

DETERMINATION OF KEY FUNDING CRITERIA BY VENTURE CAPITALISTS FOR FINANCING IT FIRM IN INDIAN ECONOMY

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Abstract: *This study determines the most important funding criteria of Venture Capitalists while doing valuation of an information technology firms for investment decision in Indian perspective. The study analyzes social, economical and financial objectives of Venture Capitalists while selecting an IT firm for venture capital funding decision.*

This paper is based on 104 responses generated through a structured questionnaire, based on previous empirical literature. Our paper provides two important contributions. First, we determine the key objectives based on financial, social, and economical aspects of Venture Capitalist for valuation process of an IT firm for funding decision. Second we analyze the difference in weight assignments by different investors during the screening process of valuating an IT firm for funding decision. The paper investigated that during the process of screening, venture capitalists give more importance to factors like promotional objectives followed by growth, development, marketing & leadership ability and risk valuation factors, financial objectives of the firm and economical objectives of the investment.

Key Words: *Venture capital, Investment objective, Valuation process, Socio-economic factors, Information Technology, Funding decision.*

JEL Classifications: *G25, G11,*

INTRODUCTION

In the past 20-25 years, Venture Capital industry has been contributing in the economic development of the economies and also becoming a point of focus from research point of view. There have been considerable studies which show the important relationship among the VCs and Entrepreneurs. Evaluating a business proposal for an investment seems to be an important process from investor's point of view. This is because of so many factors which actually determine the importance of funding decisions in any sector. While doing the funding process, VCs not only focuses on return on Investment but also analyze risks [MacMillan, Siegel, and

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Subba Narasimha, (1985)] and emphasized on various economical and financial aspects such as profitability, return, growth and regional development, Tax incentive, sustainability, investment growth, market capitalization etc. [Hoffman, (1972)]; [Dorsey, (1977)]; [Tyebjee and Bruno, (1984)]; [Ray, (1991; Muzyka *et al.*, (1996)]; [Pandey & Jang, (1996)]; [Kumar, Asim (1996)]; [Mitra (2000)]. However this literature did not conclude the key factors which primarily focus and create a base for social and economical objectives of the valuation and funding process of technology based startup. We hypothesize that this happens because of providing less focus on determining sector specific investment objectives such as returns, social objectives, economical sustainability, profitability, solvency and analyzing risk involved in valuation process.

This paper aims to fill the gap between venture capital funding decisions based on Social, economical and financial objectives with reference to sector specific investment. The present study emphasized on two important prospects. First it determines the key aspects of accounting valuation process related with social, economical and financial perspective for the valuation of an Information technology firm and second it analyze the corresponding relationship among the factors of investment considered by different investors.

Cumulative Investment Details of SEBI Registered Venture Capital Funds (VCF) and Foreign Capital Investors (FVCI) Towards Information Technology Sector

Information Technology sector plays an important role in regional and economical growth of an economy, at the same side any technology based start up needs valuable financial support from different perspective investors. In the recent few years, this sector got significant funding contribution by venture capital in Indian perspective. SEBI reports a year wise details of investment done by SEBI Registered Venture Capital Funds (VCF) and Foreign Capital Investors (FVCI) towards information technology sector in Indian perspective which reveals that in the year 2007 the size of investment was Rs. 8210 crore, in the year 2008 the amount of investment increased with a percentage of 15.29% as compared to 2007 and reached Rs. 9465 crore. In the year 2009 and 2010 the total investment amount increased with 15.80% & 22.34% and was Rs. 10960 crore and Rs. 13408 crore respectively as compared to 2008 & 2009.

A structured questionnaire designed with help of previous empirical literature which consist 43 questions divided in to 9 groups was mailed to different related respondent and results were generated.

This paper is divided into various sections. Section 1 represents the introduction part, section 2 shows the review of literature and research gap, section 3 represents scope of study, section 4 represents the material and methods, section 5 shows result and discussion and section 6 conclude the study.

REVIEW OF LITERATURE

Various studies have investigated the important attributes of venture capitalists selection criteria for selecting a firm for valuation process and funding decision.

Tyebjee and Bruno (1981 and 1984) emphasized on the significance of screening factors like starting of deal, evaluation of environmental aspects, market structure, growth and competition. 46 venture capitalists were interviewed through telephone for this study.

Study conducted by MacMillan, Siegel, and Subba Narasimha (1985) investigated factors like significance of making an attractive business plan for gaining the financial mobility of venture capital investment. Few risks such as competitive risk, risk of failure, risk of bail out as a significant factors for determining a firm for investment decision were also identified in the study. Questionnaire method was used for this study with 102 venture capital firms. Study was based on research tools like factor and cluster analysis.

Study conducted by MacMillan, Zemann and Subba Narasimha (1987) determines the factors which creates a differentiation between successful and unsuccessful venture capitalists and also concluded few risk management cases in the study. Study was based on questionnaire method with 150 respondent using factor & regression analysis.

Sandberg (1987) conducted a study using a technique called verbal protocol and concluded in his research that key features of industry and background have most significant contribution in decision making process.

Hall & Hofer (1993) conducted a study and investigated the time frame used in the screening process of a venture and focused on factors like growth & profitability through semi structured interview with venture capital firms using same verbal protocol technique.

Study conducted by Fried & Hisrich (1994) concluded that market growth and essential operative market conditions for better competitive scenario are one of the important factors of selection process, however this study supports the study conducted by Tyebjee and Bruno (1984).

Pandey & Jang (1996) focused on financial attributes of the investment decision and stated the importance of return on investment as one of significant factor of funding decision.

Zacharakis and Meyer (1998) conducted a study and discuss about the systematic biasness among VCs investment process pertaining and depending upon the total information available for screening purpose. Social judgment theory based on cognitive psychology with a policy capturing tool was used in this study. Shepherd (1999) took a sample size of 66 venture capital firm and used conjoint

analysis to conclude the study with the perception and significant focus on most important and least important criteria being rated by venture capitalists during the screening process of a firm. Most of the studies given importance to factors like entrepreneur's track record, experience and personality as one of the key factors of selection procedure Wells (1974), MacMillan *et al.* (1985), Ray (1991), Ray & Turpin (1993). Zacharakis & Shepherd, 2001; Khan, 1987; MacMillan *et al.*, 1987; Ray & Turpin; Beim & Lévesque, 2004, emphasized on factors like perception and trust of venture capitalist for screening the venture for investment. Leleux & Surlmont (2003), Cornelius (2005), studied different strategies opted by public and private investors for different stages of investment. Cumming & MacIntosh (2006), Brander *et al.* (2009) and Munari & Toschi (2010) suggests the main aim of any public venture capital fund is not only limited to gain profits but also focuses on development of the economy. However there is a question that how many factors are most important from sector specific investment's point of view and do all types of investors keep same perception during screening process along with their relative assignment of weights? This forms the basis for our study and carries subject significance gap.

Research Gap

Investment decisions not only provide a developmental role for investee firm but also aim at economic development of concerned economy. When evaluating a new proposal, the idea should not be individual or firm's development but it should focus on social, economical and financial development of overall economy. Various studies have already been conducted in the determination of selection criteria being used for opting a firm for investment decision but lack of focus given on the sector specific development of economy with this investment tool. The significance gap in the above study is based on the problems of identification of social, economical and financial factors used in the valuation process which may provide a better understanding for achieving the desired goals of investors and entrepreneurs.

SCOPE OF THE STUDY

The recent initiative of Indian Government 'Start up India' campaign aims at encouraging and promoting new ventures through bank financing mode. This is a good opportunity for new ventures as multiple benefits are being offered from this campaign including tax rebate for three years. This way also we find our study better for IT based new start ups. This study gives an insight to new ventures that are approaching financial institutions for their funding requirement. The study will be helping new ventures to make their business plans more standardized for attracting the intuitions of investors.

IT industry has shown a progressive growth rate in the last few decades; hence this sector is contributing a significant role in the economic development of the

economy. Venture capitalists review various business proposals every year but select very less. The main reason of this rejection is the nature of investment decision. Venture Capitalists are high risky investors and hence target high returns on their investments. While screening the business proposal, they select those firms who seem to be targeting their future goals and may provide significant growth to the investment. The first significant step of a firm is to design a sound business plan for attracting VCs investment. Previous empirical studies concluded the key factors opted by venture capitalists while screening a new proposal for funding purpose. This paper is a follow up study for previous studies but aims at venture capitalists' investment decision in Information Technology sector in Indian perspective. The following are the main objectives of the study:

1. Determination of VCs social, economical and financial objectives for selecting an Information Technology firm as an investment option.
2. To study the existing differences while assigning the weights for corresponding factors in the screening process of investment criteria by different investors.
3. The purpose of this paper is to determine key investment objectives based on social, economical & financial aspects with reference to selection of an Information Technology firm for VC funding and to analyze the relationship among the factors taken by various investors with respect to IT firm in India.

MATERIALS AND METHODS

Data

Data were obtained through a structured questionnaire developed with the help of previous literature and was sent to 160 related respondents which includes Venture capitalists, financiers, financial consultant, financial institutions, fund managers, private banks and public banks of various cities within India, however additional grouping of the variables included in the study and variables like employment generation, market structure, future perspective, continual assessment, market potential, feasibility of undertaken project, idea implementation, focus on R&D, sustainability of the firm, IT firm as an investment option etc. are not used in previous studies under the dimensions of social, economical and financial objectives. The size of sample selection is based on the nature of respondents as they are firms, not individuals. We found our sample size suitable for the study because of selection of firms. Various follow up procedure were taken in to consideration while obtaining the responses. Total 43 questions divided in to 9 groups were asked from the respondents. We used five point likert scale to measure the relative relationship and importance of these variables. The variables taken for the study are company's investment objectives based on social

and economical objectives, valuation process, accounting valuation process and Information Technology firm as an investment option based on qualitative aspects of the owner of the firm and qualitative aspects of the firm. We gathered significant contributions from 104 respondents with a response rate of 65%. This is presented in Table 1:

Table 1
Categories of Respondents

<i>S.No.</i>	<i>Category of Respondents</i>	<i>Category volume</i>	<i>Percentage on total response</i>
1	Financers	11	10.58%
2	Financial Consultants	10	9.62%
3	Financial Institutions	10	9.62%
4	Fund Managers	16	15.38
5	Private Banks	11	10.58%
6	Public Banks	13	12.50
7	VCs	22	21.15
8	OTHERS	11	10.58%
	Total	104 out of 160	65%

Source: Compiled from questionnaire

Responses given by concerned respondents obtain information related to Company's investment objectives based on a) Returns [Poindexter, (1976)]; [Pandey & Jang, (19960), b) Social objectives based on growth and profitability [Florida, R. and M. Kenney; M., (1988b)]; [Cumming & MacIntosh, (2006)]; [Brander *et al.*, (2009) and Munari & Toschi, (2010)], c) Economic objectives, Valuation process based on a) Profitability [Hall & Hofer, (1993)], b) Solvency, c) Accounting valuation process d) Evaluation of risk in investment and IT firm as an investment option based on a) Qualitative aspects of the firm b) Qualitative aspects of owner of the firm [Macmillan, Siegel and Narsimha, (1985)].

Method

We used statistical analysis to determine the results. Factor analysis is used to find out the most important social, economical and financial objectives and ANOVA is used to obtain the corresponding relationship and weightage among the factors taken by different investors.

Reliability Analysis

Before approaching to Factor Analysis, we have first checked the reliability analysis for our construct. Cronbach's alpha [Cronbach, (1951)], as a reliability statistics has been used to determine internal consistency to measure the reliability of a construct. We obtained following Cronbach's Alpha value for our construct:

Reliability Statistics

<i>Cronbach's Alpha</i>	<i>No. of Items</i>
.926	43

Factor Analysis

In order to reduce the variable and to find out the key objectives of investment decision, factor analysis has been used. We conduct this analysis to find out the most important variables among the 43 variables. Table 2 represents the process of analyzing 43 variables reduced in 28 variables under the four dimensions. Dimension reduction of factor analysis has been used under which we extracted the factors using principal component analysis. The factors were rotated through Varimax, with Kaiser Normalization till no cross loading and values below .5 were deleted to find out the cross loading situation.

Table 2
Factor loadings for each factor
 Factor Loadings of Variables in Four Dimensions

<i>Variable</i>	<i>Factor</i>			
	<i>Growth, development, marketing and leadership ability and risk valuation from the investment</i>	<i>Financial objectives of the investment</i>	<i>Economical, Risk valuation and objectives of the investment</i>	<i>Promotional objectives</i>
Targeting Ownership	0.756			
Growth and regional development	0.818			
Tax incentives	0.972			
Fixed compensation	0.844			
Market capitalization	0.884			
Transaction price	0.844			
EBIT	0.818			
Turnover ratio	0.884			
Discounted future cash flows	0.928			
Risk of being unable to bail out, if necessary	0.772			
Competitive risk	0.884			
leadership failure	0.764			
Market potentiality and links	0.818			
Resources and capabilities	0.899			

contd. table 2

Variable	Factor			
	Growth, development, marketing and leadership ability and risk valuation from the investment	Financial objectives of the investment	Economical, Risk valuation and objectives of the investment	Promotional objectives
Risk taking capacity	0.972			
Leadership style	0.972			
Own return		0.985		
Future value of the firm		0.966		
P/E multiple		0.985		
Capitalized maintainable earnings		0.985		
Future plans		0.911		
Discounted value of free cash flows			0.988	
Risk of losing entire investment			0.988	
Risk of failure to implement the idea			0.988	
IT sector as a growing sector			0.988	
Investor return				0.986
Promoting entrepreneurs				0.986
Capable of high profit margin				0.903

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Table 3 shows that how we extracted the eigenvalues for each factors and reached to 100% variance.

Table 3
Eigen values for each factor

Component	Initial Eigen values		
	Total	% of Variance	Cumulative %
1	12.84	45.861	45.861
2	6.458	23.066	68.927
3	5.08	18.144	87.071
4	3.62	12.929	100

The 43 variables are reduced in to 28 variables under 4 factors. The first factors which we call Growth, development, marketing, leadership ability and risk

valuation from the investment focuses on appreciation in investment, regional growth, tax aspects, factors related to market capitalization, risks, marketing and leadership potentiality. The second factor is focusing on financial objective of the investment which gives emphasis on own return, future values, price earning ratio and future prospects. The third factor is based on economical valuation and prospective objectives of the investment which gives importance to understand and mitigate the risk involved in the decision and fourth factors reveals the significance of promotional objectives in the decision making process which includes profit margin and investor's returns.

RESULTS AND DISCUSSION

Factor Analysis resulted with 28 variables which were grouped under 4 categories. With this process we concluded that growth, development, marketing & leadership ability and risk valuation from the investment, financial objectives of the investment, economical, Risk valuation and objectives of the investment, promotional objectives such as profit margin, investment returns are the key investment objectives of VCs from financial, economical and social point of view and hence should be given more preference by IT firms while making a business plan for funding decision.

We observe the presence of difference in weights assignments while determining the selection of funding decision. We used correlation among the factors to study this process (refer correlation matrix in the appendix). The objective of this study is to assess the two aspects, first to find out the key investment objectives with reference to social, economical and financial prospective and second to study the cluster specific assignment while selecting an IT firm for investment decision and its valuation process. We obtained significant results for the first objective and for obtaining the results for second objective we used ANOVA. We formed following two hypotheses for obtaining the results from ANOVA:

- H1:** All types of investors do not differ in the assignment of weights to social, economical and financial factors during the screening process of an information technology firm.
- H2:** All types of investors have same social, economical and financial aspects for selecting IT firm as an investment option.

For ANOVA, we made a coding sheet using the concerned responses of respondents. Total eight categories were formed for this purpose. For each category total 10 responses were taken in to the consideration and the responses were recorded in to coding sheet under the heads of four factors (resulted from the process of factor analysis). A new coding sheet was made to calculate the total average based on type of firm for which we have taken individual average of the factors and total average of the factors and then this average was divided by 10.

This process continues for all eight categories and four factors. Refer Table 4 for this process.

Table 4
Coding for ANOVA

Generation of Total Average Based on Type of Firm for Anova								
Factors	Financer	Financial Consultant	Financial Institution	Fund Manager	Private Bank	Public Bank	VCs	OTHERS
F1	4.14	4.08	4.11	4.17	3.94	4.07	4.11	4.13
F2	4.22	4	4.36	4.38	4.14	4.3	4.36	4.4
F3	4	4	4	4	4	4	4	4
F4	4.8	4.6	4.83	4.70	4.90	4.80	4.83	4.83

Source: Compiled from questionnaire

Table 4 represents value of total average, factor wise and category wise recorded for obtaining the results through ANOVA. We did this process because we observed the difference in assignment of weights by different investors in the use of screening the venture. Different investors have same opinion in selection of factors from funding point of view but they differ in terms of providing weightage to those factors. The study is based on the determination of key investment objectives and to analyze the difference in assignment of weights by different investor for selecting an IT firm for funding decision. Table 5 shows the results generated through ANOVA.

Table 5
ANOVA Results

<i>Anova: Two-Factor Without Replication</i>						
SUMMARY	Count	Sum	Average	Variance		
F 1	7	28.6063	4.08661	0.00507		
F 2	7	29.94	4.27714	0.02259		
F 3	7	28	4	0		
F 4	7	33.5	4.78571	0.01032		
Financial Consultant	4	16.675	4.16875	0.08391		
Financial Institution	4	17.3058	4.32646	0.1368		
Fund Manager	4	17.2488	4.31219	0.09101		
Private Bank	4	16.9838	4.24594	0.19694		
Public Bank	4	17.1688	4.29219	0.13108		
VC	4	17.3058	4.32646	0.1368		
OTHERS	4	17.3583	4.33958	0.13627		
ANOVA						
Source of Variation	SS	Df	MS	F	P-value	F crit
Rows	2.59937	3	0.86645	112.172	7.72E-12	3.15990
Columns	0.08883	6	0.01480	1.91676	0.1330	2.66130
Error	0.13903	18	0.00772			
Total	2.82724	27				

We assessed following results from ANOVA presented in Table 5:

H1: All types of investors do not differ in the assignment of weights to social, economical and financial factors during the screening process of an information technology firm.

Results: This hypothesis is rejected because f calculated value is $> f$ critical value & p value is $< .05$.

H2: All types of investors have same social, economical and financial aspects for selecting IT firm as an investment option.

Results: This hypothesis is accepted because f calculated value is $< f$ critical value & p value is $> .05$

Result of hypothesis 1 is based on row's result shown in the corresponding ANOVA result (refer table 5) which proofs that investors differ in the assignments of weights during the screening process of an IT firm and result of hypothesis 2 is based on column's result shown in the corresponding ANOVA result (refer table 5) which discloses that different investors prefer same factors during the screening process of an IT firm.

With the help of above results, we determined that there is a similarity between selections of criteria being used by different investors for selecting an information technology firm for investment decision but exists differences in assignment of weights during the screening process of the venture. We also analyzed that fourth factor (promotional objectives) keeps highest significance in terms of weight assignments followed by second factor (financial objectives of the investment), first factor (growth, development, marketing & leadership ability and risk valuation) and third factor (economical, risk valuation and objectives of the investment).

CONCLUSION

The most important finding of our study is to determine the key investment, social and economical objectives used by venture capitalists in order to screen an information technology firm in Indian perspective for funding decision, described in previous empirical literature. The study attempted to analyze the relative relationship among assignment of weights for various factors used by different investors while selecting a firm for investment decision. We find that during the valuation process of information technology firms, investors give more importance to the factors like return, social objectives, valuation process such as profitability, solvency, and risk evaluation in the investment etc. This study provides a better platform for IT firm valuation process and have implications for both, Investors and IT firms. Firstly to investors while screening technology based startups for funding decisions and secondly for IT firms for making their business plan so strong to attract lucrative investment from VCs/ investors.

Factor analysis resumes the four most important aspects of valuation process of an IT firm for funding decision which includes Growth, development, marketing & leadership ability and risk valuation from the investment, financial objectives of the investment, Economical, Risk valuation & objectives of the investment and Promotional objectives.

ANOVA identified that the choice of factor remains same during valuation process of a firm but there are differences in opinion during assignment of weights for various factors of investment decision. Assignment of weights depends upon the perception and intuition of investors.

This study creates a better understanding and relationship among the VCs/ Investors and IT firms with regard to funding decision and valuation process. The result would be useful for technology based startups to attract more investment from VCs for financial development of this sector in the Economy.

Few limitations are associated with present study such as study is based on sector specific orientation and focuses on information technology sector as a whole but do not include classification of this sector, alongside this study can be done Pan India with increased sample size for creating a better understanding and standard of determining factors for selection an information technology firm for funding decision.

The study forms the platform for future researchers in the area of determining sector specific investment decision and same work can also be done for other sectors as well with country specific conditions and comparison with different countries.

APPENDICES

Correlation based on factor's average

	<i>FINANCER</i>	<i>Financial Consultant</i>	<i>Financial Institution</i>	<i>Fund Manager</i>	<i>Private Bank</i>	<i>Public Bank</i>	<i>VC</i>	<i>OTHERS</i>
FINANCER	1							
Financial Consultant	0.964033403	1						
Financial Institution	0.979970949	0.896289991	1					
Fund Manager	0.957558467	0.846545894	0.990172167	1				
Private Bank	0.975731938	0.958846778	0.960403266	0.912743542	1			
Public Bank	0.984699708	0.915174696	0.997829595	0.978838615	0.976527995	1		
VC	0.979970949	0.896289991	0.990172167	0.990172167	0.960403266	0.997829595	1	
OTHERS	0.969866259	0.87334529	0.998699186	0.994858435	0.945970706	0.993591868	0.998699186	1

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