

How Does Privatization Affect Innovation? An Integrative Model

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Privatization leads to private ownership. From an economic perspective, private ownership can motivate owner-managers to pursue innovation which is important for post-privatization performance. However, empirical studies do not always support the positive relationship between privatization and innovation. Therefore, the role of privatization in innovation may be more complex than economic theories suggest. This study attempts to untangle some controversies regarding innovation in privatized firms by integrating both economic and cognitive perspectives. Innovation needs risk taking behavior, but private ownership is likely to make owner-managers risk averse. A main reason is that it leads owner-managers to bear risk. I argue that innovation in privatized firms may depend on the relative strength of economic motivation and risk bearing, two opposing forces generated by private ownership.

INTRODUCTION

Firms can be grouped into different ownership classes, including publicly-traded and privately-owned. Different ownership structures, according to Mascarenhas (1989), lead to differences in the interests and constraints of owners and managers and in the conflicts between owners and managers. Ownership structure is important because it influences organizational behaviors (Perry & Rainey, 1988). Among different types of organizations, public firms are more visible because they are required to disclose information on their activities. According to Pagano and colleagues (1998), there are at least three advantages a public firm possesses: first, it can gain access to stock markets for funds. Second, owners of a public firm enjoy the benefits of share liquidity and portfolio diversification. Share trading on an organized exchange is cheap, and shareowners can diversify their investments easily. Third, the stock market can serve as “a managerial discipline device”.

Public firms cannot obtain these advantages without a cost. A frequently-cited and also much-studied issue in public firms is the agency problem – an organizing problem that arises when the owner and the manager have different goals and interests. It is difficult or expensive for the owner to determine whether the manager has behaved properly (Eisenhardt, 1989). A variety of internal and external governance mechanisms, including boards of directors, ownership concentration, managerial stock ownership, stock options, the market for corporate control, and golden parachutes (Phan & Hill, 1995), have been developed in order to overcome or reduce the agency problem. Despite expectations, the roles of those mechanisms are limited due to three factors: information asymmetry, low levels of motivation to control on the part of the board of directors, and management entrenchment (Walsh & Seward, 1990). Unresolved agency problems often trigger firm privatization via leveraged buyouts (Fox & Marcus, 1992), which was a notable phenomenon in corporate America during the 1980s.

The privatization of public firms, or buyouts, is an often-used corporate restructuring method (Bruton et al, 2002). In buyout transactions, firms are taken private by converting public stock ownership to private ownership (Phan & Hill, 1995). It was reported that in a period from 1981 to 1989, more than 2540 publicly-traded firms went through a buyout, and the total buyout transactions involved a market value of over \$297 billion and accounted for 17.0 percent of all the corporate restructuring activities (*Mergerstat Review*, 1989). Though this buyout wave in the United States has passed, as an accepted corporate restructuring practice (Bruton et al, 2002), it still keeps occurring. Recently, the buyout practice has shown a growing trend in other countries such as the United Kingdom (Harris et al, 2005) and Japan (Wright & Kitamura, 2003).

A classical explanation of the widespread buyout practice is that buyouts can serve as an effective device to overcome the agency problem existing in public firms in which ownership and control are separated (Fama & Jensen, 1983; Jensen, 1986). The privatized firms enjoy two advantages: managerial motivation and discipline (Jensen, 1986; Jensen & Meckling, 1976). According to Magowan (1989), managers are now transformed into owners – owners' money is also the managers' money, so they have incentives to improve operational efficiency so as to create more value for their own businesses. Managerial discipline is associated with high-levels of debt most buyout firms have involved. Jensen (1986) reasoned that the need to repay debts in buyout firms could discipline management behavior by forcing them to use cash more efficiently, remove unprofitable investment projects, dispose of excessive resources or assets, and increase accountability.

Given the twin spurs of economic motivation and debt-based discipline, it is expected that privatization will improve firm performance. The empirical evidence has generally supported the improvement of efficiency (e.g., Bruton et al, 2002; Phan & Hill, 1995; Singh, 1990). It is also expected that owner-managers will be more motivated to engage in innovation (Wright et al, 2000; Wright et al, 2001), which is necessary for firm long-term growth (Long & Ravenscraft, 1993). Empirical studies have generated less encouraging results. Zahra and Fescina (1991), in an influential review of the past research, found more negative than positive effects of buyouts on R&D in most sample firms. Long and Ravenscraft's (1993) reported a similar finding: buyouts cause R&D intensity to drop by 40 percent.

Heavy debts have been argued to have negative impact on investments in innovation. The reason is that it constrains both strategic and financial flexibilities due to debt payments (Rappaport, 1990; Seth & Easterwood, 1993). However, debts may not be the only factor leading to reduction in innovation (Zahra & Fescina, 1991). There is evidence that leveraged buyout firms did not reduce their investment efforts in unrelated businesses more than comparable public firms (Wiersema & Liebeskind, 1995), suggesting that debts may restrict financial capabilities for innovation, but may not restrict managerial behavior to engage in innovative activities. From this point of view, the effect of privatization on innovation may be more complex than the traditional explanations.

Though many of those studies were conducted in 1990s, the debate regarding the relationship between privatization and innovation has not been resolved to date. More recently, some researchers (Wright et al; 2000; Wright et al, 2001) have again raised the issue of innovation in privatized firms. They argued that the role of private ownership in innovation can be more than providing incentives. It can also lead to effective governance structures for innovation. According to Francis and Smith (1995), agency incentives and monitoring are not effective for innovation. Because innovation is characterized by a long-term nature, high-risk, and unpredictability, the contracting and monitoring costs associated with innovation projects could be especially high. In addition, contractual arrangements are likely to restrain experiments, so they may discourage innovation efforts. Therefore, Wright and colleagues (2000) reasoned that "independence might be an important antecedent for innovation". They further argued that private ownership would "become an important way of encouraging and governing R&D activity". In another study, Wright and colleagues (2001) showed how privatized firms were committed to developing new products and technologies, obtaining patent rights, and engaging in R&D joint ventures.

This study attempts to untangle some controversies about the relationship between privatization and innovation. Private ownership is a basic feature of privatized firms. It may motivate owner-managers to pursue innovation in order to maximize their own wealth (Wright et al, 2001). A positive relationship

between private ownership and innovation is mainly derived from economic perspectives such as agency theory and property rights theory. However, private ownership, as an incentive mechanism, may also cause risk averse behavior (Beatty & Zajac, 1994; Sanders, 2001), thus discouraging investments in innovation. Beatty and Zajac (1994) argued that organizational research has generally emphasized the positive side of economic incentives, but has neglected one important negative outcome the incentive devices might produce for managers: risk bearing, which is defined as perceived risk to one's wealth. Private ownership ties owner-managers' wealth to firm performance. Firm performance tends to be uncertain in the future, so owner-managers often bear risks in terms of possible loss of their wealth. I suspect that the neglect of negative impact of private ownership may be one explanation for the controversial relationship between privatization and innovation.

This study takes into account both positive and negative impact of private ownership on firm innovation. Given the alignment between ownership and control in privatized firms, it is reasonable to assume that owner-managers' behavior represents the firm level behavior. In the following sections, I present an integrative model combining two opposing arguments about the role of private ownership. Based on the model, I develop a set of propositions. Finally, I discuss both theoretical and practical implications. Table 1 shows the definitions of key terms used in this study.

**TABLE 1
DEFINITIONS OF KEY TERMS**

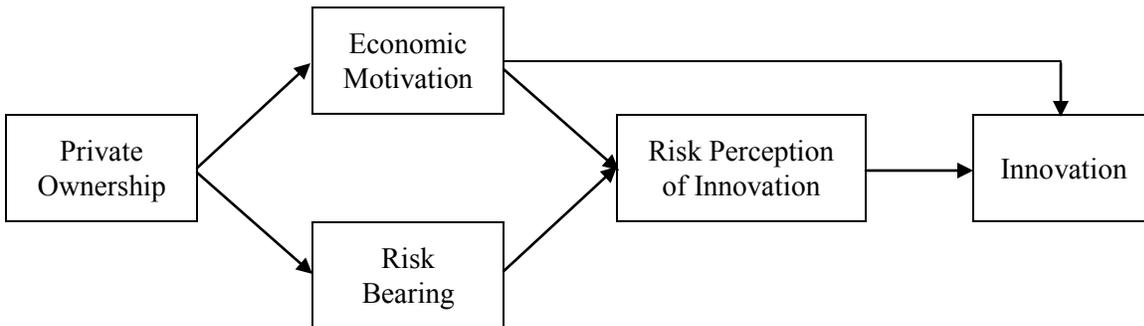
Terms	Definitions
Economic motivation	Owner-managers' motivation to pursue wealth driven by private ownership
Managerial perspective of risk	Managers treat risk as (1) uncertainty about negative outcomes; (2) magnitude of possible negative outcomes; (3) subjective risk
Risk bearing	Perceived risk relative to owner-managers' wealth
Risk perception of innovation	Perceived risk relative to innovation projects
Risk-taking behavior	Decision-making behavior in risky contexts in which the expected outcome of the decision is uncertain

AN INTEGRATIVE MODEL OF PRIVATE OWNERSHIP AND INNOVATION

Innovation is important for firm long-term survival. It is also critical to privatized firms' competitiveness (Wright et al, 1998). Long and Ravenscraft (1993) found that buyout firms with high R&D intensity outperformed other buyout firms with no R&D expenditures. Despite its importance, innovation is not always emphasized in privatized firms (Zahra & Fescina, 1991). In this study, I argue private ownership may have both positive and negative impact on innovation. The positive impact is derived from an economic perspective, while the negative impact is based on a cognitive perspective. I develop a conceptual model, as shown in Figure 1, integrating both economic and cognitive theories. The model suggests that private ownership generates both economic motivation and risk bearing, which affect innovation in opposite directions. Economic motivation influences innovation positively. This influence can be both direct and indirect. The indirect relationship is mediated by owner-managers' risk perception of innovation. Risk bearing affects innovation negatively in an indirect way, mediated by risk perception of innovation. Risk perception would in turn affect owner-manager's risk behavior: whether or not to engage in risky innovative activities. This framework may explain some conflicting evidence regarding

the relationship between privatization and innovation, thus complementing the traditional economic theories.

FIGURE 1
THE IMPACT OF PRIVATE OWNERSHIP ON INNOVATION:
AN INTEGRATIVE MODEL



The Positive Impact of Private Ownership

Scholars have argued that private ownership can contribute to firm innovation (Francis & Smith, 1995; Wright et al, 2000; Wright et al, 2001). There are two explanations for this argument. One is associated with “high-powered incentives” produced by private ownership (Wright et al, 2000). This explanation has its roots in agency theory and the theory of property rights, which are interrelated. Agency theory deals with the agency problem derived from the agency relationship between a principal and an agent whose interests are not often consistent (Jensen & Meckling, 1976). Private ownership can be an effective way to solving the agency problem because of the alignment between the owner (principle) and the manager (agent). This alignment leads to strong incentives for owner-managers to create more wealth for both the firm and themselves. For this reason, private ownership is expected to have positive impact on innovation (Zahra, 1995).

Property rights theory argues that private ownership is more efficient than public ownership because the “concentration of benefits and costs [associated with business activities] on owners creates incentives to utilize resources more efficiently” (Demsetz, 1967). Under a public ownership system, the owner of a public property does not need to bear the full costs of his activities. Others may not be willing to pay him appropriately for his activities. The owner cannot exclude others from enjoying the benefits of his efforts. Under these circumstances, the owner is unlikely to have the incentives to optimize the utilization of resources. Investments in innovation are often a long-term initiative and need sustained commitments (Dierickx & Cool, 1989). Though the success of innovation projects is likely to generate high returns, the innovator may lack the motivation to conduct innovative activities if others ignore his efforts and can enjoy the benefits of the innovation. With a private ownership, the resource owner has incentives to maximize the value of output because others would not enjoy the benefits without appropriate contributions (Henry, 1999). As a result, investments in innovation are more likely to occur.

The second explanation for the positive relationship between private ownership and innovation is associated with the governance of innovative activities. According to Holmstrom (1989), governance structures based on contracts or diffuse ownership are not effective for innovative activities. Innovation is risky and firm specific, so contracting and monitoring costs could be “especially high”. Reliable performance measures are hard to design due to high costs of obtaining information. If ownership is aligned with control, the contracting and monitoring costs can be minimized and owner-managers would have more motivation to do innovation. Francis and Smith (1995) found that diffusely-held firms had fewer patent awards and were more sensitive to the timing of investments in innovation, so they

concluded that diffusely-held firms are less innovative than closely-held firms. Thus, I propose the following:

Proposition 1: a) There is a positive relationship between private ownership and firm innovation; b) the positive relationship is mediated by economic motivation.

Private ownership may facilitate innovation, but empirical evidence is not always consistent with this argument. Scholars have reported negative impact of privatization on R&D spending in their studies (Long & Ravenscraft, 1993; Zahra & Fescina, 1991). High levels of debt in privatized firms may cause R&D spending to decline. According to Zahra and Fescina (1991), however, debts do not necessarily lead to R&D decline when executives become owners. They used several leveraged buyout cases including Harley Davidson to illustrate the positive impact of privatization on R&D, though the debt levels were high. In order to address the inconsistency regarding the relationship between private ownership and innovation, I introduce a risk concept due to the risky nature of innovation. I argue that the impact of private ownership on innovation may also be affected by how owner-managers perceive risk.

Innovation as a Risk Taking Behavior

Innovation involves a great likelihood of failure (Baysinger et al, 1991; Graves & Langowitz, 1993). The riskiness of innovation results from the situation that the outcomes of innovation projects are neither immediate nor certain (Lee & O'Neill, 2003; Wiseman & Gomez-Mejia, 1998). The intrinsic uncertainty of innovation leads to its cost uncertainty. During the stages of research and development, information is revealed to the innovator gradually and investments can be sunk (Qian & Xu, 1998). Because of the risky nature, innovation projects may not produce any positive results (Dierickx & Cool, 1989). If a failure occurs, the manager's personal wealth and job security could be at risk. In addition, investments in innovation projects also influence firms' short-term performance by decreasing net returns on the current balance sheet (Baysinger & Hoskisson, 1989). Therefore, managers are often reluctant to invest in long-term innovation projects (Baysinger et al, 1991).

In addition to the risky nature, investments in innovation are often firm specific because they generate knowledge-based assets within the firm (David & O'Brien, 2006). This firm specific feature of innovation creates causal ambiguity for outsiders (Dierickx & Co, 1989). Outsiders usually do not possess private information about the innovation projects. Therefore, it is often difficult for them to evaluate or monitor innovative activities (Chen & Huang, 2006; Dierickx & Cool, 1989). For this reason, Peyer and Shivdasani (2001) argued that outsiders are often unwilling to finance innovation projects. As a result, the firm would need to bear all risks by itself. A large body of research has proposed that innovative activities such as R&D need risk-taking behavior (e.g., Jassawalla & Sashittal, 2002; Traynor & Traynor, 1997).

The Managerial Perspective of Risk

In decision-making theory, risk is usually defined as "variation in the distribution of outcomes, their likelihoods, and their subjective values" (March & Shapira, 1987). It is most frequently associated with "outcome uncertainty" (Sitkin & Pablo, 1992), often measured by the variance of the probability distribution of possible gains and losses related to a specific alternative (Pratt, 1964).

In the business context, however, risk is often not perceived in the calculative process defined in decision theory. According to March and Shapira (1987), three differences between the normative theory concerning risk and managerial responses to risk are obvious. First, for most managers, risk is treated as uncertainty about negative outcomes. Uncertainty about positive outcomes is not looked upon as risk. Second, managers do not see risk as a probability concept. Instead, the magnitudes of possible outcomes would be more prominent to them. Third, managers do not objectively calculate risk. They "feel" risk, or perceive risk subjectively. Two empirical studies, one by MacCrimon and Wehrung (1986) who used 509 Canadian and American executives as a sample, the other by Shapira (1986) who used 50 American and Israeli executives as a sample, provided support for March and Shapira's (1987) managerial perspective

on risk. This study investigates owner-managers' behavior in innovation in the business context, so March and Shapira's managerial perspective on risk is appropriate.

Risk Perception and Innovation

When people make risky decisions such as investments in innovation, they display risk behavior. Risk behavior can be defined as individuals' decision-making behavior in risky contexts in which the expected outcomes of the decision are uncertain, decision goals are difficult to achieve, or the potential outcomes include some unusual consequences (Sitkin & Pablo, 1992). Risk behavior can be risk-averse, risk-taking, or risk-neutral. According to Wiseman and Gomez-Mejia (1998), when people are risk averse, they prefer lower risk options at the expense of returns; if people are risk taking, they accept options where risk may not be fully compensated; and finally, when people display risk neutral behavior, they seek options where risk can be compensated.

Much research has taken the assumption that risk perception affects risk behavior. The reason is that decision makers tend to assess a risky situation first before making any decisions. It has been argued that risk perception affects risk taking behavior in a negative way (Sitkin & Pablo, 1992). People would not take risk deliberately when the risk is perceived high. According to Sitkin and Pablo, the negative relationship is consistent with prospect theory, though the theory does not take into account risk perception explicitly. People are more likely to be risk averse when they are experiencing possible loss of their assets, i.e., high risk perception, than they are when there is nothing to lose, i.e., low risk perception.

Empirical studies have supported the negative relationship between risk perception and risk-taking. For example, Sitkin and Weingart (1995) used MBAs and undergraduates as two separate samples and found that in both samples, the more risk individuals perceive, the less likely they make risky decisions. The entrepreneurship literature has also provided much evidence about the negative effect of risk perception on risk-taking behavior. Using a scenario approach to determine if entrepreneurs exhibit unique cognitive processes in dealing with risk-taking, Palich and Bagby (1995) found that entrepreneurs did not perceive themselves as being more predisposed to risk-taking than non-entrepreneurs, but they perceive more strengths than weaknesses, more opportunities than threats, and more potential for performance improvement than deterioration. The implication is that entrepreneurs may perceive less risk than non-entrepreneurs. A study by Simon and colleagues (2000) indicates that risky new venture creation is associated with a lower level of risk perception. Cooper and colleagues (1988) also found that 95% of entrepreneurs were confident in their ventures' success, though statistics show that more than half of new ventures have failed.

Innovation needs risk taking behavior. Because of the negative impact of risk perception on risk taking behavior, it can be reasonably assumed that perceiving low risk would facilitate managerial pursuit of innovation. This assumption seems to be incompatible with the risk-return argument. Conventional wisdom suggests that risk and return are positively correlated (Brealey & Myers, 1981). If a negative relationship between risk perception and innovation exists, it appears that people prefer lower-return projects. However, the proposed negative relationship between risk perception and innovation does not conflict with individuals' pursuit of high-return projects. This can be explained by the difference between subjective and objective risk associated with a project. Scholars have argued that managers take a risky action because they may not perceive the action's riskiness (Kahneman & Lovallo, 1993; March & Shapira, 1987). That is to say, risk-taking behavior might not respond to the real risk message (Brown, 2005). There is evidence that people even deliberately adjust their perception about risk in order to reduce anxiety related to risk taking (Lieberman & Chaiken, 1992). Therefore, perceiving low risk toward a project does not necessarily mean managers prefer low-returns.

Proposition 2: Owner-managers' risk perception of innovation has negative impact on firm innovation.

If risk perception has direct impact on firm innovation, what factors might affect risk perception? In this study, I argue that private ownership generates both economic motivation and risk bearing which

would have opposite effects on risk perception of innovation. Economic motivation decreases risk perception, while risk bearing increases risk perception. These arguments are explained in the following sections.

Economic Motivation and Risk Perception of Innovation

Private ownership creates strong motivation for owner-managers to maximize their own wealth (Fox & Marcus, 1992). The economic motivation could lead to cognitive biases. According to Tiger (1979), strong motivation tends to produce optimistic bias, which can be defined as “an inflated tendency to expect things to turn out well” (Baron, 2004). The optimistic bias creates overconfidence, unrealistic optimism about future, and illusion of control (Kahneman & Lovallo, 1993; Simon et al, 2000). Examples in the entrepreneurship literature have demonstrated these cognitive biases. Cooper and colleagues’ (1988) research indicates that in pursuing entrepreneurial opportunities, entrepreneurs tend to be more optimistic than non-entrepreneurs in their assessments of business situations. Other studies (Busenitz & Barney, 1997; Simon et al, 2000) have also provided evidence that entrepreneurs are subject to cognitive biases such as overconfidence and illusion of control.

Motivation is a form of emotion. Baron (1998) used an “affect infusion” theory to explain why individuals’ emotions would influence their cognitive process. The theory suggests that current affective states derived from one experience can influence or “infuse” judgments about other events. The model can be exemplified by the following observations: if an individual is experiencing a good mood, he or she tends to evaluate things or people around favorably. On the contrary, if an individual is feeling irritable, he or she would perceive things or people around negatively. Theoretically, affect infusion can be defined as a process through which “affectively loaded information exerts an influence on and becomes incorporated into the judgmental process, entering into the judge’s deliberations and eventually coloring the judgmental outcome” (Forgas, 1995).

Baron (1998) noted that a large body of literature supports the impact of affect on judgmental outcomes. For example, when decision makers are eager to do something, they are likely to overestimate their abilities and may not recognize possible negative consequences (Busenitz & Barney, 1997). Tiger (1997) argued that strong motivation often generates optimistic bias. Thus, I hypothesize that managers’ strong economic motivation triggered by private ownership would make them subject to cognitive biases such as overconfidence in their decision making. When motivation for wealth creation causes cognitive biases, these cognitive biases in turn would influence owner-managers’ risk perception of innovation. According to Kahneman and Lovallo (1993), cognitive biases like over-optimism could reduce individual perceived risk and produce “bold forecasts” about the future. Some empirical studies offered support for this argument. Based on a sample of small and medium-sized firms in Singapore, Keh and colleagues (2002) found that managers’ illusion of control reduced their perceived risk. Simon and colleagues (2000) had similar findings based on students’ responses to a survey: biases lowered perceived risk of venture creation. Simon and Houghton’s study (2002) shows that cognitive bias could make managers underestimate the threat of competition.

Proposition 3: Economic motivation has negative impact on risk perception of innovation.

Private Ownership, Risk Bearing, and Risk Perception of Innovation

According to agency theory, incentive programs can align the interests of stockholders and managers in public firms (Eisenhardt, 1989), so managers are supposed to act in stockholders’ interests and are motivated to improve the firm value. Despite expectations, incentive programs in public firms, including outcome-based rewards, stock options, and equity positions, do not always work as expected. The reason is that they sometimes make managers risk averse, thus discouraging managers’ innovative behavior (Zahra, 1996). Beatty and Zajac (1994) coined the term “risk bearing”, defined as perceived risk to one’s wealth, to describe the negative impact of incentives. They used managerial compensation to illustrate the concept: though pay-for-performance contracts provide strong incentives for managers to improve firm

performance, these contracts also cause managers to bear risk due to the uncertainty of future firm performance.

Because risk bearing is a perceived risk, it is subject to change with situational factors. Wiseman and Gomez-Mejia (1998) proposed that several factors may influence individual risk bearing in public firms: firm performance, stock options design, and evaluation criteria. When the firm's performance is strong, executives, to the extent that their wealth is tied to firm performance, tend to perceive themselves as risk bearers. They face the possibility of losing more when they possess more. In contrast, poor conditions would make them bear low risk because they have little wealth to lose. While stock option programs can increase executives' risk bearing, the perceived risk may be lessened through the design of the options. If the down-side risk of stock options is set to zero, that is, "the stock option value is insulated from any adverse consequences of risk taking", the program may not create risk bearing for the executives. The use of behavioral criteria, as opposed to outcome-based criteria, can increase managerial risk bearing because managers feel uncertain about how performance will be evaluated.

With these examples, we can see that the level of risk bearing is associated with two factors: one is the amount of wealth that might be influenced negatively and the other is how uncertain individuals perceive the future. These factors are consistent with the managerial perspective of risk (MacCrimon & Wehrung, 1986; Shapira, 1986): the magnitude, instead of probability, of possible negative outcomes is important, and executives "feel" rather than quantify uncertainty. Some empirical studies have provided support for the risk bearing theory. Beatty and Zajac's (1994) research suggests that the larger the equity stakes held by managers, the more risk averse they are. Sanders (2001) had similar findings: stock ownership made managers less risk-taking because of future uncertainty. When managers become less risk-taking, they would be less likely to conduct innovative activities.

In privatized firms, the risk owner-managers bear can be greater than employee-managers in public firms. Private ownership ties owner-managers' wealth to firm performance closely. Firm performance in the future is hard to predict, so owner-managers would inevitably bear risk in the form of possible loss of their investments or wealth created by their investments. Their perceived risk to their wealth, i.e., risk bearing, is likely to contribute to their risk perception of innovation. According to the affect infusion theory (Baron, 1998; Forgas, 1995), when managers feel that their wealth in the firm is being threatened, this affective state is likely to influence their judgments about business activities such as innovation. They could probably perceive more risk toward the investments in innovation.

Proposition 4: Private ownership has positive impact on risk bearing.

Proposition 5: Risk bearing has positive impact on risk perception of innovation.

DISCUSSION

This study establishes a conceptual framework integrating both economic and cognitive perspectives to examine the relationship between privatization and innovation, which is often controversial. Private ownership generates economic motivation which is likely to facilitate innovative activities, but empirical results are not always consistent with this predication. Therefore, I extend the traditional economic explanation and introduce a risk concept due to the risky nature of innovation. Innovation needs risk taking behavior, which could be influenced negatively by owner-managers' risk perception of innovation. Private ownership may affect risk perception of innovation in two ways. On the one hand, it leads to economic motivation that may cause over-optimistic biases. Over-optimism could decrease perceived risk to innovation projects. On the other hand, private ownership may also increase risk perception of innovation because of risk bearing. Therefore, owner-managers' pursuit of innovation may be affected by two opposing forces: economic motivation and risk bearing. Risk perception of innovation is likely to be a link between private ownership and innovation. According to Sitkin and Pablo (1992), risk perception may mediate the relationship between situational factors and individual risk behaviors. When a situation

increases one's perceived risk, risk aversion often arises; if a situation reduces one's risk perception, a risk taking behavior may be triggered, though the objective risk may still be the same.

This study contributes to the literature by establishing an integrative model explaining the role of private ownership in firm innovation. The literature has emphasized the motivational effect of private ownership, but has neglected a possible negative consequence: risk bearing which could have negative implications for innovation. By incorporating the risk concept into the traditional incentive-based models, this study takes a step toward a deep understanding of the role of private ownership and provides an explanation for the controversial relationship between privatization and innovation. It suggests the importance of risk perception in managerial pursuit of innovation and the impact of private ownership on risk perception.

Risk perception is "an individual's assessment of how risky a situation is" (Sitkin & Weingart, 1995). This assessment is a cognitive process in which individuals collect and process information, and form perceptions (Scherer & Cho, 2003). From a cognitive perspective, privatization may change managers' cognitive structures after they become owners. A cognitive structure is a "hypothetical link between stimulus information and an ensuing judgment" (Bieri et al, 1966). This hypothetical link is associated with knowledge storage or structures. Privatization provides strong stimulus information. By studying the "hypothetical link" between privatization and owner-managers' ensuing behaviors, we may understand the impact of privatization on managerial behaviors in a better way. This cognitive perspective is consistent with Walsh's (1995) argument about the importance of managerial cognition in answering the "how" question. According to Walsh, agency theory views managers as source of variance in firm performance, but it cannot answer "how managers might increase or decrease firm value". "Enter[ing] cognition" may help answer the "how" question.

A cognitive perspective may also be useful for explaining other managerial behaviors, as well as innovation behavior, in privatized firms. For example, it is still unclear whether privatization can contribute to managerial commitments to long-term growth. Given the uncertain nature of long-term performance, Wright and colleagues (2000) suggested that the explanation of strategic growth in privatized firms would require an understanding of entrepreneurial cognition, as well as managerial incentives. Though monetary incentives could motivate managers to pursue firms' long-term performance, the role of these incentives is limited without entrepreneurial cognition. Wright and colleagues argued that without entrepreneurial cognition, owner-managers would be "frugal with R&D expenditure".

This study emphasizes the importance of risk perception in risky behaviors. The concept of risk perception may also shed light on other business activities involving risk. In the entrepreneurship literature, for example, it has long been debated whether entrepreneurs are inherent risk-takers. Given the risky nature of entrepreneurship, it has been suggested that risk-taking propensity is one of the most distinctive features of entrepreneurs, and it fundamentally distinguishes entrepreneurs from managers (e.g., Gasse, 1982; Leibenstein, 1968). Along with the argument that entrepreneurs are risk-takers, there are disagreements. McClelland (1961) proposed that entrepreneurs are pursuing tasks which are not like gambling in Las Vegas. They tend to assess risks carefully before taking any risky actions. This argument is in line with the risk perception framework established in this study. Entrepreneurs may not necessarily possess some inborn traits such as risk-taking, but they are likely to perceive low levels of risk associated with their ventures.

In this study, I propose that innovation in privatized firms may be affected by two opposing forces: economic motivation and risk bearing. Both are cognitive variables. In order to facilitate innovation, owner-managers would need to maximize economic motivation and minimize risk bearing. One approach is to change owner-managers' mindset. Wright et al (2001) have recognized the importance of appropriate managerial mindsets in privatized firms. They suggested that owner-managers in buyout firms should treat privatization as an entrepreneurial opportunity through which they can take advantage of both high-powered incentives and discretions. Though innovation projects are risky, the concerns about risk "tend to be overruled" by the opportunity owner-managers have recognized (Wright et al, 2000).

Another approach to facilitating innovation is to improve ownership structures in private firms. Innovation is likely to be influenced by risk bearing. Two factors lead to risk bearing: uncertainty and the amount of wealth at risk. If owner-managers have more wealth attached to the firm, they bear more risk. In contrast, if ownership is not concentrated, owner-managers would have less to lose if firm performance fails to reach expectations (Wiseman & Gomez-Mejia, 1998). Scholars (La Porta et al, 1999; Morck & Yeung, 2003) have argued that family firms are often risk averse because of relatively undiversified ownership position and wealth concentration. Beatty and Zajac's (1994) study indicates that managers in public firms can become more risk averse when their equity stake increases. Therefore, it may be helpful for privatized firms to reduce ownership concentration. From an economic perspective, reducing ownership may have negative impact on owner-managers' motivation to pursue innovation. Ownership position seems to be a double-edged sword, which may affect innovation in opposite ways. It is likely that both high and low ownership concentration is not helpful for risky activities such as innovation.

Future Directions

This study proposes that private ownership affects innovation through economic motivation and risk bearing, which are two opposing forces. The tension between the two forces would lead to managerial decisions: whether or not to pursue innovation. Future research may be directed toward the relative strength of economic motivation and risk bearing in affecting innovation. It can be interesting to examine how ownership positions might affect their relative strength. For example, when ownership is concentrated, it is likely to increase both economic motivation and risk bearing. Which force is stronger? In contrast, if the firm has a diffuse ownership structure, both economic motivation and risk bearing could be low. Are owner-managers more likely or less likely to engage in innovation? Answering these questions could have practical implications for privatized firms. They may be likely to promote innovation through improving their ownership structures.

CONCLUSION

Innovation can improve privatized firms' competitiveness (Wright et al, 1998). From an economic point of view, private ownership drives innovation. However, the role of private ownership is more complex than the economic theories predict. A main reason is that innovation is a risky endeavor and private ownership may have negative implications for activities involving risk. This study suggests that it is necessary to use multiple perspectives to investigate innovation in privatized firms.

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