# Risk Perception, and High Technology Entrepreneurship in Japan

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**Abstract**

This paper is concerned with how managers, either operating as independent entrepreneurs or as intrapreneurs in an established company, view the risks involved in starting up a new project in a high technology industry. It presents the findings of interviews that were conducted over a two-year period. This study focuses on the perception of risk. Sources of risk are seen as primarily related to factors that can cause the project or business to fail or go bankrupt and are broadly categorized as business, technological and institutional. These sources were often perceived as interacting. Return was seen as separate from risk in that minimizing the sources of risk were necessary but not sufficient to bring about returns. Risk was perceived as manageable and could be manipulated in ways that would minimize it.

## Introduction

Starting a business or not starting one, initiating a project or not initiating one, or taking an action or not taking an action in business involves risk. Risk is an inherent part of the managerial function, whether that manager is in a larger established company or a newly founded start-up. How those risks are perceived, and the consequences of those risks, however, are still a mater of contention (Miller, 2009).

An area of continued fascination for both scholars and practitioners alike is the study of entrepreneurship and entrepreneurs. Although entrepreneurship is seen as a

universal human activity, many scholars recognize that different environments will have differential impacts on these activities (Thomas and Mueller, 2000; Weber and Hsee, 1998). Scholars have indicated that differences in institutional environments do affect entrepreneurial activities (Clausen, 2011; De Clerq and Arenius, 2006) and some of these differences have been examined in the context of entrepreneurship in Japan (Bracker and Methé, 1994; Methé and Bracker, 1994; Methé, 2006a; Whittaker, et.al., 2009). Although the Japanese economy is dominated by small to medium sized businesses, both in numbers and employment (Ballon and Honda, 2000) the institutional environment for starting a business in Japan, especially a high technology business, has been consistently rated as one of the most difficult (Bosma and Harding, 2007; Kelly, Bosma and Amoros, 2011). The fostering of high technology start-ups is particularly important in that these types of organization forms tend to be more likely to generate radical innovations (Methé, Mitchell, Swaminathan, 1996) and are also seen as a primary engine of growth and renewal in economies.

This study begins with a straightforward research question concerning how managers in various types of organizations perceive the risks inherent in their activities. Our primary focus was on managers of venture businesses and those managers involved in new business activities in established companies, in particular venture businesses in high technology areas such as semiconductors and other related electronics fields. These managers are involved in a specialized aspect of management, which is entrepreneurship. We centered our research on understanding how these entrepreneurial managers perceived risk and what role this played in the development of new high technology businesses in Japan. As such, this research borrows from and touches upon many different disciplines and areas of interest, such as resourced-based theory (Alvarez and Busenitz, 2001), and institutional theory (Phillips and Tracey, 2007).

## Procedures for Data Collection

These interviews were conducted over a three-year period from 2005 to 2007, and involved about 21 companies and managers. In summary, eight venture businesses (VB), seven established Companies (EC), two foreign subsidiaries of non-Japanese venture businesses (FS) and four venture angel companies (VA) which were also newly established venture in their own right, were examined for this study. These VA are self-classified as Angel investors. In some of the companies' cases, especially with the established companies, two or three managers were present during the interview, but in

these companies cases the main person interviewed was the CEO. In the case of the venture businesses, the founder, president or CEO of the company was interviewed as was the founders of the venture angel companies. The two foreign subsidiaries mangers were the general manager in charge of the subsidiary. These foreign subsidiaries were formed from venture businesses that had started up overseas (in either the US or Europe) and then set up a subsidiary in Japan.

This paper uses the qualitative data collected during the interviews, supplemented where possible with data collected from other archival sources. We believe that the qualitative approach taken here has value given the exploratory nature of both the field of entrepreneurship, risk and especially how these concepts are activated in the Japanese context (Gephart, 2004). The interviews themselves provide a rich data set since these ranged from one and one half-hours to three hours in length. The data presented below is exploratory and should be seen only as a starting point for further research. Given the space limitations, only selected comments are presented.

## On Definitions of Risk, Classical and Empirical

In our study we examined how the various mangers involved with new business activities defined risk. As such we are looking at the simple empirical question of "how do managers undertaking innovative or entrepreneurial activities view risk?" In this section we will examine how managers involved in new business activities defined risk and how their definition differs from the classical definition of risk often used by researchers who are studying decision making under uncertainty. The classical definition of risk in decision theory is concerned with the variance of the probabilities of various gains and losses generated from an alternative (Pratt, 1964; Arrow, 1971), in our study the interviewed managers defined risk as inherent in their business activities as reflected in the first two comments and perceive it as weighted on the chance of loss as reflected in the third and fourth comments.

> Initiating a project or not initiating one, or taking an action or not taking an action in business involves risk. As stated by a founder of a venture business.

> In any situation, how we carry our business we should always keep in mind the risk. Management or running a company always involves risk. I want our employees' families to be happy too. Taking all responsibilities of this company

is risk and this is my responsibility. As stated by a CEO of an SME business.

Risk is perceived as not having enough money to cover your costs and going bankrupt. As stated by a president but not founder of a venture business.

The image of risk is different. In Japan you lose everything if the business fails. You lose the business and you also lose your personal assets if the business fails. As stated by a founder of a venture business company.

In these comments the concept of risk as being related to bankruptcy or failure is quite evident. This perception was common among the respondents in this study. As noted, unlike the classical definition of risk, in our study the interviewed managers defined risk as the chance of loss. This is consistent with findings from other studies (March and Shapira, 1987) and is consistent with studies on loss aversion (Tversky and Kahneman 1991) or regret aversion (Bell, 1983). The last comment also illustrates the magnitude of the consequences of failure, for those involved in starting a venture business in the institutional context of Japan.

These managers were also concerned about the returns that they would receive from successfully carrying out their new business development activities. They usually phrased their ideas about returns either in technological or in market share terms, and rarely in terms of profits or returns on investment. These following comments were typical of many discussed during the interviews.

I really have to stress the potential of this technology. In 10-20 years this will be make up 60 percent of the market. From a founder of a venture business.

This company is a high-risk high return business. There is risk, but return is if you can make the products you can make billions so it is also high return. As stated by a founder of a venture business.

There is an asymmetry between the risk and the returns. The entrepreneurs and mangers intuitively differentiate between the domain of loss and the domain of gain (Weber and Milliman, 1997; Sadler-Smith, 2004)). The domain of gain appears to come from an underlying faith in the product or technology to conquer the market. Returns

will flow from this and this flow may not be directly connected to the sources of risk. The risks are related to the potential failure of the business, which one can minimize, but doing so does not guarantee the success of the business. It appears that in the mind of these entrepreneurs, overcoming the risks is necessary for the survival of the business, but not sufficient for success in business.

## Perceptions of the Sources of Risk

In this section we examine how the managers saw various factors as sources of risk and how these managers coped with these various risk generators. As one founder of a venture business that had been in business for about fifteen years noted:

> I have three major problems to contend with, especially at the initial founding stage. The first was money, the second was customer relationships and the third was hiring good engineers. All three are important and the third one is very important now, because this is a high technology business.

This comment is consistent with other studies that have cited the acquisition of business resources as a major source of risk for managers involved in new business development activities (Alverez and Busenitz, 2001). Two other factors were identified as sources of risk. These related to issues of technological innovation and to the idiosyncrasies of the institutional environment of Japan. In the interviews the managers these three sources often interacted. We focus on the acquisition of financial resources, but the same phenomenon can be seen with the employee and customer sources.

> Funding risk in Japan is high because there are not many Angels. As stated by a founder/CEO of a venture business.

One way around this issue was through public/government funding. In Japan, however, this type of funding posed its own set of problems.

> Part of the problem is that the government funding is limited and using the wrong criteria to evaluate the venture business.…The government is using the wrong criteria and is too tight with the money once it is invested….The government system right now is focused too much on research …they are really strict on documentation and that increases the length of time for decision-making and this

is really hurting the development of venture businesses, especially high technology venture businesses in Japan. From a founder of a venture business.

In order to gain access to revenue, some of the managers of the venture businesses that were developing new technologies, which were still closer to their science knowledge base and less likely to immediately yield a commercial product used contract research strategy.

About 20 percent to 30 percent of our revenue comes from co-research and with large companies. As stated by the founder of a venture business.

Venture business managers noted that they had to be very careful in selecting research partners, however. As one venture business manager noted:

One of my main customers is STU company. I do not sell to MNO company even though they are in the same business. STU is not as comprehensive as MNO so it cannot or at least does not copy my technology, but MNO can. As stated by the founder of a venture company.

The use of patents as a form of intellectual property rights protection (IPRP) was seen as helpful, but not in all cases. As one founder/CEO of venture business noted:

Having patents is not the best way to protect the intellectual property, since KLM company knows the technology and if we get a patent we make it public knowledge and they can copy it. So we try to keep it as a trade secret….even when the patent is important, it is difficult to enter with big companies since they have lots of patents and can use these to get fees from the small company since the small company cannot do a comprehensive cross-license agreement. As stated by the founder/CEO of a venture business.

Another venture business manager stated the following:

A main difference in the States is that if the technology is good and highly efficient then it is accepted in the market no matter the company's history, but in Japan it is not that way and it depends on the contact history of the company. In the US the new technology replaces the old, and in a sense it is the Anglo-Saxon

> culture that is “dry” in that we move to the new and better without concern for the relationship. In Japan there is a more close relationship between the main company and component company so it is hard to get into the relationship but once you get into it the customer company will tell you that some competitor has a better product and can you make it better and they will support you to make it better, rather than leave you for the company with the better component right away, as in the States. From a founder of a venture business.

He went on to point out that finishing a project is critical for survival here in Japan, because trust and credibility is an important factor in doing business here. He noted that:

> Once you fail with a customer, even one or two years later it is almost impossible to come back. In the United States even if you fail once, if you have a good product and price you can come back, but in Japan there is less of a second chance so if you fail once your reputation is hurt and it is almost impossible to come back.

There was a clear distinction made with the perceived situation in the United States, where venture companies were able to find customers by simply having a product with unique technological features or capabilities.

> I made a decision to go to the United States (to find potential customers) and after finding a company, within four days I had a contract. It took up to one year for me to do the same thing here in Japan. From a founder of a venture business.

## Some Concluding Thoughts

The data presented above is preliminary and should be seen only as a starting point for further research. This study focuses on the perception of risk and the mechanism that managers and entrepreneurs in Japan use to compensate for risk. Risk is seen as primarily related to factors that can cause the project or business to fail or go bankrupt. Risk is inherent in the management process and all the managers believed that they had to deal with risk. Risk was perceived as manageable and could be manipulated in ways that would minimize it.

The greatest risk to venture businesses in Japan often comes from the lack of knowledge concerning positive cash flow, especially in the early founding stages of the venture business company. From an institutional point of view, creating the value chain for the venture business entrepreneurs all had to turn to external sources for the funding and other resources necessary, either Angels, venture capitalists, government programs, other large companies, banks, and universities. Each of these sources of funds and other resources, while useful in dampening the first risk of bankruptcy, generated other sources of risk for the venture business manager. Consequently learning how to manage these relationships become important.

In spite of the changes that have been made to make the founding of venture businesses easier in Japan, it is evident from the comments of all those interviewed that the current environment is still very difficult to work in and many obstacles exist. To begin, the types of entrepreneurs that are extant in Japan might be closer to the "artisan" or perhaps the "manager" type rather than the "classical" entrepreneur (Stanworth and Curran, 1976). These types of entrepreneurs may have more difficulty in legitimating their new business concepts. Change in the Japanese business environment is neither straightforward nor evenly paced but it does occur (Methé, 2005; Methé, 2006a, Methé, 2006b). Part of that change effort would have to come from listening more carefully and taking more seriously the views and opinions of the venture business managers could put better criteria for evaluating and funding technological proposals put into place. This is something that government and private organizations such as venture capital companies and banks need to consider.

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