.

Kanbur, S. M. 1979. Of risk taking and the personal distribution of income. *Journal of Political Economy*, 87: 769–797.

Kihlstrom, R. E., & Laffont, J. J. 1979. A general equilibrium entrepreneurial theory of firm formation based on risk aversion. *Journal of Political Economy*, 87: 710–748.

Knight, F. 2006. *Risk, uncertainty and profit*. Mineola, NY: Dover Publications.

Kovarik, J., & van der Leij, M. J. 2014. Risk aversion and social networks. *Review of Network Economics*, 13: 121–155.

Kremer, M., Lee, J., Robinson, J., & Rostapshova, O. 2013. Behavioral biases and firm behavior: evidence from Kenyan retail shops. *The American Economic Review*, 103: 362–368.

Li, J. J., Poppo, L., & Zhou, K. Z. 2008. Do managerial ties in China always produce value? Competition, uncertainty, and domestic vs. foreign Firms. *Strategic Management Journal*, 29: 383–400.

Li, J. J., & Sheng, S. 2011. When does *guanxi* bolster or damage firm profitability? The contingent effects of firm- and market-level characteristics. *Industrial Marketing Management*, 40: 561–568.

Li, J. T., & Tang, Y. 2010. CEO hubris and firm risk taking in China: The moderating role of managerial discretion. *Academy of Management Journal*, 53: 45–68.

Li, Y., Chen, H., Liu, Y., & Peng, M. W. 2014. Managerial ties, organizational learning, and opportunity capture: A social capital perspective. *Asia Pacific Journal of Management*, 31: 271–291.

Liu, A. H., & Gao, H. Z. 2014. Examining relational risk typologies for *guanxi* boundary spanners: Applying social penetration theory to *guanxi* brokering. *Journal of Marketing Theory and Practice*, 22: 271–283.

List, J. A., & Mason, C. F. 2011. Are CEOs expected utility maximizers? *Journal of Econometrics*, 162: 114–123.

Luo, Y. D. 2003. Industrial dynamics and managerial networking in an emerging market: The case of China. *Strategic Management Journal*, 24: 1315–1327.

Luo, Y. D., Huang, Y., & Wang, S. L. 2012. Guanxi and organizational performance: A meta-analysis. *Management and Organization Review*, 8: 139–172.

Ma, D. L., & Parish, W. 2006. Tocquevillian moments: Charitable contributions by Chinese entrepreneurs. *Social Forces*, 85: 943–964.

March, J. G., & Shapira, Z. 1987. Managerial perspectives on risk and risk taking. *Management Science*, 33: 1404–1418.

Markowitz, H. 1952. Portfolio selection. *The Journal of Finance*, 7: 77–91.

Miller, D., & Friesen, P. H. 1983. Strategy making and environment: The third link. *Strategic Management Journal*, 4: 221–235.

Miller, D., & Toulouse, J. M. 1986. Chief executive personality and corporate strategy and structure in small firms. *Management Science*, 32: 1389–1409.

Milliken, F. J. 1987. Three types of perceived uncertainty about the environment: State, effect, and response uncertainty. *Academy of Management Review*, 12: 133–143.

Mintzberg, H. 1973. A new look at the chief executive's job. *Organizational Dynamics*, 1: 21–30.

Nee, V. 1989. A theory of market transition: From redistribution to markets in state socialism. *American Sociological Review*, 54: 663–681.

Nee, V., & Opper, S. 2010. Political capital in a market economy. *Social Forces*, 88: 2105–2133.

Nee, V., & Opper, S. 2012. *Capitalism from below. Markets and institutional change in China*. Cambridge, MA: Harvard University Press.

Opper, S., & Nee, V. 2015. Network effects, cooperation and entrepreneurial innovation in China. *Asian Business & Management*, 14: 283–302.

Park, S. H., & Luo, Y. D. 2001. *Guanxi* and organizational dynamics: Organizational networking in Chinese firms. *Strategic Management Journal*, 22: 455–477.

Peng, M. W. 2003. Institutional transitions and strategic choices. *Academy of Management Review*, 28: 275–296.

Peng, M. W., & Luo, Y. D. 2000. Managerial ties and firm performance in a transition economy: The nature of a micro-macro link. *Academy of Management Journal*, 43: 486–501.

Pfeffer, J., & Salancik, G. 1978. *The external control of organizations*. New York, NY: Harper & Row.

Podolny, J. 2001. Networks as the pipes and prisms of the market. *American Journal of Sociology*, 107: 33–60.

Powell, T. C., Lovallo, D., & Fox, C. R. 2011. Behavioral strategy. *Strategic Management Journal*, 32: 1369–1386.

Pratt, J. W. 1964. Risk aversion in the small and in the large. *Econometrica*, 32: 122–136.

Ring, P. S., & Van de Ven, A. H. 1992. Structuring cooperative relationships between organizations. *Strategic Management Journal*, 13: 484–498.

Ross, L., & Nisbett, R. E. 1991. *The person and the situation: Perspectives of social psychology*. New York, NY: McGraw-Hill.

Sitkin, S. B., & Weingart, L. R. 1995. Determinants of risky decision-making behavior: a test of the mediating role of risk perceptions and propensity. *Academy of Management Journal*, 38: 1573–1592.

Stuart, T., & Wang, Y. 2016. Who cooks the books in China? Evidence from private, high-technology firms. *Strategic Management Journal*, 37: 2658–2676.

Su, C., Mitchell, R. K., & Sirgy, M. J. 2007. Enabling *guanxi* management in China: A hierarchical stakeholder model of effective *guanxi*. *Journal of Business Ethics*, 71: 301–319.

Sutcliffe, K. M., & Zaheer, A. 1998. Uncertainty in the transaction environment: An empirical test. *Strategic Management Journal*, 19: 1–23.

Tanaka, M., & Sawada, Y. 2015. Risk preference of managers and firm investments in Lao PDR. In Y. Sawada, & S. Oum (Eds.), *Disaster risks, social preferences, and policy effects: Field experiments in selected ASEAN and East Asian countries*: 265–283. ERIA Research Project Report FY2013, No. 34. Jakarta: ERIA.

Tsui, A. S., & Farh, J. L. 1997. Where *guanxi* matters: Relational demography and *guanxi* in the Chinese context. *Work and Occupations*, 24: 56–79.

Van Honecker, W. R. 2004. When good *guanxi* turns bad. *Harvard Business Review*, 82: 18–19.

Whyte, M. K., & Parish, W. L. 1984. *Urban life in contemporary China*. Chicago, IL: University of Chicago Press.

Wiersema, M. F., & Bantel, K. A. 1992. Top management team demography and corporate strategic change. *Academy of Management Journal*, 35: 91–121.

Williamson, O. E. 1985. *The economic institutions of capitalism*. New York, NY: Free Press.

Wiseman, R. M., & Gomez-Mejia, L. R. 1998. A behavioral agency model of managerial risk taking. *Academy of Management Review*, 23: 133–153.

Xiao, Z., & Tsui, A. S. 2007. When brokerage may not work: The cultural contingency of social capital in Chinese high-tech firms. *Administrative Science Quarterly*, 52: 1–31.

Xin, K., & Pearce, J. L. 1996. *Guanxi*: Connections as substitutes for formal institutional support. *Academy of Management Journal*, 39: 1641–1658.

Zhang, J. J., & Keh, H. T. 2009. Interorganizational exchanges in China: Organizational forms and governance mechanisms. *Management and Organization Review*, 6: 123–147.

Zhou, X., Li, Q., Zhao, W., & Cai, H. 2003. Embeddedness and contractual relationships in China's transitional economy. *American Sociological Review*, 68: 75–102.

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APPENDIX A
TABLE A1
Sample by City and Manufacturing Sector

| | Survey 2009 (risk aversion treatment) | | | | | | Survey 2012 (repeat participation by 2009-respondents; Appendix E, M5-6) | | | | | |
	Textile/ clothes	Medicine/ pharma	Ordinary machinery	Auto and transport	Electronics/ communications	Total	Textile/ clothes	Medicine/ pharma	Ordinary machinery	Auto and transport	Electronics/ communications	Total
Shanghai	9	11	4	24	2	50	8	5	3	20	2	38
Nanjing	6	7	9	18	10	50	5	4	7	18	8	42
Nantong	11	4	16	11	7	49	9	3	15	7	5	39
Changzhou	8	15	4	9	14	50	8	11	4	8	14	45
Hangzhou	14	8	13	5	7	47	12	7	11	4	6	40
Wenzhou	12	2	17	11	8	50	7	2	10	11	8	38
Ningbo	14	4	12	14	5	49	14	4	10	14	3	45
Total	74	51	75	92	53	345	63	36	60	82	46	287

APPENDIX B

QID | __ | __ | __ | __ |

Information Given to Subjects

General information (GI). The purpose of this part of the study is to gain additional insights into economic behavior. You will make choices in different situations that will be explained later. To make it more interesting, realistic and fun, we will, at random, let participants in this study earn some real money. One of your choices made will be selected at random to determine a "money-earning decision" and you will be paid today according to your choice in this task. Hence, the amount of money you earn will depend on the choices made. <u>This means that you may earn money on any of the decisions made, but you will not know how much you will earn before you have made all choices.</u> The maximum amount you can earn is CNY 580 and the minimum is CNY 0.

You should know that the possibility to earn real money is important in economic experiments and that there are strict rules against deceiving persons that participate. Hence, all information given here about money and other aspects are true and will be carried out according to the information given. Please note also that there are no "right" or "wrong" choices in the decisions you are going to make. Therefore, make decisions according to what <u>you</u> think is best. Your answers will only be used for research purposes and will be kept strictly confidential.

Read the instructions to each task carefully. Ask the interviewer if there is anything you do not understand. In each task you will make 10 decisions where you choose between two options.

Risk Aversion

We offer two different options. Please choose the option that seems preferable to you (described below):

Option A: You either receive a high payoff (300 CNY) or a low payoff (240 CNY). The probabilities of the high payoff and the low payoff are given below.
Option B: You either receive a high payoff (580 CNY) or a low payoff (15 CNY). The probabilities of the high payoff and the low payoff are given below.

Please circle your choice of Option for each of the 10 decisions below: [13]

	Task	
Decision	**Option A (probabilities of payoffs)**	**Option B (probabilities of payoffs)**
1[13]	10% of ¥300	10% of ¥580
	90% of ¥240	90% of ¥15
2	20% of ¥300	20% of ¥580
	80% of ¥240	80% of ¥15
....	....	....
9	90% of ¥300	90% of ¥580
	10% of ¥240	10% of ¥15
10	100% of ¥300	100% of ¥580

Note: Decisions 3 to 7 follow the indicated pattern, and are not spelled out here.

Certainty Preference (Task for Robustness Exploration)

We offer two different options. Please choose the option that seems preferable to you (described below):

Option A: You receive a given sum of money.
Option B: You either receive a high payoff (580 CNY) or a low payoff (15 CNY). The probabilities of the high payoff and the low payoff are given below.

Please circle your choice of option for each of the 10 decisions below:

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[13] To reduce the cognitive load we presented a text version of these tables. The first decision of the "risk aversion task" contained the following in the questionnaire presented to the respondents:

	Task	
Decision	**Option A (safe amount)**	**Option B (probabilities of payoffs)**
1	¥360	10% of ¥580
		90% of ¥15
2	¥330	20% of ¥580
		80% of ¥15
....	....	....
9	¥120	90% of ¥580
		10% of ¥15
10	¥90	100% of ¥580

Note: Decisions 3 to 7 follow the indicated pattern, and are not spelled out here.

APPENDIX C
TABLE C1
Summary Statistics of Personal and Firm Characteristics by Treatment Group

	Risk aversion task	Certainty preference task (Comparison task for robustness consideration)
	Mean (standard deviation)	**Mean (standard deviation)**
Government guanxi	4.24 (1.18)	4.18 (1.20)
Business guanxi	4.50 (0.96)	4.50 (0.93)
Male	0.81 (0.39)	0.86 (0.35)
Age	43.36 (8.36)	42.89 (8.17)
Urban	0.53 (0.49)	0.56 (0.50)
Education	12.83 (2.92)	13.03 (2.92)
Party member	0.23 (0.42)	0.28 (0.45)
Firm age	9.37 (4.44)	9.32 (4.18)
Firm size	6.66 (1.26)	6.75 (1.23)
New product development	0.15 (0.02)	0.21 (0.02)
Improving on products to sustain market	0.40 (0.49)	0.40 (0.49)
Marketing and distribution	0.08 (0.28)	0.07 (0.25)
Innovation and quality enhancement	0.25 (0.43)	0.22 (0.41)
Lowering production costs	0.11 (0.32)	0.10 (0.30)

APPENDIX D

RISK AVERSION VERSUS CERTAINTY PREFERENCE
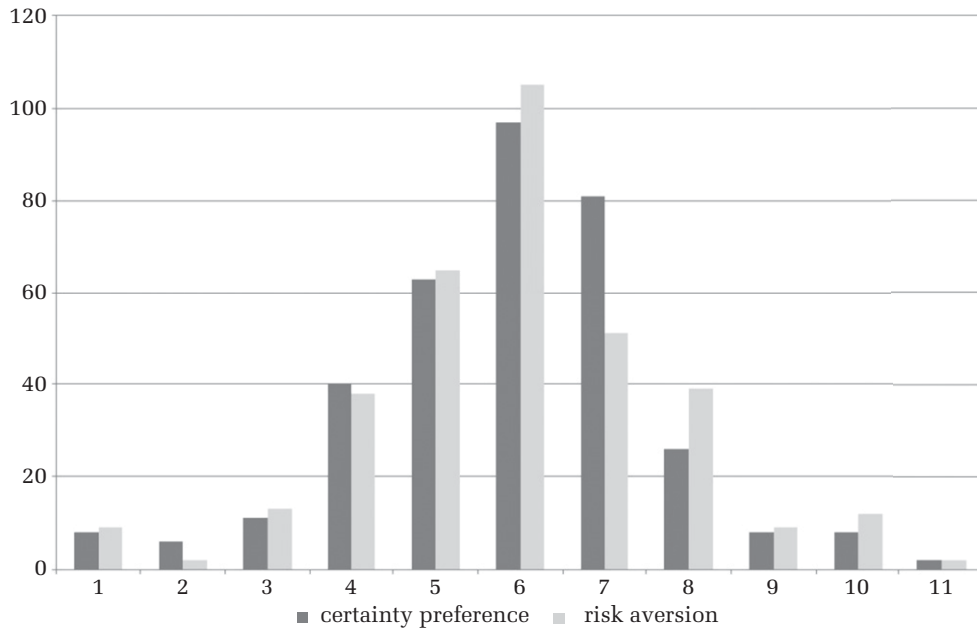
Mean of risk aversion: 5.94; mean of certainty preference: 5.88.

APPENDIX E
TABLE E1
Robustness considerations

	Certainty preference task		Risk (founders only)		Risk (2012 sample)	
	Government *guanxi*	Business *guanxi*	Government *guanxi*	Business *guanxi*	Government *guanxi*	Business *guanxi*
	M1	M2	M3	M4	M5	M6
Risk/certainty	-0.20*** (0.04)	-0.15*** (0.03)	-0.11** (0.04)	-0.15*** (0.03)	-0.04 (0.03)	-0.08** (0.03)
Male	-0.03 (0.15)	0.16 (0.15)	0.04 (0.20)	-0.09 (0.15)	-0.17 (0.15)	-0.43*** (0.12)
Age	0.00 (0.01)	0.01 (0.01)	0.00 (0.01)	-0.01 (0.010)	0.01 (0.01)	-0.01 (0.01)
Urban	-0.23 (0.15)	-0.15 (0.11)	0.03 (0.15)	0.04 (0.13)	-0.01 (0.12)	0.02 (0.11)
Education	0.01 (0.03)	0.01 (0.02)	-0.01 (0.03)	-0.05* (0.02)	0.00 (0.02)	0.00 (0.02)
Party member	-0.15 (0.16)	-0.29* (0.12)	0.10 (0.18)	0.01 (0.14)	0.12 (0.15)	0.13 (0.12)
Firm age	-0.03 (0.02)	-0.02† (0.01)	0.02 (0.02)	-0.00 (0.02)	-0.01 (0.01)	-0.01 (0.01)
Firm size	-0.08 (0.06)	0.09* (0.04)	0.18** (0.06)	0.12* (0.05)	0.13* (0.05)	0.01 (0.04)
Improving products	0.12 (0.16)	0.31* (0.13)	0.33 (0.23)	0.19 (0.18)	0.07 (0.15)	-0.35** (0.12)
Marketing and distribution	0.69** (0.23)	0.24 (0.21)	0.46 (0.31)	0.05 (0.26)	0.01 (0.27)	-0.21 (0.22)
Innovation and quality enhancement	0.14 (0.19)	0.20 (0.14)	0.01 (0.24)	0.09 (0.18)	-0.07 (0.19)	-0.26 (0.14)
Lowering production costs	-0.70** (0.25)	-0.21 (0.22)	-0.10 (0.29)	-0.45† (0.25)	-0.42 (0.28)	-0.58** (0.22)
Controls[a]	Yes	Yes	Yes	Yes	Yes	Yes
Constant	6.73*** (0.64)	5.13*** (0.55)	4.04*** (0.78)	6.31*** (0.59)	4.39*** (0.69)	6.73*** (0.51)
n	350	350	278	278	287	287
R^2	0.33	0.29	0.32	0.38	0.28	0.31
Model F (Wald)	174.57	20.94	33.38	54.72	76.96	25.85
Prob. $> F$	0.000	0.000	0.000	0.000	0.000	0.000

Notes: Robust standard errors in parentheses.

[a] Controls include dummy variables for legal form, city, sector, and interviewer.

† $p < 0.10$
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

APPENDIX F
TABLE F1
Robustness Considerations, Performance 2012

	Government *guanxi*		Business *guanxi*	
	ROA	Sales growth	ROA	Sales growth
	M1	M2	M3	M4
Risk	$-1.98^{\dagger}$ (1.09)	–0.58 (0.76)	$-1.87^{\dagger}$ (1.10)	–0.32 (0.74)
Guanxi	–1.10 (1.64)	0.81 (1.15)	4.43* (2.24)	1.95 (1.29)
Guanxi × risk averter	$2.09^{\dagger}$ (1.12)	0.03 (0.55)	$1.57^{\dagger}$ (0.95)	–0.06 (-52)
Male	–1.80 (3.94)	1.25 (2.24)	–3.07 (4.18)	1.91 (2.14)
Age	0.31 (0.39)	0.18 (0.13)	0.29 (0.40)	0.18 (0.12)
Urban	4.45 (2.79)	0.49 (1.97)	4.36 (2.76)	0.53 (1.97)
Education	0.96 (0.65)	0.59 (0.32)	0.97 (0.67)	0.59 (0.33)
Party member	3.84 (3.70)	3.72 (2.57)	4.00 (3.94)	3.40 (2.61)
Firm age	–0.55 (0.41)	–0.15 (0.23)	–0.55 (0.41)	–0.15 (0.23)
Firm size	–1.98 (1.33)	–0.90 (0.67)	–1.92 (1.25)	–1.04 (0.68)
Business model[a]	Yes	Yes	Yes	Yes
Controls[b]	Yes	Yes	Yes	Yes
Constant	26.75 (27.45)	8.42 (12.51)	46.00* (19.10)	–6.10 (13.12)
n	287	287	287	287
R^2	0.19	0.22	0.19	0.22
Model *F* (Wald)	3.75	1.87	125.50	2.02
Prob. $> F$	0.000	0.001	0.000	0.000

Notes: Robust standard errors in parenthesis.

[a] The same dummy variables capturing distinct business models are included as in Table 2. None of the coefficient estimates is significant at conventional levels.

[b] Controls include dummy variables for legal form, city, sector and interviewer.

[†] $p < .10$

[*] $p < 0.05$

[**] $p < 0.01$

[***] $p < 0.001$.