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Venture capital and private equity in India: an analysis of investments and exits

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Abstract

Purpose – The venture capital and private equity (VCPE) industry in India has grown significantly in recent years. During five-year period 2004-2008, the industry growth rate in India was the fastest globally and it rose to occupy the number three slot worldwide in terms of quantum of investments. However, academic research on the Indian VCPE industry has been limited. This paper seeks to fill the gap in research on the recent trends in the Indian VCPE industry.

Design/methodology/approach – Studies on the VCPE transactions have traditionally focused on one of the components of the investment lifecycle, i.e. investments, monitoring, or exit. This study is based on analyzing the investment life cycle in its entirety, from the time of investment by the VCPE fund till the time of exit. The analysis was based on a total of 1,912 VCPE transactions involving 1,503 firms during the years 2004-2008.

Findings – Most VCPE investments were in late stage financing and took place many years after the incorporation of the investee firm. The industry was also characterized by the short duration of the investments. The type of exit was well predicted by the type of industry, financing stage, region of investment, and type of VCPE fund.

Originality/value – This paper highlights some of the key areas to ensure sustainable growth of the industry. Early stage funding opportunities should be increased to ensure that there is a strong pipeline of investment opportunities for late stage investors. VCPE investments should be seen as long-term investments and not as "quick flips". To achieve this, it is important to have a strong domestic VCPE industry which can stay invested in the portfolio company for a longer term.

Keywords Venture capital, Equity capital, India, Investments, Financing

Paper type Research paper

1. Growth of the Indian VCPE industry

Over the last few years, India has become one of the leading destinations for venture capital and private equity (VCPE) investments. Though the concept of VCPE investment prevailed in the country in one form or another since the 1960s, the growth in the industry was mainly after the economic reforms in 1991. Prior to that, most of the VCPE funding was from public sector financial institutions, and was characterized by low levels of investment activity. In recent years, VCPE commitments and investments in India have grown at a rapid pace. Venture economics data indicate that during the period 1990-1999, India's ranking was 25th out of 64 and various VCPE funds raised $945.9 million for investments in India; however, during the next decade, 2000-2009, India's ranking rose to 13th out of 90 countries and the funds raised $16,682.5 million for investments in India.

This represents a growth of 1,664 percent over the previous decade. The trend is even more encouraging for the most recent five-year period 2005-2009, during which India's ranking was 10th out of 77 countries, and various funds raised $15,073.6 million for VCPE investments in India. Funds raised during 2005-2009, represented a growth rate of 837 percent as compared to funds raised over the previous five-year period 2000-2004.

The growth rate in investments made by various VCPE funds has been equally strong. During the five-year period 2004-2008, the industry growth rate in India was the fastest globally and it rose to occupy the number three slot worldwide in terms of quantum of investments[1]. The amount invested by VCPE funds grew from US$ 1.8 billion in 2004 to US$ 22 billion in 2007 before tapering off to US$ 8.1 billion in 2008[2]. During the five-year period ending 2008, VCPE investments in India grew from 0.4 percent of GDP in 2004 to more than 1.5 percent of GDP in 2008 (Annamalai and Deshmukh, 2009).

The rest of the paper is structured as follows: Section 2 indicates the objective of the paper. Section 3 provides details on the data set used for analysis and the sources of data. Section 4, which covers the results and discussion, is divided into six sub-sections. The sub-sections are in the following order: round wise analysis of investments, time of incorporation and financing stage, intervals between funding rounds, investment exits, duration of investment, and a statistical analysis of investment duration and type of exit. Section 5 provides a summary of the paper.

2. Objective of the paper
Research on VCPE has not been in tune with the growth seen in the industry. Past research on the Indian VCPE industry can be broadly classified into the following categories: studies that examined the evolution and the current status of the industry (Pandey, 1996, 1998; Verma, 1997; Dossani and Kenney, 2002; Singh *et al.*, 2005); multi country studies which also included India (Lockett *et al.*, 1992; Subhash, 2006; Ippolito, 2007); survey studies of VCPE industry practices in India (Mitra, 1997; Vinay Kumar, 2002, 2005; Vinay Kumar and Kaura, 2003; Mishra, 2004); and studies which can be considered as case studies of VCPE investments (Kulkarni and Prusty, 2007).

The objectives of this paper are as follows: first, research that has focused on the recent growth phase of the VCPE industry in India has been limited. Most of the papers that have studied the Indian industry were either before the growth phase (pre-2004) or did not cover the growth phase in full, starting from the onset of growth in 2004 until the slowdown in 2008, caused by the global financial crisis. This paper is an attempt to meet the gap in research on the recent trends in the Indian VCPE industry. Second, there have been very limited studies that looked at the lifecycle of investments, i.e. from the time of investment in the company until their exit from the investment. There have been several studies that have looked at areas related to investments such as investment decision making, structure of investments, and valuation. Similarly, there have been studies that have looked at topics related to venture exits. However, there have been limited studies that looked at the entire investment life cycle. The main contribution of this paper is to look at the investment lifecycle in its entirety. Third, this paper aims to highlight some of the lesser known features of the Indian VCPE industry such as the characteristics of the investee firm at the time of VCPE investment, the duration of VCPE investments in the firm, and the timing and mode of exit by the investors. The objective of this paper is to provide an holistic understanding of the Indian VCPE industry to enable the creation of a policy environment to sustain the growth of the industry.

3. Data set used and sources

This study uses VCPE investment transaction data during the years 2004-2008. The choice for the period of analysis was driven by two considerations. First, it was during this period that the industry witnessed significant growth and India emerged as one of the leading destinations for VCPE investments. Therefore, a detailed study of this industry growth would be of general research interest. Second, the choice of period was also governed by practical considerations. Data on VCPE investments in India before 2004 were not available in a form that can be used for a research study. Therefore, it was decided to begin the starting period of the study at year 2004, the year from which we had access to data. It was felt that a five-year study of transactions would be a reasonable time frame to overcome the yearly fluctuations. This five-year period also coincided with a full financial cycle in the global financial markets, a period marked by dramatic growth and equally dramatic fall.

The data for the study were obtained from multiple sources. To start with, deal data on the various investments and exits were obtained from two database sources: *Venture Intelligence India*[3] and *Asian Venture Capital Journal*[4] database. The data from both these databases were combined to form a comprehensive data set. The data set was then suitably checked for data repetition and duplicate data points were removed first. Second, whenever there was a difference in the information given for the same deal, the correctness and accuracy was checked by independent verification from other sources, such as newspaper reports and company web sites. Information that was not available in these databases was then separately sourced from the web sites of the independent companies. Admittedly, with the lack of a strong database on Indian investments, developing such a data set involved a lot of effort.

The comprehensive data set that was developed provided various details on the VCPE investments and exits that happened in India during 2004-2008. It consisted of a total of 1,912 VCPE transactions involving 1,503 firms during the period 2004-2008. From these 1,503 firms, 1,276 firms had only investment transactions while another 129 firms had only exit transactions during the five-year period. The remaining 98 firms had both VCPE investment and exit transactions. To facilitate a more detailed analysis, the investments were classified into ten industry categories and four financing stages based on the lifecycle stage of the investee firm and the objectives of the investment. Exits were classified into two categories, namely initial public offer (IPO) and merger and acquisition (M&A) or trade sale.

4. Results and discussion

4.1 Round-wise analysis of investments

Firms seeking to raise VCPE investments normally receive the investment in multiple rounds (Sahlman, 1990); earlier works have provided several explanations for this trend. Gompers (1995) indicates that the staging of capital infusions allows venture capitalists to gather information and monitor the progress of firms, while retaining the option to periodically abandon projects. Admati and Pfleiderer (1994) indicate that such an option to abandon is essential because an entrepreneur will almost never quit a failing project as long as others are providing capital and the threat to abandon creates incentives for the entrepreneur to maximize value and meet goals. Neher (1999) indicates that multiple rounds of financing overcome the potential agency conflicts between the entrepreneur and investor as previous rounds create the collateral to support the later rounds.

While the stage of financing is determined by the objectives and timing of investment, the round of financing simply indicates the number of instances of VCPE investments in the firm. Thus, for example, Round 1 financing is the first instance of the firm getting VCPE investment, but it need not be always early stage financing. Depending on the firm lifecycle and the objectives of investment, Round 1 financing can happen in any of the four financing stages. Similarly, there could be multiple rounds of investment happening in the same stage. In a particular round of funding, there may be many investors jointly investing in the company. For example, when there is a co-investment by more than one VCPE investor at the same time, it is considered as a single round of investment. By the same token, when the same investor makes investments in the firm at different times at different valuations, each investment is considered a separate round of funding. Funding rounds are considered to be different when there has been a substantial time gap from the previous round of financing and/or the investment happens at a different valuation from the previous round of funding.

Figure 1 shows the results from the round wise analysis of VCPE investments. The results indicate that 82 percent of the total VCPE investments were in Round 1, i.e. first time VCPE investments in the company. Out of the total amount of investment, follow on investments account for only 18 percent. It can be observed that investments decrease sharply with subsequent funding rounds. One possible reason behind this could be because of the nature of data: most of the investment has happened during the later years of the study period[5], indicating that sufficient time might not have elapsed for the next round of investment. However, these results indicate the possibility that VCPE investments are happening at a much later stage in the firm lifecycle and the firm is not in need of an additional funding round for reaching a critical size that is needed for an IPO or for finding a buyer. This might also be explained by the grandstanding theory (Gompers, 1996), where VCs are keen to exit more quickly from their investments. Second, this trend can also indicate that the companies that have received the first round might not have been able to achieve a strong enough performance to attract the next round of investment from investors. Further studies are needed to understand this pattern in detail.

Table I indicates that the number of rounds of funding received by companies in different industries was 1,912 from a total of 1,503 companies. This indicates that the average number of rounds in a company was 1.27. As can be seen from Table I, a large majority of the firms have received only one round of VCPE investment. This result accompanies the results in Figure 1 well, which indicate that 82 percent of the total
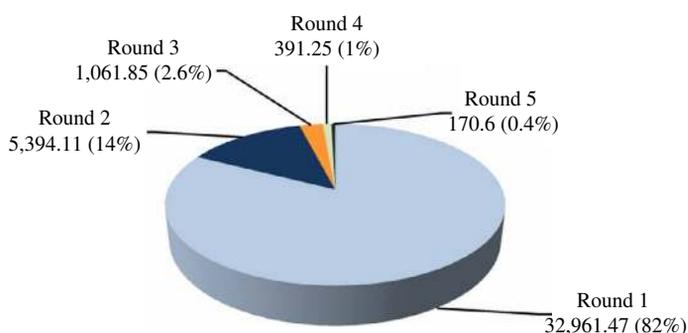

Figure 1.
Round-wise VCPE investments (in US$mn) during 2004-2008

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Industry	Count of companies for different funding rounds								Total companies
	1	2	3	4	5	6	7	8	
Computer hardware	36	5	1	1					43
Engineering and construction	137	21	6	1			1	1	167
Financial services	110	30	5	3		2		1	151
Healthcare	92	19	6	2			1		120
IT and ITES	295	53	12	3		1			364
Manufacturing	214	25	6	3	2				250
Non-financial services	133	12	5	2	1				153
Others	65	10	3	1					79
Telecom and media	93	15	4						112
Transportation and logistics	51	8	3	1		1			64
Grand total	1,226	198	51	17	3	4	2	2	1,503

Table I.
Count of companies for different funding rounds

investments were Round 1 investments. Only 13 percent of companies have obtained two rounds of funding, and approximately 5 percent of the total companies that have received VCPE investments during the period have obtained more than two rounds. The proportion of companies that have received the second round of funding in different industries is more or less the same as what we saw for Round 1 investments, except in the financial services category. The phenomenon of some industries being more successful in getting Round 2 investments could not be clearly observed in our analysis. In a way, this is a surprising trend. For example, information technology (IT) and information technology-enabled services (ITES) companies constitute 24 percent of the total number of companies that have received funding, 24 percent of the companies that have received the first round of funding, and 25 percent of the companies that have received more than one round of funding. This indicates that IT and ITES companies, seen as one of the engines of growth in India, have not had higher proportional success than companies in other industries in attracting multiple rounds of funding.

The financial services companies constitute 10 percent of the total companies that have received funding, 9 percent of the companies that have received one round of funding, and 15 percent of the companies that have received more than one round of funding. This indicates that financial services companies have a better track record of getting additional investment rounds. The reasons could be numerous – the larger funding requirements created the need for funding to happen in multiple rounds and companies that had obtained the first round of funding would have been able to showcase a strong performance track record to attract the subsequent rounds of funding. The industry itself was in an upswing in India during the study period and this might have contributed to investor interest in investing in subsequent rounds. It could also be due to the institutional and regulatory features of private equity (PE) investing in India. For example, funding could be done in multiple rounds because of the procedural issues in foreign investments in certain sectors. Further studies are needed to identify the determinants of funding rounds.

One would reasonably expect that multiple rounds of funding would be observed in more capital intensive industries. Among the ten industry categories, engineering and construction and manufacturing sectors are very capital and asset intensive.

However, it can be seen that the proportion of companies receiving additional rounds of funding in these sectors is not more than the proportion of companies that have received first-round funding. On the contrary, the proportion of companies receiving additional rounds of funding in manufacturing is less than that of their proportion in Round 1 financing. Several explanations are possible for this trend, which needs to be substantiated with further research. Companies are receiving VCPE funding at a much later stage in the lifecycle and they do not need additional rounds of funding before providing an exit to the investor. It is possible that, because of their asset intensive nature, they are able to get access to debt funding thereby limiting the possibility of additional rounds of VCPE financing.

4.2 Time of incorporation and financing stage
It is well known that VC investments happen early in a firm's life. It is during the early stage that companies have limited means to raise money from conventional sources and look to sources like VC for meeting the funding requirements. Table II provides the results from our analysis of the interval between the year of incorporation of the company and the financing stage. The results indicate some interesting trends. Early stage funding should normally happen within the first couple of years after the incorporation of the firm. But in our analysis, we find that 17 percent of the firms have received their early stage funding as much as ten years after they were incorporated. While the highest frequency of early stage funding can be seen in the one- to three-year category, a large proportion of companies get their early stage funding even until the fifth year from the time of incorporation. This indicates the disinclination of the VCPE investors in India to make investments in very early stages.

A majority of the growth stage investment happens between five and eight years from incorporation. However, the second highest percentage of growth stage funding happens after 15 years after incorporation. While growth stage financing during the five- to eight-year period seems reasonable (though it is still more than that which is normally associated with growth financing), growth financing happening after 15 years from incorporation needs to be studied in detail. It could either be a question of willingness or readiness. Either the investors are not willing to invest earlier or the companies are not ready to receive VCPE funding in their early years. The companies might have explored funding from family, banks, or friends before taking investment from VCPE investors.

Financing stage	Time since incorporation (in years)						Total
	< 1	*1-3*	*3-5*	*5-8*	*8-10*	*> 10*	
Early	20	51	37	13	1	25	147
	13.6%	34.7%	25.2%	8.8%	0.7%	17.0%	
	< 3	*3-5*	*5-8*	*8-10*	*10-15*	*> 15*	
Growth	22	26	68	36	31	53	236
	9.3%	11.0%	28.8%	15.3%	13.1%	22.5%	
Late	7	15	25	19	61	173	300
	2.3%	5.0%	8.3%	6.3%	20.3%	57.7%	
Pre-IPO	3	0	6	3	13	14	39
	7.7%	0.0%	15.4%	7.7%	33.3%	35.9%	

Table II.
Number of VCPE deals for different financing stages vs time since incorporation of investee companies

Analysis of late stage investment deals, as can be expected, show an increasing trend with time from incorporation. However, more than half of the late stage deals that have been studied are seen in companies more than 15 years after their incorporation. This again re-confirms the earlier findings that VCPE investors have been more inclined to invest in companies that have a longer track record and operating history, and have a sufficient size. From the perspective of companies that are receiving VCPE funding, such late stage funding, could indicate that these companies might have been part of a larger business group, which provided the financial support in their early years. Further studies need to be done to understand the antecedents of firms that receive late stage investment.

But one of the most compelling observations which attracts immediate attention is that about 75 percent (541 out of 722[6]) deals are in companies that are more than five years old. Almost 60 percent (429 out of 722) VCPE deal investments are made in firms that are eight years old or more. This supports the earlier inferences that VCPE funds in India are more inclined to invest in firms that have a track record of performance. While this investment trend might not be very different from that which is seen in other emerging economies such as Brazil (Ribiero and de Carvalho, 2008), it is much more marked in India. Therefore, it is felt that most of the VCPE investments in India are in the nature of PE investments rather than VC investments, which are typically investments made in early stage companies.

4.3 Intervals between funding rounds

Table III presents average time intervals in months between different rounds of PE funding (for Rounds 1-3)[7] across industries. The average time interval across industries between Round 1 and Round 2 funding is 13.69 months, which is just slightly more than year. The average time interval between Round 2 and Round 3 funding is 10.91 months, which is less than a year. The median values for the above intervals are 12.17 and 11.17 months, respectively. The closeness of the mean to median values indicates that there is no significant skew in the time interval between different funding rounds. Figures 2 and 3 show the distribution of time intervals between rounds. These indicate that the deals are well distributed in the initial periods, with a slightly higher frequency around the mean value, and tapering down in the later periods.

Since it takes about three to six months from the date of the first significant meeting with the investors to realize an investment, the low time interval between successive

Industry	R2-R1	R3-R2
Computer hardware	14.43	16.72
Engineering and construction	17.13	4.88
Financial services	12.28	7.44
Healthcare	14.89	14.22
IT and ITES	15.64	12.43
Manufacturing	11.58	10.14
Non-financial services	13.93	16.57
Others	8.46	6.03
Telecom and media	11.16	15.23
Transportation and logistics	9.54	9.63
Total	13.69	10.91

Table III.
Average time interval between successive rounds of VCPE funding (in months)
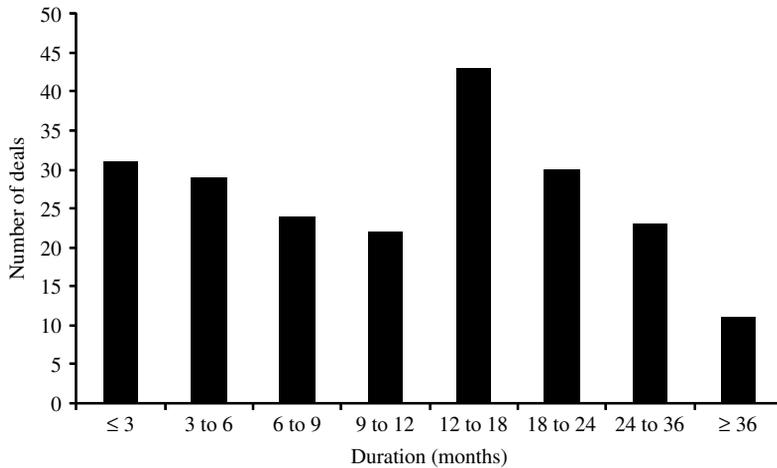
Figure 2.
Time between Round 2
and Round 1 investments
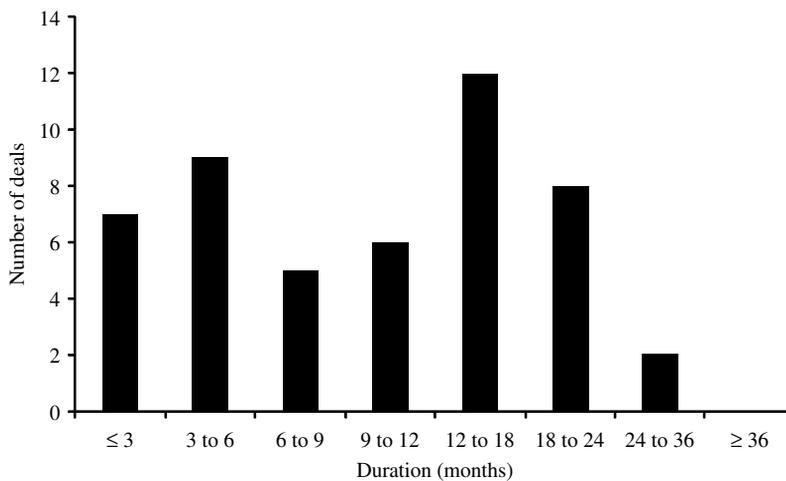
Figure 3.
Time between Round 3
and Round 2 investments

financing rounds indicates that the top management of the company might be continuously devoting their energies in raising capital. This might not be good for business, as spending more time on raising financing is likely to affect their attention to business operations. Our results also indicate that in the Indian context the pace of financing increases with time. This result is somewhat surprising as, under normal circumstances, the size of funding increases with every additional round of funding and is expected to meet the needs of the company for a longer duration even after accounting for the higher cash burn rates due to the increase in company size.

Analysis of time intervals for different industry categories indicates that the engineering and construction sector had the largest time interval between the first and second round of funding. Some explanations, which need to be followed with further research, for this trend include being capital intensive. They raise large sums which

help the companies to sustain the operations for a longer period. They are able to get additional funding from other sources such as debt. Cash flows from operations would also contribute towards the financing requirements. However, the time interval between second and third round is the lowest for this sector, which indicates that this could be due to the pre-IPO nature of funding.

4.4 Investment exits

Venture exit has been an area where there has been limited research (Gompers and Lerner, 2004). The VCPE investor after a certain period has to exit the investment to recover the same as well as to earn a return on it. The different possible exit routes play a major role in VCPE financing and the likely availability of favorable exit opportunities in lesser time is one of the key criterions used by investors while evaluating investment opportunities. Though there are several exit routes for the VCPE funds such as IPO, secondary sale of shares, M&A, management buy outs, and liquidation. Exit by IPOs and trade sale through M&A are the more prevalent methods of exit in Indian VCPE markets. Of the total 252 exit events that were recorded during the five-year period ending 2008, 84 events were IPOs and the remaining 168 were M&As. Thus, the ratio of exits of IPOs and M&As is exactly 0.5, indicating that an exit by M&A is twice as likely as that by IPO. However, an analysis of this ratio across different industries provides an interesting picture. The ratio is less than 1 for all but two of the industry categories – engineering and construction, and transportation and logistics. Companies in this sector tend to be capital intensive industries with a large asset base and largely dependent on the Indian market. Since companies in this sector are much larger in terms of revenues or assets, it becomes comparatively easier to achieve an exit by means of an IPO. For sectors, that are not so asset intensive, M&As seem to be a common form of exit for VCPE investors. Computer-hardware, IT and ITES, and healthcare – all traditionally attractive industries for VCPE investments – show a strong inclination towards M&A exit routes with the ratio of IPO-M&A exits being less than 0.4 (Figure 4).

The choice of exit route is also influenced by the state of the capital markets. The ratio of IPO-M&A exits in each of the five years during the study period is shown in Figure 5.
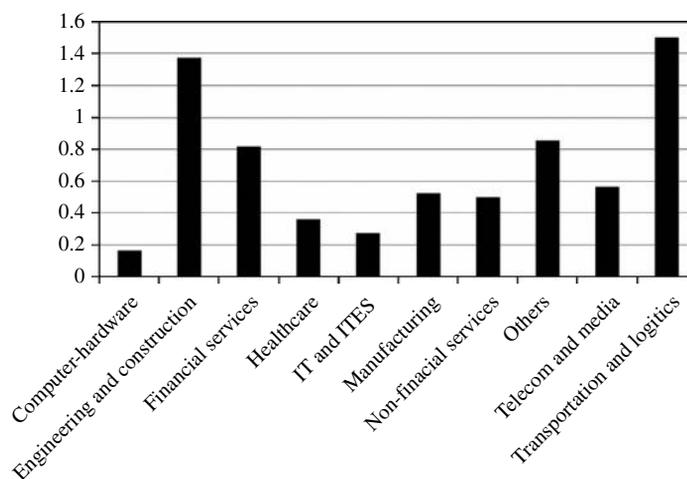

Figure 4.
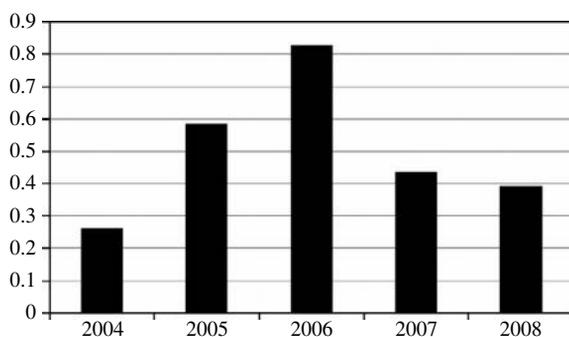Ratio of exits by IPO to M&A across industries

Figure 5.
Ratio of exits by IPO to
M&A during 2004-2008

While the overall ratio of IPO-M&A exits is 0.5 for the five-year period ending 2008, the ratio varies in line with the state of the capital markets. The ratio ranges from 0.3 to 0.6 for all years, except 2006, when it is significantly high (>0.8). This can probably be attributed to the flourish in the IPO market in India during 2006. This is consistent with the finding that IPOs are more likely to occur when equity values are high (Lerner, 1994).

In addition to the type of exit, the capital markets also influence the time taken for an investor to exit. The pattern of variation in an average number of rounds for the two exit methods over the years is shown in Figure 6. It can be noted that there are large variations for those companies that provided exits through IPOs. The number of rounds of VCPE funding before the IPOs are lower during the years 2006 and 2007, when the capital markets were active. Such variations could not be seen in those cases where the exits were from M&As. The number of rounds of funding before an M&A has been gradually increasing over the years, indicating that the size needed before an exit from an M&A has also been increasing over the years. But a more interesting inference could be for companies that exit from an M&A; the circumstances in the capital markets do not have a significant effect. On the other hand, if the conditions are favorable, companies tend to make their IPOs in a shorter period to take advantage of the momentum in the capital markets. This is also supported by the fact that the average numbers of funding rounds are nearly equal for both the exit types during 2006 and 2007.
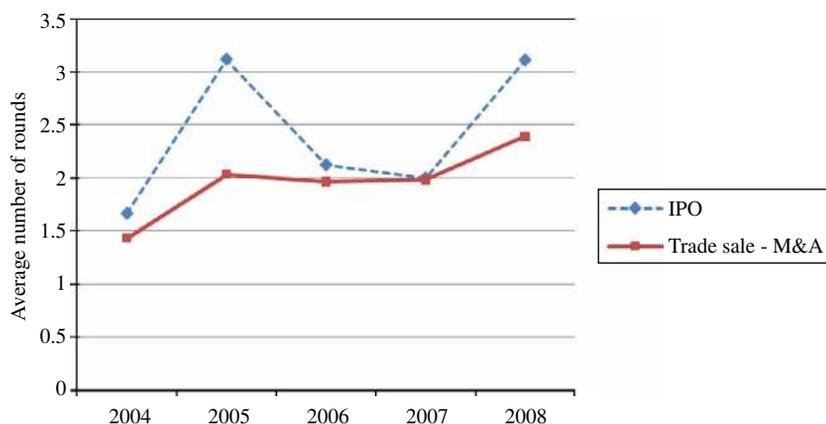

Figure 6.
Average number of
funding rounds before exit
during the five years

4.5 Investment duration

The duration of a VCPE investment is defined as the interval between the time of investment and exit[8]. It is generally considered that VCPE funds are not short-term investors, and stay invested in the firm between three and five years; however, our analysis tells a different story. Table IV provides the investment duration for investments in different financing stages. To make our analysis more accurate, this exercise was done only for those companies for which complete data on both investments and exits were available. A total of 110 transactions in 98 companies were included in this analysis.

The main finding from Table IV is the overall short-term duration of VCPE investments in India. For 63 percent of the investment transactions, the average investment duration is less than one year. Even in those investments which can be classified as growth stage, 75 percent of the investments have less than two years' duration. For late stage investments, the proportion of exits within two years increases to 87 percent. Overall, the average duration of investment stands at just 17 months.

In comparison, the investment duration for an IPO exit in the USA and Canada is 4.7 and 5.86 years, respectively. The investment duration for an exit through the acquisition route for the USA and Canada is 5.17 and 6.94 years, respectively, (Cumming and MacIntosh, 2001).

For VCPE investments, which are generally considered medium to long-term investments, the observed duration in India is very low, indicating that most of the investments are late stage or pre-IPO types of investments. While Indian VCPE investors would generally indicate that they are long-term investors, the data corroborates that which many entrepreneurs have always felt: that VCPE funds need to be invested in the long term and not focused on quickly exiting from the investment. While these results are interesting, they also suffer from two limitations: the sample size and the five-year time frame for analysis. Further confirmatory studies that cover a longer time frame with more deals are needed.

4.6 Statistical analysis of investment duration and type of exit

As a part of this study, statistical analysis was done to determine whether any of the variables were able to explain the duration of VCPE investment and the type of exit. For this analysis, Investment duration and type of exit were taken as the dependent variables. Independent variables used in the study were industry, financing stage, region, and type of VCPE fund. Bivariate regressions (Table V) indicate the relative influence of each independent variable on the dependent variables. As it can be expected, duration of investment can be best explained by financing stage. The high f-ratio and the

Financing stage	Duration of investment (in years)						Total
	< 1	1-2	2-3	3-4	4-5	> 5	
Early	0	2	0	0	0	0	2
	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	
Growth	14	8	6	1	0	0	29
	48.3%	27.6%	20.7%	3.4%	0.0%	0.0%	
Late	35	15	6	1	0	0	57
	61.4%	26.3%	10.5%	1.8%	0.0%	0.0%	
Pre-IPO	20	2	0	0	0	0	22
	90.9%	9.1%	0.0%	0.0%	0.0%	0.0%	

Table IV.
Duration of VCPE investments

S. no.	Dependent variable	Independent variable(s)	R	R^2	Adjusted R^2	SE of the estimate	ANOVA F-ratio	p-value (Sig.)
1	Duration of investment	Industry	0.318	0.101	0.007	10.853	0.938	0.498
2		Financing stage	0.387	0.150	0.118	10.157	4.755	0.004
3		Region	0.159	0.025	0.011	10.876	0.696	0.557
4		Type of VCPE fund	0.278	0.077	0.066	10.453	6.952	0.010
5	Exit mode	Industry	0.544	0.296	0.212	0.423	3.506	0.001
6		Stage	0.429	0.184	0.154	0.439	6.093	0.001
7		Region	0.221	0.049	0.014	0.474	1.389	0.252
8		Type of VCPE fund	0.115	0.013	0.001	0.477	1.105	0.296

Table V.
Results from bivariate regression analysis

low p-value indicate the significance of the regression. This can be easily explained as those investing in the early stage would remain invested for a longer duration and those investing in late stages would remain invested for a shorter duration. High f-ratio and low p-values are also noted for the bivariate regression that had a type of VCPE fund as the independent variable. In this study, VCPE funds were categorized into two: domestic and foreign. The fact that this has an influence supports the argument that domestic VCPE funds stay invested for a longer duration as compared to foreign funds.

It was also noted that industry and stage of financing have more influence on the exit mode as compared to other variables. These results can also be explained. Some industries could be more suited for exiting with IPOs because of the market bias. Similarly, many of the late stage and pre-IPO investments are made just before the company goes for an IPO. When these investments are being made, the investee company has a clear road map for going for an IPO. Therefore, the exit route in such late stage and pre-IPO investments are more or less clear at the time of the investment itself, unless there is an adverse change in market conditions.

We performed a discriminant analysis in SPSS (Table VI) to predict the probable exit route for an investment, given the independent variables. Discriminant analysis

	Dependent variable (Y), i.e. exit method	Predicted group membership[a]		Total
		1 (IPO)	2 (M&A)	
Original				
Count	1 (IPO)	49	7	56
	2 (M&A)	5	24	29
%	1 (IPO)	87.5	12.5	100.0
	2 (M&A)	17.2	82.8	100.0
Cross-validated[b]				
Count	1 (IPO)	45	11	56
	2 (M&A)	6	23	29
%	1 (IPO)	80.4	19.6	100.0
	2 (M&A)	20.7	79.3	100.0

Notes: [a]85.9 percent of original grouped cases correctly classified and 80.0 percent of cross-validated grouped cases correctly classified; [b]cross-validation is done only for those cases in the analysis; in cross-validation, each case is classified by the functions derived from all cases other than that case

Table VI.
Results from the discriminant analysis on exit method classification

is typically used for the prediction of categorical or non-metric variable being classified into two or more mutually exclusive categories. The independent variables used in the discriminant analysis were industry, financing stage, region, and type of VCPE fund.

The proportion of cases correctly classified indicates the efficacy and relevance of the application of discriminant analysis for predicting the dependent variable, which in this case is the type of exit. Discriminant analysis was done on the investment and exit data for 85 out of 98 companies (for which all necessary details were available). Out of the 85 companies, IPO exits were observed for 56 companies and M&A for 29 companies. Table VI indicates the results from the discriminant analysis. It can be seen that 49 out of 56 IPO exits and 24 out of 29 M&A exits were correctly classified, thus leaving an error of 12 out of 85 cases. Overall, 85.9 percent cases are correctly classified.

To augment the validity and reliability of the findings, a cross validation was done. In a cross validation, each case is classified using a discriminant function derived from all cases other than the case being classified. The cross validation results indicate that 45 out of 56 IPO exits were correctly classified and 23 out of 29 M&A exits were correctly classified. Overall, 80 percent of the cases were correctly classified. Both these results points towards the good predictive power of the available data in prediction of exit method choice. The results also indicate that it is possible to predict the type of exit based on the information available at the time of making an investment, i.e. industry, financing stage, region of investment, and type of VCPE fund. This could indicate that investors are reasonably clear about the type of exit that they might get from a given investment. While the timing of exit might be uncertain, the type of exit seems more or less evident at the time of investment. More research needs to be done to determine whether the variables identified in this paper are a good predictor for exit type or not, even in other markets.

5. Summary
The growth and vibrancy in the Indian VCPE industry has attracted global attention. This paper highlights some areas of concern that need to be addressed for the long-term growth in the country. First, there has to be a creation of an ecosystem that encourages early stage investments. It would be such early stage investments that would spur innovation and provide the pipeline for growth and late stage investments. Venture economics data indicate that of the total PE commitments made to India, VC commitments[9] accounted for 90 percent during 1990-1999, 55 percent during 2000-2009, and 51 percent during 2005-2009. This indicates that though there has been an overall growth in funds committed to India, the proportion of VC commitments that primarily fund early stage investments have been gradually decreasing.

In the absence of early stage investments, many PE funds would find it difficult to find new opportunities for follow on investments. The result would be a funneling of investments in established companies with increasing valuations. In the long run, the industry would fall apart under the burden of such high valuations leading to an exit of investors from India. To prevent this from happening, it is important to ensure that there is adequate early stage investing. Since domestic VCPE investors invest more actively in early stages[10], this points to the need for creating a more stronger and active community of domestic VCPE investors in India.

Second, the short duration of VCPE investment does not bode well. A recent World Economic Forum report indicates that PE investors have a long-term ownership bias

and 58 percent of the PE investments are exited more than five years after the initial transaction. So-called "quick flips" (i.e. exits within two years of investment by PE funds) account for only 12 percent of deals and have decreased in the last few years (Lerner and Gurung, 2008). Seen from this perspective, most of the VCPE investments in India could come under the category of "quick flips". This trend, if it continues, would be a cause of real concern. It is expected that VCPE investors would do a lot of hand holding and participate in value-adding activities in their portfolio companies. However, contributing to the investment in such ways would happen only if the investors remain invested for a long term. Short-term investments deny the portfolio companies the opportunity to leverage the management expertise of the VCPE investors. Since the investment duration is also influenced by the source of VCPE funds, there is a strong need to promote the domestic VCPE industry in India[11]. The domestic investors would stay invested for a longer duration and this would give more opportunities to the investor to add value in the portfolio companies.

Third, the time intervals between successive funding rounds should increase. Frequently, approaching the investors means that the top management attention gets diverted from the business operations. It would be beneficial if the entrepreneurs and companies raise capital in such a way that the portfolio company can sustain the operations for at least two years. While they might feel that raising a large round would deprive them the benefits of valuation increases if funding is raised in multiple rounds, it would definitely help to keep the transaction costs lower. The issues of valuation increases can be addressed by incorporating suitable incentive structures in the shareholders' agreement. The investors too should support the idea of a larger funding round for the companies and engage in co-investing with other VCPE investors if required.

Given the exploratory nature of this study, further research and confirmatory studies are needed to corroborate the findings of this paper. It is felt that many of the results in this paper are sufficiently interesting to warrant further studies.

Notes

1. Based on Subhash (2006) and PricewaterhouseCoopers Global Private Equity Reports 2004, 2005, 2006, 2007, and 2008.

2. Investment data from the PricewaterhouseCoopers Global Private Equity Reports might not match with that of the funds committed data from venture economics as we feel that many investments might have been made outside of a formal VCPE fund structure. In addition, several funds locally set up in India might not have been captured in the venture economics database. However, both the reports indicate the strong growth in funds committed to various VCPE funds and actual investments made in companies.

3. *Venture Intelligence* can be accessed at: www.ventureintelligence.in

4. *Asian Venture Capital Journal* database can be accessed at: www.avcj.com

5. Out of the 1,503 companies that received funding from VCPE investors, 866 companies, i.e. 58 percent of the companies received their funding during the last two years of the study period.

6. Information on time of incorporation was readily available only for 722 out of the 1,503 companies.

7. Since there are very few companies that have received more than three rounds of financing, Round 4 and above have not been included for this analysis.

8. Strictly speaking, it would difficult to determine when the investor actually exited from the investment, either partially or completely. One could find that information by studying the annual reports as well as stock exchange filings of the company, which was not done in this study. Exit in this paper is meant to be understood as the time of occurrence of an exit event, which may or may not be the time of actual exit.

9. A distinction can be made between VC and PE commitments. VC commitments are mainly targeted at the early stage and growth stage investment opportunities. PE commitments are primarily targeted at the late stage opportunities. Average investment in deals by PE funds is usually larger than those made by VC funds.

10. As per the India Venture Capital and Private Equity Report 2009, 70 percent of the early stage investments are by domestic VCPE investors during 2004-2008.

11. India Venture Capital and Private Equity Report 2009 indicates that foreign investors have contributed nearly 73 percent of the total amount invested in VCPE transactions during 2004-2008.

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