Chapter 3
Research Methodology

As discussed in previous chapter, the following research objectives were stated for the current study. And the next section discusses the detail discussion on the design of research methodology for the current study. It includes designing the research instrument, defining the target population, determination of sample size, data collection methods and application of relevant tools for analysis of data. The research objectives of the current study are framed in line with the research questions stated in the previous chapter. The study under consideration is intended to achieve the following objectives.

1. To study different aspects related to exit decision and to know about the various exit routes followed by venture capital firms in India.
2. To study the determinants of exit strategies adopted by venture capital firms in India.
3. To prioritize the determinants of exit strategies by venture capital firms in India.

Designing the Research Instrument

The current study is principally based on primary data. During the literature review stage, the researcher did not find any standard research instrument addressing the objectives of current study. Therefore, the study under consideration has followed a systematic approach to design the structured questionnaire. The research instrument design process took very long time as the target group for this research was venture capital firms. These are specialized institutions established under Security Exchange Board of India’s regulations. Because of lack of availability of past research on the issue addressed in the study, the critical review of literature and opinion of experts from the industry have played
a vital role in designing the research instrument. The following section has stated the step by step procedure followed to develop research instrument. The construction of research instrument of study is of paramount importance as it fulfills one of the objectives of the study too. The determinants of exit strategies are exclusively identified through literature review and expert opinion.

**Step One: Identifying Variables from Literature.**

The critical review of the literature has played a significant role in identifying the determinants of exit strategy. The several factors and issues affecting and related to exit decision, exit timing and exit strategy are broadly mentioned in the table given hereunder. As mentioned in Table 1, the factors or determinants like entrepreneurial firm characteristics, characteristics of venture capital firms, the features of deal agreement signed between parties, market conditions, expectations related to financial performance, and other strategic aspects are addressed in the literature affecting the decision of exit or exit strategies of the venture capital firms. On the basis of these characteristics, a list of variables/statements was developed. This list is given in Table 3 hereunder. In addition to this, figure 7 has highlighted how various determinants of exit affect the alternative routes of exit.
Table 3

List of various determinants of exit strategy by venture capital firms and their criteria

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial Firm Characteristics</td>
<td>Firm Experience, Management team, Firm age, branding, Founder Education and experience, firm valuation, book value</td>
</tr>
<tr>
<td>VC Characteristic</td>
<td>VC prior Experience, young VC, VC affiliation, VC reputation, individual VC or cooperate VC, strategic objective, monitoring and control, demographic location</td>
</tr>
<tr>
<td>Deal Characteristics</td>
<td>Stage funding, rounds of finance, Debt or equity</td>
</tr>
<tr>
<td>Institutional and Market Conditions</td>
<td>Liquidity, stock market, secondary market, GDP, Interest rates, Market size</td>
</tr>
<tr>
<td>Industry Characteristic</td>
<td>Pharmaceutical, technology, ecommerce, retail, FMCG financial services, High tech</td>
</tr>
<tr>
<td>Network and institution affiliations</td>
<td>Syndication, Jointed Owned, single owned, demographic feasibility, Business affiliations</td>
</tr>
<tr>
<td>Performance</td>
<td>IRR, valuation</td>
</tr>
<tr>
<td>Strategic Determinants</td>
<td>Synergies, value add, product differentiation, product market competition, convertible securities</td>
</tr>
</tbody>
</table>

Source: Author compilation from various sources

Table 4 given below has elaborated several criteria mentioned above.

Table 4

Elaboration of variables identified above

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Variables/Statements Affecting Exit Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Characteristics of Entrepreneurs (Vision, Leadership &amp; integrity)</td>
</tr>
<tr>
<td>2</td>
<td>Characteristics of Entrepreneurs (Technical &amp; Financial Expertise)</td>
</tr>
<tr>
<td>3</td>
<td>Complete and functional information (in critical areas like marketing, business development, operations and finance)</td>
</tr>
<tr>
<td>4</td>
<td>Conditions of Debt market and Equity Markets</td>
</tr>
<tr>
<td></td>
<td>Does choice of exit route determination depends upon the uniqueness of product, Prototype etc.</td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>6</td>
<td>Does choice of exit route determination depends upon the use of emerging technology and new technology</td>
</tr>
<tr>
<td>7</td>
<td>Non-competitive industry, high or low level lead over competitors</td>
</tr>
<tr>
<td>8</td>
<td>Depends upon stage of start-up – Seed, survival, growth or expansion</td>
</tr>
<tr>
<td>9</td>
<td>Syndication with other VC or Syndication Structure</td>
</tr>
<tr>
<td>10</td>
<td>If there are better option for investment in another start-up</td>
</tr>
<tr>
<td>11</td>
<td>Number of patents</td>
</tr>
<tr>
<td>12</td>
<td>Liquidity conditions in stock market</td>
</tr>
<tr>
<td>13</td>
<td>Macro-economic factors may not performing as per expectations (it includes political, economic, social and technological factors)</td>
</tr>
<tr>
<td>14</td>
<td>Financial characteristic like IRR High and absolute returns</td>
</tr>
<tr>
<td>15</td>
<td>SEBI’s guidelines, clarity in rules and regulations regarding any exit route</td>
</tr>
<tr>
<td>16</td>
<td>Size (in terms of capital) of start-up firm at the time of exit</td>
</tr>
<tr>
<td>17</td>
<td>Skills and experience of start-up firms team</td>
</tr>
<tr>
<td>18</td>
<td>If there are better option for investment in another start-up</td>
</tr>
<tr>
<td>19</td>
<td>Deal Characteristics – Rounds of Financing etc.</td>
</tr>
<tr>
<td>20</td>
<td>Demographic &amp; Geographical feasibility</td>
</tr>
<tr>
<td>21</td>
<td>Insufficient time and resources of VC firms determine the time of exit</td>
</tr>
<tr>
<td>22</td>
<td>Intimate involvement of management of start-up company</td>
</tr>
<tr>
<td>23</td>
<td>Synergies, Networks and Institutional affiliation</td>
</tr>
<tr>
<td>24</td>
<td>Market size i.e. Large market, High growth rate</td>
</tr>
<tr>
<td>25</td>
<td>Monitoring &amp; Controlling rights</td>
</tr>
<tr>
<td>26</td>
<td>Value Add &amp; Innovation</td>
</tr>
<tr>
<td>27</td>
<td>Right timing of exit with maximum rate of return &amp; the reputation of VC firm</td>
</tr>
<tr>
<td>28</td>
<td>The capability of VC firm’s team to execute the specific exit route</td>
</tr>
<tr>
<td>29</td>
<td>The cost of executing a specific exit route</td>
</tr>
<tr>
<td>30</td>
<td>Features of Regions (Close or in proximity, Infrastructure, manpower, Clarity of rules)</td>
</tr>
<tr>
<td>31</td>
<td>Depends upon the Type of Industry</td>
</tr>
<tr>
<td>32</td>
<td>Exit decision becomes more uncertain for start-ups funded with small capital due to limited options of exits</td>
</tr>
<tr>
<td>33</td>
<td>Exit route depends on financial performance like IRR High absolute returns</td>
</tr>
<tr>
<td>34</td>
<td>Exit route determination for loss making start up is more uncertain and complex</td>
</tr>
<tr>
<td>35</td>
<td>Exit decision becomes more certain with dual or multiple possibilities of exit routes</td>
</tr>
<tr>
<td>36</td>
<td>If start-up fails to meet the conditions mentioned in deal characteristics</td>
</tr>
<tr>
<td>37</td>
<td>Generally the most famous exit route in the related industry is preferred by VC firm</td>
</tr>
<tr>
<td>38</td>
<td>Technology based firms are more riskier therefore exit timing for such start-ups is more risky</td>
</tr>
<tr>
<td>39</td>
<td>Simplifying regulatory and faster clearance impacts the choice of exit</td>
</tr>
<tr>
<td>40</td>
<td>Venture Capital firm's fund managers prefers to seek maximum value in shortest duration</td>
</tr>
<tr>
<td>41</td>
<td>Right timing of exit with maximum rate of return on capital increases the reputation of VC firm</td>
</tr>
<tr>
<td>42</td>
<td>The VC firm plans exit whenever its managers feel that they have achieved the maximum</td>
</tr>
</tbody>
</table>
**Figure 7: Relationship between various determinants and exit routes**

*Source: Author compilation from different sources*

**Step Two: Developing the Semi-structured Questionnaire.**

Based on the variables identified through literature survey, a semi structured questionnaire was designed for the purpose of personal interview of industry experts. The
following was the structure of semi-structured questionnaire. Many of the questions were kept open-ended for detailed discussion with the industry experts (see Table 5).

Table 5

*Semi-Structured Questionnaire for Personal Interview of Industry Experts*

<table>
<thead>
<tr>
<th>Semi-Structured Questionnaire for Personal Interview of Industry Experts</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Registered Name of VC (Optional)</td>
</tr>
<tr>
<td>ii. Contact Details (Optional)</td>
</tr>
<tr>
<td>iii. Under which of the following structure of business you are established?</td>
</tr>
<tr>
<td>a. Partnership</td>
</tr>
<tr>
<td>b. Limited Liability Partnership</td>
</tr>
<tr>
<td>c. Limited Liability Company</td>
</tr>
<tr>
<td>iv. Age of Venture Capital Firm</td>
</tr>
<tr>
<td>a. Less than 1 Year</td>
</tr>
<tr>
<td>b. 1-3 Years</td>
</tr>
<tr>
<td>c. 4-6 Years</td>
</tr>
<tr>
<td>d. 6-9 Years</td>
</tr>
<tr>
<td>e. 10 or more than 10 Years (Please specify)</td>
</tr>
<tr>
<td>v. Number of Portfolio Companies</td>
</tr>
<tr>
<td>a. Less than 10</td>
</tr>
<tr>
<td>b. 10 ≤20</td>
</tr>
<tr>
<td>c. 21 ≤30</td>
</tr>
<tr>
<td>d. 31 ≤40</td>
</tr>
<tr>
<td>e. 41 ≤50</td>
</tr>
<tr>
<td>f. More than 50 (Please Specify)</td>
</tr>
<tr>
<td>vi. What type of Funding do you provide?</td>
</tr>
<tr>
<td>a. Only National</td>
</tr>
<tr>
<td>b. Only International</td>
</tr>
<tr>
<td>c. Both National and International</td>
</tr>
<tr>
<td>vii. At which stage of ventures/start-ups do you provide?</td>
</tr>
<tr>
<td>a. Early Stage</td>
</tr>
<tr>
<td>b. Growth Stage</td>
</tr>
<tr>
<td>c. Expansion Stage</td>
</tr>
</tbody>
</table>
viii. What type of funding is provided by you?

ix. What is the average duration of funding in one start-up?

x. What type of exit route you generally opt? Full/Partial

xi. Which of the following is the preferred exit route?
   a. IPOs
   b. Acquisition or trade
   c. M&A
   d. Secondary sale /Refinancing
   e. Buyouts /LBO
   f. Reverse Leverage buy outs
   g. Liquidation/Write off or Involuntary Exit
   h. Secondary market for startup stocks

xii. Do you think that the following determinants affect the exit decision?
   1. Entrepreneurial firm characteristics
   2. VC’s characteristics
   3. Deal characteristics
   4. Institutional and Market conditions
   5. Industry characteristics
   6. Network and institution affiliations
   7. Performance of startup
   8. Strategic Determinants

xiii. Do you think the following statements can be used to explain the above determinants?

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Variables/Statements Affecting Exit Strategy Decision depends upon</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Characteristics of Entrepreneurs (Vision, Leadership &amp; integrity)</td>
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</tr>
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<td></td>
<td>Exit Strategies of VC Firms in India</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------</td>
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<tr>
<td>10</td>
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37. Simplifying regulatory and faster clearance impacts the choice of exit
38. Venture Capital firm's fund managers prefers to seek maximum value in shortest duration
39. Right timing of exit with maximum rate of return on capital increases the reputation of VC firm
40. The VC firm plans exit whenever its managers feel that they have achieved the maximum performance from funding
41. Monitoring the funding required lots of time of VC’s fund managers therefore a timely exit plan is very important
42. The success of existing exit processes determines the success of future exit processes
43. Insufficient time and resources of VC firms determine the time of exit

XIV. Would you like to suggest any other determinants of exit strategy?
XV. Would you like to rename the major determinants mentioned above?

Thank you so much for providing suggestion to develop the questionnaire and identifying the determinants of exit strategy.

---

**Step Three: Personal Interview of Experts from Industry for identifying the determinants of exit strategy.**

The above said semi-structured questionnaire was used for personal interview of 5 industry experts. These industry experts were from NBFC like Jubilant financial arms, Merrill Lynch CLSA, and two were independent venture capital firms. Each industry expert was approached 2-3 times in-person to know their point of view regarding factor affecting the exit strategy of VC firms. Each expert was interviewed for 8-10 hours including all rounds of meeting and interviews. The interview took place in a layered manner. The researcher got the opportunities to talk to team members of venture capital firms too who were executing the exit decision. It took a time of 3 months to obtain appointment, personal interview and telephonic discussion with these industry experts. As
the determinants of exit strategy are obtained through critical review of extant literature and expert opinion only. Therefore, the discussion during the interview played a very important role in finalizing the research instrument as well as in drafting the list of determinants of exit strategy.

Step Four: Revision of questionnaire and developing a structured questionnaire.

On the basis of information given by industry experts, the semi-structured questionnaire was developed in a comprehensive questionnaire. The list of determinants of exit strategy was revised as per the suggestions obtained from venture capital industry and accordingly the statement or criteria were classified for each determinant. Some of the statements were in duplication and meeting the same purpose. All such items were deleted. The final list of determinants of exit strategy comprised of eight factors but these eight factors were reclassified. And determinants mentioned above were revised as per the suggestion received during extensive interview with industry experts. Also, out of a list of 43 variables mentioned above, 10 statements were removed as these were already covered by some other statements. So the final draft of the questionnaire has consisted of 33 statements defining eight determinants of exit strategy by venture capital firms.

Time Duration for revision of questionnaire-15 days.
**Step Five:** Experts’ (from Industry and Academia both) opinion to check measurement scale, face validity and content validity.

The first draft of the questionnaire thus developed was resend to experts from academia. The purpose was to ensure that all questions mentioned in the questionnaire are correct in terms of language and the scale of measurement of each question is rightly done. For this, two academicians having expertise in research methods and statistical analysis and having understanding of venture capital industry were approached. These experts also checked the face validity and content validity of the questionnaire. Also the questionnaire
was sent to two industry experts for face validity and content validity. These two industry experts were different from five experts considered earlier.

Time Duration: 1 month

**Step Six: Final draft of questionnaire to be used for current study.**

After incorporating all suggestions of experts from industry and academia, the final draft of the research instrument was made ready. Table 6, given below has shown the final draft of the questionnaire which is used as a research instrument of the study.

Table 6

*Final draft of the research instrument*

---

**Questionnaire: Exit decision and determinants of exit Strategies by Venture Capital firms in India**

*Objective of Survey:* The objective of the survey is to obtain information regarding exit decision and determinants of exit strategies by venture capital firms in India. The information thus obtained will be used for academic research purpose only and will be kept confidential.

**Section A**

**Profile of Venture Capital Firm**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>xvi.</td>
<td>Registered Name of VC (Optional) ..................................................</td>
</tr>
</tbody>
</table>
| xvii. | Contact Details (Optional) ..................................................
| xviii. | Under which of the following structure of business you are established? (optional) |
|       | d. Partnership |
|       | e. Limited Liability Partnership |
|       | f. Limited Liability Company |
| xix. | Age of Venture Capital Firm |
| f. | Less than 1 Year |
| g. | 1-3 Years |
| h. | 3-6 Years |
| i. | 6-9 Years |
| j. | More than 9 Years (Please specify) |
| xx. | Number of Portfolio Companies |
| g. | Less than 10 |
| h. | 10 -≤20 |
| i. | 20 -≤30 |
| j. | 30 -≤40 |
| k. | 40 -≤50 |
| l. | More than 40 (Please Specify) |
| xxi. | What type of Funding do you provide? |
| d. | Only National |
| e. | Only International |
| f. | Both National and International |
| xxii. | How much funding (in INR) is provided by you in a Year? |
Section B

Exit Behavior of Venture Capital Firm

1. At which stage of ventures/start-ups do you provide funding?

<table>
<thead>
<tr>
<th>Stage</th>
<th>Always</th>
<th>More Often</th>
<th>Sometimes</th>
<th>Occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed/Idea Generation/Product</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Stage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development/Growth (Series A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development/Growth (Series B)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development/Growth (Series C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Later Stage/Mezzanine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Which of the following forms of funding is preferred by you?

<table>
<thead>
<tr>
<th>Form of Funding</th>
<th>Always</th>
<th>More Often</th>
<th>Sometimes</th>
<th>Occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed Funding</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As Angel Investment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In the form of Debt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In the form of Equity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Both Debt &amp; Equity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Which of the following are your preferred areas of investment? (you can select more than one too)

   a. Online Retail & Travel
   b. b2b e commerce
   c. Mobile payment
   d. logistics
   e. local services
   f. Auto & transport
   g. online grocery
   h. Real-estate
   i. home improvements
   j. All of these
   k. If any other, please specify

4. For how long generally you keep your investment in Ventures/start-ups (In terms of Years)

   l. ≤1 Year
   m. 1≤3 Years
   n. 3≤5 Years
   o. Above 5 Years (Please specify)
5. For how long generally you keep your investment in start-ups (In terms of stage of development)
   a. Till maturation of idea stage
   b. Till early stage of growth
   c. Till high-growth stage
   d. Till expansion or listing of start-up

6. How many exits have you completed till now?
   a. $\leq 5$
   b. $5-15$
   c. $15-25$
   d. $25-35$
   e. $35-45$
   f. More than 45 (Please specify)

7. What is the average success rate of exit processes?
   a. $\leq 20\%$
   b. $20-40\%$
   c. $40-60\%$
   d. $60-80\%$
   e. $80-100\%$

8. Whenever we take exit route, it is
   a. Always Partial
   b. Always Full
   c. Always in a Phased Manner
   d. Any of above, depends upon case to case

9. Which of the following is preferred route of exit?

<table>
<thead>
<tr>
<th>Exit Route/Alternative/Channel</th>
<th>Always</th>
<th>More Often</th>
<th>Sometimes</th>
<th>Occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Public Offer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquisition or trade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary sale /Refinancing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buyouts /LBO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reverse Leverage buy outs (RLBO’s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convertible securities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquidation/Write off or Involuntary Exit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary market for startup stocks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please Specify (If any other route of exit is considered)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please Specify (If any other route of exit is considered)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please Specify (If any other route of exit is considered)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Section C**  
**Determinants of Exit strategies by Venture Capital Firm**

10. **Determinants of Exit strategies** Make a paired comparison of the following determinants as per the scale of the study (for this question a separate matrix was developed to do paired-comparison)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>List of Determinants and their criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Human Capital</strong></td>
</tr>
<tr>
<td>1</td>
<td>Characteristics of Entrepreneurs (Vision, Leadership &amp; integrity)</td>
</tr>
<tr>
<td>2</td>
<td>Vision, commitment and integrity of start-up firms’ managers directly affect the success of exit process</td>
</tr>
<tr>
<td>3</td>
<td>Skills and experience of start-up firms team</td>
</tr>
<tr>
<td>4</td>
<td>Intimate involvement of management of start-up company</td>
</tr>
<tr>
<td></td>
<td><strong>Market Conditions</strong></td>
</tr>
<tr>
<td>5</td>
<td>Macro-economic factors may not performing as per expectations (it includes political, economic, social and technological factors)</td>
</tr>
<tr>
<td>6</td>
<td>Liquidity conditions in stock market</td>
</tr>
<tr>
<td>7</td>
<td>Simplifying regulatory and faster clearance impacts the choice of exit</td>
</tr>
<tr>
<td></td>
<td><strong>Technology and Innovation</strong></td>
</tr>
<tr>
<td>8</td>
<td>Number of patents influence choice to exit route</td>
</tr>
<tr>
<td>9</td>
<td>Does choice of exit route determination depends upon the uniqueness of product, Prototype etc.</td>
</tr>
<tr>
<td>10</td>
<td>Does choice of exit route determination depends upon the use of emerging technology and new technology</td>
</tr>
<tr>
<td>11</td>
<td>Innovation in a product always defines choice of exit</td>
</tr>
<tr>
<td></td>
<td><strong>Deal Characteristics</strong></td>
</tr>
<tr>
<td>12</td>
<td>Deal Characteristics – Rounds of Financing etc.</td>
</tr>
<tr>
<td>13</td>
<td>Exit decision becomes more certain with dual or multiple possibilities of exit routes</td>
</tr>
<tr>
<td>14</td>
<td>Monitoring &amp; Controlling rights</td>
</tr>
<tr>
<td>15</td>
<td>If start-up fails to meet the conditions mentioned in deal characteristics</td>
</tr>
<tr>
<td></td>
<td><strong>Financial Parameters</strong></td>
</tr>
<tr>
<td>16</td>
<td>If there are better option for investment in another start-up</td>
</tr>
<tr>
<td>17</td>
<td>Exit route determination for profit making start up is more certain and simple</td>
</tr>
<tr>
<td>18</td>
<td>Exit route depends on financial performance like IRR High absolute returns</td>
</tr>
<tr>
<td>19</td>
<td>The VC firm plans exit whenever its managers feel that they have achieved the maximum performance from funding</td>
</tr>
<tr>
<td></td>
<td><strong>Start-up Related Parameters</strong></td>
</tr>
<tr>
<td>20</td>
<td>Depends upon stage of start-up – Seed, survival, growth or expansion</td>
</tr>
<tr>
<td>21</td>
<td>Insufficient time and resources of VC firms determine the time of exit</td>
</tr>
<tr>
<td>22</td>
<td>Size (in terms of capital) of start-up firm at the time of exit</td>
</tr>
</tbody>
</table>
### VC related Parameters

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>Features of Regions (Close or in proximity, Infrastructure, manpower, Clarity of rules)</td>
</tr>
<tr>
<td>24</td>
<td>Syndication with other VC impact your choice of exit</td>
</tr>
<tr>
<td>25</td>
<td>There is always a pre-planned investment duration for each investment</td>
</tr>
<tr>
<td>26</td>
<td>Monitoring the funding required lots of time of VC’s fund managers therefore a timely exit plan is very important</td>
</tr>
<tr>
<td>27</td>
<td>The capability of VC firm’s team to execute the specific exit route</td>
</tr>
<tr>
<td>28</td>
<td>The cost of executing a specific exit route</td>
</tr>
<tr>
<td>29</td>
<td>Exit decision becomes more uncertain for start-ups funded with small capital due to limited options of exits</td>
</tr>
<tr>
<td>30</td>
<td>Venture Capital firm’s fund managers prefers to seek maximum value in shortest duration</td>
</tr>
</tbody>
</table>

### Type of Industry

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>Timing and choice of exit have specific industry preferences</td>
</tr>
<tr>
<td>32</td>
<td>Market size i.e. Large market, High growth rate</td>
</tr>
<tr>
<td>33</td>
<td>Generally the most famous exit route in the related industry is preferred by VC firm</td>
</tr>
</tbody>
</table>

### Target Population

The objectives of the study have targeted the venture capital firms in India. Therefore, the target population of the study is all venture capital firms registered with Security Exchange Board of India (SEBI). Before starting the data collection for the study, 198 venture capital funds were registered with SEBI. Hence, all these 198 venture capital firms compose the target population of study.

### Sample Size and Sampling Method

The list of venture capital firms was obtained from SEBI’s website. The contact details of these venture capital firms are also provided with this list. The researcher made first attempt to collect the data through random sampling by drawing a slip from the list of venture capital funds provided by SEBI. But the venture capital firm showed very poor response to provide data on determinants of exits. Therefore, 2-3 responses obtained in the initial efforts were used to obtain further reference points to collect data for the study. Hence, the sampling method used in the study can be biased due to the reference points
provided by existing respondents but due care was taken at the end of researcher to keep sample free from the researcher’s biases. So, sampling method of the study is a mixed method as it combined the random sampling method and snowball sampling method. Since, the study has used expert based technique to analyze the data, i.e. fuzzy AHP (explained later on in this chapter) therefore a small sample of expert can also provide appropriate results. The sample size of the current study is 14 venture capital firms registered with the SEBI. Although, the researchers made sincere efforts to collect data from more than 14 venture capital firms but due to various reasons like, budget constraints, time limitation and lack of time with venture capital firms to participate in survey, it was not possible to collect data from more than 14 venture capital firms. Many other researchers have applied AHP, fuzzy AHP or other MCDM tools to analyze expert opinions. The sample size of these studies was also found varying from 5 to 15. For example, Fu et al (2006) conducted a study using fuzzy AHP for with a sample size of 11 managers was selected. Chowdhury and Roy (2016) took a sample of 11 MFIs to rank them according to several performance parameters. Percin (2008) conducted a study based on fuzzy AHP and took a sample size of 13 managers. The study by Chamzini et al (2014) was based on a sample of 15 experts having five years of experience. Therefore, the sample size of current study is also justifiable on the basis of existing research conducted in several areas of business and management.

**Data Collection**

The data was collected through interview method. For this, all the fourteen venture capital firms were contacted in-person. It took approximately eight months to approach the venture capital firm through several rounds of discussion on phone and getting appointment for personal meeting. Each interview took 3-6 hours (it includes more than one visit to each venture capital firm) of discussion. The researcher made an attempt to
contact more than 14 venture capital firms but these firms were too busy in their daily business activities. Considering the time and budget constraint, the researcher closed the data collection process after eight months. Moreover, the data thus collected has to be analyzed using multi-criteria decision modeling (MCDM) and a sample of 14 is adequate for an analysis based on expert opinion.

**Profile of Venture Capital Firms**

Table 7 has exhibited the profile of respondents. Out of given sample of 14 venture capital firms, two VC firms were less than or equal to one year old, and 3 VC firms were 1-3 years old. The majority of the VC firms of the study were 6-9 years old while only 3 VC firms were found having their age more than 9 years. The VC firms were also categorized on the basis of number of portfolio companies funded by them. Three VC firms were funding less than 10 start-ups while 4 VC firms were funding 10 -≤20 number of start-up firms. Two VC firms were having portfolio companies in the range of 20- ≤30, 30- ≤40 and more than 50. While only one VC firm was having 40- ≤50 number of start-ups in its portfolio. A VC firm registered in India can fund start-ups in India and abroad too. The next categorization of sample VC firms was based on their scale of operation or type of funding. Out of 14 VCs, 10 VCs were funding only in domestic/Indian start-ups while 4 VCs were funding the Indian and international start-ups both. Further, the VC firms also provided the information related to amount of funding provided by them annually (in INR). As shown in Table 7, out of 14 VCs, 4 VC were having their fund size less than or equal to one crore (per year), while 3 VC firms were falling in each of the categories of ranging, 1-≤10 crore, 10 - ≤20 crore, and 20- ≤40 crore. Only one venture capital firm was having a fund size of more than 40 crore per year.
Table 7

Profile of Venture capital firms

<table>
<thead>
<tr>
<th>Age of VC firm</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than/equal to 1 Year</td>
<td>2</td>
<td>14.3</td>
<td>14.3</td>
<td>14.3</td>
</tr>
<tr>
<td>1-3 Years</td>
<td>3</td>
<td>21.4</td>
<td>21.4</td>
<td>35.7</td>
</tr>
<tr>
<td>3-6 Years</td>
<td>1</td>
<td>7.1</td>
<td>7.1</td>
<td>42.9</td>
</tr>
<tr>
<td>6-9 Years</td>
<td>5</td>
<td>35.7</td>
<td>35.7</td>
<td>78.6</td>
</tr>
<tr>
<td>More than 9 Years</td>
<td>3</td>
<td>21.4</td>
<td>21.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Portfolio Companies</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than/equal to 10</td>
<td>3</td>
<td>21.4</td>
<td>21.4</td>
<td>21.4</td>
</tr>
<tr>
<td>10- ≤20</td>
<td>4</td>
<td>28.6</td>
<td>28.6</td>
<td>50.0</td>
</tr>
<tr>
<td>20- ≤30</td>
<td>2</td>
<td>14.3</td>
<td>14.3</td>
<td>64.3</td>
</tr>
<tr>
<td>30- ≤40</td>
<td>2</td>
<td>14.3</td>
<td>14.3</td>
<td>78.6</td>
</tr>
<tr>
<td>40- ≤50</td>
<td>1</td>
<td>7.1</td>
<td>7.1</td>
<td>85.7</td>
</tr>
<tr>
<td>More than 50</td>
<td>2</td>
<td>14.3</td>
<td>14.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>National/International</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only National</td>
<td>10</td>
<td>71.4</td>
<td>71.4</td>
<td>71.4</td>
</tr>
<tr>
<td>Both National and International</td>
<td>4</td>
<td>28.6</td>
<td>28.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount of Investment per year</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than/equal to 50 lakh</td>
<td>3</td>
<td>21.4</td>
<td>21.4</td>
<td>21.4</td>
</tr>
<tr>
<td>50 lakh to ≤ 1 crore</td>
<td>1</td>
<td>7.1</td>
<td>7.1</td>
<td>28.6</td>
</tr>
<tr>
<td>1 - ≤10 crore</td>
<td>3</td>
<td>21.4</td>
<td>21.4</td>
<td>50.0</td>
</tr>
<tr>
<td>10 - ≤20 crore</td>
<td>3</td>
<td>21.4</td>
<td>21.4</td>
<td>71.4</td>
</tr>
<tr>
<td>20 - ≤ 40 crore</td>
<td>3</td>
<td>21.4</td>
<td>21.4</td>
<td>92.9</td>
</tr>
<tr>
<td>Above 40 crore</td>
<td>1</td>
<td>7.1</td>
<td>7.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Author’s compilation*

Methods of Data Analysis

The current study is exploratory and descriptive in nature. In order to meet the objectives of current research, the basic questions mentioned in section A and B of the
questionnaire are analyzed using simple frequency tables along with cross-tabulation. In order to explore the association between exit routes and profile of the venture capital firms, the Fisher’s exact test is used as the sample size is very small and count falling in each cell is less than 5 and even 1 in certain cases. Therefore, the most popularly used chi-square method is not appropriate under the given circumstances. The Fisher’s exact test examines the null hypothesis that the two variables are independent. A significant value of exact test tells that there is association between the variables of study. Thus, all results obtained are tested at 5 percent level of significance. Further, to prioritize the determinants of exit strategies, the study has applied fuzzy analytic hierarchy process (FAHP). It has been discussed hereunder.

Fuzzy Analytic Hierarchy Process (FAHP).

FAHP or fuzzy multi-criteria decision making (FMCDM) technique has been extensively used to deal with decision making problems which involve multiple criteria evaluation or selection of alternatives. The present study has applied this technique to analyze the data sets. The main intension here is to establish a framework of incorporating FAHP and AMCDM in order to identify the determinants of exit strategies considered by venture capitals firms.

MCDM is an analytical method by which various advantage and disadvantages can be evaluated based on alternatives/multiple criteria. In this technique a set of feasible alternatives has been evaluated and more than one criterion has been evaluated to establish a priority ranking for different accomplishment. The key determinants of exit strategies adopted by the venture capital firms in India were derived through comprehensive investigation and consultation with several experts. These individuals were asked to rate the determinants of exit strategies by Venture Capital firms in India. Synthesizing the literature review and opinion of different experts gave the basis for developing the
hierarchical structure for the analysis in the study. In the present study a total of eight determinants of exit strategies by VC firms in India were taken. These dimensions are human capital, market conditions, technology innovation, deal characteristics, financial parameters, start-up related parameters, VC related parameters and type of industry. Under these dimensions, there are 33 criteria/variables for the hierarchical structure.

There are different methods which can be employed to determine weights such as entropy method, eigenvector method, weighted least square method, LINMAP (linear programming techniques for Multidimensional of Analysis Preference) and AHP (analytic hierarchy process). The selection of method depends on the type of problem. Since the AHP develop by the Saaty (1977, 1980) is a very practical tool in dealing multiple criteria decision problem and has effectively been applied to various type of multiple decision making problems. Therefore, in the present study Fuzzy AHP technique has been applied to assign weights.

In the process of AHP technique, it is easy and humanistic for evaluators to assess “criteria X is much more important than the criteria Y” than to consider “the importance of criteria X and criteria Y is seven to one.” Therefore, Buckley (1985) broadened Saaty’s AHP to a situation where the experts were allowed to use fuzzy ratios in place of exact ratios to hold the intricacy for people to allot precise ratios when comparing to criteria/variables. For the derivation of the fuzzy weights of different criteria, geometric mean was applied. Hence, in the current research Buckley’s method of fuzzy AHP has been applied. In the following section a brief of the different steps of fuzzy AHP has been described.
**Step 1: Definition of Fuzzy numbers.**

These are fuzzy subsets of real numbers showing the expansion of the idea of the confidence interval. The study has used the triangular fuzzy number (TFN) given by Laarhoven and Pedrycz (1983). TFN should have the following features. A fuzzy number \( A \) on \( \mathbb{R} \) to be TFN if its membership function \( \mu_A(x) : \mathbb{R} \rightarrow [0,1] \) is equal to:

\[
\mu_A(x) = \begin{cases} 
\frac{x-L}{M-L}, & L \leq x \leq M, \\
\frac{M-x}{U-M}, & M \leq x \leq U, \\
0, & \text{otherwise}
\end{cases}
\]

Here, \( L \) and \( U \) stand for the lower and higher bounds of the fuzzy number \( \tilde{A} \) and \( M \) is for the model value. TFN can be denoted by \( \tilde{A} = (L,M,U) \) and its two operational laws are; \( \tilde{A} = (L_1,M_1,U_1) \) and \( \tilde{A} = (L_2,M_2,U_2) \) (Chen and Hwang, 1993). In this steps following to equations are important.

\[
\begin{align*}
\tilde{A}_1 \times \tilde{A}_2 &= (L_1, M_1, U_1) \times (L_2, M_2, U_2) \\
&= (L_1L_2, M_1M_2, U_1U_2) \text{ for } L_i > 0, M_i > 0, U_i > 0 \\
\tilde{A}_1 \div \tilde{A}_2 &= (L_1, M_1, U_1) \div (L_2, M_2, U_2) \\
&= (L_1/U_2, M_1/M_2, U_1/L_2) \\
\tilde{A}_1 + \tilde{A}_2 &= (L_1, M_1, U_1) + (L_2, M_2, U_2) \\
&= (L_1+L_2, M_1+M_2, U_1+U_2) \\
\tilde{A}_1 - \tilde{A}_2 &= (L_1, M_1, U_1) - (L_2, M_2, U_2) \\
&= (L_1-U_2, M_1-M_2, U_1-L_2) \\
\text{Reciprocal of a fuzzy number}, \\
\tilde{A}_2^{-1} &= (L_1, M_1, U_1)^{-1} = \left( \frac{1}{U_1}, \frac{1}{M_1}, \frac{1}{L_1} \right) \\
&\text{for } L_i > 0, M_i > 0, U_i > 0.
\end{align*}
\]
Step 2: Linguistic variables.

As per the study conducted by Zadeh (1975) it is difficult to express reasonably those situations that are overtly complex or somewhat hard to define. Therefore in such situations linguistic variable is essential. Such variables have word or sentence in mock or natural language. The current study has used such expressions to compare two determinants by using five basic linguistic terms (Chiou & Tzeng 2001). Following table will give a brief description of the same.

Table 8

Scale of Fuzzy AHP

<table>
<thead>
<tr>
<th>Fuzzy Number</th>
<th>Linguistic Scale</th>
<th>Scale of Fuzzy Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Equally Important</td>
<td>(1,1,3)</td>
</tr>
<tr>
<td>3</td>
<td>Weakly Important</td>
<td>(1,3,5)</td>
</tr>
<tr>
<td>5</td>
<td>Essentially Important</td>
<td>(3,5,7)</td>
</tr>
<tr>
<td>7</td>
<td>Very Strongly Important</td>
<td>(5,7,9)</td>
</tr>
<tr>
<td>9</td>
<td>Absolutely Important</td>
<td>(7,9,9)</td>
</tr>
</tbody>
</table>

*the above scale has been used by Chiou & Tzeng 2001 and Mon, Cheng & Lin 1994*
Figure 9: Membership functions of linguistics variables for comparing to criteria.

Figure 10: Example of membership function of linguistic variables for measuring the performance value of alternative

In the above figure, each membership function i.e. scale/degree of fuzzy number is defined by specified three parameters of the symmetric-triangular fuzzy number known as the left point, the middle point and the right point of the array over which the function is defined.

**Step 3: Fuzzy analytic hierarchy process.**

The whole process for the calculation of fuzzy weights can be described as follows:

First of all pair wise comparison matrix along all the criteria in the system is prepared and a linguistic term is assigned to it such as:
Here, geometric technique is used to define fuzzy geometric mean and fuzzy eights of each criterion as used by Buckley (1985). Following formula is used for this:

\[
\tilde{r}_i = \left(\tilde{a}_{i1} \times \tilde{a}_{i2} \times \tilde{a}_{in}\right)^{1/n}
\]

\[
\tilde{w}_i = \left(\tilde{r}_i \times (\tilde{r}_i + \cdots + \tilde{r}_n)^{-1}\right)
\]

Organization of thesis

The current study has been organized as under.

<table>
<thead>
<tr>
<th>Section i</th>
<th>Prefatory Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>➢ Title Page</td>
</tr>
<tr>
<td></td>
<td>➢ Declaration</td>
</tr>
<tr>
<td></td>
<td>➢ Acknowledgement</td>
</tr>
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<td>➢ Index of Contents</td>
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<td></td>
<td>➢ List of Charts</td>
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<tr>
<td></td>
<td>➢ List of Figures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section ii</th>
<th>Main Body of Thesis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chapter 1: Introduction/Background of Study</td>
</tr>
<tr>
<td></td>
<td>Chapter 2: Review of Literature</td>
</tr>
<tr>
<td></td>
<td>Chapter 3: Research Methodology</td>
</tr>
<tr>
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<td>Chapter 4: Results and Interpretation</td>
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Bibliography