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(出版者 / Publisher)

法政大学イノベーション・マネジメント研究センター

(雑誌名 / Journal or Publication Title)

イノベーション・マネジメント / イノベーション・マネジメント

(巻 / Volume)

13

(開始ページ / Start Page)

89

(終了ページ / End Page)

100

(発行年 / Year)

2016-03-31

(URL)

<https://doi.org/10.15002/00012962>

<Research Note>

Founding Team Diversity and Team Change as Predictors of Investors' Attraction toward Web Business in the US and Japan

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Abstract

Previous research has shown that investors pay close attention to founding teams' diversity when evaluating investments in startups. However, because of the differences in the investment environment between Japan and the U.S., we expected that in Japan, investors may decide to invest for different reasons. Specifically, we predicted that in the U.S., investors would jump in more quickly at the startup stage if the founding team were more diverse. In contrast, in Japan, we predicted that investors would be more cautious and more likely to invest after management teams have been optimized through changes in team membership. To test these hypotheses, we conducted a web survey targeting entrepreneurs in the web and mobile industry in Silicon Valley and the Tokyo metropolitan area. The results supported our hypotheses. In the U.S., the number of investments startups received was strongly associated with initial team diversity but not with changes in team membership. In Japan, however, the number of investment was more strongly associated with experiencing changes in membership and not with team diversity.

Keywords: initial investment; VC; angels; web business; team diversity; team change

1. Introduction

Global Entrepreneurship Monitor (2012) reports that Japan has an exceptionally low rate of business startups, making it difficult for researchers to conduct quantitative research on Japanese entrepreneurship. Previous studies point out that the strongest reason for a shortage of entrepreneurship is an immature venture capital financing market (Feigenbaum and Brunner 2002). Lacking access to venture capital, Japanese startups have a harder time attracting sufficient investment at the startup stage. By contrast, American startups can receive ample support from the startup to the exit stage. In the U.S., many investors actively search for innovative startups ambitious to create new global markets.

Following the Lehman Brothers bankruptcy, however, the meaning of innovation changed. In many cases, VCs (venture capitalists) shifted their investments from biotech and semiconductor businesses to social network services like Facebook or web and mobile application developers, which promised faster growth. Web and mobile businesses also required relatively little initial investment, which facilitated startups even in Japan's immature investment environment. By limiting our focus on web and mobile startups, we are able to compare Tokyo with Silicon Valley,

the holy land of high-tech startups, and, thus, entrepreneurship in Japan, where the startup rate is low, with the U.S., where the startup rate is higher.

As an additional benefit of this focus, we can control environmental factors: market size, market growth, competitiveness, laws and regulations. By controlling for environmental factors, we can sharpen our focus further and concentrate on the relationship between firm growth and internal management factors. By “firm growth,” however, we mean growth potential, since this is how investors evaluate firms still at the startup stage, when revenue and profit data are lacking. Our measure of firm growth is, therefore, investor evaluation of startup growth potential.

Bliss (1999) observes that VC decision making in the small equity market is strongly influenced by industry context, a point echoed by Miloud et al. (2012). Limiting this study to Web-related startups makes it easier to investigate which internal management factors are most strongly correlated with attractiveness to investors.

Our research builds on previous studies of entrepreneurship that have shed light on factors affecting investments in startups. But while there have been a number of studies of investor decision-making in the field of corporate finance, they have not examined the relationship between the decision to invest and management resources (see, for example, Waldron and Hubbard 1991; Hall and Hofer 1993; Gompers 1999). It is our goal to fill this gap, continuing the work of Silva (2004), which provides important insights about what makes startups attractive to investors.

Silva (2004) attempts to better understand how VCs select startups for early stage investments in small equity markets by analyzing the decision-making process at a Portuguese venture capital firm. Using depth interviews, he identifies several key factors. Curriculum vitae and resume are of vital importance in demonstrating that entrepreneurs understand market needs, risks and costs, and are able to consider alternatives in case the original strategy fails. Thus, Silva concludes, VC judgments are sharply focused on personal and professional characteristics of entrepreneurs and the strength of their commitment to their business ideas. The second major factor is the growth potential of the business idea itself. Contrary to findings in previous literature, financial projections do not seem to play a major role in the selection of early-stage projects for investment.

Levie and Gimmon (2008) examine how investors evaluate the human capital represented by the founding team. Their work, like Silva’s, also indicates that the members of the founding team are the most important resource affecting decisions to invest in startups. Developing this insight further, our research, which focuses on Silicon Valley and Tokyo, where Web-related businesses are also booming, shows founding team characteristics are evaluated differently by investors in Japan and the U.S.

2. Theoretical Framework

2.1 Founding Team

Previous research has shown that VCs pay close attention to the composition of founding teams when evaluating investments in startups (Goslin and Barge 1986; Heileman 1997; Baum and Silverman 2004; Franke et al. 2008). Startups with multiple founders are more likely to succeed

than those with a single founder (Eisenhardt and Schoonhoven 1990). Subsequent studies support this result (Chandler and Hanks 1998, Roberts 1991).

Numerous scholars have gone on to examine the effects of founder diversity in the top management team. The notions of diversity employed fall into three categories. First, some scholars argue that functional diversity in background ensures that the founding team has the full range of skills required to succeed (Keck 1997; Finkelstein and Hambrick 1990). Diversity in this sense is called either functional diversity (Beckman et al. 2007; Randel and Jaussi 2003) or team heterogeneity (Chandler et al. 2005). In this sense, “diversity” refers to the level of experience and specialized competence of team members in specific functional areas: finance, marketing, general management, engineering, or manufacturing. Second, other scholars have focused on team completeness, i.e., the degree to which all key positions (CEO, CFO, CTO, CMO) are filled by the founding team (Eesley et al. 2013; Miloud et al. 2012; Roure and Keeley 1990; Siegel et al. 1993). A third set of scholars examines the diversity of management team members in terms of previous experience: whether they were employed upstream, downstream or at the same level of industrial structure before joining the startup (Higgins and Gulati 2003; 2006).

As we began this study, we expected to find more solo founders of startups in Japan, versus relatively few in the U.S. It was also difficult to obtain comparable data for examination of team completeness in Japan, where CTOs and CMOs are rare. Thus, in this study, we focus on the number of founders as our independent variable, without direct comparison of the presence or absence of specific roles.

2.2 Changes in Team Membership

Members can be added, replaced or removed from the management team as time passes. “Team tenure homogeneity” implies that team members remain unchanged. Conversely, “team tenure heterogeneity” implies either that new team members have entered the team or that old team members have exited the team (Beckman et al. 2007).

There are numerous arguments related to the issue of team tenure homogeneity versus team tenure heterogeneity. O'Reilly et al. (1993) suggest that team tenure homogeneity is associated with greater trust and cooperation. Other scholars suggest that team tenure heterogeneity is associated with greater opportunities for learning and improved chances of survival (Wiersema and Bantel 1992; Zimmerman and Zeitz 2002). Which is better may depend on the context (Hambrick and Mason 1984). Under stable conditions, homogeneous teams could be more effective, while in unstable or urgent conditions, heterogeneity would allow firms to acquire new knowledge and network connections (Murray, 1989). This finding is also reported in other studies (Keck and Tushman 1993; Keck 1997; Tushman and Rosenkopf 1996).

Overall, however, the addition of new members to a team is an indicator of growth (Higgins and Gulati 2006). From this perspective, we regard member exit and replacement as a good sign, since it indicates that a firm is pursuing new directions. Though prominent members might be recruited by other promising companies, it is poor performers who are most likely to leave (McEvoy and Cascio 1987). Therefore, in this study, we assumed that exit and replacement would

affect investor judgments positively.

2.3 Evaluating Startups

There are various performance indices for startups. IPO, internal rate of return and capital gain have all been used as measures of profitability. Other measures include the amount invested and the number of investors. These indices are all substantially correlated with founding team characteristics in high-tech industries. Roure and Keeley (1990) have demonstrated that team completeness (with all essential roles filled) affects internal rate of return in the American electronics industry. Beckman et al.(2007) have examined the effects of founding team functional diversity on access to venture capital and successful IPOs in the U.S. computer, software and biotech industries. A recent study by Eesley et al.(2013) argues that team completeness is related to capital gains in a variety of U.S. industries. Miloud (2012) has investigated how the amount of investment secured is affected by team completeness in 18 industries in France. Chandler et al. (2005) suggest that functional diversity affects profitability in Sweden.

Regarding attractiveness to investors, the relation between the number of investors and functional diversity has been used to examine attractiveness to investors by Higgins and Gulati (2003), who focus on biotech in the U.S. Zider (1998) states that team completeness increases credibility and makes it possible for investors to make quicker decisions.

Since startups in their early stages have no financial outcomes to report, in this study, attractiveness to investors as measured by the number of investors is our primary index.

2.4 Hypotheses

This study focuses on the number of investors as an index of performance potential. Because the cost of IT servers is falling and social media provide access to potential customers, new web and mobile businesses require only relatively small initial investments. They are thus able to attract small investments from angels and VCs who specialize in startups. However, because of differences in the investment environment, we hypothesized that, in the U.S., investors would jump in more quickly at the startup stage if the founding team were more diverse. In contrast, in Japan, investors would be more cautious, more likely to invest after management teams have been optimized by experiencing changes in team membership.

H1: Founding team diversity is positively correlated with attractiveness to investors in the U.S.

H2: Team tenure heterogeneity is positively correlated with attractiveness to investors in Japan.

3. Methodology

3.1. Data

A web survey from February to October 2012 targeted American and Japanese entrepreneurs in the web and mobile industry in Silicon Valley and the Tokyo metropolitan area. By restricting the type of industry and limiting our focus to these two geographic areas, we controlled for

environmental factors including economic trends specific to particular fields, location, labor market, and accessibility to investors and customers.

In Japan, we approached potential participants at startup events and incubation facilities and later used email to invite them to participate in a web-survey. We sent 330 emails, and received 92 replies, resulting in 83 valid responses. In addition, we sent 600 emails to companies found in an unlisted companies database provided by Japan Venture Research, from which we received 31 additional valid responses.

For our U.S. sample, we sent emails to startups located in Silicon Valley between San Francisco and San Jose. We sent 250 emails and received 52 replies, resulting in 50 valid responses. Because we were looking for startups with strong desire for growth, we excluded self-employed individuals from the 114 Japanese and 50 American valid responses. To control for financial market conditions, we also excluded companies that were founded before the IT bubble burst in 2001.

In the final Japanese sample ($n = 109$), all but one of the participating individuals were of Japanese nationality. In the final American sample ($n = 48$), only 48% were American citizens. Serial entrepreneurs made up 26% of the Japanese sample and 56% of the American sample. Most of the firms surveyed had permanent, full-time employees (70% in Japan and 88% in the U.S.).

3.2. Variables

(1) Attractiveness to Investors

Attractiveness to investors was measured by the number of external investors investing in the company at the time it was founded. Participants were asked first from whom they procured the seed money to establish their current company. Then they were asked if they had procured series A funding and, if so, from whom they procured it. For the first question, respondents were offered the following options: “self-funded,” “relatives and/or close acquaintances,” “business angels,” “venture capitalists,” and “customers and/or suppliers with whom they had done business in the past.” For the second question, respondents were given the options: “business angels,” “venture capitalists,” and “other companies.” For each valid response included in the final samples, we counted the number of external investors from whom they received either seed money or series A financing, excluding “self-funded” and “relatives and/or close acquaintances.” Higher number of investors indicated greater attractiveness to investors.

(2) Founding Team Diversity

Founding team diversity was measured by asking for the job titles of the founding members at the time the startup was founded. Respondents chose from the following options: CEO, CTO, CMO, CFO, Chairman, Other. Diversity was measured by the number of roles reported.

(3) Team Tenure Heterogeneity

To assess change in team membership, we asked whether there had been any changes in the membership of the management team (a) within one year after the establishment and (b) between the first and second year after the establishment. For each question, respondents indicated whether

there was no change or if some members had entered or exited the team. The responses were coded so that 0 indicated no change and 1 that at least one member had either entered or existed the team within two years of the startup's founding.

(4) Other Control Variables

We also asked how long the firm had been in business, whether the founder was a serial entrepreneur, and whether its products or services were considered innovative, to statistically control for these effects. Previous studies provided many arguments concerning the effects of firm longevity. The effects of being recently founded or long-established vary, however, from company to company and from industry to industry. Since web and mobile businesses only began to flourish following the emergence of social media, we expected the newer firms to perform more strongly. Firm longevity was measured by asking the year in which the company was established.

Previous entrepreneurial experience appears to be a strong factor influencing attractiveness to investors, especially when the founder combines a proven track record with leadership potential (Muzyka et al.1996). This may be why serial entrepreneurs can raise money more easily than novice entrepreneurs (Hellmann and Puri 2002; Hsu 2007). To control for this effect, we also asked our respondents whether this was their first startup. If respondents answered yes, that this was their first startup, they were given a score of 0 and if they answered no, indicating participation in previous startups, they were given a score of 1.

An innovative product or service is an important resource for a startup. Innovation is key to growth and survival. High-tech startups typically begin with technology seeds or intellectual property produced by universities or other scientific organizations (Chandler et al. 2005; Eesley et al. 2013). In the web and mobile industry on which this study concentrates, there is, however, relatively little use of registered or licensed intellectual property. Lacking such evidence, we asked our respondents to rate the innovativeness of their products or services on a scale from 1 = not at all to 5 = extremely innovative.

We also examined other control variables such as the age of the entrepreneurs, their educational background, their work experience, whether a CTO was included in the founding team, and whether the startup's target was consumers or businesses. None of these factors, however, appeared to influence attractiveness to investors and is, therefore, not included in the following analyses.

4. Results

4.1. Descriptive Statistics

Table 1 summarizes the distribution of attractiveness to investors in the U.S. and Japan. As Table 1 shows, the majority of the startups surveyed have not yet received any investment from external sources. Overall, American startups were slightly more likely to attract investors ($M = 0.81$; $SD = .92$) than Japanese startups ($M = 0.72$; $SD = .89$) but this difference was not statistically significant, $t(155) = .62$, *n.s.*

Table 1 Attractiveness to Investors in the U.S. and Japan

	Attractiveness to Investors (Number of investment sources)					Mean	SD
	0	1	2	3	4		
Japan (<i>n</i> = 109)	57 52.3%	31 28.4%	17 15.6%	3 2.8%	1 0.9%	.72	.89
US (<i>n</i> = 48)	23 47.9%	13 27.1%	10 20.8%	2 4.2%	0 0%	.81	.92
Overall (<i>n</i> = 157)	80 51.0%	44 28.0%	27 17.2%	5 3.2%	1 0.6%	.75	.90

Source: Author.

As shown in Table 2, founding teams were more diverse in the U.S. ($M = 2.19$, $SD = .79$) than in Japan ($M = 1.76$, $SD = .78$; $t(155) = 3.14$, $p < .01$). Those founded with only one executive position were only 20.8% in the U.S. versus 41.3% in Japan. The proportion of founding teams with three members was also greater in the U.S. (35.4%) than Japan (10.1%).

Table 2 Founding Team Diversity in the U.S. and Japan

	Founding Team Diversity				Mean	SD
	1	2	3	4		
Japan (<i>n</i> = 109)	45 41.3%	49 45.0%	11 10.1%	4 3.7%	1.76	.78
US (<i>n</i> = 48)	10 20.8%	20 41.7%	17 35.4%	1 2.1%	2.19	.79
Overall (<i>n</i> = 157)	55 35.0%	69 43.9%	28 17.8%	5 3.2%	1.89	.81

Source: Author.

Our results also indicate that a greater proportion of American teams changed their members within two years of establishment ($n = 22$; 45.8 %) than was the case in Japan ($n = 37$; 33.9 %). However, this difference was not statistically significant, $\chi^2(1) = 2.01$, $n.s.$

As shown in Table 3, in our Japanese sample, 28 out of 109 founders are serial entrepreneurs (25.7%), versus 27 out of 48 (56.2%) in the U.S. The year of establishment ranged from 2001 to 2012 in Japan and from 2002 to 2012 in the U.S. As of 2013, the mean number of years since establishment was 3.96 ($SD = 2.89$) in Japan and 3.25 ($SD = 2.09$) in the U.S. There was no significant difference in firm age, $t(155) = 1.54$, $n.s.$ The innovativeness score was slightly greater in Japan ($M = 3.81$; $SD = 1.30$) than in the U.S. ($M = 3.72$; $SD = 1.05$); but the difference was not significant $t(152) = .45$, $n.s.$

Table 3 Correlations between Attractiveness to Investors, Team Diversity, Team Tenure Heterogeneity, and Control Variables in the U.S. and Japan

	1	2	3	4	5	6
1. Attractiveness to Investors	---	.40**	.01	-.09	-.18	.02
2. Team Diversity	.18 ⁺	---	-.01	-.29*	-.01	.22
3. Team Tenure Heterogeneity	.27**	.05	---	.11	.31*	.04
4. Firm Age	-.14	-.02	-.01	---	-.10	-.20
5. Serial Entrepreneurship (0 = novice, 1 = serial)	.24*	.05	.16	.07	---	-.04
6. Innovativeness	.18 ⁺	-.02	.15	.07	.07	---

Note: Intercorrelations for the U.S. sample ($n = 48$) are presented above the diagonal, and intercorrelations for the Japanese sample ($n = 109$) are presented below the diagonal. ** $p < .01$, * $p < .05$, + $p < .10$.

Source: Author.

4.2. Tests of Hypotheses

We conducted ordinary least-squares regression analyses separately for Japan and the U.S. In the base model, we entered the control variables (firm age, serial entrepreneurship, innovativeness). Then, three models were tested, one that examined the effect of team diversity, another that examined the effect of change in teams, and a third in which we examined the combined effects of these two variables and their interaction. The results of these regressions are summarized in Table 4.

Table 4 Regression Analysis Summary for Team Diversity and Team Tenure Heterogeneity as Predictors of Attractiveness to Investors in the U.S. ($n = 48$) and Japan ($n = 109$)

	Japan				U.S.			
	Base	Model 1	Model 2	Model 3	Base	Model 1	Model 2	Model 3
Team Diversity		.17 ⁺		.13		.44**		.60**
Team Tenure Heterogeneity			.22*	.22*			.06	.10
Diversity X Tenure Heterogeneity				.05				-.28
Control Variables								
Firm Age	-.16 ⁺	-.16 ⁺	-.15 ⁺	-.16 ⁺	-.12	-.01	-.13	-.01
Serial (0 = novice, 1 = serial)	.23*	.23*	.20*	.20*	-.18	-.16	-.21	-.14
Innovativeness	.18 ⁺	.18 ⁺	.15	.15	-.01	-.09	-.02	-.03
R ²	.11	.13	.15	.18	.04	.22	.05	.26
F	4.06**	3.98**	4.57**	3.66**	.64	2.86*	.50	2.30*

Note: ** $p < .01$, * $p < .05$, + $p < .10$. Values are standardized coefficients.

Source: Author.

In the U.S., founding team diversity was significantly and strongly associated with attractiveness to investors when entered alone in the regression ($\beta = .44, p < .01$); but team tenure heterogeneity was not ($\beta = .06, n.s.$). When both predictors were entered simultaneously in the regression, team diversity remained a significant predictor ($\beta = .60, p < .01$), but team tenure heterogeneity was not ($\beta = .10, n.s.$). The interaction effect was also not significant ($\beta = -.28, n.s.$). These results indicate that the effect of team diversity did not depend on heterogeneity produced by members entering or exiting teams. Consistent with H1, these results suggest that in the U.S., founding team diversity is a more powerful determinant of attractiveness to investors than team tenure heterogeneity.

In Japan, founding team diversity was associated with investors' attraction but only weakly ($\beta = .17, p = .07$) when entered by itself in the regression. In contrast, team tenure heterogeneity was more strongly associated with attractiveness to investors ($\beta = .22, p < .05$). When both predictors were entered simultaneously, team tenure heterogeneity remained significant ($\beta = .22, p < .05$), but team diversity no longer predicted attractiveness to investors ($\beta = .13, n.s.$). The interaction effect when both team diversity and team tenure heterogeneity were included in the equation was not significant ($\beta = .05, n.s.$). As predicted, these results indicate that the effect of changes in team composition on attractiveness to investors did not depend on initial team diversity.

5. Discussion

Our research has demonstrated that in the U.S., diversity in founding teams attracts more investors. In contrast, in Japan, changes in the composition of founding teams attract more investors. In Japan, investors may be more cautious than in the U.S. American investors appear to consider diversity in founding teams as a predictor of future performance (Higgins and Gulati 2003; Miloud 2012). In contrast, in Japan, investors expect managerial teams to gradually develop over time and wait to see if a team achieves an optimal form before deciding whether to invest.

We should note, however, that this research did not obtain data directly from the investors. Future studies should ask investors the degree to which these characteristics of founding teams influence investment decisions, and the timing of those decisions. It would be particularly meaningful to explore what factors business angels rely on when they make investment decisions. Past studies focused mainly on VCs as the source of investment—very few have examined the decision making of business angels. Web and mobile businesses require relatively little initial investment, hence business angels may play a more important role than VCs. Due to our small sample size, our survey could not directly compare VCs and business angels in terms of the determinants of investment decision. This remains an important task for future studies.

We must also note that this study is only correlational. We cannot rule out the possibility that a third variable is attracting more investments. For example, startups that provide highly competitive products or services (e.g., low price, high quality, or focusing on a niche target) or startups with a clear global orientation may attract more investments.

Nonetheless, this study provides an important first step toward understanding cultural

differences in entrepreneurship. Very few countries possess the U.S.'s combination of a mature investment environment and high rate of entrepreneurship. Future research should address whether, in addition to founding team diversity, changes in the composition of founding teams influence attractiveness to investors in countries besides Japan. Future studies could, for example, compare Korea and Taiwan, two countries in Asia that are experiencing an explosion of web and mobile businesses.

Author Note

This research has been supported by the Grant-in-Aid for Scientific Research (C) to Noriko Taji.

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