

EFFECT OF PROFESSIONAL BACKGROUND ON VENTURE CAPITAL PROPOSAL EVALUATION

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ABSTRACT

This paper reports on the differences in investment related activities and evaluation criteria of venture capitalists having a business background compared to venture capitalists having a non-business background. Data was collected from a nationwide survey of 72 venture capitalists. The results show that venture capitalists having a non-business background invest in earlier stages of the firm, require a shorter payback period and make more follow-up investments than business background venture capitalists. The non-business background venture capitalists place greater importance on the uniqueness of the product, the cost structure of the project and the entrepreneur's health and less importance on exit procedures than business background venture capitalists.

Capital acquisition by small growth firms is often difficult due to their limited access to the debt and equity markets (Carter & Van Auken, 1990). Firms are initially financed using alternative sources of personal equity and borrowing. However, once these sources are exhausted, entrepreneurs must rely on external capital, especially to finance rapidly growing and capital intensive firms (Van Auken & Carter, 1989). As an alternative, entrepreneurs often seek capital from venture capitalists to finance the growth and operations of their firms (Kuratko & Hodgetts, 1989).

Funding proposals submitted to venture capitalists undergo intensive evaluation (due diligence) to determine the risk and value-creating potential of the project (Batterson, 1986). Several studies have investigated the criteria used to evaluate venture capital proposals. Similar to earlier findings by Tyebee and Bruno (1984), those of MacMillan, Siegel and Subbanasasimha (1985) confirmed that the quality of the entrepreneur is a critical factor determining the funding decision. In comparing successful with unsuccessful ventures, MacMillan, Zemann and Subbanasasimha (1987) found that unsuccessful ventures were characterized by factors such as unqualified management, poorly developed product or lack of market demand. Two major criteria which were predictors of successful ventures were the insulation of the venture firm from competitors and the degree of market acceptance of the product.

The purpose of this study is to determine differences in venture capitalists' evaluation criteria relative to their professional background. Hisrich and Peters (1989) suggest that venture capitalists

have investment preferences (industries or products) and that, in their search for capital, the entrepreneur should attempt to match these preferences with the proposal. The paper focuses on these issues in relating the investment characteristics, the venture capitalists' geographical and industry investment preferences and the stage of development of the firm in which the capital is invested to the professional background of the venture capitalist. While previous studies focus only on identifying the criteria used by venture capitalists, this study investigates the differences in these evaluation criteria. Additionally, information is presented concerning the relative importance of venture capitalists' activities and preferred exit procedures. This type of information has not been reported in the literature.

Differences in evaluation criteria are expected because of the diversity in the professional backgrounds of the venture capitalists. This diversity may influence which factors the venture capitalists consider important and the due diligence analysis. For example, a venture capitalist having a technical background may be more interested in technical products or the technical aspects of a project than a venture capitalist with a non-technical background. On the other hand, venture capitalists having a non-technical background may have a greater interest in the product, its market and competitors. Such differences may be evident when comparing alternative aspects of the due diligence process.

Differences in how venture capitalists analyze proposals may also depend on the firms' stages of development. Tyebjee and Bruno (1984) have identified six types of venture capital financing:

1. Seed Financing—financing provided to develop a concept,
2. Start-up Financing—capital used in product development and initial marketing,
3. First Stage Financing—financing provided to firms that have expended their initial capital and require funds to initiate production and sales,
4. Second Stage Financing—working capital used for initial financing of a firm that is producing and shipping products,
5. Third Stage Financing—funds for the expansion of a growing firm that is either at breakeven or incurring a profit, and
6. Fourth Stage Financing—capital invested in a firm that is expected to go public within six months.

Since each stage has different risk/return characteristics, venture capitalists may place different emphasis on the various criteria for each stage.

The allocation of funds and required rates of return may be different among different groups depending on the stage of development. For example, investors having a business background may have a preference for investing in later stages of development when an understanding of the technical nature of the product is not as important as in earlier stages. These differences may be more observable between different industries such as a high-tech industry and a consumer products industry.

Differences among groups may also be found relative to geographic location (thus the operating environment) and type of industry. Observed differences among geographic locations might be expected as a result of a concentration of industry in various sections of the country. For example,

if the western part of the country concentrated on high-tech products and the midwestern part on consumer or agricultural goods, then differences in evaluation criteria might be observed.

SAMPLE, QUESTIONNAIRE DEVELOPMENT AND METHODOLOGY

A sample of 275 venture capitalists was drawn from *Pratt's Directory of U.S. Venture Capital Companies*. Wetzel (1987) has described three major segments of the venture capital market: the public market, the professional venture capital market and the market for informal venture capital. Selection from this source limits the sample to the professional venture capital market sector of venture capitalists. A questionnaire was developed and pretested in February 1989. The first mailing occurred in March 1989, and a second mailing occurred in April 1989. A total of 72 usage questionnaires were returned, providing a response rate of 26.2%.

The questionnaire was divided into three sections. The first section asked about the professional background of the venture capitalist. The second section requested information about the characteristics of funded projects, including industry preferences (telecommunications, human health, diagnostic products, electronics/data processing, robotics, consumer products, new materials and others), geographical preferences (Northwest, Northeast, Southeast, Southwest, Midwest, International and no preferences) and financial characteristics of projects funded (allocation of capital between different growth stages, required rates of return and payback periods and size of investments).

The third section of the questionnaire asked the venture capitalists to rank the importance of various criteria used to evaluate proposals using a 1-5 scale (1 = very important and 5 = not important). The evaluation criteria were similar to those used by MacMillan, Siegel and Subbanasimha (1985). The categories of evaluation criteria included characteristics of the entrepreneur, financial aspects of the proposed project, product/market aspects and exit procedures. Questions were also included concerning the relative importance of various activities of the venture capitalist: selecting the project, structuring the deal, monitoring the project and exiting procedures.

Respondents were partitioned into two groups: those having a business background (41 respondents), and those having other backgrounds (30 respondents). Means of the responses to particular questions were calculated for the entire sample and for each group. To determine significant differences between responses to particular questions for each group, t-tests of group means were calculated.

RESULTS

Professional Background and Investment Preference

Approximately 58% of the venture capitalists listed their professional background as non-business (engineering, sciences, other), and 42% indicated a business background. Most of the respondents preferred to invest in the geographic region in which they operated (more than one geographic preference could be indicated). About 16% preferred to invest in the Northwest, 34% in the Southwest, 18% in the Northeast, 10% in the Southeast, and 34% in the Midwest. Only 2.8% had an international preference, and 30.6% had no preference.

The respondents were also asked about industries in which they preferred to invest. The percentage of venture capitalists by category (more than one category could be indicated) was as follows: 59% preferred to invest in the human health industry, 56% in the electronic products/data processing

Table 1

Size of Investment, Follow-Up Investments and Longest Acceptable Payback Period: The Overall Mean and by Professional Background

Investment variables	MEANS (%)			t
	Overall	Business	Non-business	
Minimum investment (\$)	392,671	268,179	549,290	-1.3523
Maximum investment	3,138,028	3,249,375	2,994,355	0.1671
Follow-up investment (%)	57.00	54.40	60.50	-0.8289
Longest payback (years)	8.06	9.20	6.50	1.4151

industry, 47% in diagnostic products, 38% in consumer products, 27% in robotics/mechanical devices, 18% in new materials, and 40% in other areas. Gladstone (1988) and Hisrich and Peters (1989) suggest that venture capitalists have investment preference, for example, high technology products over consumer products. These results indicate a wide preference for a variety of industry investments.

Investment Activity

The venture capitalists were asked about the size of their investments, follow-up investments, and required payback periods on invested funds. Table 1 shows that the overall average minimum investment during the past five years was \$392,671, and the average maximum investment was \$3,138,028. The averages are also shown for the business background and non-business background venture capitalists. The range between the minimum and maximum investments for the non-business background venture capitalists is greater than for the business background venture capitalists. However, no statistical difference exists between the categories. Such large averages suggest that the venture capitalists in the sample have substantial funds available for investment and are part of the formal segment of the venture capital market. This differs from the informal venture capital investment, which is reported to average about \$50,000 per project (Hisrich & Peters, 1989).

Growing firms commonly require additional funds to finance expansionary requirements, and the lack of capital is a common constraint causing financial distress (Brigham & Gapenski, 1989). Venture capitalists making an early investment have a financial incentive to commit more capital to firms appearing to be successful. This follow-up investment provides the financial resource which allows the firm to continue its growth without the disruptions caused by a shortage of capital. The survey found that follow-up investments were relatively common. Venture capitalists made follow-up investments in 57% of the firms in which they initially invested. Although the difference is not statistically significant, non-business background venture capitalists made follow-up investments in a larger percentage (60%) of projects than business background venture capitalists (54.4%).

Venture capitalists are relatively short-term investors concerned with recovering their invested capital (Gladstone, 1988). One measure of the acceptable time until recovery of capital is payback period. The survey found that the longest acceptable payback period for an investment was 8.06 years. The payback period (6.5 years) for non-business background venture capitalists is much shorter than for business background venture capitalists (9.2 years), but the difference is not

Table 2

Panel A: Required Rates of Return by Growth Stage: The Overall Means and by Professional Background

Stage	MEANS (%)			t
	Overall	Business	Non-business	
Seed	120.4	122.9	118.1	0.0623
Start-up	81.1	60.3	99.4	-1.0186
First	78.2	84.3	73.1	0.2800
Second	65.8	70.6	61.3	0.2239
Third	54.9	62.7	47.5	0.3974
Fourth	22.1	22.5	21.6	0.1473

Panel B: Percent of Capital Invested by Stage of Firm: The Overall Means and by Professional Background

Stage	MEANS (%)			t
	Overall	Business	Non-business	
Seed	22.33	19.93	25.52	-0.6825
Start-up	26.48	22.00	32.76	1.7883***
First	21.09	21.85	19.96	0.5133
Second	25.88	30.76	18.96	2.3304**
Third	24.95	26.54	22.00	0.7035
Fourth	15.69	11.95	20.67	-0.4367

* Significant at 1%; ** Significant at 5%; *** Significant at 10%

statistically significant. These ranges of acceptable payback periods are consistent with expectations of venture capitalists reported in Hisrich and Peters (1989).

Investment Activity by Growth Stage

Firms in earlier stages of growth have a greater risk of failure and thus expose investors to a greater risk of loss. However, investing in the earlier stages also offers the investor opportunities for higher returns. Conversely, investing in later stages exposes the venture capitalist to less risk and should be accompanied by a lower required rate of return. This risk/return relationship was expected for venture capitalists having higher (lower) returns when investing in earlier (later) stages of the firm.

The survey asked about the percent of total funds invested and the required rate of return in each stage of development. As shown in Panel A of Table 2, the venture capitalists invested similar percentages of their funds in the start-up (26.48%), second (25.88%) and third (24.95%) stages. Slightly smaller percentages of funds were invested in the seed (22.33%) and first (21.09%) stages, and a much smaller percentage was invested in the fourth stage (15.69%).

Table 2 also shows the percent of total funds invested and required rates of return for each stage of growth according to the background of the venture capitalist. In Panel A business background venture capitalists appear to have higher required returns than non-business background venture capitalists for all stages, except for the start-up stage. None of the differences are statistically significant.

Table 3*Rankings of Venture Capitalist Activities: The Overall Mean and by Professional Background*

Activity	MEANS (%)			t
	Overall	Business	Non-business	
Selection	1.39	1.25	1.35	-0.7057
Structuring	2.51	2.68	2.29	1.5612
Monitoring	2.53	2.40	2.70	-1.5119
Exiting	2.23	2.03	2.48	1.8428**

* Significant at 1%; ** Significant at 5%; *** Significant at 10%

Panel B of Table 2 shows the required rate of return by growth stage. Due to the higher risk of failure, the required rate of return in earlier stages was expected to be higher than for later stages. The results support this relationship. The required rate of return in the seed stage is 120.4%, start-up stage--81.1%, first stage--78.2%, second stage--65.5%, third stage--54.9% and fourth stage--22.1%. These results are in contrast to Hisrich and Peters (1989), who suggest that the required rates of return should be 60% for investments in the seed stage, 50% in the start-up phase and 40% in the other stages.

The largest differences between growth stages occurs between the seed and start-up stages and the third and fourth stages. Apparently, venture capitalists perceive large changes in risk between these categories, as reflected by the large differences in required rates of return.

Ranking of Activity by Importance

Tyejee and Bruno (1984) have identified venture capitalists' activities as falling into the following categories: selection of the project, structuring the deal, monitoring the project after investing funds, and exiting the project. Hisrich and Peters (1989) discuss the selection and structuring of the project in terms of four basic stages: preliminary screening, agreement on terms, due diligence of the project, and final approval of the deal. Complications may arise in each stage as a result of the involvement of more than one venture capitalist (Brophy, 1985).

The survey asked the venture capitalists about the relative importance of each stage. As shown in Table 3, the selection was ranked as being the most important of activities. This result was not unexpected since venture capitalists may receive hundreds of proposals each year of which only a very few are funded (Khan, 1985). Exiting the project was ranked second in importance. The high rank given to the exit procedure was also not surprising since venture capitalists are temporary investors who are interested in cashing out of the investment after a period of time (Gladstone, 1988). Structuring the deal and monitoring the project were considered least important and received approximately the same ranking.

Table 3 also shows the differences in ranking between the business background and non-business background venture capitalists. The order of the rankings between the two groups was different. Both groups ranked selection as the most important activity. However, the business background venture capitalists ranked exiting as the second most important, followed by monitoring and structuring. The non-business background venture capitalists ranked structuring as second in importance, followed by exiting and monitoring. In terms of relative rankings, selection, monitoring

Table 4*Mean Ranking of Exit Procedures: Overall Mean and by Professional Background*

Exit procedure	MEANS (%)			t
	Overall	Business	Non-business	
Buyout by larger firm	1.68	1.78	1.54	1.153
Firm going public	1.88	2.00	1.72	1.911
Depends on situation	2.34	2.60	2.00	1.479
Buyout by venture firm	2.89	2.82	3.00	-0.659

and exiting were considered more important and monitoring less important by the business background venture capitalists than by the non-business background venture capitalists. The differences between the mean rankings of the exiting procedure were statistically significant. The business background venture capitalist considered exiting as much more important than the non-business background venture capitalists.

The only time the venture capitalist is financially rewarded is when the ownership is converted to cash. Gladstone (1988) describes four possible arrangements: buyout by a larger firm, the venture firm going public, buyout by a larger venture firm, or the exit being determined by the situation. Given its importance, the venture capitalists were asked to rank their preferred exit arrangement. The results, shown in Table 4, reveal that the venture capitalists have a greater preference for a buyout by a larger firm (1.68) and the venture firm going public (1.88). Ranked next in importance was the exit procedure "depending on the situation" (2.34), and a buyout by the venture firm was ranked last (2.89). The order of rankings was consistent between both groups. Business background venture capitalists ranked all exit methods lower than non-business background venture capitalists, except the buyout by a larger firm. No differences in means were statistically significant.

Rankings of Evaluation Criteria

The literature is replete with discussion and studies of the criteria used by venture capitalists to evaluate proposals (see Gladstone, 1988; Hisrich & Peters, 1989; Kuratko & Hodgetts, 1989; MacMillan, Seigel, & Subbanasasimha, 1985). These studies consistently find that various aspects of the entrepreneur are critical to the evaluation of a proposal. MacMillan, Siegel, and Subbanasasimha (1985) group the evaluation criteria into six categories: entrepreneur's personality, entrepreneur's experience, characteristics of the product or service, characteristics of the market, financial considerations, and nature of the venture firm. The most important criteria were found to be related to the entrepreneur, financial aspects of the proposal and the patent or copyright position of the product.

This survey also collected information on the criteria used by venture capitalists to evaluate proposals. The rankings are shown in Table 5. All entrepreneurial qualities (except analytical abilities and knowledge of financial statements), especially honest/integrity, commitment and experience, were ranked between 1 and 2 (very important to important). Other factors that ranked high in importance were uniqueness of product, market analysis, return on investment, ownership structure, and competitor's ability to duplicate product and marketing strategy. These results are consistent with MacMillan, Siegel and Subbanasasimha (1985). However, this study found license/

Table 5*Ranking of Evaluation Criteria: Overall Mean and by Professional Background*

Exit procedure	MEANS (%)			t
	Overall Mean (%)	Means Business	Non-business	
Entrepreneur's honesty/integrity	1.08	1.13	1.03	1.1881
Entrepreneur's commitment	1.15	1.23	1.06	1.3573
Entrepreneur's experience in proposed business	1.28	1.35	1.19	1.0275
Entrepreneur's background/achievements	1.39	1.48	1.29	1.0937
Management team	1.39	1.50	1.26	1.3636
Entrepreneur's physical/mental health	1.52	1.70	1.29	2.6506*
Entrepreneur's ability to handle adversity	1.54	1.55	1.52	0.2236
Entrepreneur's leadership ability	1.55	1.50	1.61	-0.6999
Uniqueness of product	1.66	1.82	1.45	1.7729***
Market analysis	1.09	1.65	1.74	-0.4085
ROI	1.80	1.79	1.80	-0.0458
Ownership structure	1.87	2.03	1.68	1.6458
Competitor's ability to duplicate product	1.87	2.00	1.71	1.3076
Marketing strategy	1.87	1.98	1.74	1.0918
Project's cost structure	2.13	2.33	1.87	2.3158**
Entrepreneur's analytical ability	2.24	2.25	2.22	0.1201
Forecast	2.27	2.30	2.23	0.3175
Time to breakeven	2.26	2.23	2.30	-0.3077
Current financial statement	2.29	2.35	2.20	0.4426
Product pricing	2.39	2.45	2.32	0.5876
Financial projections	2.40	2.32	2.50	-0.6289
Entrepreneur's knowledge of financial statement	2.41	2.38	2.47	-0.3828
Licenses/Patents on product(s)	2.71	2.75	2.66	0.3247
Professional background of proposal's presence	2.76	2.94	2.52	1.5320
Proposed firm's personnel policies	3.10	3.03	3.19	-0.7565
To be first external	3.56	3.69	3.38	0.9116
Other *	1.27	1.29	1.25	0.0490

* Significant at 1%; ** Significant at 5%; *** Significant at 10%

patent agreement (2.71) to rank as one of the least important criteria, a finding not consistent with MacMillan, Siegel and Subbanasasimha.

When comparing the rankings of the criteria by the professional background of the venture capitalists, several patterns are evident. Those criteria given the highest ranking by the business background venture capitalists also received the highest ranking by the non-business background

venture capitalists. A comparison of the rankings between each group, however, showed that 20 of the 27 criteria were ranked as more important by the non-business venture capitalists than by the business background venture capitalists. Those criteria considered more important by the non-business background venture capitalists may be grouped into the following categories: financial (financial projections, time to breakeven and return on investment), entrepreneurial (entrepreneur's knowledge of financial statements and entrepreneur's leadership), product-related criteria (market for product) and other (personnel policies). Three of these categories are similar to the categories of criteria used by MacMillan, Siegel and Subbanasimha (1985).

Three of the differences in the rankings between the two groups were statistically significant. These three criteria fall into the categories listed above. In each case, the non-business group considered the criteria to be more important than the business background group.

Evaluation of Criteria by Industry

The rankings of the evaluation criteria were analyzed relative to the industry in which the venture capitalists invest. Significant differences between the rankings of business background and non-business background venture capitalists were then determined for each industry:

1. Telecommunications—the entrepreneur's knowledge of financial statements was ranked higher by venture capitalists having a business background.
2. Human health—the entrepreneur's honesty/integrity and physical/mental health were ranked lower by venture capitalists having a business background.
3. Diagnostic—ownership structure was ranked lower by venture capitalists having a business background.
4. Electronic products—there were no statistically significant differences.
5. Robotics—the entrepreneur's leadership and analytical ability, as well as a license and patent agreement were ranked higher by venture capitalists having a business background.
6. Consumer products—the project's cost structure and the sales forecast were ranked higher by the venture capitalists having a business background.
7. New materials—the financial projections and the management team were ranked higher, and being the first external equity investor was ranked lower by venture capitalists having a business background.

These results reveal several patterns. First, the criteria that are significantly different can be categorized into either entrepreneurial or financial characteristics. Telecommunications, human health and robotics include many characteristics relating to the entrepreneur. Assuming that ownership structure and the management team relate to the entrepreneur, diagnostics and new materials include characteristics relating to entrepreneurial characteristics. Consumer products and new materials include characteristics related to the financial characteristics of the project (cost structure, sales, financial breakeven). The second pattern is that, for most of the criteria that are statistically different, venture capitalists having a business background ranked financial criteria as more important than non-business background venture capitalists. Non-business venture capitalists ranked criteria relating to the entrepreneur as more important than venture capitalists having a business background.

CONCLUSIONS

In this paper, differences in investment criteria and activities are examined according to the backgrounds of venture capitalists. Responses to a questionnaire are compared for venture capitalists with business backgrounds to those with non-business backgrounds.

Non-business venture capitalists investing in earlier stages of the firm appear to have a shorter payback period and make more follow-up investments than business background venture capitalists. The shorter payback period may reflect investment at higher risk stages. The lower required rate of return, however, was inconsistent with the higher risk of investing in earlier stages. Correctly structuring the investment becomes more important with the higher risk investments. With appropriate structuring, the exit procedure becomes less important, especially if affected by the structure of the deal. A more intensive evaluation of the project and a higher level of importance placed on the evaluation criteria would also be consistent with investment in earlier stages.

The statistically significant differences in means also support these observations. The non-business background venture capitalists invest a larger percent of their funds in the earlier stages. They also place greater importance on the uniqueness of the product, cost structure of the project and the entrepreneur's health. However, the exit procedure is found to be of less importance.

The entrepreneur searching for venture capital should be aware that the professional background of the venture capitalists may affect the evaluation of the proposal. Tyebjee and Bruno (1984) have stated that the search for venture capital takes longer than most entrepreneurs expect and that several venture capitalists may need to be approached before the entrepreneur's search is successful. An understanding of the impact of the professional background of the venture capitalist can make the search for capital easier and more rewarding.

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