RESEARCH METHODOLOGY

Research methodology forms the core of any research problem under study. The research findings bank upon, to a great extent, the sufficiency and accuracy of the process adopted in the research methodology. This chapter deals with the research methodology in which the methods used to achieve the objectives of the study have been described. It explains in detail the need of the study, objectives as well as hypotheses of the study, sample selection and data collection. Moreover, it also discusses the statistical tools and techniques applied for data analysis and limitations of the study.

3.1 NEED OF THE STUDY

Small and medium enterprises (SMEs) are though individually small, collectively they have emerged as a dominant player in Indian economy. They contribute 8% to GDP, 45% to total industrial production and 40% to the exports of the country. This coupled with high labour to capital ratio and wider dispersion make them crucial for achieving the objective of inclusive growth. But many problems impede their growth out of which lack of finance is the most critical one. SMEs look forward to banks for their credit needs as commercial banks are primary source of finance for them (Petersen and Rajan, 1994; Carey and Flynn, 2005 and Ghosh, 2007). Small and medium enterprises have been found as a very important segment of banks’ market because of profit and revenue opportunities presented by them (Beck et al., 2008). Moreover, their involvement in export enhances their importance for banks. But earlier research studies have shown dissatisfaction of SMEs with respect to services provided by commercial banks (Ennew et al., 1993; Chaston, 1993; 1994; Popli and Rao, 2009; Yesseleva, 2010 and Vegholm, 2011).

The Indian banking sector has been witnessing a drastic change due to liberalisation, privatisation and globalisation since 1991. Banks are in the process of moving into a more competitive financial arena with a wide variety of financial products and services. In the present era of fierce competition, when ample amount of choice is available to customers, it becomes utmost important for banks to retain existing
customers and attract new ones. This can be done by creating and offering the services which can satisfy customers’ needs. Therefore, customer satisfaction is the only lifeline through which banks can survive in this competitive environment.

Extensive research work has been done on SMEs-banks relationship worldwide. A thorough review of literature shows that a number of studies have been conducted which have analysed bank selection criteria of SMEs (Schlesinger, 1987; Turnbull and Gibbs, 1989; File and Prince, 1991; Nielsen et al., 1994; Mols et al., 1997; Nielsen et al., 1998; Trayler et al., 2000; Jobling et al., 2009; Maenpaa 2012 and Mitter, 2012). Another set of studies have been found which have analysed satisfaction of SMEs regarding services provided by commercial banks (Smith, 1989; Ennew et al., 1993; Chaston, 1993; Chaston, 1994; Orser et al., 1994; Zinger, 2002; Bandyopadhyay et al., 2003; Gammie, 1995; Maria et al., 2006; Bbenkele, 2007; Safakali, 2007; Vegholm, 2007; Popli & Rao, 2009; Safakali, 2010; Yesseleva, 2010 and Vegholm, 2011).

There exist another group of studies which have examined the impact of banks’ relationship marketing on SMEs’ satisfaction (Adamson et al., 2003; Colgate & Lang, 2005; Han, 2008 and Badulescu, 2012). Some studies have also focused on SMEs’ banking loyalty (Haines et al., 1991; Ennew and Binks, 1996; Howorth et al., 2003; Ibbotson and Moran, 2003 and Perry and Coetzzer, 2009). Although considerable amount of work has been done at world level, yet this topic has received less attention in India. As a result, a handful of empirical studies could be found on this issue in India (Bandyopadhyay et al., 2003; Singh, 2008; Ganesan & Augustine, 2009 and Popli & Rao, 2009). Moreover, the available studies have not focused on exporting SMEs exclusively. Because of involvement in export business, exporting SMEs may be having different experience as well as perspective. Therefore, it becomes essential to undertake a study with respect to awareness and satisfaction of exporting SMEs regarding export credit delivery system of commercial banks as well as to explore the factors leading to switching decision by exporting SMEs.
3.2 OBJECTIVES OF THE STUDY

The following objectives have been specified to bridge the above mentioned research gap:

1. To analyse awareness of exporting SMEs regarding various export credit schemes offered by commercial banks and identify which credit schemes they need and value the most;
2. To identify factors influencing SMEs’ decision to select a particular commercial bank for financing exports;
3. To explore the determinants of exporting SMEs’ satisfaction regarding export credit delivery system of commercial banks;
4. To measure bank switch over rate of exporting SMEs as well as identify factors leading to switching decision and
5. To offer strategic implications to commercial banks for improving export credit delivery system for SMEs.

3.3 HYPOTHESES OF THE STUDY

The following hypotheses have been framed with respect to different objectives in the research study:

Objective I:

H1: There is a positive association between SMEs’ tenure of relationship with a bank and their awareness regarding export credit schemes.

H2: There is a positive association between SMEs’ export turnover and their awareness regarding export credit schemes.

Objective III:

H3: Service quality factors have significant impact on overall satisfaction of exporting SMEs.

H4: Demographic factors have significant impact on overall satisfaction of exporting SMEs.
Objective IV:

*H5: Service quality factors have significant impact on exporting SMEs’ banking loyalty.*

3.4 SAMPLING PROCEDURE

Constraints with regard to accessibility, time and money along with the multiplicity of objectives as well as research questions make limited allowance to collect or analyse all the data available. Sampling provides solution to this problem. Sampling is the process of selecting sampling elements from a defined set of elements called population. There are mainly two types of sampling methods namely, probability or representative sampling methods and non-probability or judgemental sampling methods.

Probability sampling techniques are those in which the researcher knows the probability of a sampling unit getting selected in the sample. In non-probability sampling methods, no such knowledge is possible. The biggest problem with real-life populations is that there is no accurate listing available of the sampling units or the sampling elements. This makes it difficult to use probability sampling techniques in practice. Therefore, in real life, researchers tend to combine probability and non-probability techniques, or an adapted form of probability sampling techniques. The popular probability sampling techniques are simple random sampling, systematic sampling, stratified sampling and cluster sampling. The non-probability techniques include quota sampling, judgement sampling, convenience sampling and snowball sampling. In this section, a description of the universe and population of the study along with sample selection has been presented.

3.4.1 Universe of the Study

The universe of the study is comprised of all exporting SMEs of Punjab.

3.4.2 Population of the Study

The study has been conducted in three districts of Punjab i.e. Ludhiana, Jalandhar and Amritsar. These districts have been selected on the basis of their contribution in export turnover of Punjab as these districts altogether contribute 92.5 percent in total
export turnover of Punjab which is 15972.48 during the year 2009-2010\(^1\). Hence, population is aggregate of all exporting SMEs located in above mentioned districts of Punjab. The population for the study is defined as under:

\(a\) \hspace{1em} \textit{Element}

It is the physical unit about which information is collected. For the present study, exporting SMEs are the elements.

\(b\) \hspace{1em} \textit{Sampling Unit}

The sampling units form the basis of actual sampling procedure and it is actually chosen by the sampling process. In the present study the promoters/entrepreneurs, managers, Chief Executive Officers (CEOs) and Chief Financial Officers (CFOs) of exporting SMEs have been selected to collect the data for the research study.

\(c\) \hspace{1em} \textit{Sampling Frame}

Sampling Frame is the list from which sample is drawn. The lists of exporting SMEs has been collected from \textit{Export Promotion Councils} (EPCs) of respective industries for the year 2011-12 and selection of sampling unit is based on multistage sampling method.

3.4.3 Sample Size

Sample size refers to the number of elements included in the study. After the population has been defined, the sampling frame established and specific sampling method selected, the next important consideration is sample size determination. Appropriateness of sample size is quite complex as for large samples, researcher’s objective may turn out to be too large given the amount of time, money and personnel requirement. While specifying sample size, careful decision is required. If lesser units are selected, it increases the probability of sampling error and if large sample is selected, it increases cost of study. Hence, a trade-off has to be evolved between the required

\(^1\) www.pbindustries.gov.in (Data were available till 31\(^{st}\) March, 2010 only and it has been confirmed from Directorate of Industries, Chandigarh also)
information and cost as well as resources. In the present study, adequate sample size has been determined on the basis of representative approach. The data has been collected from 300 respondents (promoters or managers or chief executive officers or chief financial officers) from exporting SMEs of Punjab region.

3.4.4 Sampling Design

Multistage sampling method has been used to collect primary data from 300 exporting SMEs. The sampling procedure has been conducted in three stages:

a) Deciding of Quotas of Districts (Stage I)

As mentioned above, three districts namely, Ludhiana, Jalandhar and Amritsar have been selected for the study. In the first stage of sample selection, quotas of SMEs from these three districts have been decided on the basis of their contribution in export turnover of Punjab. Sample has been selected from these districts on the basis of proportionate quota sampling. This sampling technique ensures that the composition of the sample is same as that of the population with respect to the characteristics of interest. Hence, this sampling technique attempts to obtain representative samples at relatively lower cost (Malhotra and Dash, 2011). Table 3.1 displays district wise break up of sample.

<table>
<thead>
<tr>
<th>City</th>
<th>Export Turnover during 2009-10 (Rs. Cr.)</th>
<th>Proportion (percentage)</th>
<th>Sample Selected (No. of Exporting SMEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Ludhiana</td>
<td>9730.73</td>
<td>65</td>
<td>195</td>
</tr>
<tr>
<td>2) Jalandhar</td>
<td>2729.46</td>
<td>19</td>
<td>57</td>
</tr>
<tr>
<td>3) Amritsar</td>
<td>2306.53</td>
<td>16</td>
<td>48</td>
</tr>
<tr>
<td>Total</td>
<td>14766.72</td>
<td>100</td>
<td>300</td>
</tr>
</tbody>
</table>

Table 3.1
District wise Distribution of Sampled SMEs
b) **Industry Selection (Stage II)**

In the second stage, main exporting industries of Punjab have been analysed on the basis of their export turnover. Four industries namely, engineering (covering cycle and cycle parts industry), apparel, hosiery and sports industry have been selected for the study. These four industries have contributed 71 percent to the total export turnover of Punjab during the year 2009-10. Lists of exporting SMEs of each of these industries have been taken from respective Export Promotion Councils (EPCs) for the year 2011-12.

c) **Selection of Exporting SMEs (Stage III)**

In the third stage, exporting SMEs have been selected from the lists of Export Promotion Councils as per the decided quotas of districts. The sample has been selected with the help of convenience sampling. While selecting sample from the lists, due consideration has been paid to the number of units in the respective industry list. Table 3.2 reports industry wise break up of sample.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Sample Selected (No. of Exporting SMEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Engineering</td>
<td>133</td>
</tr>
<tr>
<td>2) Apparel</td>
<td>88</td>
</tr>
<tr>
<td>3) Hosiery</td>
<td>49</td>
</tr>
<tr>
<td>4) Sports</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>300</strong></td>
</tr>
</tbody>
</table>

Micro and tiny units are actually part of small enterprises. Hence, for the purpose of convenience, micro enterprises have not been taken as an individual category in the study.
3.5 DATA COLLECTION

Once research problem is defined and sampling design finalized, the next step is to determine data collection method. Basically, there are two types of sources for data collection namely, primary data sources and secondary data sources. The purpose of collecting information, the type of information being collected, the resources available, researcher’s skill in the use of particular method of data collection and the socio-economic as well as demographic characteristics of population ascertain the choice of a particular method of collecting data. Each method has its own advantages and disadvantages and each is appropriate for certain situations. The choice of a particular method for collecting data is important in itself for ensuring the quality of the information. No method of data collection will guarantee 100 percent accurate information. The quality of information banks upon several methodological, situational and respondent related factors. Ability as a researcher lies in either controlling or minimizing the effect of these factors in the process of data collection. In this section, the methods and procedure of data collection have been discussed. Commensurate with the objectives of the study, the relevant data have been collected using secondary and primary sources.

3.5.1 Secondary Sources

The data collected by persons or agencies for the purposes other than solving the problem at hand are known as secondary data. Secondary data are collected from books, journals, magazines, news papers and internet websites. Before using the secondary data, the researchers have to subject themselves to a detailed evaluation of data as well as circumstances under which data have been collected. In the present research work, the secondary sources of information have been used to prepare a list of various export credit schemes offered by commercial banks which is requirement of one of the objectives of the study. This information has been gathered by reviewing the master circular on ‘Rupee / Foreign Currency Export Credit and Customer Service to Exporters’ for the years 2011 and 2012, issued by RBI to commercial banks which are available at RBI website. This master circular contains instructions to be followed by commercial banks regarding various export credit schemes. Other secondary sources which have been used to carry out the present research work include books, journals, Statistical Abstract of Punjab for
the years 2009 to 2012 and statistics provided by Directorate of Industries, Chandigarh as well as official website of Department of Industries, Punjab.

3.5.2 Primary Sources

The data originally collected by the researcher for the study at hand is termed as primary data. There are a number of methods to collect primary data but the questionnaire is a popular way of gathering information and is easy to understand as all the respondents are presented with the same questions. Moreover, the questionnaires are used to gain a high response rate. In the present study, a well structured questionnaire-schedule has been used to collect responses from exporting SMEs. The questionnaire-schedule has been designed in such a way so that it can gather all information from exporting SMEs regarding their awareness with respect to various export credit schemes, their bank selection criteria, loyalty towards banks and their satisfaction level regarding quality of export credit delivery system of banks. The primary data have been collected during July, 2012-April, 2013.

3.5.3 Pilot Testing

A pilot survey has been conducted with a sample size of 30 exporting SMEs. Suggestions and comments were invited from the respondents. This has enabled the researcher to develop an insight to bring about required modifications in the overall configuration or taxonomy of the questionnaire by incorporating suggestions. The respondents have provided comments on clarity of some items and confirmed face validity of items in the questionnaire.

3.5.4 The Research Instrument

The questionnaire has been designed with the help of content analysis. In this process, lists of variables related to bank selection criteria, service quality, switching reasons have been identified with the help of extensive review of literature as well as through exploratory investigations from SMEs respondents. Then, the possible relevant identified variables have been included in the questionnaire. The various export credit schemes have been extracted from master circular on export credit issued by RBI to commercial banks and included in the questionnaire.
The questionnaire/schedule for the customers is comprised of 14 questions besides the demographic profile of the respondents. The first, second and fourth questions are of multiple choice where first question is related to the main source of finance for working capital for export activities of exporting SMEs. The second and fourth are concerned with share of wallet towards banks and length of relationship with banks respectively. Third question is asked regarding primary bank of SMEs for availing export credit. The fifth question is concerned with analyzing the awareness of SMEs regarding various export credit schemes offered by commercial banks. This is a dichotomous question to be answered either in yes or no. This question further measures the importance attached to various export credit schemes offered by commercial banks. Respondents have been given a list of 38 forms of finance and asked to rate those on 5 point Likert scale, ranging from 5 to 1 where 5 stands for ‘Very Important’ and 1 for ‘Not Important’, only if they are aware of that particular form of export credit schemes. Out of these schemes, 23 are specialized export credit schemes and 15 are other banking services.

One of the objectives of the research study is related to bank selection criteria of exporting SMEs. Therefore, sixth question of the questionnaire is asked regarding SMEs’ bank selection criteria. In this question, respondents have been given a list of 23 statements to measure their bank selection criteria and asked to rate those on 5 point Likert scale ranging from 5 to 1 where 5 stands for ‘Very Important’ to 1 for ‘Not Important’. The study is basically planned to measure exporting SMEs’ satisfaction with respect to export credit delivery system of commercial banks. Therefore, questions 7th and 8th are designed to measure SMEs’ satisfaction with respect to quality of export credit delivery system of commercial banks. Question 7th tries to cover every aspect of service quality of export credit delivery system of commercial banks. A list of 32 variables is prepared based on extensive review of literature as well as suggestions received at the time of pre-testing. The respondents are asked to rate these 32 variables on 5-point Likert scale ranging from 5 to 1 where 5 stands for ‘Highly Satisfied and 1 for ‘Highly Dissatisfied. Question eighth is asked on overall satisfaction level of the customers with services provided by their bank with respect to export credit and it is also
measured on same five point scale. In question 9th, respondents have been asked whether they would recommend their bank to others for availing export credit.

One of the objectives of the research study is to measure bank switch over rate of exporting SMEs as well as to analyse the reasons of switch over. Hence, question tenth deals with the SMEs’ switching. Respondents have been asked if they have changed their primary bank for availing export credit during last three years to be answered in yes or no. If they had changed their bank, they were provided with a list of 23 reasons to be rated on 5 point scale ranging from 5 to 1 where 5 stands for ‘Strongly Agree’ and 1 for ‘Strongly Disagree’. Questions 11, 12 and 13 are included to know the implementation of RBI guidelines by commercial banks. Last question is concerned with suggestion (s), if any which respondents want to give to improve export credit delivery system of commercial banks. Table 3.3 gives brief description of the questions included in the questionnaire.

**Table 3.3**

<table>
<thead>
<tr>
<th>Questions</th>
<th>Purpose</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q no. 1-4</td>
<td>These questions are designed to know about the sources of finance for SMEs, their share of wallet as well as their tenure of relationship with bank.</td>
<td>O3</td>
</tr>
<tr>
<td>Q no. 5, 11-13</td>
<td>These questions are framed to know the level of awareness as well as importance attached to various export credit schemes provided by commercial banks to exporting SMEs. These also contain questions regarding implementation of RBI guidelines by commercial banks.</td>
<td>O1</td>
</tr>
<tr>
<td>Q no. 6</td>
<td>These questions has been designed to analyse the bank selection criteria of exporting SMEs</td>
<td>O2</td>
</tr>
<tr>
<td>Q no. 7-9</td>
<td>These questions have been framed to analyse determinants of satisfaction of exporting SMEs with respect to quality of export credit delivery system</td>
<td>O3</td>
</tr>
<tr>
<td>Q no. 10</td>
<td>This question has been designed to explore the bank switching rate of exporting SMEs as well as the factors leading to switching decision</td>
<td>O4</td>
</tr>
<tr>
<td>Q no. 14</td>
<td>This is an open ended question to get suggestions from exporting SMEs to improve export credit delivery system of commercial banks</td>
<td>O5</td>
</tr>
</tbody>
</table>
For studying the demographic profiles of the sampled SMEs, questions with multiple choices are framed in the study. The survey has been conducted during July, 2012 to April, 2013. The questionnaire has been administered personally to elicit the information from the managers or promoters or CEOs or CFOs of SMEs. Every possible measure has been employed to increase the response rate.

3.6 DATA ANALYSIS AND METHODS

Data means raw information collected from sundry sources. This raw information needs to be filtered in order to convert it into relevant information. Having been compiled, edited and coded, it has to pass through a process of analysis and has to be interpreted accordingly before their meaning and implications are understood. Analysis of data is a process by which data is converted into useful information as raw data collected from the questionnaire cannot be used without processing it in some way to make it amenable to draw conclusions (Nargundkar, 2010). Hence, data analysis is just one of the many steps that must be completed while conducting a research experiment. There are a number of statistical packages available to analyse the data and get meaningful results. In order to carry out the analysis, PASW (Predictive Analytics Software) version 18, AMOS (Analysis of Moment Structures) version 18 and Microsoft Office Excel 2007 have been used. A brief description of the statistical techniques used in the present study has been presented in this section of the chapter.

3.6.1 Reliability Analysis

The reliability of the scale measures the extent to which the individual items or set of items yield the output consistent with the overall items in the scale. Reliability is the measure of internal consistency of the construct items which depicts the degree to which the items indicate the common latent construct. The idea behind reliability is that any significant result must be more than one of the findings and be inherently repeatable. If other researchers perform the same experiment under the same conditions, the results will be same. Without the replication of statistically significant results, the experiment and research have not fulfilled all of the requirements of testability. In the research study, the internal reliability has been measured with the help of Cronbach alpha statistic as well as composite reliability (CR).
Cronbach alpha is the average of all possible split half coefficients resulting from different ways of splitting the scale items. The value of Cronbach’s alpha varies from 0 to 1 but a satisfactory value is required to be more than .70 for a reliable scale (Malhotra and Dash, 2011). Further, composite reliability is defined as the total amount of true score variance in relation to the total score variance. Composite reliability of 0.7 or higher are considered good (Malhotra and Dash, 2011). In the present research work, Cronbach’s alpha and composite reliability have been computed to check the reliability of three constructs i.e. ‘Exporting SMEs’ Bank Selection Criteria’, ‘Service Quality of Export Credit Delivery system of Banks’ and ‘Reasons of Bank Switching Decision of Exporting SMEs’. Reliability analysis has been used to construct reliable measurement scales and measures of scale reliability i.e. Cronbach Alpha and Composite reliability have been computed that provide the information about the relationships between individual items in the scale. The values of Cronbach’s alpha and Composite reliability for the final scales of the three constructs are more than .80 which shows high reliability of the scales. The scales of these constructs have been used for further analysis in the study.

3.6.2 Independent Samples t-test

The Independent Samples t-test is commonly used to compare the means of two groups on given variable(s) and to test the null hypothesis that the means of the two groups are not significantly different. In order to perform the t-test for independent samples, one independent or grouping variable and at least one dependent variable are required where the dependent variable has been measured on interval scale. Two samples are said to be independent if the samples are not experimentally related i.e. the measurement of one sample has no effect on the values of the second sample (Malhotra and Dash, 2011). In the present study, Independent Samples t-test has been applied to check whether there is a difference between the satisfaction levels of exporting SMEs who are public bank customers with that of private bank customers. Bank ownership has been taken as grouping variable and SMEs’ ratings of overall satisfaction with bank as dependent variable. It has also been applied on switchers and stayers SMEs so as to compare their experience with respect to various service quality factors.
3.6.3 One-way ANOVA

One-way ANOVA is a statistical technique used as a test of means for two or more samples having only one factor or grouping variable. The null hypothesis, typically, is that all means are equal (Malhotra and Dash, 2011). In One-way ANOVA, the dependent variable is the variable on which the groups are compared and it is always a metric variable and the independent variable is the categorical variable being used to define the groups. One-way ANOVA has been used in the study to compare the satisfaction level of exporting SMEs on account of their demographic characteristics, share of wallet and relationship tenure with banks.

3.6.4 Pearson’s Chi-square Test of Association

Pearson Chi-square test is used to test the statistical significance of the observed association in a cross tabulation (Malhotra and Dash, 2011). The test is used to test the null hypothesis that there is no association between the variables. The Chi-square test has been used in the present research work to find the association between exporting SMEs’ awareness and relationship tenure with bank as well as size of export turnover.

3.6.5 Exploratory Factor Analysis

Factor analysis is a class of procedures primarily used for data reduction and summarization (Malhotra and Dash, 2011). It is a set of techniques which, by analyzing correlations between variables, reduces their number into fewer factors which explain much of the original data more economically and with minimum loss of information (Nargundkar, 2010). It is a multivariate statistical technique in which the whole set of interdependent relationships is examined and large number of variables, most of which are correlated, are reduced to a few number of underlying factors (Malhotra and Dash, 2011). The Exploratory Factor Analysis has following applications:

1. To identify the underlying dimensions, or factors, those explain correlations among a set of variables.
2. To identify the new smaller set of uncorrelated variables for their usage in further multivariate analysis.
In the present research work, this technique has been applied to identify the underlying factors for three constructs i.e. SMEs’ Bank Selection Criteria, Reasons for Switching Banks and Service Quality of Export Credit Delivery System’. Before running Factor Analysis, there are some pre-requisites which are to be checked. First of all, there should be sufficient multicollinearity among variables to be clubbed into factors. In other words, correlation among variables should be sufficiently high for applying Factor Analysis. For this Bartlett's Test of Sphericity is applied whose null hypothesis is ‘Correlation matrix is an identity matrix’. It should be significant for applying Factor Analysis (Malhotra and Dash, 2011). Kaiser-Meyer-Olkin Measure of Sampling Adequacy is used to check the adequacy of data for Factor Analysis. It should be more than 0.6 for sample adequacy (Malhotra and Dash, 2011). Anti-image correlations matrix is generated which represents KMO measure of sampling adequacy for individual variables. The diagonal elements of Anti-image correlations matrix should be greater than 0.5. Reproduced matrix is generated to analyse the fitness of EFA. Reproduced matrix is the difference between observed correlation matrix and reproduced correlation matrix. The lower it is, the better it is. In the residual matrix, maximum 20 percent of the observations can have residual correlations more than 0.05 for fitness of the model. All the pre-requisites have been checked before applying Factor Analysis.

After qualifying these requirements, the number of factors has been derived by using Principal Component Method with Varimax Rotation and on the basis of Eigen value greater than one. In Principal Component Method, the total variance in the data is considered. This method is recommended where primary concern is to minimise the number of factors that will account for maximum variance in the data (Malhotra and Dash, 2011). Eigen value represents the amount of variance accounted for a factor (Hair et al., 2007). The factors have been taken whose Eigen value is greater than one.

3.6.6 Cluster Analysis

Cluster Analysis is a class of techniques used to classify respondents or cases into relatively homogeneous groups called clusters. Objects in each cluster tend to be similar to each other and dissimilar to objects in other clusters (Malhotra and Dash, 2011). Cluster Analysis has following applications:
1) Cluster analysis is used for segmenting the market where on the basis of some criteria, respondents or customers are divided into homogeneous groups.

2) This can be used for understanding buyers’ behaviours as buying behaviour of homogeneous groups can be examined.

3) This can be used for reduction of data as large numbers of respondents are put into homogenous clusters.

In the present study, Cluster analysis has been applied on the respondents in order to identify the segments on the basis of their bank selection criteria. A Priori Approach has been used in cluster analysis to decide the number of clusters. In A Priori Approach, number of clusters is decided based upon the theory or earlier literature (Malhotra and Dash, 2011). Hence, K-means clustering procedure has been used as number of clusters is specified in advance in K-means clustering procedure. Wagstaff et al. (2001) have suggested that where background information is available regarding the number of clusters, K-means clustering procedure can be used. The specified number of nodes and points closest to them are used to form initial clusters and through an iterative rearrangement, final K clusters are determined (Nargundkar, 2010).

3.6.7 Multidimensional Scaling Method

Multidimensional Scaling is a class of procedures for representing perceptions and preferences of respondents spatially by means of a visual display. Perceived or psychological relationships among stimuli are represented as geometric relationships among points in a multidimensional space. These geometric representations are generally called spatial maps (Malhotra and Dash, 2011). In the research study, the Multidimensional Scaling (MDS) has been applied in order to analyse the perception mapping of export credit schemes in the minds of exporting SMEs. The square of the difference of the mean scores has been calculated so as to draw perception map. In Multidimensional Scaling Method, model fitness has been checked by Stress and R-square where stress is lack of fit measure and R-square is a goodness of fit measure. R-square is a squared correlation index that indicates the proportion of variance of the optimally scaled data that can be accounted for by the MDS procedure (Malhotra and
Dash, 2011). Higher values of Stress indicate poor fit whereas higher values of R-square indicate good fit.

### 3.6.8 Structural Equation Modeling

Structural Equation Modeling (SEM) is often described as combining factor analytic and regression models into a single data analysis tool. Using the language of SEM, latent variables (factors) represent the concepts of the theory, and data from measures (indicators) are used as input for statistical analysis that provide evidence about the relationships of the latent variables with their indicators and relationships among the latent variables (Williams et al., 2009). It is a statistical technique for testing and estimating causal relations using a combination of statistical data and qualitative causal assumptions. It allows both confirmatory and exploratory modeling. In other words, it is suited to both theory testing and theory development. Confirmatory modeling usually starts with a hypothesis that gets represented in a causal model. Confirmatory modeling is done through Confirmatory Factor Analysis (CFA). The concepts used in the model must then be operationalized to allow testing of the relationships between the concepts in the model. The model is tested against the obtained measurement data to determine how well the model fits the data.

Among the strengths of SEM is the ability to construct latent variables; variables which are not measured directly, but are estimated in the model from several measured variables each of which is predicted to or 'tap into' the latent variables. This allows the modeler to capture explicitly the unreliability of measurement in the model, which allows the structural relations between latent variables to be accurately estimated.

The validity of the measurement model depends upon the goodness of fit results, reliability and evidence of construct validity especially convergent and discriminant validity. Goodness of fit means how well the specified model reproduces the covariance matrix among the indicator items. The various measures designed to assess fit consist of absolute fit, incremental fit and parsimony fit indices. In absolute fit indices, each model is evaluated independently of other possible models. These may measure either goodness of fit or badness of fit. Goodness of fit indices measures indicate how well the specified model fits the sampled data whereas badness of fit indices measure error in some form.
The most commonly used Goodness of fit indices are goodness of fit index (GFI) and adjusted goodness of fit index (AGFI) whereas the most commonly used badness of fit indices are root mean square error of approximation (RMSEA) and root mean square residual (RMSR) and $\chi^2$.

Conversely, the incremental fit indices evaluate how well the specified model fits the sample data relative to some alternative model that is treated as baseline model. These are Goodness of fit measures and include normed fit index (NFI), comparative fit index (CFI) and Tucker Lewis index (TLI). The parsimony fit indices are designed to access the fit in relation to model complexity and are useful in evaluating competing models. The commonly used parsimony fit indices are parsimony goodness of fit index (PGFI) and the parsimony normed fit index (PNFI). In the present research work, the incremental fit indices have been used to assess the goodness of fit for the measurement model.

Structural Equation Modeling (SEM) has been applied so as to establish a cause and effect relationship between the latent variables, measuring service quality of export credit delivery system, identified by Exploratory Factor Analysis and overall satisfaction of exporting SMEs. In this section, SEM is applied on latent variables individually, in first instance, so as to examine the impact of individual factors and then taking all factors, altogether so as to know their combined effect. Measurement model (Confirmatory Factor Analysis) has been used to check the reliability and validity of the scale and constructs.

3.6.9 Logistic Regression Analysis

Logistic Regression is a statistical technique which commonly deals with the issue of how likely an observation is to belong to each group. It estimates the probability of an observation belonging to a particular group (Malhotra and Dash, 2011). In logistic regression, dependent variable is binary or categorical having two values and independent variables are metric. The probability of a binary event taking place is estimated through simple logit model or Logistic Regression. In the present research study, Logistic Regression has been applied in order to investigate the key drivers or determinants of exporting SMEs’ loyalty towards banks. A simple logit model has been specified in
which the likelihood of staying with current primary bank is a function of perceived satisfaction with service quality of export credit delivery system.

Assuming the event of staying with banks i.e. banking loyalty, the category 1 is assuming probability 0 and probability of loyalty for category 2 is decided one. Logistic regression has been run taking factor scores of service quality factors as independent variables and probability of loyalty with current bank as dependent categorical variable having categories switchers (0) and stayers (1).

3.6.10 Miscellaneous
Besides above discussed statistical techniques, Mean, Standard Deviation, Percentages, Frequencies, Bar Graphs and Weighted Average Scores (WASs) have also been used to analyse the data in present research.

3.7 LIMITATIONS OF THE STUDY
The present study suffers from the following limitations:
1) The study is limited to Punjab state and has been conducted in three districts of Punjab namely, Ludhiana, Jalandhar and Amritsar.
2) The study is based on primary survey which has been conducted with the help of structured questionnaire. Hence, limitations of questionnaire method of data collection can’t be avoided in the research study.
3) In the research study, the sample has been selected on the basis of data for the year 2009-10. At the time of data collection, the latest data available in Statistical Abstract of Punjab as well as Directorate of Industries, Chandigarh were for the year 2009-10.
4) The study is specifically conducted from SMEs’ perspective. The perspective of banks with respect to SMEs’ satisfaction has not been covered.

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