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Venture Capitalist's Investment Decision Making in the New Technology Based Firms in Japan

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Abstract

In Japan, there has been a notable growth in the percentage of investment in technology based and early stage ventures by venture capitalists (here after abbreviated VCists). I analyze Japanese VCists investment decision making based on a questionnaire survey and discuss a research question; "How do VCists who allocate a higher proportion of their investment in early stage technology based ventures valuate their potential investments as compared to the general Japanese VCists?"

The questionnaire survey reveals that a relatively high proportion of Japanese VCists place a special importance on the interview with entrepreneurs, and curriculum vitae of management in valuating the potential investments, while use capitalized maintainable earning (P/E multiples) as their valuation method. However, it seems that VCists who allocate a higher proportion of their investment in the new technology based ventures do not give any special intention to a particular sources of information or valuation methods even though there has been a rapid growth in an investment in the new technology based ventures. This may be because most of the VCists do not have much experience in investing in an early stage of technology based venture and, therefore, continue to use conventional methods which had often been used prior to the rapid growth in investment in new technology based ventures.

Introduction

Venture capitalists[2)] (here after abbreviated VCists) has played an important role in the fostering of the new technology based ventures, many of which have become today's large businesses such as Google, Apple and Intel (Florida and Kenney, 1988; Pfirrmann, Wupperfeld and Lerner, 1997). VCists basically raise money from both institutions and individuals for the investment in a high-risk, high return unlisted firms. VCists also affect selection both by acting as a ''scout'' able to identify future potential and as a ''coach'' that can help realize it (Baum and Silverman, 2003).

In Japan, the investment style of VCists has changed rapidly since the late 1990s. There has been a notable growth in the percentage of VCists' investment in the new technology based ventures, as well as, the increasing in VCists' management involvement of their portfolio companies (PFFs) . In this paper, I will focus on Japanese VCists who allocate a higher proportion of their investment in the new technology based ventures, as well as, their role as a "scout" since it appears as one of the important VCists roles in the fostering of the new technology based ventures in Japan.

The structure of this paper is as follows. Firstly, the latest situation of Japanese venture capital investment is presented along with related prior research. Secondly, the data and sample characteristics from Japanese VCists survey conducted in this paper are described. Thirdly, the empirical results are presented. Then, lastly, my evidence and some implication discussion are summarized.

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2) In this paper, VCists refer to individuals who are directly involved in the venture capital investment process, from finding and screening activities to post-investment and exit, and excluding employees of the venture capital firms who are in charge of tasks unrelated to investment process such as employees from general and personnel affairs.

Japan's venture capital investment

According to the data of the Ministry of International Trade and Industry (MITI) (1995-96) and Venture Enterprise Center (VEC)(1997-2004), Japan's venture capital investment amount in stocks marked a steady 13 percent increase from 654 billion yen in 1995 to 743 billion yen in 2004. eThe total amount of an annual new and additional stock investment increased by 50 percent from 75 billion yen in 1995 to 113 billion yen in 2004.. A year-to-year change in the total investment amount and annual new and additional investment in stocks indicates a general upward trend of investment, although, not a consecutive increase (See Table 1).

Table 1: A year-to-year change in the total stock investment and annual new and additional investment amount by Japanese VCists (in billion yen)

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Total stock investment	654	638	723	665	622	667	867	851	831	743
Listed stocks	103	114	127	99	95	97	97	70	-	-
Unlisted stocks	551	523	557	565	505	528	587	577	-	-
New/additional investment	75	74	108	105	72	148	213	122	133	113
Listed stocks	6	5	6	4	4	2	7	90	-	-
Unlisted stocks	68	69	102	100	66	139	129	95	-	-

Note: The figures from 1995 to 1999 and 2004 were compiled as of March, those of 2000 were as of June, those from 2001 to 2003 were as of September.

Sources: The Ministry of International Trade and Industry (1995-96) and Venture Enterprise Center (1997-2004).

A survey on new annual investment by growth stage indicates a rapid increase in investment in early stage ventures. Notably, there has been a rapid shift to early stage ventures among Japanese VCists since the late 1990s. To be specific, the percentage of investments in ventures at and within 5 years after their inauguration was 17.2 percent in 1995, which increased to 62.2 percent in 2000, and slightly declined to 49.8 percent in 2004 (MITI, 1995-1996; VEC 1997-2004).

The breakdown of new investments by business category (on a value basis) shows that a percentage of investment in an internet-related business which is a major technical innovation area increased from 15.0 percent in 2001 to 25.8 percent in 2004, while the percentage of investment in biotechnology more than doubled from 4.0 percent in 2001 to 9.1 percent in 2004 (VEC, 1997-2004). The investment in other new technical innovation areas, such as semiconductor/electronic components and computer-related businesses still hold a considerable share, though on a decreasing trend. A number of venture capital funds for university spin-offs, which are major funds for new technologies, was established following Hokkaido University's "Hokudai Ambitious Fund" founded in 1997. A rapid increase of such funds has been observed since 2001. While the amount of investment continues to steadily increase in general, there has been a notable growth in the percentage of investment in early stage technology based ventures such as internet and

biotechnology.

Prior Research

With regard to the source of information for valuation, it has been pointed out in the research of Manigart et al. (2000) that VCists in the network-based countries are likely to place greater importance on personal quality of entrepreneurs and information provided by management and their acquaintance. Manigart et al. (2000) did not mentioned specifically of Japanese VCists but it seems obvious that, according to their definition, Japan can be included as one of the network-based countries.

Concerning the Japanese VCists' methods used in valuating potential investments, Hasegawa (2004) reveals that Japanese VCists rely on the use of the book value and recent transaction prices in the sector. These two methods are, however, evaluated to be less advanced when compared to other valuation methods such as the discounted value of free cash flows and capitalized maintainable earning which are widely used by many VCists in the U.S. (Manigart et al., 2000). In terms of the source of information, some prior researches have maintained that Japanese VCists pay greater attention to the quality of management (Ray and Turpin, 1993; Nishizawa, 1998).

Aside from this, regarding the VCists investing in the new technology based ventures, Baum and Silverman (2003) have pointed out that VCists who invest in bio-ventures has a potential to "scout" excellent technologies. Some earlier studies also added that VCists who invest in the new ventures should also act as a "coach" or "cheerleader" (Bygrave and Timmons, 1992).

While there are a number of researches concerning venture capital investment, there are only a few researches on VCists' investment decision making in the new technology based firms in Japan.

Data and Sample Characteristics

Data

A questionnaire survey was sent to Japanese VCists directly or indirectly through a total of 157 venture capital firms, namely the corporate members of the Japanese Venture Capital Association (JVCA)[3)] and companies listed on the "Japan Venture Capital Directory in FY2005" by the Venture Enterprise Center in 2006. To be specific, three to fifteen questionnaire forms were sent to these venture capital firms according to their annual investment size in FY2004. Via this channel, 614 questionnaire forms were sent out from late July to mid August of 2006. Following the sending of the first questionnaire form, non-responding VCists were approached directly or through venture capital firms via phone, fax, and e-mail, to remind them of questionnaire response from late August to late September. In this survey, VCists were asked to present their individual experiences and views regarding their investment. This paper analyzes the responses submitted by 105 VCists by the end of September 2006.

3) Japanese Venture Capital Association (JVCA) was established in November 2002 with approximately seventy companies and individual investors. The association is the first association in the Japanese venture capital industry.

Sample Characteristics

The 105 responses reveal that the respondents have been involved in investment activities as VCists and non-investment activities for 7.38 years and 3.59 years respectively. The average number of years of business experiences at non-venture capital firms is 8.55 years. The number of portfolio companies of which the respondents had been in charge of is 28.36 on average. In these companies, new technology-based portfolio companies that have filed patents or achieved other technical innovations account for 33.0 percent on average. An average breakdown by business category of the portfolio companies of which the respondents had been in charge of is as follows: IT-related businesses, 39.7 percent, biotechnology, medical and healthcare service industries, 13.2 percent; industrial and energy services, 13.7 percent, products/services, 29.5 percent; and others, 3.6 percent.

Respondents were further asked to indicate the stage of portfolio companies of which they had been in charge of at the time of investment. The four stages of development advocated by Maison and Harrison (1999) were adopted for this questionnaire. The average results are as follows: (1) start-up stage (from inauguration to achievement of sales), 17.6 percent; (2) early stage (from achievement of sales to achievement of single-year profit), 35.9 percent; (3) growth stage (from achievement of single-year profit to elimination of cumulative loss), 22.9 percent; and (4) later stage (from elimination of cumulative loss to IPO), 22.2 percent. With regard to the average breakdown of exits of portfolio companies of which they had been in charge of, 25.6 percent of the portfolio companies were IPOed, 9.6 percent were merged/acquired for further development, 23.9 percent were sold to other shareholders or their original owners, 11.5 percent went bankrupt or were dissolved or liquidated, and 29.0 percent were others.

VCists were then asked to indicate the expected internal rate of return at each stage of portfolio companies. Among VCists, the following results were obtained: start-up stage, 70.3 percent (standard deviation: 21.55); early stage, 58.7 percent (standard deviation: 19.79); growth stage, 43.6 percent (standard deviation: 17.33); and later stage, 30.2 percent (standard deviation: 17.07). With regard to the expected internal rate of return in each growth stage of ventures, the study of Wetzel (1997: 197) on the US VCists shows the following results: 80 percent annually at the seed stage prior to establishment of a company; 60 percent annually at the start-up stage immediately following establishment of a company; 50 percent to 30 percent annually at the first, second, and third stages of growth; and 25 percent annually at the bridge stage immediately preceding IPO. While direct comparison is difficult due to the difference in definitions adopted, I have found that the level of expected internal rate of return among Japanese VCists is very close to the level shown among the US VCists in the study of Wetzel (1997).

Results

Primary Source of Information

To determine the primary sources of information used when deciding which companies to invest in, VCists were asked to rate the following items on a scale of 1 (never use) to 5 (always use). These items were selected based on the study by Manigart et al.(2000); the curriculum vitae of management,

interview with entrepreneurs, production capacity /technical information, own due diligence report, due diligence by accounting/consulting firms, business plan (overall consistency), business plan (more than 1 year ahead), interview with other company personnel, and sales and marketing information. Among VCists, the interview with entrepreneurs was ranked the highest on average, followed by curriculum vitae of management. The comparison between these results and the results shown by Manigart et al. (2000) indicates that Japanese VCists place more importance on the curriculum vitae of managements and the interview with them for their decision making (See Table 2a)

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Table 2a: Sources of information for potential investment valuation among VCists

Source of information	Japan (n = 105)	Manigart et al. (2000) U.S. (n = 73)	U.K. (n = 66)	N&B (n = 38)	France (n = 32)
Curriculum vitae of management	4.80	4.19	3.91	4.34	4.41
Interview with entrepreneurs	4.91	4.22	3.65	4.47	4.25
Production capacity /technical information	4.63	3.71	3.42	3.71	4.19
Own due diligence report	4.10	4.88	4.47	4.61	4.57
Due diligence by accounting/consulting firms	3.66	3.82	3.75	4.03	4.03
Business plan (overall consistency)	4.77	4.19	4.06	4.47	4.77
Business plan (more than 1 year ahead)	4.67	3.27	3.63	4.03	4.36
Interview with other company personnel	4.51	3.74	3.17	4.00	4.25
Sales and marketing information	4.73	3.89	3.80	4.24	4.25

Note: figures in mean scores

I further analyzed the correlative relationship among the sources of information VCists use for the valuation of potential investments and investment in early stage technology based ventures. The result is found that among VCists who have allocated a higher proportion of their investment to technology based ventures, a negative correlation is recognized with the use of own due diligence report, and business plan (overall consistency of plan) (at 5 percent level), due diligence by accounting/consulting firms (at 10 percent level). Among VCists who have allocated a higher proportion of their investment to early stage ventures, on the other hand, a negative correlation is recognized only with the use of due diligence by accounting/consulting firms (at 5 percent level) (see Table 2b).

Table 2b: Correlation between the primary sources of investment information and the proportion of investment in new technologies and early stage ventures among the VCists

Source of information	PITV[a)]	PIES[b)]
Curriculum vitae of management	0.048	- 0.062
Interview with entrepreneurs	0.035	0.037
Production capacity /technical information	0.136	- 0.105
Own due diligence report	- 0.252*	- 0.029
Due diligence by accounting/consulting firms	- 0.307**	- 0.199*
Business plan (overall consistency)	- 0.216*	- 0.122
Business plan (more than 1 year ahead)	- 0.061	- 0.111
Interview with other company personnel	- 0.081	0.071
Sales and marketing information	- 0.102	- 0.087

Notes: samples: n = 105

[a)] *PITV = Proportion of investment in technology based ventures*

[b)] *PIES = Proportion of investment in early stage ventures*

*Correlation: ** Significant at 1 percent level (both sides), * Significant at 5 percent level (both sides)*

With a closer look at VCists who allocated a higher proportion of their investment to technology based ventures, a relatively high significant probability (0.136) is recognized in the use of production capability/technical information, though not significant, and a negative correlation is observed with the use of almost all of the other sources listed.

Among VCists who allocated a higher proportion of their investment to early stage ventures on the other hand, a slightly positive correlation is recognized only with the use of the interview with entrepreneurs and interview with other company personnel, while a negative correlation is observed with the use of all other sources listed.

Methods Used in Valuating Potential Investments

To determine the methods used in valuating potential investments, VCists were asked to rate the followings items on a scale of 1 (never use) to 5 (always use). These items were selected based on the studies by Timmons (1992) and Manigart et al (2000); discounted value of free cash flows (DCF), capitalized maintainable earning (P/E multiples), capitalized maintainable earning (EBIT multiples), payback period, dividend yield basis, recent transaction prices for acquisitions in the sector. Among VCists, the capitalized maintainable earning (P/E multiples) was ranked the highest on average, followed by payback period (See Table 3a).

Table 3a: Methods used in valuating potential investments among VCists

Methods used in valuating potential investments	Japan (n = 105)	Manigart et al. (2000) U.S. (n = 73)	U.K. (n = 66)	N&B (n = 38)	France (n = 32)
DCF	3.27	3.62	-	3.89	3.26
P/E multiples	4.08	3.63	4.31	3.58	3.66
EBIT multiples	2.84	3.83	3.90	3.76	3.66
Payback period	3.90	3.47	-	2.92	4.20
Dividend yield basis	1.62	2.14	2.22	3.03	2.29
Recent transaction prices for acquisitions in the sector	3.09	3.78	3.63	3.61	4.22

Note: figures in mean scores

I further analyzed the methods of valuation used by VCists to find out how they are correlated to the proportions of investment to technology based and early stage ventures. A significant negative correlation is observed with recent transaction prices for acquisitions in the sector (at 5 percent level) among VCists who have allocated a higher proportion of their investment to early stage ventures, while a positive correlation, though not significant, is observed in all methods listed among the VCists allocating a higher proportion of their investment to technology based ventures (See Table 3b).

Table 3b: Correlation between the methods used in valuating potential investments and the proportion of investment to new technologies and early stage ventures among the VCists

Methods used in valuating potential investments	PITV[a)]	PIES[b)]
DCF	0.118	0.024
P/E multiples	0.025	-0.032
EBIT multiples	0.180	0.054
Payback period	0.134	-0.036
Dividend yield basis	0.174	-0.084
Recent transaction prices for acquisitions in the sector	0.112	-0.258*

Notes: samples: n = 105

[a)] *PITV = Proportion of investment in technology based ventures*

[b)] *PIES = Proportion of investment in early stage ventures*

*Correlation: * Significant at 5 percent level (both sides)*

Summary and Implications

Summary

This paper discusses the results of an analysis of the research question "How do VCists who allocate a higher proportion of their investment in early stage technology based ventures valuate their potential investments as compared to the general Japanese VCists?". The results can be summed up as follows.

In valuating potential investments, Japanese VCists place special importance on the interview with entrepreneurs and curriculum vitae of management as their sources of information. A relatively high proportion of Japanese VCists use capitalized maintainable earning (P/E multiples) and payback period regarding methods used in valuating potential investments.

In terms of primary sources of information used in valuating potential investments by VCists who allocated a higher proportion of their investment to technology based ventures, a negative correlation is recognized with the use of own due diligence report, due diligence by accounting/consulting firms, and business plan (overall consistency). Among VCists who allocated a higher proportion of their investment to early stage ventures, a negative correlation is observed with the use of due diligence by accounting/consulting firms.

Regarding the valuation methods, a negative correlation is observed between the recent transaction prices for acquisitions in the sector and proportion of VCists' investment to early stage ventures, while no significant correlation is recognized for any of the valuation methods and the proportion of VCists investment to technology based ventures.

Implications

While the research by Manigart et al. (2000) indicated that VCists of the U.S. and U.K. place greater importance on own due diligence report, I have found that Japanese VCists give more emphasis to the curriculum vitae of management and interview with entrepreneurs, similarly to those in France, Belgium, and the Netherlands. This finding corresponds to the conclusions of the researches by Ray and Turpin (1993) and Nishizawa (1998)—for Japanese VCists, valuating potential investments equates the selecting of managements.

In terms of methods used in valuating potential investments, it should be noted that a relatively high proportion of Japanese VCists use capitalized maintainable earning (P/E multiples). While Hasegawa (2004) holds that many VCists adopt the book value, and recent transaction prices in the sector methods, the reality is that capitalized maintainable earning (P/E multiples) which is considered to be commonly used in countries with well-developed capital market (Manigart at al., 2000: 401) is also widely adopted by Japanese VCists. Considering the study of Hasegawa's (2004), I may say that Japanese VCists have come to attach a greater importance to capitalized maintainable earning (P/E multiples) in valuating potential investments in recent years just as those in the U.S. and U.K.

Among VCists who have allocated a higher proportion of their investment to early stage ventures, a negative correlation is observed with the use of due diligence by accounting/consulting firms for valuation source of information, and with the recent transaction prices for acquisitions in the sector for valuation methods. No significant correlation is recognized between any of the valuation methods

and the proportion of VCists' investment to technology based ventures. It seems that VCists who allocate a higher proportion of their investment to technology based early stage ventures do not use a particular sources of information and valuation methods although there has been a notable growth in the percentage of investment in the early stage technology based ventures. This may be because most of the VCists do not have much experience in investing in the early stage technology based ventures, hence, simply use already available conventional methods which had often been used prior to the rapid growth in investment in new technology based ventures.

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