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Roles of Relationships between Large Shareholders and Managers in Radical Innovation: A Stewardship Theory Perspective

Abstract: Radical innovation is critical for firms to enhance their competitiveness. Whether they can make it, however is influenced by organizational factors including the corporate governance of the firm. In emerging economies in which shareholder protection is weak, large shareholders are widely used as an efficient governance mechanism to reduce agency problems. The literature on agency theory has underestimated the role of social relationships between large shareholders and managers in determining the firm's innovation performance. By applying a stewardship theory perspective, we argue that the characteristics of the relationship between large shareholders (owners) and managers, manifested as trust and shared goals, may explain variations in a firm's radical innovation. Drawing on data from 174 Chinese firms having large shareholders, our results show that trust has an inverted U-shaped relationship with firm radical innovation, whereas shared goals exhibit a positive, linear relationship with radical innovation. Shared goals further moderate the nonlinear effect of trust on radical innovation. Trust is almost negatively related to firm radical innovation when there is a low level of shared goals. However, when there is a high level of shared goals, the relationship between trust and firm radical innovation is first positive, then reaches a plateau, becomes negative afterwards. These findings advance our understanding of the role of the relationship between large shareholders and managers as a driver of radical innovation, contributing to the innovation literature by providing a nuanced understanding of key factors influencing the effect of the social aspects of governance on firm radical innovation.

Keywords: radical innovation; relationships between large shareholders and managers; shared goals; trust

Introduction

Radical innovation relies on substantially different technologies and helps firms to redefine their current markets or build new ones to enhance their competitive positions (Chandy and Tellis, 1998; McDermott and O'Connor, 2002; O'Connor and Rice, 2013; Zhou and Li, 2012). It has more significant influences on firms' long-term competitive advantages than other types of innovation (Pérez-Luño et al., 2011), particularly when firms face rapid technology change (Tellis et al., 2009). To reap the benefits, firms have to deal with potential risks associated with radical innovation including abundant capital investment, process complexity, and outcome uncertainty (Cuevas-Rodríguez et al., 2014; Subramaniam and Youndt, 2005; Tellis et al., 2009), which may become especially prominent along its long period of time for commercialization (McDermott and O'Connor, 2002). As key decision-makers, shareholders and managers take important roles in maximizing the benefits and controlling the risks along the radical innovation process.

Agency theorists, however, argue that managers usually care for their career development, and so they may invest their major efforts and resources in more assured and routine innovations rather than in highly uncertain and complex ones (O'Connor and Rafferty, 2012) such as radical innovation. Thus, considering the long-term benefit of radical innovation, an agency problem arises in terms of how to induce managers' behaviors to encourage radical innovation. At the same time, a large stream of corporate governance research has found the significant role of ownership concentration in firm innovation (Choi et al., 2011; Lee and O'Neill, 2003; Shapiro et al., 2013; Shleifer and Vishny, 1997), since it can influence managers' decisions about the deployment and integration of available human and physical

resources into innovation activities (Belloc, 2012).

Ownership concentration reflects the existence of large shareholders (Grossman and Hart, 1986). Scholars argue that the characteristics of large shareholders, such as preferences about innovation decisions, may play a considerable role in firm innovation performance (Hoskisson et al., 2002). Previous research has largely investigated how the characteristics of large shareholders (e.g., individual ownership, insider ownership, and state ownership) influence firm innovation (Choi et al., 2011; Munari et al., 2010). Less research has linked large shareholders to managers and considered the role of their social relationships in corporate governance (Westphal and Zajac, 2013). We argue that this research may add further explanation to firm innovation outcomes.

Recently, scholars criticize the under-socialized premises of agency theory (Lubatkin et al., 2007; Zahra et al., 2008), and argue that both large shareholders and managers exist in a socially situated context, in which their behaviors will be inevitably influenced by the social relationships between them (Westphal and Zajac, 2013). Stewardship theory has been proposed as an appropriate theoretical perspective to analyze the social relationships between large shareholders and managers (Davis, Schoorman, and Donaldson, 1997), especially in China where collectivistic cultures are common (Earley, 1989; Michailova and Hutchings, 2006). Stewardship theory stresses that a close social relationship between large shareholders and managers can enhance cooperation between them (Bouillon et al., 2006; Breton-Miller and Miller, 2009; Van Slyke, 2007). Large shareholders play a significant role in firm innovation-related decision making and implementation (Lee and O'Neill, 2003) by providing capital, expertise, and entrepreneurial experience (Carney and Gedajlovic, 2001).

Considering the high cost and complexity of radical innovation (Cuevas-Rodríguez et al., 2014; Subramaniam and Youndt, 2005), cooperation from resourceful large shareholders can help a firm to acquire the resources required for radical innovation.

Although the existing research has improved our understanding of the role of shareholders in firm innovation decisions, we still know little about what characteristics of the social relationships between large shareholders and managers will make them work cooperatively in firm innovative activities. From the perspective of stewardship theory (Davis et al., 1997), trust and shared goals have been proposed as important relationship characteristics that promote cooperation between large shareholders and managers (Cuevas-Rodríguez et al., 2012; Van Slyke, 2007). De Clercq and Sapienza (2006) contend that trust and shared goals as two main dimensions of social capital that can promote the breadth and depth of information/knowledge exchange and improve investors' understanding of managers' operations and needs. Specifically, trust can mitigate the negative effect of vulnerability in the large shareholder-manager relationship (Peterson and Behfar, 2003). In a high-trust relationship, large shareholders are more likely to offer managers abundant capital, entrepreneurial guidance, and other supports, which facilitate managers' ability to accept responsibility for their actions by mitigating the risks resided in innovation-related decision making (Arthurs and Busenitz, 2003; Hernandez, 2008). Shared goals can enhance communication and reduce conflicts or coordination problems between large shareholders and managers (Camps and Marques, 2013; De Clercq and Sapienza, 2006). They may mitigate the negative impact of information asymmetry on innovative and risk-taking activities (Corbetta and Salvato, 2004).

Accordingly, based on the perspective of stewardship theory, this study investigates whether and how trust and shared goals between large shareholders and managers may influence firm radical innovation. Moreover, we propose a moderating role of shared goals on the effect of trust on radical innovation. The conceptual model is shown in Figure 1.

INSERT FIGURE 1 HERE

This paper makes several contributions. *First*, we contribute to the corporate governance literature by explaining whether the characteristics of social relationships between large shareholders and managers affect firm radical innovation. Following the stewardship theory perspective, we focus on the social relationships in the principal-agent relationship (Davis et al., 1997; Westphal and Zajac, 2013). We propose that social relationships, such as trust and shared goals, can enhance the cooperation between large shareholders (investors) and managers (Cuevas-Rodríguez et al., 2012; Van Slyke, 2007), and that these social relationships help enhance firms' potential to deal with the difficulties of radical innovation.

Second, our research contributes to the radical innovation literature by considering factors influencing the effectiveness of the firm's corporate governance, revealing the characteristics of principal-agent relationships that encourage radical innovation. Radical innovation contributes to product advantages and opportunities for differentiation (Calantone et al., 2006). However, it is difficult for firms to manage radical innovations, which are typically built on new knowledge or technologies that are different from their existing technological trajectories (Subramaniam and Youndt, 2005).

Third, we contribute to the corporate governance literature in emerging economies. To

our knowledge, research has seldom investigated the effects of social relationships in corporate governance in emerging economies such as China. In emerging economies which are still developing formal enforcement institutions, such as legal and judicial infrastructures (Xin and Pearce, 1996), shareholders heavily rely on personally social relationships as mechanisms or channels to reduce the uncertainties and risks of investment decisions (Batjargal and Liu, 2004). Our examination of characteristics of the social relationships between large shareholders and managers provides both theoretical and empirical evidence to this line of research.

Theoretical Background and Hypotheses

China as the Research Context of this Study

We argue that, as a major emerging economy, China offers an interesting empirical setting in which to use the perspective of stewardship theory to examine the role of trust and shared goals between large shareholders and managers in firm radical innovation. There are two main reasons for this. First, as corporate governance varies across institutional environments (Estrin and Prevezer, 2011; Lee and O'Neill, 2003), scholars have been calling for more research on this topic in emerging markets (Li et al., 2008). In emerging economies such as China, the lack of well-developed legal systems and financial markets leads to inefficient external corporate governance and weak investor protection (van Essen et al., 2012). As a result, large shareholders usually exist to cope with agency problems of innovation activities (Shapiro et al., 2013), given their wealth largely depends on firms' long-term development (Shleifer and Vishny, 1997). Also, under such circumstances, Chinese investors heavily rely on personally social relationships as mechanisms or channels to reduce the uncertainties and

risks of investment decisions (Batjargal and Liu, 2004). Through close social relationships such as trust, large shareholders know about managers' track records and reputations (Shapiro, 2005), and are willing to commit the majority of their resources to the managers' strategy formulation.

Second, China's collectivistic culture—in which individual goals are subordinated to the collective (organizational) goals (Handler and Kram, 1988)—is well documented in existing research (Earley, 1989; Michailova and Hutchings, 2006). Stewardship theorists argue that this kind of culture is one of the most important underpinning of stewardship theory (Davis et al., 1997). This theory emphasizes that people are collectivism whose utilities are based on organizational achievement (Caldwell and Karri, 2005; Eddleston et al., 2010). Davis et al. (1997) suggest that “members of a collectivist culture would move very quickly to establish an organizational structure that is conducive to the development of stewardship relationships (p, 36).”

Stewardship Theory and Firm Innovation

Agency theory has frequently been criticized for its assumption of the under-socialized (purely economic) human who pursues self-serving and other opportunistic goals (Muth and Donaldson, 1998; Westphal and Zajac, 2013; Zahra et al., 2008). It assumes that his/her behaviors and goals are minimally influenced by social context, such as social relationships (Lubatkin et al., 2007). Westphal and Zajac (2013) contend that both shareholders and managers are imbedded in the socially situated contexts and their behaviors are no doubt influenced by social relationships between them.

Stewardship theory, on the other hand, is based on the socialized (non-economic)

assumptions of human nature offers an applicable theoretical perspective to explore the effects of social relationships (Lubatkin et al., 2007). Tosi et al. (2003) argue that stewardship theory is highly based on Theory Y (McGregor, 1960), assuming that managers are intrinsically motivated by the need for achievement and recognition, intrinsic satisfaction of successful performance, and respect for authority and work ethic (Muth and Donaldson, 1998). Stewardship theory argues that managers “whose behavior is ordered such that pro-organizational, collectivistic behaviors have higher utility than individualistic, self-serving behaviors (Davis et al., 1997, p, 24)”, and that their interests may align with shareholders (Arthurs and Busenitz, 2003; Lee and O’Neill, 2003; Wasserman, 2006). In other words, when managers are viewed as stewards, they are more likely to voluntarily fulfill organizational goals that aim to maximize shareholders’ long-term wealth (Eddleston and Kellermanns, 2007), because do so might lead to opportunities for desired personal outcomes such as growth and achievement (Tosi et al., 2003).

Stewardship theory also emphasizes cooperation and collaboration in principal-agent relationships (Bouillon et al., 2006; Sundaramurthy and Lewis, 2003), and encourages managers to maintain a close relationship with large shareholders (Breton-Miller and Miller, 2009). Prior research has suggested that stewardship is more likely to occur when there is a stable relationship with significant interdependence and interaction between shareholders and managers, which may benefit firm-level performance outcomes (Bouillon et al., 2006), such as innovation (Corbetta and Salvato, 2004). However, the factors influencing this relationship remained under-studied, hence we know little about how to develop such relationships.

Considering China’s social and cultural characteristics, we follow the perspective of

stewardship theory to identify trust and shared goals as two important situational factors of stewardship under which managers may behave in alignment with large shareholders (Cuevas-Rodríguez et al., 2012; Muth and Donaldson, 1998; Van Slyke, 2007). Trust and shared goals represent two major dimensions (cognitive and relational, respectively) of social capital (Nahapiet and Ghoshal, 1998; Inkpen and Tsang, 2005). They can enhance information or knowledge exchange among two parties and their common understanding of firms' strategic decisions (De Clercq and Sapienza, 2006), hence facilitating the implementation of firm strategy and decisions.

Eddleston et al. (2010) argue that “trust can mean an expectation that individuals will not pursue self-interest in an opportunistic fashion, will act as stewards and align their interests with those of the organization, or will altruistically place the interests of others ahead of or equal to their own” (p. 1045). Trust can be used to promote interactions between corporate governance parties (Westphal, 1999) and intrinsically motivate managers to perform better and consistently with shareholders' long-term wealth (Eddleston and Kellermanns, 2007; Wasserman, 2006). Thus, trust may play an important role in solving governance problems, though not much research has examined the effect of trust in the principal-agent relationships (Beccerra and Gupta, 1999; Peterson and Behfar, 2003).

Shared goals are the degree to which large shareholders and managers share a common understanding of the value of planned joint projects and the approaches to achieve these projects (Inkpen and Tsang, 2005; Li et al., 2010). Shared goals between large shareholders and managers are likely to lead to better performance (Muth and Donaldson, 1998). Bouillon et al. (2006) suggest that shared goals can improve the efficiency of resource deployment and

use, contributing to the formulation and implementation of strategic decisions. Corbetta and Salvato (2004) argue that shared goals can motivate innovative activities by reducing the negative effects of the information asymmetry associated with these activities.

Some scholars have suggested that stewardship is associated with a firm's long-term performance, rather than its short-term performance (Caldwell and Karri, 2005; Breton-Miller and Miller, 2009). Hernandez (2008) argues that stewardship-based managers will place corporate long-term growth ahead of self-interests, which allows firms to pursue investments in R&D to explore new product development and new markets (Miller and Breton-Miller, 2005). Radical innovation can contribute to firm long-term competitive advantages through product leadership and opportunities for differentiation (Calantone et al., 2006). However, it typically disrupts existing technological trajectories and requires abundant capital investment, process complexity, outcome uncertainty (Cuevas-Rodríguez et al., 2014; Tellis et al., 2009). Managers may not only focus on a long-term orientation, but also need to seek support from their firms' stakeholders, in particular large shareholders, when implementing radical innovation (Chesbrough, 2003). Some research on social capital has suggested that trust and shared goals may not only favor the acceptance and legitimization of unfamiliar radical ideas within organizations, but also enable firms to develop the widespread use of radical innovation (Subramaniam and Youndt, 2005).

Trust and Radical Innovation

Trust is developed through interactions based on good intentions, competence, and reliability (Nahapiet and Ghoshal, 1998; Tsai et al., 2013). It has long been viewed as an antecedent of cooperation (Lee et al., 2005) and a supportive condition for firms to explore new strategic

options (Zahra et al., 2008). We argue that a certain level of trust between large shareholders and managers can benefit firm radical innovation.

Social exchange theory (Granovetter, 1985) argues that trust between large shareholders and managers makes them more willing to share timely, reliable and confidential knowledge or resources (Bammens and Collewaert, 2012; De Clercq and Sapienza, 2006). It is conducive to radical innovation that is inherently uncertain and complex by mitigating the information asymmetry (Lhuillery, 2011). In this situation, large shareholder may have a deep understanding of the benefits of radical innovation, and invest a lot in it (Lee and O'Neill, 2003). For instance, large shareholders who are in a trusting relationship with managers are more likely to have an opportunity to contribute their rich resources and prior knowledge to enhance managerial and organizational capabilities (Carney and Gedajlovic, 2001).

People in a trusting relationship are more open, reciprocal, and trustworthy (Schoorman et al., 2007). When large shareholders trust managers, they are more likely to display pro-social motivation that enhances their helping behaviors (Falcone and Castelfranchi, 2001). It helps firms to create an atmosphere in which large shareholders and managers are more likely to encourage and pursue highly innovative ideas (Land et al., 2012). Aragón-Correa et al. (2007) suggest that trust as one kind of social capital promotes creativity and new ideas and knowledge within firms. Trust between large shareholders and managers may reduce the transaction costs for searching and identifying the necessary resources and help to shape long-term, deep cooperation in pursuit of radical innovation (Pérez-Luño et al., 2011; Zahra et al., 2008). In such a relationship, large shareholders and managers may feel safe supporting, advising, and accepting innovative challenges, thus enhancing managers' confidence in

translating ideas into successful radical innovations (Carmona-Lavado et al., 2010).

Trust may also reduce time- and resource-consuming monitoring or incentive practices because one party believes that the other will not opportunistically take advantage of them (De Clercq and Sapienza, 2006; Van Slyke, 2007). Without a certain level of trust, large shareholders will devote much time and resources to monitoring possible malfeasance by managers, instead of using those resources to develop new products or processes. Trust can save time and resources, which can then be used in radical innovation (Landry et al., 2002).

However, the possible dark sides of trust, especially in innovative settings, has been documented in recent research (Bammens and Collewaert, 2012), such as managerial shirking, blind faith, and entrenchment, may still arise (Shapiro, 2005). Wicks et al. (1999) argue that excessive trust can produce undesirable outcomes, jeopardizing firm performance most markedly in settings featured by a continuous need for innovativeness (Bammens and Collewaert, 2012). Too much trust bias large shareholders' assessments on managers' capabilities and resources, producing overinvestment decisions (Batjargal, 2007), leading to a misallocation of precious resources or the undertaking of unnecessary risk (Wicks et al., 1999). Such a bias may increase the fail rate of radical innovation.

An extremely high level of trust may hamper the expression of conflicting opinions about strategic decisions for fear that the conflicting opinions will hurt the feelings of others (Clercq et al., 2009). Excessive trust in the relationship between managers and large shareholders may thus stifle conflicts of points of view and restrict productive discussions about firm strategic development (Yli-Renko et al., 2001), which is harmful for radical innovation (Cuevas-Rodríguez et al., 2014). Excessive trust may also result in less

monitoring (Langfred, 2004; Molina-Morales and Martínez-Fernández, 2009), as large shareholders will have less motivation to supervise managers' behavior. Highly relaxed monitoring may encourage managers' shirking behaviors (Shapiro, 2005), making less effort to conduct radical innovation.

Thus, we argue that the benefits and associated undesirable effects of trust imply that the relationship between trust and radical innovation cannot be linear. We propose that trust between large shareholders and managers has a nonlinear association with firm radical innovation.

H1: The relationship between trust and radical innovation is curvilinear (inverted U-shaped), with the highest radical innovation occurring at an intermediate level of trust.

Shared Goals and Radical Innovation

Unlike trust, which reflects the relational strength of the relationship (Nahapiet and Ghoshal, 1998; Tsai et al., 2013), shared goals represent cognitive congruence the relationship (De Clercq and Sapienza, 2006). Conceptually, they are independent to each other in terms of their inherent meaning, though both of them are helpful for reducing agency costs and improving operational efficiency (Bouillon et al., 2006). Mutual understanding of goals can go beyond contractually specified clauses and intensify the exchange of valuable resources and knowledge to create interactions and project the exchange into the future (Tsai and Ghoshal, 1998). With shared goals, large shareholders and managers agree about how to interact with each other. They develop common understandings and the means to achieve collaborative purposes (Inkpen and Tsang, 2005; Tsai and Ghoshal, 1998). Research has found that shared goals are often needed to persistently pursue progress in the innovation

process (Rickards et al., 2001). Building on this research, we argue that shared goals between large shareholders and managers are positively related to firm radical innovation.

Shared goals facilitate communication between large shareholders and managers on crucial information and knowledge, especially tacit knowledge (Camps and Marques, 2013; De Clercq and Sapienza, 2006; Li et al., 2010). Lhuillery (2011) finds that good communication between shareholders and managers enhances firms' R&D intentions and mitigate managerial pressures to produce short-term profits (Lee and O'Neill, 2003). It can reduce the negative effect of information asymmetry on innovative or risk-taking activities, so that shareholders (principals) readily understand the merits and potential outcomes of innovation strategies proposed by managers (agents) (Corbetta and Salvato, 2004). Given the causal ambiguity of radical innovation (Hill and Rothaermel, 2003), shared goals may help managers to strengthen large shareholders' confidence about the potential of radical innovation.

Shared goals can reduce conflicts and coordination problems by helping to establish effective negotiation approaches and common goals (Inkpen and Tsang, 2005; Li et al., 2010). Large shareholders and managers with many shared goals do not need to devote much time and resources to resolving disputes or conflicts, leaving more time and resources for innovation activities (Holcomb and Hitt, 2007).

Shared goals as a bonding mechanism emphasize the common interests that can help identify potential synergies between and combinations of managers and shareholders' resources (Tsai and Ghoshal, 1998). De Clercq and Sapienza (2006) argue that shared goals lead to a high level of understanding about which information is most important in a certain

context and how it can be combined and applied to the profitable ends. Shared goals may therefore be conducive to radical innovation, which typically requires firms to abandon existing ways of combining available resources and to generate new ways to combine new or existing resources (Gatignon et al., 2002). As shared goals help to decrease one's motivation to engage in self-interest and opportunistic behavior (Landry et al., 2002), they enhance joint problem-solving efforts (even the level of trust is not that high); managers and large shareholders have faith that their cooperation will increase their common interests (McEvily and Marcus, 2005). A manager who shares common strategic goals with large shareholders is more likely to fully contribute their intellectual capital to innovation decisions that favor the firm's long-term development, such as radical innovation.

H2: Shared goals are positively associated with firm radical innovation.

Moderating Role of Shared Goals in the Linkage between Trust and Innovation

Some scholars have argued that the effect of trust on firm-level performance may be contingent on the behavior of both parties in a trusting relationship (Krishnan et al., 2006). We propose that shared goals between large shareholders and managers may moderate the effect of trust on firm radical innovation by articulating common goals and directing the ways in which the two parties contribute to those goals (Inkpen and Tsang, 2005; Li et al., 2010).

When there are few shared goals, trust may be detrimental to firm radical innovation. Lundin (2007) suggests that, "it is unlikely for organizations to work together only because they trust one another" (p. 655). The absence of shared goals may decrease stewardship, increasing the divergence of interest between large shareholders and managers (Bouillon et al., 2006; Jensen and Meckling, 1976). Although trust can ease cooperation between large

shareholders and managers (Lundin, 2007), the two parties may not know how to interact with each other and what to do to achieve their collaborative objectives if they have no shared goals (Inkpen and Tsang, 2005; Tsai and Ghoshal, 1998).

A moderate level of trust between large shareholders and managers may enhance their willingness to share available resources and cooperate with one another (Tsai and Ghoshal, 1998). However, without shared goals they will not know what resources they need to share and how to cooperate with each other (Inkpen and Tsang, 2005; Li et al., 2010). More shared goals may help generate better communication between large shareholders and managers, resulting in comprehensive understanding and acceptance of these common goals (Camps and Marques, 2013; Li et al., 2010), and how each party can contribute to them (Inkpen and Tsang, 2005). We suggest that shared goals can amplify the moderate level of trust on firm radical innovation by articulating the reasons for sharing and cooperating.

However, if there are too many shared goals and an extremely high level of trust between large shareholders and managers, firm radical innovation may be inhibited. Excessive trust is a manifestation of relational over-embeddedness (Molina-Morales and Martínez-Fernández, 2009) and may prevent firms from adapting to significant external changes (Gargiulo and Benassi, 2000). Excessive shared goals may entrench the routine ways in which large shareholders and managers interact and cooperate with each other *ex-ante* (Inkpen and Tsang, 2005; Tsai and Ghoshal, 1998). Radical innovation typically requires firms to change their existing ways of doing things and introduce new technologies or approaches distinct from their current technological trajectories or knowledge bases (Cuevas-Rodríguez et al., 2014; Subramaniam and Youndt, 2005). Too much trust between

large shareholders and managers may prevent one side from doubting or disagreeing with the other's strategic opinions and or from seeking alternative sources of advice (Clercq et al., 2009). Thus, too many shared goals are likely to make the negative effect of excessive trust more severe.

H3: The inverted U-shaped effect of trust on radical innovation is stronger (steeper) when shared goals are high, and vice versa.

Methodology

Sample and Data Collection

A survey was conducted to collect the data used in this study. Based on the literature, we developed the questionnaire in English and used a back-translation method to translate it to Chinese to ensure conceptual equivalence and accuracy (Berry, 1980). To ensure the content, face validity, and clarity of the measures in the Chinese context, we conducted a pre-survey with senior managers of 10 local firms. These respondents answered all of the questionnaire items and provided feedback on the design and wording of the questionnaire. We revised a few items based on this feedback, before finalizing the questionnaire.

We selected Chinese firms as the research setting. To make our sample representative enough, the location of the sampling frame included the northwest, south, east, and central regions of China. We first randomly selected 1,000 firms from the local business directory of each area, and contacted these firms by phone call to solicit their participation in our survey. 856 firms agreed and we mailed them a letter of intent explaining our research project. 520 firms replied to accept our request on surveying their top executives. Several trained research assistants then made appointment with the firms and travelled to the firm to do the survey. We

then administered the questionnaire survey through face-to-face interviews to secure a more precise understanding on and complete response to the questions (Peng and Luo, 2000). We also used e-mail surveys of companies when arranging face-to-face interviews was difficult. The final sample, excluding those with missing or incomplete information, consisted of 251 Chinese firms from the IT, machinery, medicine, energy, and other industries, representing a response rate of 25.10%. The sample firms' ownership included state-owned, private, foreign-funded, and others. We interviewed one informant in each firm who was the member of the top management team in most firms (roughly 81.30%) and else was the Chairman of the board. We assured the informants that there were no right or wrong answers and promised strict confidentiality to minimize social desirability bias. The informants were asked to recall their firms' decision-making processes over the past three years. Further check and removal of invalid samples, we had 182 complete, valid responses. The valid return rate was 18.20%. Moreover, t-tests show there was no significant difference between face-to-face and e-mail surveys (roughly 16.50%) in term of firm ownership, firm size, R&D input, ownership concentration, managerial stockholding, and industrial competition.

The nonresponse bias was tested in two ways. First, t-tests yielded no statistically significant differences in firm ownership, firm size, R&D input, ownership concentration, managerial stockholding, and industrial competition between the sample and the target population. Second, responses from early and late waves of participants were compared by demographic variables (Lambert and Harrington, 1990). These t-tests also yielded no significant differences. These two approaches indicated that the nonresponse bias was not a serious threat.

Variables and Measures

We used a five-point Likert-type scale with 1- *strongly disagree* and 5- *strongly agree* to measure the items. The dependent variable was *radical innovation*. We adapted a four-item scale ($\alpha = 0.87$) from Chandy and Tellis (1998), Atuahene-Gima (2005), and Zhou and Li (2012), which captured the degree to which the firms achieved in the fields of introductions and development of radical products and technologies.

The independent variables were *trust* and *shared goals*. The four survey items for measuring trust ($\alpha = 0.74$) were adapted from Zaheer et al. (1998) and Wu (2008). Building on their research, we aimed to measure the extent to which managers or large shareholders believed that one party could have faith in the other party's trustworthiness, competence, and cooperativeness (Beccerra and Gupta, 1999). We adapted the measurement items of De Clercq et al. (2013) to measure shared goals. We used five items ($\alpha = 0.77$) to measure the extent to which alignment existed between the managers and large shareholders on firm future direction, benefit distribution, personnel allocation, and decision making. The measurement items of all major variables were shown in Table 1.

INSERT TABLE 1 HERE

To account for the effects of extraneous variables, we controlled for firm ownership, firm size, R&D input, ownership concentration, managerial stockholding, and industrial competition, as prior research has found that these factors have explanatory roles in firm radical innovation. *Firm ownership* was controlled to avoid their potential confounding effect. We used two dummy variables to represent state-owned and private-owned enterprises

respectively, with foreign-funded enterprises as the reference. We used the average annual sales of the last three years to represent *firm size*, coding “1” as less than RMB5 million, “2” as RMB5 to 10 million, “3” as RMB10 to 50 million, “4” as RMB50 to 100 million, and “5” as more than RMB100 million. As *R&D input* is well recognized as the antecedent of radical innovation, we measured it by calculating the ratio of R&D investment to annual sales.

Previous research has found that *ownership concentration* influences firm innovation outcomes (Shapiro et al., 2013). Also, we asked the respondents about the proportion of shares held by their firm’s largest shareholder, and eight firms were excluded from our analysis due to the percentage of shares their largest shareholder have is lower than 10 (Claessens et al., 2002). As the relationship between managerial stockholding and firm innovation has been well established (Belloc, 2012), we used a 5-point Likert-type scale to measure *managerial stockholding* and control it in the model. Industrial organizational theory argues that *industrial competition* is a key factor that influences firm radical innovation outcomes. As for industry competition, it was measured by the following item: ‘to what extent does your company face external competition?’, based on a five-point Likert scale from ‘no competition’ (1) to ‘strong competition’ (5).

Common Method Bias

Statistical remedies were used to test the potential common method bias stemmed from the using of one informant in the interviews. First, we adopted a method variance (MV) marker recommended by Lindell and Whitney (2001) to assess potential common method bias. A scale theoretically unrelated to at least one latent variable in the model was used as the MV marker that provided a proxy for common method variance (CMV). We adapted a four-item

scale of leadership from Avolio, Bass, and Jung (1999), with Cronbach's α equal to 0.67. As shown in Table 2, the lowest positive correlation between transactional leadership and other latent variables ($r = 0.04$) was applied to adjust the correlations among the main variables. As shown in Table 2, only 2 out of the 22 significant correlations became nonsignificant after controlling CMV, and no any significant correlation related to the latent variables became nonsignificant. For instance, the adjusted correlations of trust squared and shared goals with radical innovation remained statistically significant when CMV was controlled ($r = -0.33$, $t = -4.53$; $r = 0.15$, $t = 2.04$, respectively). Second, Harman's single-factor test was also used to deal with the issues of common method bias (Podsakoff et al., 2003). Our results showed that the unrotated factor solution demonstrated multiple factors emerged from the factor analysis. Therefore, common method bias was not a serious concern in our study.

Analysis and Results

Construct Validity

We assessed the construct validity of trust, shared goals, and radical innovation measured with multiple items. We conducted exploratory factor analysis, generating the theoretically predicted factor solutions with Cronbach's alphas (0.74, 0.77, and 0.87, respectively) well above the 0.70 cutoff, as shown in Table 1. We then used confirmatory factor analysis for an overall three-factor measurement model to test the validity of the latent constructs. The results showed that the model exhibited a satisfactory fit to the data (comparative fit index = 0.94, incremental fit index = 0.94, root mean square error of approximation = 0.08). The composite reliabilities of trust, shared goals, and radical innovation equaled to 0.84, 0.85, and 0.91, well above the 0.70 benchmark. All of the factor loadings on the three constructs

exceeded 0.70 ($p < 0.00$) and their average variances extracted achieved the 0.50 cutoff (Fornell and Larcker, 1981). These tests demonstrated adequate convergent validity and reliability.

To test the discriminant validity of the measures, we ran pairwise chi-square difference tests to examine whether the constrained model with correlations fixed at 1.00 was significantly worse than the freely estimated model. The results showed that all of the differences were significant (e.g., trust vs. shared goals: $\Delta\chi^2(1) = 532.23$, $p = 0.00$), satisfying the requirement for discriminant validity. As shown in Table 2, the square roots of the average variance extracted of each construct in the diagonal elements were larger than the correlation coefficients across all of the theoretically related constructs, thus supporting the discriminant validity of each construct (Fornell and Larcker, 1981). Overall, the measures showed adequate reliability and validity.

INSERT TABLE 2 ABOUT HERE

Hypotheses Testing and Results

Table 2 contains the means, standard deviations, and correlations for each variable. The mean value of ownership concentration lies between 49.51%, which is typically regarded as highly concentrated (Porta et al., 1999). Both shared goals and strategic consensus are significantly and positively associated with radical innovation. Trust is not significantly related to radical innovation, but the square of trust has a significantly negative correlation with radical innovation. This result suggests the existence of an inverted U-shaped relationship between trust and radical innovation. The correlation coefficient between shared goals and radical

innovation is significantly positive. These findings suggest that our hypotheses are reasonable.

Regression analyses were conducted to test the hypotheses, as shown in Table 3. Model 1 contained only the control variables. We find that state-owned firm ($\beta = -0.28, p < 0.01$) and industrial competition ($\beta = -0.22, p < 0.05$) exhibit significantly negative effects on radical innovation. This finding is consistent with Xu and Wang (1999) who find that state ownership is inefficient. As predicted, both firm size ($\beta = 0.16, p < 0.05$) and R&D input ($\beta = 0.20, p < 0.05$) positively influence radical innovation.

INSERT TABLE 3 ABOUT HERE

To test Hypothesis 2, we added trust and shared goals into Model 2 in Table 3. Shared goals have a significantly positive effect on firm radical innovation ($\beta = 0.22, p < 0.01$), whereas the regression coefficient of trust is not significant. Hypothesis 2 is also supported.

When testing the U-shaped and moderating hypotheses, we tried to reduce the potential multicollinearity due to the quadratic and interaction terms by mean-centering each variable which was included in the interaction or quadratic terms, and multiplying them to create the interaction terms (Cohen *et al.*, 2003). The maximum value of VIF (variance inflation factor) for each model shown in Table 3 was 2.23, which was well below the cut-off of 10, suggesting that multicollinearity was not a significant issue in this study.

To test Hypothesis 1, we entered the squared term of trust into Model 3 in Table 3. We find that the square of trust has a significantly negative effect on radical innovation ($\beta = -0.30, p < 0.00$), providing support for Hypothesis 1. There is an inverted U-shaped relationship

between trust and radical innovation.

We developed and ran Model 4 to test the moderating effect of shared goals on the relationship between trust and radical innovation. As shown in Table 3, the results indicate that the interaction terms of trust squared and shared goals are significantly associated with radical innovation ($\beta = -0.23$, $p < 0.05$), which suggests that shared goals significantly moderate the inverted U-shaped relationship between trust and radical innovation (Aiken and West, 1991).

For clarity, we plotted the moderating effect in Figure 1. We divided the data set into high-shared-goals firms (scoring one standard deviation above the mean) and low-shared-goals firms (scoring one standard deviation below the mean). As the graph shows, the relationship between trust and radical innovation varies in form according to the level of shared goals. The high-shared-goals curve shows that shared goals strengthen the positive effect of trust on radical innovation and intensify the negative effect of trust once it exceeds a certain level. The low-shared-goals curve shows that trust has a negative nonlinear relationship with radical innovation. In summary, this further confirms that shared goals moderate the nonlinear (inverted U-shaped) relationship between trust and radical innovation.

INSERT FIGURE 2 ABOUT HERE

Robustness Checks

We conducted some additional tests to examine the robustness of regression results. First, we first tested on the correlation between radical innovation and firm performance. The literature indicates that innovation is positively correlated to firm performance (Rubera and Kirca,

2012). Referring to Li and Atuahene-Gima (2001), we asked respondents to rate their firm performance by comparing with that of their major competitors in terms of growth in profitability, market share, sales, return on assets (ROA) and so forth. The measure demonstrated good reliability ($\alpha = 0.88$). Firm performance had a high correlation with radical innovation ($r = 0.43, p < 0.00$). We then used this measure as an alternative outcome for firm radical innovation. Generally, we found support for the hypotheses. Specifically, shared goals had a significantly positive effect on firm performance ($\beta = 0.37, p < 0.00$) and the squared term of trust was significantly related to firm performance ($\beta = -0.19, p < 0.05$). Moreover, the interaction terms of trust squared and shared goals were significantly associated with radical innovation ($\beta = -0.18, p < 0.05$). Therefore, these analyses showed that the results and interpretations were entirely consistent with those presented above.

Second, we employed discrete categories in measuring firm size (average annual sales), with the purpose of easiness of responses. We conducted additional analyses to manifest that there were no serious variation and information related problem emerged with discrete categorical measure, and it did lead to quite limited influence on the regression results. The number of employees (also a categorical measure) is an alternative measure of firm size (e.g., Li et al., 2010). Correlation results showed that these two measures of firm size are highly correlated ($r = .74, p < 0.00$). Then, we used this measure of firm size to replace the one used in the study, and regression results show almost no change.

Further, Leech and Leahy (1991) argue that when the largest shareholders hold about 20-30% of the firm's total shares, they would have significant influence on the processes of strategic decision making. Accordingly, we selected another two sub-samples, one with large

shareholders having above 30% of the firm's shareholding (N=159) and the other with large shareholders having above 50% of the firm's shareholding (N=118). Using the two sub-samples, the models in Table 3 are re-regressed, most hypotheses are supported. These results further confirmed that trust and shared goals between large shareholders and managers have significant effects on firm radical innovation.

Discussion

Based on the Chinese context, we use the stewardship perspective to combine the corporate governance and radical innovation literature and develop a model to examine the effects of trust and shared goals in the manager-large shareholder relationship on firm radical innovation, and the moderating effect of shared goals on the relationship between trust and radical innovation. The empirical results generally supported the proposed model. Taken together, our findings offer a more advanced understanding of the U-shaped effect of trust and the positive influence of shared goals on radical innovation, and identify the moderating effect of shared goals on the relationship between trust and radical innovation.

We found an inverted U-shaped relationship between trust and radical innovation, suggesting that the impact of trust on radical innovation first increase but then decreases beyond a certain point of trust development. This finding suggests that a moderate trust between large shareholders and managers allow firms to cope with the uncertainty and complexity of the radical innovation process in several ways: it enhances critical knowledge and information sharing (Bammens and Collewaert, 2012), it ensures continuous investments (Carmona-Lavado et al., 2010), and it reduces time- and resource-consuming monitoring mechanisms (Van Slyke, 2007). However, excessive (too much) trust may bias large

shareholders' assessments on managers' capabilities (Batjargal, 2007) and hamper the expression of conflicting opinions about strategic decisions (Clercq et al., 2009), and these may impede or diminish radical innovation activities. This finding adds knowledge to the research on the dark side of trust (Bammens and Collewaert, 2012), suggesting that excessive trust has lower effects on firm value creation than a moderate level of trust (Molina-Morales and Martínez-Fernández, 2009).

Our results further show that shared goals positively influence firm radical innovation. This finding principally is in line with prior research, which at the team level linked shared goals within firms to innovation outcomes (Rickards et al., 2001; Pearce and Ensley, 2004). However, we extended this research by looking at the relationship between shared goals between large shareholders and managers. Common goals can direct large shareholders and managers in interacting with each other and help develop common understandings and the means to achieve radical innovation.

Finally, the results suggest that that shared goals moderate the effect that trust has on radical innovation. This finding underlines shared goals and trust affect each other through a moderation relationship, extending previous research that generally focuses on the independent effects of trust and shared goals (e.g., De Clercq et al., 2013; Li et al., 2010). This finding is in accordance with Lundin (2007), who emphasizes the interactive effect of trust and shared goals on cooperative activities, and with Krishnan et al. (2006), who suggest that the effect of trust on firm performance is affected by actors' behavior characteristics. We suggest that shared goals between large shareholders and managers can enhance the understanding and acceptance of common goals and the ways to contribute to these goals

(Inkpen and Tsang, 2005; Li et al., 2010), enhancing the role of trust-induced cooperative willingness in radical innovation.

Theoretical Implications

Our research contributes to the literature on corporate governance and innovation in three main respects. First, we contribute to corporate governance literature by confirming the significant roles of characteristics of social relationships (i.e., trust and shared goals) between large shareholders and managers when firms pursue radical innovation. A central point in the debate on corporate governance is “whether or not managers can be trusted to act in the interests of shareholders (Muth and Donaldson, 1998, p. 6).” Agency theory posits that managers cannot be trusted and must rely on control and monitoring mechanisms to align their interests with shareholders (Jensen and Meckling, 1976; Arthurs and Busenitz, 2003). Since Davis et al.’s (1997) seminal work, a stream of research based on the stewardship theory perspective criticizes agency theory’s assumptions about under-socialization and emphasizes social relationships in the principal-agent relationship (Cuevas-Rodríguez et al., 2012; Muth and Donaldson, 1998; Van Slyke, 2007).

Acknowledging the importance of social relationships between shareholders and managers, we draw on the stewardship theory perspective for a better understanding of such social relationship in promoting firms’ innovation. In particular, our findings contribute to stewardship theory by revealing that trust, a factor key to social relationship; does not always benefit radical innovation outcomes, and more contextual factors are to be considered. We also contribute to the behavioral processes of corporate governance (Ees, Gabriellson, and Huse, 2009; Westphal and Zajac, 2013) by examining factors influencing the social

interactions between large shareholders and managers and how these factors impact the organizational outcome.

Second, we contribute to existing knowledge on the antecedents of radical innovation by focusing on factors matter to the firm's corporate governance. In fact, previous research has mostly examined the antecedents such as external and internal environmental (O'Connor and Rice, 2013), firm resources and capabilities (Troilo et al., 2014), strategic factors (McDermott and O'Connor, 2002), whereas little attention has been paid to the characteristics of social relationship between large shareholders and managers. Since radical innovation involves abundant capital investment, process complexity, and outcome uncertainty (Subramaniam and Youndt, 2005; Tellis et al., 2009), the cooperation from resourceful large shareholders can help a firm to acquire the resources required for radical innovation. Building on the corporate governance literature, large shareholders have a central role in firms' significant strategic decisions. Our study adds to the understanding of the characteristics of social relationships between managers and large shareholders, who act as major resource investors, may also drive firm radical innovation.

Third, Shapiro et al. (2013) argue that relatively little attention has been paid to the relationship between corporate governance and innovation in emerging economies. Responding to Donaldson and Davis (1991), these findings generally support the explanatory power of stewardship theory in Chinese corporate governance, in line with Tian and Lau (2001) who suggest that, given the collectivist culture of China (Earley, 1989; Michailova and Hutchings 2006), stewardship theory is likely to be an appropriate perspective for explaining Chinese corporate governance issues because it emphasizes the social factors of

the principal-agent relationship.

Managerial Implications

Innovation is critical for businesses to compete and win against competitors in the marketplace. China is a major emerging economy and has issued policies and regulations to encourage innovative activities in businesses (Shapiro et al., 2013). Our findings provide some important managerial implications. First, corporate governance practices vary across institutional and cultural contexts. Successful corporate governance practices from developed economies may not be appropriate in emerging market economies (van Essen et al., 2012). Our findings suggest that the social relationship between large shareholders and managers can have an effective role in corporate governance in the Chinese context. These relationships such as trust and shared goals can overcome some of the deficiencies or failures of the formal arrangements for corporate governance in emerging economies.

Second, our findings remind business practitioners that trust and shared goals have different effects on one another. Despite the benefits of trust, we find that excessive trust have less of an effect on radical innovation than a moderate level of trust. Thus, a moderate level of trust between large shareholders and managers has an optimal effect on radical innovation and should be striven for. This proves a proverb that ‘trust God, but do not forget to lock the door’. Our findings reveal the importance of large shareholders and managers sharing goals in radical innovation. It is important for large shareholders, as resource investors, and managers, as resource allocators, to share common goals within a firm. Shared goals help them to recognize the mission of their collaborations and hence articulate and pursue future directions for firm development. Further, the combined application of trust and shared goals

should be considered. With more shared goals, a trusting relationship may produce better cooperative outcomes, because shared goals can direct the distribution of cooperative efforts induced by a moderate level of trust between large shareholders and managers.

Limitations and Future Research

It is necessary to note some theoretical and empirical limitations that may give insights into future research. Given the contingent value of trust (Burt, 1997), there may be other moderating factors that influence the role of trust in firm innovation activities. Future research building on our study can take other moderators into account and examine their effects on the link between trust and radical innovation. As suggested by Maurer et al. (2011), there may be multiple paths for social capital such as trust to influence firm performance outcomes. Future research can consider the mediating processes of this relationship. Estrin and Prevezer (2011) conduct a case study in emerging economies and find that informal and formal mechanisms interact in corporate governance. To generalize their findings, we suggest that China is an appropriate context to examine these interaction effects.

Another limitation lies in the nature of our survey data. We only collected cross-sectional data from our sample firms, so it is hard to infer causality. As the antecedents of radical innovation may vary over time, future research should collect longitudinal data to better infer causality and observe changing patterns. Although we suggest that China is an appropriate context to examine effects of social relationships in corporate governance, we expect further research done in other emerging contexts to generalize our findings.

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Table 1. Measurement Items and Validity Assessment

Constructs	Measurement items	Standardized loadings
Trust $\alpha = .74$ AVE = .58 CR = .84	In our company, both managers and large shareholders (1) are trustworthy and believe that one side would listen to the other side whenever they are in trouble; (2) believe in each other's competence according to past work performance; (3) always consider each other as good cooperators, rather than opportunists; (4) think that one side will obtain benefits by using some opportunities that would harm the other's benefits (R)	.70 .85 .80 .68
Shared goals $\alpha = .77$ AVE = .53 CR = .85	In our company, (1) both managers and large shareholders share a similar vision regarding the future direction of corporate development; (2) there is an alignment on interests between managers and large shareholders; (3) both managers and large shareholders think alike on most of business issues; (4) managers and large shareholders agree on the personnel allocation of key post; (5) managers often communicate with large shareholders about the significant issues as mutual problems	.75 .70 .74 .70 .74
Radical innovation $\alpha = .87$ AVE = .72 CR = .91	(1) Our company creates more brand-new products as compared with the main competitors (2) Our company develop new products with higher brand-new new functions as compared with the main competitors (3) Our company frequently introduces new technologies into existing industries (4) Our company often enters a new market by developing radically new products	.87 .88 .87 .77

Table 2. Correlations and Discriminant Validity

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Radical innovation	.85	-.31**	-.10	-.03	.20**	-.07	.12	-.25**	-.02	-.33**	.15*
2. State-owned firm	-.26**	—	-.42**	.33**	-.25**	.26**	-.27**	.05	.04	.04	.01
3. private-owned firm	-.06	-.38**	—	-.36**	-.10	-.30**	.04	-.02	-.24*	-.05	-.19*
4. Firm size	.02	.37**	-.32**	—	-.44**	.11	-.23**	-.01	.10	.03	-.02
5. R&D input	.24**	-.20*	-.06	-.39**	—	-.08	.07	-.18*	-.11	-.18*	.03
6. ownership concentration	-.02	.31**	-.25**	.15	-.03	—	-.09	-.06	.02	-.02	.01
7. Managerial stockholding	.17*	-.22**	.09	-.18*	.12	-.05	—	-.06	-.16*	-.12	-.00
8. Industrial competition	-.20**	.10	.02	.04	-.14	-.02	-.01	—	-.09	.00	-.06
9. Trust	.02	.08	-.20**	.15	-.06	.06	-.12	-.05	.76	-.26**	.16*
10. Trust ²	-.28**	.09	-.01	.07	-.14	.03	-.07	.05	-.22**	—	-.14
11. Shared goals	.20**	.05	-.14	.02	.07	.06	.04	-.01	.20**	-.10	.73
12. MV marker	.04	-.08	.05	-.14	.02	-.12	.00	.05	.30**	-.05	.35**
Mean	3.24	0.20	0.39	3.18	0.15	0.50	3.01	3.64	3.84	0.35	3.75
S.D.	.79	.40	.49	1.60	.18	.93	1.13	1.00	.59	.55	.46

Note: N=174; Diagonal elements (in bold) are square roots of the AVE values; adjusted correlations with common method variance controlled (Lindell and Whitney, 2001) are above the diagonal; * p < 0.05; ** p < 0.01; two-tailed test

Table 3. Regression Results

Variables	Radical innovation			
	Model 1	Model 2	Model 3	Model 4
<i>Control variables</i>				
State-owned firm	-.28**	-.28**	-.27**	-.24**
private-owned firm	-.07	-.06	-.05	-.03
Firm size	.16*	.17*	.21*	.22*
R&D input	.20*	.19*	.16*	.16*
Ownership concentration	.06	.07	.08	.07
Managerial stockholding	.12	.13	.15*	.17*
Industrial competition	-.22*	-.22*	-.20*	-.20*
<i>Independent variables</i>				
Shared goals		.23**	.25**	.40**
Trust		.01	-.07	-.06
Trust squared			-.30***	-.29**
<i>Interactions</i>				
Trust* Shared goals				.02
Trust squared* Shared goals				-.23*
R ²	.21	.27	.35	.38
ΔR ²		.05*	.08***	.03*
F-value	4.33***	4.44***	5.74***	5.38***

Note: Standardized coefficients are reported; ⁺p < .10, *p < 0.05; **p < 0.01; ***p < 0.001; two-tailed tests.

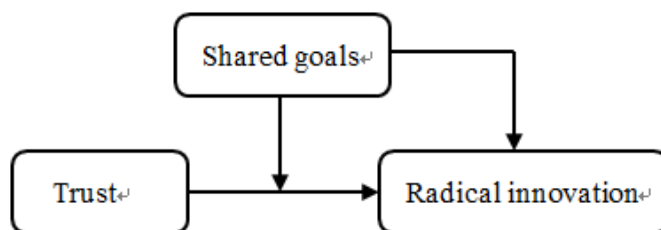


Figure 1. Conceptual Model of the Study

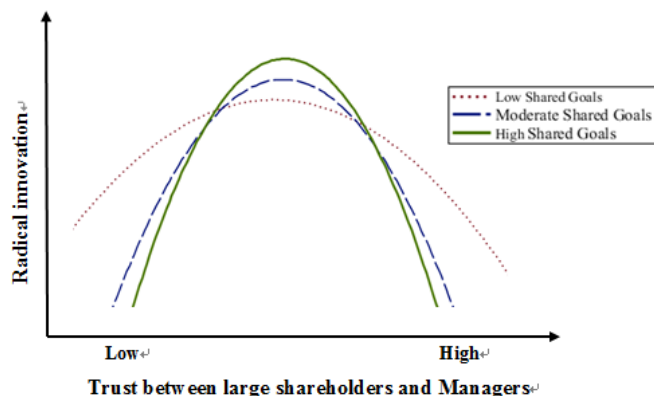


Figure 2. The Moderating Effect of Shared Goals in the Relationship between Trust and Radical Innovation