



## Strategic orientations and strategies of high technology ventures in two transition economies

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### ABSTRACT

This research examines the relationships among strategic orientation, strategy, and firm performance of high technology ventures in two transition economies – China and Russia. While highlighting the impact of the economy's institutional support of entrepreneurship, we also examine the moderating effects of social networks in the performance of these ventures. This research finds that there is a strong link between strategic orientations and resulting strategies in both transition economies; specifically, the capability building strategies relate to sales and efficiency performance. The entrepreneurial firms' social network also directly influences sales performance, but does not play significant role in moderating performance. Finally, institutional support has an effect on both strategic orientations and firm strategy.

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### 1. Introduction

Entrepreneurs play a critical role in economies transitioning from central control to a market orientation, i.e. transition economies (Peng, 2001). In large measure, this is because the large, old state-owned enterprises that were present when these economies were centrally planned still exist as these nations transit to a market economy. However, these state businesses are difficult to reform and may in fact produce products that are often still not marketable in today's economy. As a result, it is the new entrepreneurial businesses that provide critical economic viability in transition economies (Li, Zhang, & Chan, 2005; Peng, 2001).

One type of entrepreneurial business that governments in transition economies want to encourage is high technology entrepreneurial ventures (Bruton & Rubanik, 2002) since they offer particular benefits to these nations. These benefits include that entrepreneurial firms offer a means for those nations to move from centers of low cost manufacturing to high valued added manufacturing. The high value added manufacturing is associated with higher wages for workers and higher profits for the firms as well as gaining competitiveness in the global economy with high end products. In addition, high technology entrepreneurial ventures promote the employment of highly trained professionals that are often produced in abundance by universities in transition

economies. This is particularly the case of the transition economies of China and Russia.

While there are studies on entrepreneurial behaviors and firm performance in high-technology ventures in these two economies (c.f., Bruton & Rubanik, 2002; Phan & Foo, 2004), the strategic orientations and strategies of these entrepreneurial ventures have not been well examined to date (Lau, Yiu, Yeung, & Lu, 2008). Our central questions are: To what extent are high technology entrepreneurial ventures in the two post-socialist economies – Russia and China – similar and different in strategic cognitions and actions? In addition, does their institutional legacy play an important role in these relationships?

This paper examines the impact of strategic orientations on firm strategic behaviors and how these strategies affect performance of high technology ventures in these two economies. It should not be assumed that the environments of all transition economies are homogeneous (Bruton, Ahlstrom, & Puky, 2009; Hitt, Ahlstrom, Dacin, Levitas, & Svobodina, 2004). For instance, an economy's institutional support for entrepreneurship can vary widely among nations and need to be considered in examining entrepreneurship in transition economies. While China and Russia share similar ideological and economic roots in socialism and central economic planning, in other regards they have very different institutional settings (Puffer & McCarthy, 2007). Thus, here we also examine the impact of the institutional background on strategic orientation and actions for both similarities and differences between the two nations which will help to further validate the results as relevant to a variety of transition economies.

Networking is widely seen as a key element in entrepreneurial success (Jack, 2010) and in implementing new technology ventures

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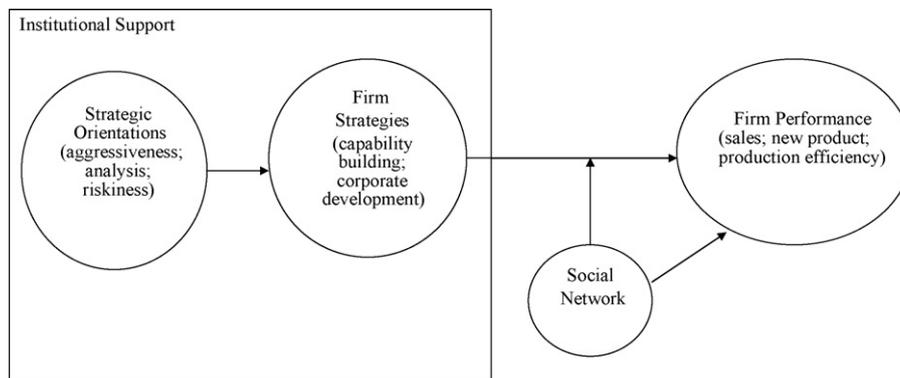


Fig. 1. Relationships between strategic orientation, strategies, and network.

(Gupta, Cadeaux, & Dubelaar, 2006), especially in transition economy contexts (Hitt, Lee, & Yucel, 2002; Peng & Luo, 2000). As a result, this paper also investigates the role played by social network in the strategies and firm performance relationships.

The paper contributes to the understanding of entrepreneurial ventures in several specific ways. The study enhances the theoretical understanding of the relative effects of institutions, strategic orientations, and firm strategies on performance of high technology ventures in transition economies. Despite the increasing recognition by researchers of the importance of institutional arrangements, there has been only limited investigation focusing on the effects of institutional differences on entrepreneurial systems (Lu, Tsang, & Peng, 2008; Peng, 2003; Thomas & Mueller, 2000). The paucity of examining institutions and their effects is especially true of entrepreneurial domains in transition economies (Giamartino, McDougall, & Bird, 1993). Secondly, data from two unique transition economies are examined. Without such validation it is difficult to ensure that the results found have validity for a wide range of transition economies or instead represent the impact of the unique institutional setting of the given country examined. This approach also contributes to a broader understanding of entrepreneurship in transition economies.

## 2. Theoretical development and hypotheses

Strategic orientation can be understood as a cognitive understanding and interpretation of the external environment and internal resources. It represents the priority of resource allocation with long-term growth and shareholders' wealth as the ultimate objective (Hitt, Dacin, Tyler, & Park, 1997). The underlying assumption in strategic orientation is that substantive strategic beliefs underpin the strategic actions taken by the firm. These beliefs concern the basic thinking of the organization in domains such as the scope of activities the firm is to pursue, where the firm is to operate, and how it is to operate (Lau et al., 2008; Zhou, Li, Zhou, & Su, 2008). These philosophical underpinnings, the strategic orientation, in turn guide the strategic choices of the firm in many domains (Zhou et al., 2008).

It is well recognized in more developed economies that entrepreneurial orientations and strategic orientations are critical to a high technology entrepreneurial firm's success (Lee, Lee, & Pennings, 2001; Lumpkin & Dess, 2001; Venkatraman, 1989). High-technology ventures that possess a proactive and aggressive mindset can explore and exploit new products and new markets more easily than those that do not (Li & Li, 2009). Thus, some argue that for technology firms the firm's orientation is more important to firm success than any given product strategy (Grinstein & Goldman, 2006).

For high-technology ventures in transition economies, they are facing institutional environments which are not necessarily

conducive to firm performance and which is more turbulent than in those developed economies (Lau et al., 2008). It could be argued that appropriate entrepreneurial and strategic orientations are even more critical for entrepreneurial firms' success than for mature firms in transitional economies. The institutional environment of transition economy encourage us to believe that proactive and aggressive mindset would provide even stronger benefits since the environmental turbulence is even greater than in developed markets (Busenitz & Lau, 1996; Li & Kozhikode, 2008; Zhou & Li, 2007).

Building on the recognition that high technology firms in transition economies face a unique environment, we propose the model in Fig. 1 on how these ventures can achieve superior performance. The model emphasizes that the performance of high technology firms in transition economies should be affected by the strategic orientations and the resulting strategies of the technology venture. Specifically, high technology ventures that have strategies focusing on capabilities building (product development and human capital investment) as well as corporate development (alliances, acquisition, and restructuring) to fully exploit market opportunities will perform best.

Although a firm's strategy is a key success factor for entrepreneurial performance (Ireland, Hitt, & Sirmon, 2003), the strategy does not develop independently; instead, it develops as part of the firm's strategic orientation (Morgan & Strong, 2003; Venkatraman, 1989). The immediate outcome of the entrepreneurial firm's strategic orientation is its realized strategy. Such realized strategies are more relevant to firm performance than the firm's intended strategies (Hoskisson, Hitt, Wan, & Yiu, 1999). It is for this reason that the model proposed here includes both the firm's strategic orientations and the resulting strategies when firm performance is considered.

The social networks of the high-technology venture affect firm performance since networking is a key intangible asset in transition economy (Hitt et al., 2002; Peng & Luo, 2000), and without such networking the effects of strategies may not be that salient. Finally, we also consider the institutional support for entrepreneurship as potentially important factor which influence a firm's orientation, strategy, and ultimately performances. Each of the elements and how they relate to performance in transition economies will next be discussed in detail.

### 2.1. Strategic orientations and realized strategies

Venkatraman (1989), who carefully considered the nature of strategic orientation, conceptualized its component parts as having as many as six dimensions. These dimensions are the guiding principles of managers in developing appropriate strategies when managers are facing opportunities in their market and organizational environment. However, some of these dimensions

are more relevant to high technology ventures in transition economy context than others; therefore we will focus our investigation on those elements that are the most relevant.

The first dimension relevant to our investigation is the “aggressiveness” of the business, or the willingness of the business to take actions to improve the market position of the firm. Such a willingness to be aggressive is particularly critical to highly volatile environments such as in high technology domains in transition economies. The second dimension is “analysis”, or the efforts of the firm to have internal consistency in achieving the firm’s stated objectives. For example, it is widely argued that a firm needs to have control, reward, and management systems that are consistent with each other in order to achieve the firm’s goals in an efficient and effective manner. The third dimension is “riskiness”, the dimension which describes how much risk the firm can tolerate. The other three dimensions that Venkatraman (1989) describes are quite similar to the above, including “futuraity” or the orientation towards the future, plus how “proactive” the firm is in its strategic actions. These two dimensions are closely related to aggressiveness and riskiness. The “defensiveness” of the firm is the opposite of aggressiveness and hence will not be explored here.

The three strategic orientations discussed (aggressiveness, riskiness, analysis) complement each other in that the firm is more inclined to take proactive actions to exploit new market opportunities (Li & Li, 2009). These complimentary actions are more beneficial to high technology ventures as they need to be aggressive and have an orientation of risk taking in their industry. In a transition economy, the firms will not be competitive if they are not aggressive enough. Since the immediate outcome of strategic orientation is the firm’s strategies (Rajagopalan & Finkelstein, 1992), firms with a proactive and aggressive orientation will develop strategies consistent with that kind of orientation. For example, Zhou and Li (2007) suggested that firms will create more dynamic capabilities when they have the right market orientation. Relevant strategic actions follow the firm’s strategic orientations.

Researchers are yet to fully understand the strategies that flow from these orientations. It has been argued in a transition economy, effective strategies should strengthen the firm’s capabilities to produce more innovative products and processes, and engage in corporate-level strategies such as alliances and acquisitions in order to capture market opportunities and adapt to institutional needs (Phan, Wright, Ucbasaran, & Tan, 2009; Zhou, Yim, & Tse, 2005). Strategies that strengthen the firm’s capabilities in such domains allow the entrepreneurial firms to enhance their competitiveness (Lu, Zhou, Bruton, & Li, 2010; Phan et al., 2009). This is especially important in the high technology industry which commonly relies on differentiation. We can conceptualize a strategy that enhances capability building in domains such as human capital and product development, including product upgrades and new design will be important to entrepreneurial firm success in transition economies.

It can be expected that firms that are successful in creating value through a strategy at the corporate-level that focuses on strategic alliances, acquisitions, renewal and appropriate realignment (Burgers, Jansen, Van den Bosch, & Volberda, 2009; Dess & Lumpkin, 2005) can also be more successful. In order to better capture market opportunities, high-technology ventures often have alliances with other firms, and sometimes need to adopt new organization arrangements, such as spin-offs. This kind of corporate-level development strategy generates the flexibility needed in acquiring resources and exploring new markets.

However, some high technology firms are more conservative and may not take a proactive and aggressive orientation. These firms accept the constraints of industry and markets and, hence, choose to follow a more defensive orientation. If this is the case,

these firms will not have clear realized strategies, an emphasis on capability building nor corporate development strategies. We expect that aggressiveness, analysis, and riskiness orientations as a whole will be the drivers for more market-centered strategies. These orientations will have positive impact on the firm’s strategies in capability building and corporate development. We therefore hypothesize:

**H1a.** The aggressive, analysis, and riskiness orientations of high technology ventures in China and Russia are positively related to capability building and corporate development strategies.

Nevertheless, it is possible that the effects of the relationship hypothesized are not uniform on these two nations. China and Russia shared a common economic foundation of central planning until economic liberalization occurred in the 1990s. While both nations have increasingly moved from central control of the economy to a market oriented approach, they have chosen different paths to do this. The Russian approach has been described as a shock approach to economic transition (Benn, 2001). The government tried to quickly move to a market economy. The result has been that the nation has decentralized political control, few central policies, and relative weakness in enforcing the rules that are generated (Hitt et al., 2004; Puffer & McCarthy, 2007). The shock approach to the economic transition in Russia resulted in the perception of the nation as in economic chaos with the central government having limited control over the economy (Benn, 2001; Linz, 1997). The business environment for entrepreneurial pursuits remains largely chaotic in Russia (Chazan, 2005; Puffer & McCarthy, 2007). The conscious choice in China in response to this perceived chaos was to pursue a more evolutionary economic transition to market mechanism (Estrin & Bhaumik, 2002). The result has been that the Chinese government has maintained strong political control and instituted some strong central policies (Naughton, 1996).

Zhou and Li (2007) suggested that institutions play an important role in moderating the effect of strategic orientations on a firm’s processes and outcomes. Similarly, Lu et al. (2008) also suggest that an institution-base view is useful for researchers to study knowledge management and strategies. Under the influence of institutions, firms develop different strategies to gain legitimacies. The study by Hitt et al. (2004) focused on the economic and legal differences in the two nations which were largely due to institutional paths. They found that the relatively stable and supportive institutional environment has helped Chinese firms take a longer-term view in making partnership decisions while the Russians focused more on short term. Buck, Filatotchev, Nolan, & Wright (2000) focused on cultural institutions and argued that these institutions also had differing effects on investment decisions of local firms in Russia and China. The Russian firms had low-levels of investment, focus more on operational issues, whereas Chinese firms are in favor of higher levels of investments and job creation, as well as strategic changes. Thus, there are empirical evidences to support that China and Russia have different institutions, with China having a stronger institutional support.

It could be expected in settings where there is weaker institutional support for entrepreneurship it may result in less proactive strategic orientations and less risky strategies. In addition, the link between strategic orientations and strategies will be weaker as firms may not or cannot pursue a strategy which they expect to produce results. China relatively has better institutional support than Russia and firms possess more proactive orientations and engage in aggressive strategies. Further, as a result of the belief that Chinese institutions are more supportive of entrepreneurial initiatives we also believe that the relationships between strategic orientations and strategies will be stronger in China than in Russia.

We then modify Hypothesis 1a as follows:

**H1b.** The effects of strategic orientations of aggressiveness, analysis, and riskiness orientations of high technology ventures on capability building and corporate development strategies are stronger in China than in Russia.

## 2.2. Effects on firm performance

When high technology ventures have certain strategic orientations and have developed some relevant strategies, they are in better positions to compete with other firms. Their strategies would allow them to improve production efficiency, develop new products, and capture new markets. Thus, high technology ventures in China and Russia could be high performing, relative to other firms, as long as they are able to formulate strategies to compete in their market environment. Some of the performance indicators in high technology ventures are in sales, product innovation, and production efficiency (Luo, Zhou, & Liu, 2005).

Specifically, if these firms are able to focus on capability development, such as investing in new products, upgrading of existing products, as well as investing in human resources, we would expect them to have much better performance than others (Knight & Cavusgil, 2004; Lin & Chen, 2006). It is because these are the necessary resources they need to compete in new market environments (Hayton, 2003). In addition, firms with aggressive strategies are likely to engage in corporate-level strategies such as partnering with other firms to set up joint ventures and acquisitions. This kind of alliance strategies is often regarded as a source of competitive advantages and subsequent firm performance (Beamish & Lupton, 2009; Jiang & Li, 2009). Some may also choose to spin-off their operations to allow for greater flexibility (Hill & Birkinshaw, 2008). High technology ventures may also consider going for public offering in order to finance new initiatives. Consistent with previous findings, these corporate development strategies can also improve firm performance (Hoskisson et al., 1999).

We can expect there are positive relationships between a high technology firm's capability building and corporate development strategies and firm performance. Since as discussed previously, Russian institutions are relatively not as supportive as that of the Chinese, the effects of strategies on performance of Russian firms should not be as strong. Therefore, we hypothesize:

**H2.** The capability building and corporate development strategies of Russian and Chinese high technology ventures have positive impact on firm performance in both countries, such as new product development, sales, and production efficiency, but the effect should be stronger in the case of Chinese ventures.

## 2.3. Networks

The social networks of firms in mature economies are important to the success of entrepreneurial firms (Shane & Cable, 2002; Stuart, Hoang, & Hybels, 1999). These networks are able to provide resources that are critical to the firm (Hoang & Antonic, 2003; Jack, 2010). For example, Gupta et al. (2006) identified social networks as critical in implementing new technology ventures. The former Communist economic system encouraged group behavior. In this environment, the network an individual developed is seen as important in the society. Today, such social networks continue to play an important role.

Since there may be weak legal regulations or accounting transparency, an entrepreneurial firm can overcome such shortcomings by dealing principally with its network partners. A contract may not be enforceable or the quality of a firm's credit information may not be clear in these two economies. The firm, however, will not violate a contract or not pay a firm in its network

since that would result in the firm's being removed from the network, which would cause the loss of multiple suppliers and customers. Thus, in transition economies, the networks which firms belong to are critical to their success (Peng, 2001).

Additionally, networks in transition economies can help entrepreneurs obtain necessary resources. Entrepreneurs, in general, have fewer slack resources than do large mature firms (Stinchcombe, 1965). It is this lack of slack resources that in part produces the liability of newness in new firms (Eisenhardt & Schoonhoven, 1990). However, the networks of the entrepreneurs can help to overcome these resource shortages by opening doors to resources that normally would not have been available or which the entrepreneur may not have been aware of (Liao & Welsch, 2003). For example, the institutional environment in transition economies often constrains the financial resources available for private firms (Keister, 2004). A firm's networking can help to overcome that limitation by allowing the firm to connect to banks close to the network or to other firms that may have the funds. Thus, there is a pressure for these firms to network with others in order to secure needed resources.

Networks also help to build up social capital, which is critical for the development of technology-based firms (Hitt et al., 2002; Lee et al., 2001; Lu et al., 2010). For example, part of the liability of newness of startups is an absence of relationships with potential suppliers and customers. A firm's network and social capital can help to overcome this deficit. Thus, we expect high technology ventures with larger networks will have higher performance than those with weak networks.

Further, besides the direct effect, the effect of strategies on firm performance will be much enhanced if these firms possess sufficient networks. Stam and Elfring (2008) identified social capital as a key moderator between entrepreneurial orientation and performance of new ventures. This is because appropriate strategies have stronger impact on firm performance when the social network a firm possesses is stronger. Social network helps the implementation of strategies. There is also empirical support for these networks operating in different institutional settings and their contributions in transition economies, both at the individual and organizational levels (Batjargal, 2003; Fu, Tsui, & Dess, 2006; Michailova & Worm, 2003).

That is to say, networks have both direct and positive effect on firm performance as well as moderating effects between firm strategies and performance. Therefore, we hypothesize:

**H3a.** The social networks of high technology ventures in Russia and China have positive effects on firm performance of these firms.

**H3b.** The social networks of high technology ventures in Russia and China moderate the relationship between firm strategies and firm performance so that networks will enhance the positive relationship between strategies and firm performance.

## 3. Research methods

### 3.1. Sample

This study focuses on high technology entrepreneurial ventures. Small entrepreneurial technology firms typically do not have large staffs. Therefore, in small firms, there often is not a top management team, but instead there is the founder or founders of the firm. The key founder in entrepreneurial firms commonly serves as the CEO of the firm. Therefore, in conducting this study the respondent was the individual who served as CEO of the venture. Such key informant respondents are common in the study of entrepreneurial ventures in transition economies (Bruton & Rubanik, 2002).

The China sample was taken from two distinct sources: Guangdong Province in the south and from a high-tech firm sub-sample in a larger national survey of competitiveness of firms. The Guangdong sample is identified by the provincial government of Guangdong that requires all software firms registered in the province. The other China sample was drawn from a national survey of 600 firms in different provinces with the assistance of the National Bureau of Statistics. Only those indicated as high-technology firms from the original sample were selected for this study. The total sample of Chinese high technology firms in the current study is ninety-three. Both sets of data were collected in 2003.

The Russian sample was obtained from two high technology incubators in the city of Zelenograd in 2003. Therefore, we examine two diverse incubators in a single region – Moscow that was a center for high technology entrepreneurship. Russia, in the Soviet period, established a series of cities around Moscow that focused on different technologies. For example, there were specialized cities for laser technology and space exploration. These cities would typically have a university that was the premier university for that technology in the country. The city would then also have the key factories for that product. These cities were typically closed to foreigners during the Soviet period. Zelenograd was the center of micro-electronic technology for the Soviet Union and today remains a center of high technology for Russia. To be in the two incubators, the businesses had to be high technology firms. As could be expected from the background of the city, most of the firms produced software or hardware for computers. All firms identified by incubator administrators were contacted by the researchers. The final sample included 57 Russian high technology firms, approximately 60 percent of the firms in the incubators. The questionnaire items were asked and recorded by collaborator in the research effort. The mean number of employees in these firms is 44, lower than the Chinese sample (518).

To ensure that these firms in both samples were, in fact, high technology firms, the authors examined the nature of the products produced. The authors independently validated that each firm's product was, in fact, high technology focused. Most of the Russian firms are in electronics, and some are in bio-technology and software businesses. About two-thirds of the Chinese sample firms are software firms, the rest are electronics and telecommunication firms. Additionally, in China, old state-owned enterprises have sought to recast themselves as private enterprises and, hence, including these older companies in the sample may confound the findings (Chen & Lau, 2000). To ensure this did not happen, only firms which were founded since 1990 were included. The year 1990 was also the effective beginning of the period of economic reform in both China and Russia. The mean ages of the 150 Russian and Chinese firms in the final sample were 8.4 and 9.5 respectively. So, they are relatively young high technology ventures.

## 3.2. Measures

### 3.2.1. Strategic orientation

The measures of strategic orientation employed in this study were developed and validated by Venkatraman (1989) and subsequently employed by other studies (Morgan & Strong, 2003). In a manner consistent with international research, the statements were initially translated into Russian and Chinese and then back translated to ensure accuracy. Additionally, since part of the research team included native speakers, the translation was also reviewed by researchers in the team. Since some strategic concepts were novel to the Russian and Chinese managers, we chose to focus on three dimensions only. The scale consisted of 14 items measured by 5-point Likert scale, which are listed in Appendix A, together with respective factor loadings of each item.

The internal consistency reliability coefficients (Cronbach's alpha) of three dimensions were in the range of .74–.85. The Cronbach alphas are reported along with the items for each dimension in Appendix A.

### 3.2.2. Strategy

The focus here is on high technology entrepreneurial firms and, hence, the measures of the firm's strategies should be relevant to the sample, rather than those of large and established corporations. As a result, a number of items related to the strategic behaviors of high technology entrepreneurial firms were developed for this study based on the existing literature. These items were measured by 5-point Likert scales in the areas of development of new processes and products, reorganization, expanding sales, improve marketing, investing in R&D, hiring top talents, etc. These items were factor analyzed with two factors emerging.

The first factor is investing in internal processes and capabilities in order to be more competitive, with items related to new products, R&D, and staff training. We label this factor as "capability building". The second factor is related to organization forms, such as forming joint ventures, spin-offs, and going public. We label this type of strategy in new ventures as "corporate development". These two strategies are consistent with some dimensions of the corporate entrepreneurship scale of Dess et al. (2003). The internal consistency coefficients of the two dimensions were .87 and .70. The items of this scale and respective factor loadings are listed in Appendix A.

### 3.2.3. Networks

Social network is defined as associations with government and financial institutions, trade and public policy committees, and board directors. Respondents were asked to evaluate how close they were with four different categories of people and stakeholders on a 5-point Likert scale. The internal consistency alpha coefficient is .85.

### 3.2.4. Country

Country was dummy coded with Russia as "0" and China "1".

### 3.2.5. Performance

It can be problematic to measure the performance of entrepreneurial firms, particularly high technology firms (Bruton & Rubanik, 2002). It is generally preferable to have multiple measures of firm performance and hence three measures of performance were employed in this study. Profitability may not provide an accurate picture of the firm's performance. A technology firm may be growing rapidly and gaining market share, which is critical to survival in the long run, but, in the short run, such a firm may not be profitable. As a result, sales measures can be more relevant than a profit measure to young technology firms. Further, a critical dimension is new product development. The performance of new high technology ventures may be more accurately reflected in terms of new product development as well. Lastly, a third measure of firm performance was production efficiency.

The sales measure was a composite of two different dimensions of sales. The first was the evaluation of the head of the firm as to the sales growth of the firm that year relative to the industry, and the second sales measure was the executive's evaluation of the market share of the firm relative to the industry. The new product development measure was also a composite of two measures of performance. The first was an assessment by the head of the firm as to the performance of the firm compared to the relevant industry group in terms of new products brought to the market. The second dimension was the firm's R&D expenditures relative to its industry competitors. Following the same procedure, two items related to

**Table 1**  
Mean, S.D., and correlations of key variables.

	Means	S.D.	1	2	3	4	6	7	8	9	11	12	13
1 Firm age	6.53	4.107											
2 Firm size	4.02	1.59	.199 <sup>+</sup>										
3 Aggressiveness	2.63	.834	-.078	.213 <sup>+</sup>									
4 Analysis	3.37	.896	-.118	.369 <sup>***</sup>	.327 <sup>***</sup>								
6 Riskiness	2.51	.853	.061	.050	-.363 <sup>***</sup>	-.358 <sup>***</sup>							
7 Capability building	3.50	.778	-.132	.452 <sup>***</sup>	.296 <sup>**</sup>	.647 <sup>***</sup>	-.318 <sup>**</sup>						
8 Corporate development	2.25	1.020	-.215 <sup>+</sup>	.402 <sup>***</sup>	.279 <sup>**</sup>	.412 <sup>***</sup>	-.063	.431 <sup>***</sup>					
9 Social network	2.74	.910	-.173	.506 <sup>***</sup>	.374 <sup>***</sup>	.596 <sup>***</sup>	-.228 <sup>*</sup>	.632 <sup>***</sup>	.509 <sup>***</sup>				
11 Country	.57	.49	-.403	.494 <sup>***</sup>	.177	.392 <sup>***</sup>	.070	.511 <sup>***</sup>	.524 <sup>***</sup>	.592 <sup>***</sup>			
12 Sales and marketing perf	3.00	.697	-.002	.316 <sup>**</sup>	.146	.507 <sup>***</sup>	-.076	.450 <sup>***</sup>	.143	.428 <sup>***</sup>	.354 <sup>***</sup>		
13 New product perf	3.17	1.032	.125	.211 <sup>+</sup>	.071	.397 <sup>***</sup>	.040	.318 <sup>**</sup>	.163	.298 <sup>**</sup>	.159	.460 <sup>***</sup>	
14 Production efficiency perf	3.03	.883	-.032	.292 <sup>**</sup>	.203 <sup>+</sup>	.480 <sup>***</sup>	-.027	.423 <sup>***</sup>	.313 <sup>**</sup>	.445 <sup>***</sup>	.446 <sup>***</sup>	.626 <sup>***</sup>	.621 <sup>***</sup>

Note:  $N = 134$ .

<sup>+</sup>  $p < .05$ .

<sup>\*\*</sup>  $p < .01$ .

<sup>\*\*\*</sup>  $p < .001$ .

production capacity and efficiency were used for production efficiency performance. A scale of 1–5 was used for each area.

### 3.2.6. Control variables

Firm age and firm size are used as controls. Firm size was measured in terms of the natural log of the number of employees in the new ventures.

### 3.3. Analysis

$T$ -tests on the three strategic orientation dimensions and strategies were conducted to test if there were country differences. In order to analyze the effects of strategic orientations on strategies and strategies on performance, regressions analyses were employed. Then, the country variable and interaction terms were added to the regression equations to check if added variance can be explained by institutional effects. The moderating effects of network on firm performance were also tested by hierarchical regressions.

## 4. Results

Table 1 reports the correlations of key variables in the sample. The two strategies (capability building and corporate development) are correlated, but not strongly correlated. The three strategic orientation measures have mild inter-correlations. The

performance variables are correlated with firm strategies and with strategic orientations. The different types of networks have moderate correlations with the performance measures, with coefficients ranging from .226 to .445.

$T$ -tests results show that the Chinese firms have more proactive strategic orientations as well as strategies. The means and  $t$ -values of the two samples in these items are reported in Appendix A. Thus, in general we can say from the  $T$ -tests that there are country differences in strategic orientations and actions of high technology ventures.

Table 2 provides regression results of strategic orientations on firm strategies and firm strategies and networks on performance respectively, controlled by firm age and size. The VIF values of the key independent variables in the equation were low and hence multi-collinearity was not serious. In the analysis of the effects of strategic orientations on firm strategies, the controls, especially firm size, have significant effects on both capability development and corporate development strategies. When country was entered into the model the effects were captured by the country variable. In the third model, we examine whether all strategic orientation dimensions have similar effects on strategies. The effects are quite specific with analysis orientations having significant effects on both strategies – capability building and corporate development. Aggressiveness has effects on corporate development, while riskiness orientation impacts capability building only. Thus H1a is largely supported – aggressive, analysis, and riskiness orienta-

**Table 2**  
Regression results of strategic orientations on firm strategies.

	Capability building				Corporate development			
Control								
Firm age	-.203 <sup>+</sup>	-.022	.029	.040	-.169 <sup>+</sup>	-.070	-.030	-.035
Firm size	.444 <sup>***</sup>	.137	.026	.030	.419 <sup>***</sup>	.244 <sup>+</sup>	.152	.150
Country		.498 <sup>***</sup>	.372 <sup>***</sup>	-.427		.276 <sup>*</sup>	.128	.027
Strategic orientations								
Aggressiveness			.133 <sup>+</sup>	.015			.222 <sup>+</sup>	.087
Analysis			.402 <sup>***</sup>	.264			.320 <sup>**</sup>	.109
Riskiness			-.221 <sup>**</sup>	-.586 <sup>*</sup>			.087	.400
Interactions								
Country × aggressiveness				.228				.273
Country × analysis				.310				.435
Country × riskiness				.588				-.533
$R^2$	.221	.353	.633	.644	.187	.227	.339	.364
$R^2$ change		.131 <sup>***</sup>	.281 <sup>***</sup>	.011		.040 <sup>*</sup>	.112 <sup>**</sup>	.026
$F$	11.79 <sup>***</sup>	14.89 <sup>***</sup>	22.74 <sup>***</sup>	15.27 <sup>***</sup>	9.65 <sup>***</sup>	8.13 <sup>***</sup>	6.83 <sup>***</sup>	4.90 <sup>***</sup>

Note:  $N = 134$ .

<sup>+</sup>  $p < .1$ .

<sup>\*\*</sup>  $p < .05$ .

<sup>\*\*\*</sup>  $p < .01$ .

<sup>\*\*\*</sup>  $p < .001$ .

**Table 3**  
The effects of Strategies and Network on Firm Performance (with institutional variable).

	Sales and marketing			New products				Production efficiency				
Control												
Firm age	.086	.071	.075	.103	.240 <sup>+</sup>	.239 <sup>+</sup>	.244 <sup>+</sup>	.211 <sup>+</sup>	.003	.011	.024	-.001
Firm size	.038	-.017	-.064	-.036	-.035	-.106	-.138	-.111	-.027	-.023	-.079	-.049
Country	.432 <sup>+</sup>	.265 <sup>+</sup>	.193 <sup>+</sup>	.316	.354 <sup>+</sup>	.226	.178	-.479	.376 <sup>+</sup>	.260 <sup>+</sup>	.188	-.725
Strategies												
Capability building		.411 <sup>**</sup>	.314 <sup>+</sup>	-.200		.179	.121	.045		.222 <sup>+</sup>	.148	.589
Corporate development		-.093	-.147	-.587		.146	.117	.259		.042	-.021	-1.238 <sup>**</sup>
Network												
Social			.290 <sup>+</sup>	-.349			.178	.841			.282 <sup>+</sup>	1.292 <sup>+</sup>
Interactions												
Social × capability				.064								-2.456 <sup>+</sup>
Social × corporate				1.593 <sup>+</sup>								1.715 <sup>+</sup>
Country × capability				.349							1.115	1.345
Country × corporate				-1.031							-.275	-.0104
R <sup>2</sup>	.195	.298	.335	.386	.120	.166	.180	.201	.152	.189	.225	.332
R <sup>2</sup> change		.103 <sup>**</sup>	.037 <sup>+</sup>	.051		.047	.014	.021		.037	.036 <sup>+</sup>	.107 <sup>+</sup>
F	6.47 <sup>**</sup>	6.61 <sup>***</sup>	6.45 <sup>***</sup>	4.58 <sup>**</sup>	3.81 <sup>+</sup>	3.27 <sup>+</sup>	2.97 <sup>+</sup>	1.93 <sup>+</sup>	4.49 <sup>**</sup>	3.41 <sup>**</sup>	3.49 <sup>**</sup>	3.39 <sup>**</sup>

Note: N = 134.

<sup>+</sup> p < .1.

<sup>\*</sup> p < .05.

<sup>\*\*</sup> p < .01.

<sup>\*\*\*</sup> p < .001.

tions of high technology ventures in China and Russia are positively related to capability building and corporate development strategies. The interaction terms of country and orientations have no effect on the two strategies, but country in itself is significant. Thus, we can still say that H1b is also supported in that there are country differences with stronger impact in the Chinese entrepreneurial firms than in the Russian entrepreneurial firms.

In Table 3, the regression results of firm strategies and network on firm performance are reported. In the initial model, the effects of firm age and firm size on all three performance measures are not significant. The country variable is significant in all three cases. We have the support that country differences exist also in firm performances in these two transition economies. When strategies are entered into the analysis, it can be seen that only capability building has a positive effect on sales and marketing, and production efficiency performances. Corporate development, however, is not significant. After social network is entered, it is significant in both sales and production performances as well. Social network has no effect on new products.

To test if country has moderating effects on performances, interaction terms of country and firm strategies are entered. They are not significant. Concerning the moderating role of social network, the interaction terms of network and strategies are entered. Social network and corporate development strategy has effects on sales performance, and social network and capability building has effects on production efficiency. The interaction terms have no effect on new products performance. Taken these together, we can say we have partial support for the remaining hypotheses – H2, H3a and H3b.

In summary, the effects of strategic orientations on firm strategies (H1a) and firm strategies on performance (H2) are partially supported. However, there are direct effects of country on firm strategies (H1b). Social network has some direct effects and some moderating effects on firm performances (H3a and H3b).

## 5. Discussion and conclusions

This study examined the firm performance of high technology ventures in two different transition economies, China and Russia. The technology ventures in these two nations share a common post-central planning background which leads to many similarities. By looking at the strategic orientations, firm strategies, and

networking, we can also see that their aggressiveness and analysis orientations are important to firm strategies. The two strategies, however, do not have similar effects on high technology venture performance. Only capability building is more relevant for firm performance. Social network also plays an important role in affecting firm performance. Country effects are also identified. Differences in institutional support of the two economies have effects on how these firms develop their strategic orientations and implement firm strategies, and subsequently affecting firm performances. A focus on both strategic orientations and strategies of high technology entrepreneurial ventures allows us to examine the antecedents of firm performance better. Most prior studies of strategic orientations did not include the resulting realized strategies. One contribution of this study is that this paper provides new and richer insights since it investigated both orientations and realized strategies. The study found that different strategic orientations are related to different strategies. It is worth noting that the analysis orientation is more critical in these two nations. Aggressiveness and riskiness orientations have separate effects on firm strategies.

Further, only the strategy of capability building is needed to affect an entrepreneurial firm's performance. This perhaps may also be due to the limited effect of corporate development strategies on short-term performance. Given these findings, high technology ventures do not need to engage in a full range of strategic orientations or strategies to be successful. In transition economies, it is often argued that the unique institutional environment pushes firms to seek to pursue multiple strategies in an effort to meet and quickly changing environment. But this research highlights that, in a manner similar to mature economies, firms need to have a focus – they need to have a clear strategic orientation and resulting strategy and build around those in a consistent manner to be successful.

The direct effect of social networks on entrepreneurial firm performance is found in this study while some moderating effects of social networking were also identified. This again supports a recurring claim that having some type of managerial ties and social networks generates firm performance, especially in high technology firms (Fu et al., 2006; Lu et al., 2010; Peng & Luo, 2000; Puffer & McCarthy, 2007). However, future research should expand the understanding of networking further so that this rich concept can be better understood.

The country institutional effects are worth noting because they have significant effects on both strategies and performances after the controls. Some country effects remain strong even after other independent variables are entered. This illustrates the important role of institutional support for high technology ventures in these two economies.

### 5.1. Managerial relevance

We found from this study that the aggressiveness and analysis orientations are important to firm strategies in high technology ventures, though they have different effects on firm performance. The focus for managers therefore should be on capability building for the moment. Corporate development, while theoretically important, is not their immediate concern. Emphases should also be placed on social network which clearly has crucial effects on firm performance. There are different effects of institutional support on how these firms develop their strategic orientations and implement firm strategies, and subsequently affecting firm performances. Hence, managers should take advantage of institutional support in formulating their strategic orientations and firm strategies.

### 5.2. Limitations and future research

One of the limitations of this study is the relatively small number of firms in the sample. While it is always better to have a larger sample, it is not always feasible especially in transition economies to obtain full cooperation of high technology firms to complete questionnaires. Most of the firms are reluctant to provide sensitive information, especially those about their strategies and performances. Single informants in surveys have been criticized due to a lack of representation. This study acknowledges this limitation. However, the data were obtained through personal interviews on a structured questionnaire. Relative to the self-report paper and pencil questionnaire survey, intentional faking in front of interviewee was not so likely to happen. In addition, due to the nature of firm operational controls in transition economies, it is likely that only the top person in the firm which we sampled would be willing to provide accurate responses on firm strategies and performance (Bruton & Rubanik, 2002). There remains a basic issue in most cross-country surveys – the comparability of scores across nations. It is possible that the higher ratings of the Chinese sample are due to artifacts. This is an issue that future examination is needed.

In terms of future research, the present study used country dummy to represent institutional support but has not measured specific institutional context variables. Future studies should examine more specific measures of the institutional variables (Busenitz, Gomez, & Spencer, 2000). Since the respondents were not accustomed to a large-scale survey, not all of them were willing to disclose the details of their ventures, such as financial position, market shares, and investment. Because of this, many firm-level controls in statistical analyses could not be done due to possible missing cases. This research also could not explore the differences in the firms' networks to the degree that would be desirable because of sample size limitations, particularly of the Russian sample. Future research should explore the impact of such networks, particularly the rapid growth of networks in transition economies such as business groups.

Moreover, the analysis is focused on the institutions of the two largest transition economies only. One of the major theses of this study is that the institutions have many different characteristics even if they have a common foundation. The possible generalization of the current results to other economies is an interesting avenue to pursue. Thus, the expansion of the current framework to

other transition economies (e.g. those in Eastern/Central Europe) and other BRIC economies which are rapidly growing but do not have a history of such strong central control (e.g. those in South America) is another fruitful line of study.

This study supports the view that strategic orientations are important and that capability building strategy effects entrepreneurial firm performance. Social networks are important, and institutions are relevant for the study of strategic orientations and strategies of technology ventures in transition economies. By focusing on one single industry, we are able to control for industry differences. As the two nations have different reform paths, their different firm behaviors reflect the influences of their institutions. This study highlights the point that in transition economies, the strategic orientations are not the same as in relatively more developed economies. A deeper understanding of entrepreneurial strategies in these economies and the institutional effects is, therefore, critical in our study of entrepreneurial processes in transition economies.

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### Appendix A. Items of scales used in the survey<sup>2</sup>

#### A.1. Strategic orientation

Aggressiveness (alpha = .74; Russia: 2.46, China: 2.77,  $t = -2.26^*$ )

1. Sacrificing profitability to gain market share (.715).
2. Cutting prices to increase market share (.845).
3. Setting prices below competition (.769).
4. Seeking market share position at the expense of cash flow and profitability (.580).

Analysis (alpha = .85; Russia: 2.97, China: 3.71,  $t = -5.25^{***}$ )

1. Emphasize effective coordination among different functional areas (.803).
2. Developing information systems provide support for decision making (.717).
3. When confronted with a major decision we usually try to develop thorough analysis (.849).
4. Use of planning techniques (.577).
5. Use of the outputs of management information and control systems (.720).
6. Manpower planning and performance appraisal of senior managers (.865).

Riskiness (alpha = .79; Russia: 2.40, China: 2.62,  $t = -1.83^+$ ; reverse coded)

1. We seem to adopt a rather conservative view when making major decisions (.740).
2. New projects are approved on a stage by stage basis rather than blanket approval (.719).
3. A tendency to support projects where the expected returns are certain (.714).

<sup>2</sup> Means and  $t$ -values are provided after alpha for each scale; factor loadings of each item are in brackets.

4. Operations have generally followed the tried and true (.821).

#### A.2. Strategies

Capability building (alpha = .70; Russia: 3.05, China: 3.85, t: -6.16\*\*\*)

1. Improvement of quality of product/services (.792).
2. Provide different categories of products and services (.616).
3. Spend more on R&D (.635).
4. Spend more on staff training (.671).
5. Change employee salary scheme (.523).

Corporate development (alpha = .87, Russia: 1.65, China: 2.72, t: -6.57\*\*\*)

1. Form joint ventures with domestic business (.816).
2. Form joint ventures with foreign businesses (.778).
3. Merge and acquire other businesses (.892).
4. Spin off some business units (.754).
5. The company will go public (.696).

#### A.3. Network

Social network (alpha = .85, Russia: 2.12, China: 3.2, t: -8.10\*\*\*)

1. Government officials.
2. Bankers and financial institution people.
3. Individuals who sit on the board of directors of other key firms.
4. Individuals who sit on government committees related to this industry.
5. Key member in trade associations and the like.
6. Key member in industry policy committee.

#### A.4. Firm performance

Sales Performance (alpha = .76)

1. sales growth;
2. market share.

New product development performance (alpha = .69)

1. new products brought to the market;
2. R&D expenditures.

Production efficiency performance (alpha = .74)

1. production capacity;
2. production efficiency.

\* $p < .05$ ; \*\*\* $p < .001$ , + $p < .10$ .

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