Chapter 4
Research Methodology

4.1 Introduction

This chapter explains the methodology and the statistical methods that were adopted to test the hypotheses and answer the research questions validly, objectively and accurately. The chapter includes the research design, data collection methods, population, sample, research instrument, measurement of variables, data analysis methods, statistical analysis tools, and reliability and validity of the instrument.

4.2 Research Process

This study was carried out in three phases (Figure 4.1). The first phase of the study covered the broad identification of the research area to the formulation of hypotheses. The broad problem identified was “customer
switching behaviour in the retail banking industry”. To narrow down the research area, an extensive review of literature was carried out. After the literature review, the problem was narrowed down from its broad base, the issues of concern were identified and the problem was defined as “how do the various triggers that retail banking customers experience influence their perceptions of service quality and consequently their intention to switch their banks”. To have a conceptual foundation for proceeding with the research, the theoretical framework was developed showing the relationships among the various constructs identified as important to the problem and the hypotheses were also formulated.

The second phase of the study included the design of the research which is explained in detail in this chapter, so that the requisite data could be collected and analysed. The research design involved a series of rational decision making and covered decisions pertaining to purpose of study, the type of investigation, the study setting, the time horizon and the unit of analysis. This phase of the study also covered decisions regarding type of sample to be used, data collection methods, measurement scale design and decisions on how data was to be analysed.

The third phase of the study covered data collection, detailed analysis of the data, making inferences and deductions based on the results obtained as to whether the hypotheses were substantiated and research questions answered.
4.3 Research Design

In this study, both deductive and inductive research approaches were followed. The study used a mixed method approach, using both quantitative and qualitative methods as the purpose of the study was to have a better understanding about the relationship among the antecedents of customer switching intentions and also to explain the nature of relationships.

The study investigated the opinion of customers in order to understand the cognitive part of customer switching behaviour in retail banking and also to explain why and how the antecedents of customer switching are related. To
get insights about triggers that cause customers to switch banks, exploratory work was undertaken. During the exploratory phase, a thorough review of literature was carried out on studies done in similar areas. In addition to this, experience survey was done by way of interviewing and discussing the issues concerning the area of study with eight practising banking professionals, who have had specific experiences dealing with the issues in their day-to-day work. Interviews were also held with twenty four customers who have experienced the issues. The input so obtained during the exploration phase through the literature survey and experience survey was used in questionnaire/research instrument development.

Descriptive research was used in the study to make descriptions of the phenomena and characteristics associated with the sample. The study, using a survey method, tried to understand the customers’ perceived likelihood of considering switching of primary accounts due to switching triggers, perception of service quality, commitment and switching intentions among different demographic groups. The study also identified the characteristics of switchers and non-switchers with respect to these variables. Explanatory research aims to provide a causal explanation of the phenomena. The dominant methodology used in the study was explanatory as the study examined the relationship among switching triggers, perceived service quality, commitment and switching intentions among banking customers. Hence, from the perspective of purpose of study, the study was exploratory, descriptive as well as explanatory. The combination of the three allowed not only to describe the phenomena but also to explain why it happened and also to explore factors that influenced and interacted with it.
The objective of the research being relationship among various factors that influence customers’ bank switching behaviour, the type of investigation carried out in the study was causal. The research strategy followed was field study as no variables were manipulated and the study was carried out in non contrived settings. From the perspective of time horizon, this study required only one contact with the study population when all the requisite data could be collected. Therefore, a cross sectional survey was designed for the study.

4.4 Scale Development

For measuring switching intentions and consumer commitment, scales used in previous studies were adapted and for measuring switching triggers and service quality, scales were developed. For the development of scales, to objectively define the constructs, the C-OAR-SE procedure proposed by Rossiter (2002) which has an increased emphasis on conceptualization of constructs was followed. C-OAR-SE is acronym for Construct definition, Object classification, Attribute classification, Rater identification, Scale formation, and Enumeration and reporting. The C-OAR-SE theory requires that “constructs be conceptually defined in terms of (1) the object, including its constituents or components, (2) the attribute, including its components, and (3) the rater entity” (Rossiter, 2002, p 308). Rossiter suggests that if the three conditions are not met, the conceptual definition of the construct will be inadequate for indicating how the construct should be (operationally) measured. The object is the focal object which is rated, the attribute is the dimension on which the object is being judged and the rater entity is the raters or judges who judge the attribute.
According to Rossiter (2002), the object part of the construct can be classified as concrete singular, abstract collective or abstract formed; the attribute may be concrete, (abstract) formed or (abstract) eliciting and the rater entity may be individual, experts or group. The constructs differ depending on whose perspective they represent. The scale formation involves putting together of all the object item parts with the attribute item parts to form the scale items. A construct is defined by the object type and the attribute type. Rossiter laid down enumeration rules for deriving a total score for the scale items and the rules are as shown in Table 4.1.

Table 4.1 Scale Enumeration Rules for the Different Object on Attribute Cells

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Concrete singular</th>
<th>Abstract Collective or Abstract Formed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>Single item score</td>
<td>Index over O_i</td>
</tr>
<tr>
<td>Formed</td>
<td>Index over A_j</td>
<td>Index (doubly) over O_iA_j</td>
</tr>
<tr>
<td>Eliciting</td>
<td>Average (mean) over A_j</td>
<td>Average (mean) over A_j, and index over O_j</td>
</tr>
</tbody>
</table>

O = object and subscript ‘i’s are item parts for constituents or components. A = attribute and subscript ‘j’ is item parts for components.

Source: Rossiter, 2002

4.4.1 Construct for Switching Trigger

The scale for switching trigger was developed to measure customers’ perception of their likelihood of considering switching (their primary account) when faced with a switching trigger. The focal object being rated was the customers’ likelihood of considering switching their main or primary account.
According to Rossiter (2002), the object is concrete singular if all the raters or respondents can describe the object identically and if there is only one object to be rated by the raters. Nearly all customers know what their primary account is and there is only one primary account for customers. In the case of the object ‘likelihood of considering switching primary account’, there is only one object to be rated and hence the object is concrete singular. The dimension on which the customers’ likelihood of considering switching was being judged was switching triggers. A formed attribute is an abstract attribute in which the main components add to form the attribute. The triggers which make customers consider switching are situational triggers, reactional triggers and influential triggers. Each of the three triggers, in this case was abstract formed and the components that form each trigger were concrete and were included in the scale. The components that make up each of the main components were concrete as all respondents would describe the sub components similarly. The study was conducted among a sample of bank customers and the rater entity of the construct therefore was group of individual customers. The scale enumeration rule suggested by Rossiter (2002) (Table 4.1) shows that the scale for concrete singular object and formed attribute should have an index over the different components of the attribute ‘switching trigger’.

4.4.2 Construct for Perceived Service Quality

The object is concrete singular if all the raters or respondents can describe the object identically and if there is only one object to be rated by the raters. In the study, the object being studied was the retail bank with reference to the primary or main account of customers in Kerala. The primary account bank can be clearly identified by the raters (respondents) and there would be
only one retail bank with a primary account for all customers. Furthermore, in India, the banking products are largely regulated by the Reserve bank of India and can be considered to be functionally homogeneous. Therefore, across banks the ‘object’ could be described as homogeneous in nature. Thus, the object in the study was classified as concrete singular. A formed attribute is an abstract attribute in which the main components add to form the attribute. In the case of the scale for service quality, the attribute was service quality. Service quality is the customers’ judgement of the overall superiority of the bank’s service and is formed from five dimensions: human interaction, core service, convenience, tangibles and technology. It is a summative type of judgement and was therefore a formed attribute of the second order. Each of the five dimensions or components that form service quality is also a formed attribute. Each dimension is made of components, each of which was a concrete attribute. Service is experiential in nature and has both cognitive as well as emotional aspects. The object ‘service quality’ should be considered from the customer perspective and the rater entity therefore was group of individual customers. The scale enumeration rule suggested by Rossiter (2002) (Table 4.1) shows that the scale for concrete singular object and formed attribute should have an index over the different components of the attribute service quality.

4.5 Data Collection Method

Both primary and secondary sources of data were used in the study. The secondary data sources used in the study primarily consisted of the following: published studies in various international and national journals and conference proceedings; articles published in periodicals relating to the above subjects;
information contained in websites such as RBI website, websites of various banks in India, website of State Level Bankers’ Committee; banking reports and unpublished studies pertaining to the above topics.

The primary research was quantitative in nature with qualitative methods facilitating the quantitative research. The qualitative approach involved face to face interviews with bank managers and customers of various banks as discussed in sections 4.5.1.1 and 4.5.1.2 of section 4.5.1. The quantitative portion of the study comprised of a large survey conducted among the general public as discussed in section 4.8.

4.5.1 Qualitative Work

The qualitative work was carried out so as to facilitate the design of the quantitative research work of the study. The qualitative work was exploratory, designed to get an understanding of the various switching triggers customers experience during their banking relationship and also to understand the dimensions of service quality which customers perceive as important in their assessment of the service quality of the bank. To understand about the triggers which sensitize customers to switching their primary account to another bank, semi structured face to face interviews were conducted with bank managers and customers of retail banks. Throughout the process of interviewing, the researcher aimed at developing an understanding of the experiences of customers who were exposed to the situation. In the study, in most of the cases, the interviewees requested anonymity and so confidentiality was maintained in the case of individual responses.

4.5.1.1 Interviews with Bank Managers
To get the banks’ perspective of factors that actually make customers consider switching their banks, interviews were conducted in January 2012 with the managers of eight retail banks in Ernakulam; two banks each from the State Bank group, nationalized banks, new private sector banks and old private sector banks. The interviews were conducted in the banks’ premises. The eight banks involved included the State Bank of India, State Bank of Travancore, Union Bank of India, Canara Bank, HDFC Bank, ICICI Bank, South Indian Bank and Federal Bank. In all these banks, the Chief Manager (or equivalent) was interviewed. The reason for interviewing the chief manager was because the researcher felt that the personnel at the higher management level have a broader and deeper understanding of why customers switch banks. The interviews were semi structured and were carried out by the researcher. Before the questions were asked to the bank managers, the operational meaning of switching was explained to them. All the interviewees were asked three questions covering the key areas of interest (Appendix 2A). The flow of the interview in each case was tailored depending on the responses to the questions.

There was broad agreement between the interviewees that the reasons for considering switching came mainly from the customers’ life situations, displeasure with the bank and campaigns by other banks. The list of reasons why customers consider switching as enumerated by the interviewees is attached in Appendix 2B. A list of 60 service quality indicators as shown in Appendix 3A identified from literature was also made available to each interviewee and they were asked to select 30 attributes that they thought were important from a bank customer’s perspective. This list was made use of to arrive at the final list of indicators to measure service quality of banks.
4.5.1.2 Interviews with Customers

As the purpose of the study was to understand the cognitive part of the process of bank switching of customers, the most important insights can come from customers themselves. To understand the customer perspective, face to face interviews were conducted with twenty four customers during the month of February 2012 and March 2012. These customers were referred to by the bank managers with whom interviews were conducted during the previous month, each manager referring three customers each. These were customers who had either closed their account with these banks or opened a new account in these banks during the period January 2011 to December 2011. Effort was taken to see that customers belonging to all age groups were included in the list. The interviewees were given assurance regarding the confidentiality of their responses and were also assured that anonymity would be maintained.

The interviews were semi structured and each interviewee was asked two questions to get an understanding about triggers that cause customers to consider switching. The question regarding triggers was asked in a general manner and not specifically directed at the interviewee so as to avoid any biased opinion from the interviewee.

All the twenty four customers were able to express their reason for considering switching and reasons which they thought make customers to consider switching. In addition, the interviewees were all presented with the list of 60 service quality indicators (as shown in Appendix 3A) identified from literature and were asked to select 30 attributes which they perceived as important indicators of bank service quality.
4.5.1.3 Scale items for Switching Trigger and Perceived Service Quality

The details collected during the two sets of interviews were consolidated and analysed and was used for including appropriate and relevant questions while developing the questionnaire. For switching triggers, the reasons cited by the eight bank managers and twenty four customers were compiled (Appendix 2B) and the compiled list consisting of thirty two reasons was discussed with two experts to arrive at the indicators for the triggers. Based on review of literature and expert advice, nine indicators for switching triggers were selected.

The preferred list of service quality attributes obtained from the bank managers and that from customers was used to arrive at the final list of indicators for service quality. The list of selected service quality indicators of bank managers and customers were considered together and the thirty most highly preferred indicators were discussed with the two experts. From these thirty indicators, the experts selected twenty eight indicators as shown in Appendix 3B.

4.6 Questionnaire Development

The questionnaire for the study was carefully designed to meet the requirements of the research. The questionnaire was structured and formatted keeping in mind Dillman’s (2000) principles of questionnaire design. The questionnaire used in the study is attached in Appendix 1. Closed ended questions were used in the questionnaire. With respect to questions and wordings, all the questions were designed to be short, simple and comprehensible, avoiding ambiguous, vague, leading, double barreled and
presumptuous questions. Negative worded questions were avoided to prevent confusion to respondents in answering the questions.

4.6.1 Questionnaire Format

The questionnaire developed for the survey consisted of six sections. Section 1 consisted of four questions and the questions were meant to identify bank switchers and non-switchers. Section 2 consisted of questions based on switching triggers, the questions in Section 3 were on perceived service quality, Section 4 on customer commitment, Section 5 on customer switching intention and Section 6 was on personal information. The various sections were arranged in a logical manner based on the objectives of the study. Within each section, the questions were logically organized to ease the cognitive burden of respondents (Dillman, 2000) and the various statements were grouped by content to allow the respondents to organize their thoughts better.

Switching was operationalized in the study as either closing of a customer’s primary account in a bank (total switching) or moving of the primary account from one bank to another (partial switching). In the latter case, the customer may still be maintaining the account but will not be carrying out much further transactions through the account. Primary (or main) account is the account where salary or wages are paid into and /or where major transactions take place. As explained in the following sections, a number of questions were asked to respondents asking them to mark their level of agreement or disagreement with a given statement, using a Likert scale.

With respect to the number of scale points, researchers acknowledge that a Likert scale with seven plus or minus two points offers a reasonable range of
alternatives for the respondents to mark their responses (Aaker, Kumar & George, 2000; Malhotra, 2004; Sekaran, 2003). For the purpose of this study, a 5 point Likert scale was used with the descriptors being ‘strongly disagree’, ‘disagree’, ‘neutral’, ‘agree’ and ‘strongly agree’. The 5 point scale was used as it was considered sufficient to allow for differentiation of perception of the respondents.

4.6.1.1 Identification of Switchers/Non switchers (Section 1)

A total of four questions were asked in the first section with clear directions as to how to answer the questions. The first two questions were asked to identify if the respondent was a bank switcher or a non switcher. The respondents were asked if they had closed or moved their primary account from a bank during the past three years. The reason for fixing this limit as three years was because the researcher felt that three years was fairly good recall period and that the respondents may not have a good recall of the events that led to switching any time before three years back. Respondents who answered ‘No’ to the above two questions were given directions to proceed to Section 2 after answering the first two questions while all the other respondents were directed to answer the remaining questions in the section. The next two questions in the section pertained to the past switching behaviour of respondents which included the time of switching and the relationship length. In the case of respondents who marked ‘Yes’ to the first two questions, such respondents were asked to answer the next two questions in the section based on the more recent of the two cases as the researcher felt that the more recent will reflect their perceptions about various aspects of their banking relationship better than the older experiences.
4.6.1.2 Switching Triggers (Section 2)

The questions in the second section pertained to triggers that cause customers to consider switching. The questions were framed in such a manner so as to measure the perception of customers with respect to their likelihood of considering switching their primary or main account when faced with certain trigger situations. This required the identification of the appropriate categories of triggers to be used in the study and the framing of appropriate questions.

To identify specifically the various triggers customers experience in each category, interviews were conducted with bank managers and retail bank customers as discussed in sections 4.5.1.1 and 4.5.1.2. From literature review and the interviews, nine questions were framed to measure the three types of triggers. The first three out of the nine questions measured situational triggers, the next three questions measured the reactional triggers and the last three questions measured the influential triggers.

Triggers are those stimuli that are perceived by the customer to be relevant to the banking relationship; they sensitize customers to consider switching by causing a change in the customer’s response to a service and initiate them on a switching path. Three types of triggers were considered in the study. Situational triggers are those triggers that arise due to a change in the customers’ own lives; these triggers arise due to changes in living, working or family conditions of the customer and sensitize customers to consider switching their service provider. Operationally, situational triggers were defined as customers’ perceived likelihood of considering switching their primary account due to a change in their family, living or working situations. Influential triggers are those that arise due to the actions/efforts of other banks.
to increase their market share by which make customers compare the services they receive from their bank with what is being offered by the other banks and consider switching their service provider. Operationally, influential triggers were defined as customers’ perceived likelihood of considering switching their primary account due to efforts or actions by competitor banks. Reactional triggers are those triggers that arise due to critical incidents between bank and customers as a result of which customers perceive deterioration in the service offered by the bank or experience displeasure with the service provided and get sensitized to consider switching their service provider. Operationally, reactional triggers were defined as customers’ perceived likelihood of considering switching their primary account due to deterioration in the quality of service offered by the bank or displeasure with the bank.

The triggered customers have better awareness of their service provider’s services and products compared to those customers who have not perceived a trigger (Roos & Friman, 2008). This implies that customers who have experienced triggers are more aware and better at evaluating the bank’s service quality than those customers who have not perceived any trigger. Keeping this in mind, in order to ensure that only customers who have experienced triggers were included in the sample, three filter questions were asked at the beginning of the second section, where respondents were asked to mark ‘Yes’ or ‘No’. Those respondents who answered ‘No’ to all the three questions were not considered at the time of data analysis. Following these three filter questions, nine questions pertaining to triggers were asked to understand customers’ likelihood of considering switching their primary account when faced with the triggers.
4.6.1.3 Perceived Service Quality (Section 3)

The questions in the third section pertained to customers’ perception of service quality of their bank. From the review of literature of service quality scales used by several researchers in retail banking and interviews conducted as explained in sections 4.5.1.1 and 4.5.1.2, the five dimensions of service quality that were identified were Human Interaction, Core Service, Convenience, Tangibles and Technology. The items were categorized into different dimensions based on existing literature and expert opinion to ensure that there were adequate items measuring each of these dimensions. Twenty eight questions were framed to measure these five dimensions of service quality and respondents were asked to mark their level of agreement or disagreement with each of these statements.

Perceived service quality was defined in the study as customers’ judgment about the overall superiority of all aspects of the primary bank with which the customer interacts, both human and non-human aspects and included the aspects pertaining to human interaction, core service, convenience, tangibles and technology. Customers’ perception of the quality of the bank depends on the way the bank personnel interact with the customers. The first five statements were related to Human Interaction. Human interaction is the attitude and behaviour of the personnel of the bank when customers interact with them. The next nine questions were related to the core service of the bank. Core service is what is being offered by the bank and refers to the contents of the service which the bank provides to its customers. The next set of four questions was related to convenience. Convenience refers to customers’ perception of ease of buying or using the
bank’s service in terms of time and effort. Tangibles are used by firms to convey image and quality. There were three questions to measure tangibles. Tangibles refer to the physical facilities, equipment, appearance of personnel and the communication material used by banks while providing service to customers. Technology has emerged as a factor of important relevance to consumers of emerging markets. The last set of seven questions was technology related questions. Technology refers to internet banking and mobile banking facilities offered by the banks that make it easy for customers to carry out their banking transactions.

4.6.1.4 Consumer Commitment (Section 4)

As proposed by Meyer and Allen (1997), in this study consumer commitment was conceptualized as being made up of three dimensions – affective, continuance and normative. Affective commitment was operationally defined as a ‘desire based want to’ commitment towards the bank because of which customers feel that they should continue their relationship with the primary bank. Continuance commitment was defined as a ‘cost based need to’ commitment where the customer feels that he should continue his relationship with the primary bank because of some cost which he may otherwise have to incur and normative commitment was defined as an ‘obligation based ought to’ commitment where the customer feels that he ought to continue maintaining his relationship with the primary bank because of some obligation towards the bank.

A total of eleven questions measured the three dimensions of consumer commitment. The first four questions were on affective commitment of customers. Affective commitment was measured using the scale used by
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Gustafsson et al. (2005) which was adapted from prior studies (Kumar, Hibbard & Stern, 1994; Meyer & Allen, 1997). In all the statements, the word “the company” was replaced with “my bank”. In the second question, the original word in the statement “operator” was replaced with “bank”. In the third question, the word “reciprocity” in the statement was replaced with “mutuality”. Respondents were asked to mark their level of agreement or disagreement with the various statements on a 5 point Likert scale. The dimensions normative commitment and continuance commitment of consumer commitment were measured using Meyer and Allen’s (1997) three component scale of organizational commitment which was adapted and used by Bansal et al. (2004) in the context of Auto Service Company. The terminology had to be changed to reflect that this study was on retail banking. The word “leave my Auto Service Company” in the scale used by Bansal et al. was replaced with “close /move my primary account from my bank” and “My Auto Service Company” was changed to “My Bank”. Respondents were asked to mark their level of agreement or disagreement with the various statements on a 5 point Likert scale. The second set of four questions was on normative commitment and the last three questions were on continuance commitment.

4.6.1.5 Intention to Switch (Section 5)

The fifth section was on consumers’ switching intention. In the context of this study, switching behavior involved the decision of customers’ switching their primary account from one bank to another bank and the predictors that affected this decision. The best predictor of behaviour is intention. In the study, switching intention was defined as the cognitive representation of a customer’s readiness to switch his primary account from
the current bank to another bank. For measuring switching intention of consumers, the statements used were drawn from the scale adapted and used by Bansal et al. (2005) from Oliver and Swan’s (1989) scale of behavioural intentions. To maintain consistency, minor modifications were made to the statements in the scale so as to change it into a Likert scale from the original dichotomous scale. There were three statements where customers had to mark their level of agreement or disagreement on the 5 point scale.

4.6.1.6 Personal Information (Section 6)

The last section contained four questions pertaining to personal demographic information of respondents like gender, age, occupation and annual income. The first question was on the respondents’ gender. The second question was on the respondents’ age. The third question was on the occupation of respondents and the last question was on annual income.

4.6.2 Pre-Testing

A pilot survey was conducted among a sample of 50 retail banking customers. The 50 respondents selected for the survey included the 24 customers with whom the qualitative study was carried out and another 26 who were referred by them. The respondents were encouraged to comment on any questions that they thought were unclear or ambiguous. Modifications were made to the wordings and layout of the questionnaire from the feedback received from the respondents. The final version of the questionnaire is in Appendix 1 of this study.

4.7 Sampling Design
A multi-phase sampling design was done for the study in which the geographical locations were first fixed, followed by the banks from which the respondents were sampled and finally the sampling of the population of interest in the study.

The population for the study was all the retail banking customers of Kerala above the age of 18. Respondents aged less than 18 years of age were not included as it was perceived that they may not be able to understand and interpret the survey questions. The sampling frame of banks’ customers was neither available nor were banks ready to provide the contact details of their retail banking customers because of security and privacy reasons. The sampling unit was individual retailing banking customers.

To determine the sample size, the Sample Size Calculator developed by Creative Research Systems was used. At a confidence level of 95% and confidence interval of 5, which is generally accepted for Social Sciences (Cohen, 1988), the sample size was calculated as 384. A sample size of 600 was selected so as to be able to have a final sample size of at least 384 after screening of incomplete and invalid questionnaires.

On the basis of geographical, historical and cultural similarities, the districts in the state of Kerala are generally grouped into three - northern districts, central districts and southern districts. The state has five districts in the northern region, four in the central region and five in the southern region. For the study, three districts in Kerala state representing three geographic regions were chosen on the basis of the districts having the highest urban population in the respective geographic region. The districts selected were Kozhikode from North Kerala, Ernakulam from Central Kerala and
Thiruvananthapuram from South Kerala. As the research focused on relationship among variables in the contemporary retail banking context, the study required the inputs from users of electronic banking. The selection of the three districts was justified by the fact that the geographic locations selected had an adequate representation of the users of internet banking, tele banking and mobile banking.

As per Census 2011 data, the population of Kochi is close to 33 lakhs, that of Thiruvananthapuram a little over 33 lakhs and that of Kozhikode close to 31 lakhs with the literate population in all three districts close to 28 lakhs. The urban population in Thiruvananthapuram is close to 18 lakhs, that in Kozhikode close to 21 lakhs and that in Ernakulam close to 22.5 lakhs. As on March 2009, there were 50 commercial banks functioning in Kerala with a total of 4186 offices in the state and an average population of 8000 per bank office. Of the 4186 offices, 2714 offices belong to the semi urban population group and 1141 bank offices belong to the urban population group. As per March 2009 bank statistics, there were 5 banks belonging to the State bank group, 20 nationalized banks and 16 private sector banks operating in the state. It was decided not to include the foreign banks, as these banks are not very active in the retail segment. From the list of banks, 10 banks were selected (refer Appendix 4), 2 belonging to the state bank group, 4 from nationalized banks, 2 old private sector banks and 2 new private sector banks. The banks having largest deposits, urban and semi urban taken together, were chosen in each category. The addresses of the branches of these banks in the three districts were obtained from the official website of the banks. Two branches of each bank were chosen at random. In each selected bank branch, 10 questionnaires were distributed to customers making it a total of 200
questionnaires distributed to customers visiting the bank branches in each of the three districts. Attempt was made to systematically target people at different branches at different times of the day in order to reduce location, date and time related response bias. The respondents were selected after visiting different branches of the banks in the three districts. The judgement of the researcher was made use of in choosing the respondents at each branch so as to include both males and females belonging to all age groups in the sample.

4.8 Data Collection

While distributing the questionnaire, the purpose of the survey was explained to each respondent and on obtaining consent, the respondents were asked to fill out the questionnaire. The data were collected during the period January 2013 to June 2013. From a total of 600 questionnaires distributed, 543 questionnaires were collected immediately upon completion from the respondents.

4.9 Data Analysis Strategy

The quality of the data collected from the sample was first ensured. Exploratory factor analysis to define the underlying structure among variables was carried out and structural equation modeling was done to study the linkages among the various variables. These are explained in the sections below.

4.9.1 Data Cleaning

Before analysis was carried out, the quality of data collected was assessed so that results become generalizable. The customer responses were checked for missing values. To ensure that only responses from ‘triggered’
customers were considered for analysis, the data entered on Excel was tested to filter out customers who did not satisfy the filter question criterion. Outliers were identified by testing on Excel and WarpPLS 3.0. The data were also standardized by the software before analysis was carried out.

4.9.2 Measurement of Constructs

This study involved relationships among variables which were not directly measurable. As the variables involved in the study were abstract, the concept of latent variables was introduced in the study. Latent variables are hypothetical constructs that cannot be directly measured and which are created to understand the research area. To operationalize the latent variables, observable and measurable indicators (referred to as manifest variables) that have a logical link with the concept were identified so that the relationships between the theoretical constructs could be analyzed. Measures can be distinguished as either ones that are influenced by (reflect) or influence (form) latent variables (Bollen & Lennox, 1991). Construct specification involves defining the causality of relationship between a construct and its measures or indicators.

In the case of reflective measures a change in the construct affects the underlying measures while in the case of formative constructs changes in the formative measures cause changes in the underlying construct (Jarvis, Mackenzie, & Podsakof, 2003). For reflective constructs, the construct is viewed as the cause of changes in the indicators. In the case of formative construct, the construct is formed by the indicators and the indicators are viewed as causes of change in the construct (Table 4.2). According to Jarvis et al. (2003), a construct should be modeled as having formative indicators if the
following conditions prevail: (a) the indicators are viewed as defining characteristics of the construct, (b) changes in the indicators are expected to cause changes in the construct, (c) changes in the construct are not expected to cause changes in the indicators, (d) the indicators do not necessarily share a common theme, (e) eliminating an indicator may alter the conceptual domain of the construct, (f) a change in the value of one of the indicators is not necessarily expected to be associated with a change in all of the other indicators, and (g) the indicators are not expected to have the same antecedents and consequences. On the other hand, a construct should be modeled as having reflective indicators if the opposite is true.

Table 4.2 Distinguishing between Reflective and Formative Constructs

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Reflective</th>
<th>Formative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Causality of construct</td>
<td>Items are caused by construct.</td>
<td>Construct is formed from items.</td>
</tr>
<tr>
<td>Conceptual relationship</td>
<td>All items are related conceptually because they have a common cause</td>
<td>No requirement of conceptual linkage to other items</td>
</tr>
<tr>
<td>among items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domain of items</td>
<td>Representative sample of potential items.</td>
<td>Exhaustive inventory of all possible items.</td>
</tr>
<tr>
<td>Covariance among items</td>
<td>Expected collinearity among items.</td>
<td>No expectation of collinearity. High collinearity among formative items can be problematic</td>
</tr>
<tr>
<td>Internal consistency</td>
<td>Required.</td>
<td>Not required.</td>
</tr>
<tr>
<td>Forms of construct validity</td>
<td>Internal and external.</td>
<td>Only external.</td>
</tr>
</tbody>
</table>

Source: Hair Black, Babin and Anderson (2009)
In the study, perceived service quality was conceptualized as a second order formative construct, the first order dimensions having reflective indicators. Each dimension captures differing aspects of perceived service quality of the bank, and as a result, this operationalization of the construct is formative. The combination of these dimensions defines the construct of perceived service quality. All other constructs in the study were first order constructs having reflective indicators.

### 4.9.3 Exploratory Factor Analysis

To identify the factors that make up perceived service quality and to reduce the indicators that form the dimensions, Exploratory Factor Analysis was carried out in SPSS 17.0. Hair, Black, Babin and Anderson (2009) summarized several statistical assumptions for factor analysis which include linearity, normality and homoscedasticity (i.e. the assumption that dependent variable exhibits equal levels of variance across the range of predictor variables). However, they argued that these statistical assumptions do not have to be met if the data matrix has sufficient correlation to produce representative factors and justify the application of factor analysis. To determine the sufficiency of correlations in the data set for factor analysis, the approaches include: visual examination of the correlation matrix; inspection of the anti-image correlation matrix; Barlett’s Test of Sphericity and Keyser Meyer Olkin Measure of Sampling Adequacy.

For factor extraction when there are a large set of variables, it is recommended that factor extraction be done by extracting combinations of variables that explain greatest amount of variance (Hair et al., 2009). The selection of the method of factor rotation (between common factor analysis
and components analysis) is based on two criteria: (1) the objectives of the factor analysis and (2) the amount of prior knowledge about the variance in the variables (Hair et al., 2009). The Component Factor Analysis method, also known as Principal Components Analysis, was used in the study as it is most appropriate when the primary concern is data reduction focusing on the minimum number of factors needed to account for the maximum portion of the total variance (common, specific and error variances) represented in the original set of variables. To decide on the number of factors to extract, the latent root criterion technique was used. The rationale for the latent root criterion is that any individual factor should account for the variance of at least a single variable if it is to be retained for interpretation (Hair et al., 2009). With component analysis only the factors having latent roots or eigen values greater than 1 are considered significant and using the eigen value for establishing a cutoff is most reliable when the number of variables is between 20 and 50. The scree test was also used to identify the number of factors that can be extracted before the amount of unique or specific variance begins to dominate the common variance structure.

Computation of a factor matrix can be rotated orthogonally or obliquely; orthogonal being the simplest case of rotation in which the axes are maintained at 90 degrees. The varimax procedure in orthogonal approach maximises the sum of variances of required loadings of the factor matrix and gives a clearer separation of the factors (Hair et al., 2009). The varimax rotation was used in this study. In the interpretation of factors, factor loadings greater than 0.5 were considered as factor loadings 0.5 or greater are considered practically significant (Hair et al., 2009).
4.9.4 Validity and Reliability of Measures

Churchill’s (1979) scale development procedure, which is based on Nunnally’s (1978) version of psychometric theory, was followed to establish psychometric soundness of the measures by ensuring that the measures satisfy the statistical criteria. The results of any research can be only as good as the measures that tap the concepts in the theoretical framework. It is therefore important to establish the goodness of measures through reliability and validity. External reliability which is tested through test-retest reliability means that the studied variable does not fluctuate greatly over time. This method of measuring the reliability being time-consuming and tedious was not done in the study. Internal reliability is indicative of the homogeneity of the items in the measure that tap the construct. To the degree that items are correlated with one another, they will all be measuring the same construct. The most popular test of inter-item consistency reliability, Cronbach’s coefficient alpha (Cronbach’s alpha) and the composite reliability, which is a measure of the overall reliability of a collection of heterogeneous but similar items, were used in the study to test the reliability of measures.

Validity is the extent to which a scale or set of measures accurately represents the concept of interest (Hair et al., 2009) and ensures the ability of a scale to measure the intended concept. Face/content validity ensures that the measure includes an adequate and representative set of items that tap the concept. On the face of it, the items that measure the various concepts showed adequate coverage of the concept. In order to obtain content validity, the research instrument was examined by a panel of experts and they were asked to give their comments on the instrument. Following Rossiter’s (2002)
C-OAR-SE procedure for defining the construct also ensured the content validity of the scale. The face and content validities of the scale were thus established in the study. Criterion validity can be done by establishing concurrent or predictive validity. Churchill (1979) suggested that predictive validity is essential for a measure; however, Rossiter (2011) argued that predictive validity can at most be desirable and not essential because validity, by definition, is internal to the measure, and so validity cannot be established externally by showing that scores on the measure predict those from another measure. Predictive validity of measures in the study was established during data analysis and model testing. Construct validity relates to how well the theoretical concept is operationalized in the measurement of the construct. This is assessed through convergent validity and discriminant validity. Convergent validity confirms that the scale is correlated with other known measures of the concept; discriminant validity ensures that the scale is sufficiently different from other similar concepts to be distinct. Convergent and discriminant validities of the scales were established during data analysis. Nomological validity determines whether the scale demonstrates the relationships shown to exist based on theory or prior research. Nomological validity, according to Rossiter (2011) is another form of predictive validity, which is merely desirable in a measure and not essential.

As explained in section 4.9.2, reflective measurement theory is based on the idea that latent constructs cause the measured variables and formative measurement theory is based on the assumption that the measured variables cause the construct. Reflective constructs imply the assumptions of classical test theory which assumes that the variance in scores on a measure of a latent construct is a function of the true score plus error (MacKenzie, Podsakoff &
Jarvis, 2005). Thus, meaning flows from the latent construct to the measures in the sense that each measure is viewed as an imperfect reflection of the underlying latent construct (Bollen, 1989; Nunnally & Bernstein, 1994). Therefore, construct validation through confirmatory factor analysis (CFA) (i.e. convergent and discriminant validity) and reliability testing (i.e. Cronbach’s Alpha) is appropriate for reflective constructs and in contrast, validity for formative constructs is concerned with the strength and significance of the path from the indicator to the construct (MacKenzie et al., 2005).

The differences between the two measurement models have been emphasized in literature noting that the traditional methods of construct validity and reliability are not appropriate for formative constructs (Bollen & Lennox, 1991). According to Diamantopoulos and Winklhofer (2001), reliability in the internal consistency sense and construct validity in terms of convergent and discriminant validity are not meaningful for formative constructs. Internal consistency (reliability testing) of indicators is difficult for formative constructs because the indicators are not reflections of the underlying latent variable. Convergent validity for formative constructs is not relevant due to the fact that formative construct indicators are not necessarily correlated. The implication is that unlike reflective measures that individually tap the entire conceptual domain, formative measures only capture the entire conceptual domain as a group (MacKenzie et al., 2005). For formative indicator models, following the standard scale development procedures—that is, dropping the items that possess the lowest item-to-total correlations or the lowest factor loadings—may result in the removal of those items that would most alter the empirical meaning of the composite latent construct and doing
so could make the measure deficient by restricting the domain of the construct (Hair et al., 2009). Discriminant validity however can be tested for both the reflective and formative construct by testing for whether the constructs are less than perfectly correlated (MacKenzie et al., 2005).

Diamantopoulos and Winklhofer (2001) suggested a few criteria for the success of formative models which are helpful for construct validity purposes. First, understanding the contextual domain of the construct is important as failure to include all facets of the conceptual domain of the construct can lead to exclusion of the construct itself. Defining the construct helped to understand the contextual domain better. Within the contextual domain it is also important that indicators must cover the entire scope of the domain. This was ensured through an extensive literature review of the contextual domain. Third, multicollinearity of the indicators can be problematic, because the focus on the formative indicator is to assess the strength and significance of the path from the indicator to the composite construct. This is treated similarly to multiple regressions. These conditions were fulfilled with regard to perceived service quality which was conceptualized as a formative construct.

4.9.4.1 Validation of Scales

The validity of the scales, both convergent and discriminant, and the reliability of the scale items were checked on WarpPLS 3.0 software. Perceived service quality being a formative construct, the indicator weights and variance inflation factors (VIF) of the formative indicators were also checked to see if the values satisfied the acceptance criteria. Validation of the switching trigger scale was also done using WarpPLS 3.0 by checking the reliability of the scale and the convergent and discriminant validities. To
assess the model fit, Kock (2012) recommended that the p-values for the average path coefficient (APC) and the average r-squared (ARS) be both lower than 0.05 and that the average variance inflation factor (AVIF) be lower than 5. These criteria were also checked in all the cases. The validity and reliability guidelines in WarpPLS 3.0 are as shown in Table 4.3.

Table 4.3 Validity/Reliability Guidelines in WarpPLS 3.0

<table>
<thead>
<tr>
<th>S. No</th>
<th>Consideration</th>
<th>Reflective</th>
<th>Formative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cronbach's Alpha Coefficient</td>
<td>&gt;0.7</td>
<td>NA</td>
</tr>
<tr>
<td>2</td>
<td>Composite Reliability</td>
<td>&gt;0.7</td>
<td>NA</td>
</tr>
<tr>
<td>3</td>
<td>Average Variance Extracted (AVE)</td>
<td>&gt;0.5</td>
<td>&gt;0.5</td>
</tr>
<tr>
<td>4</td>
<td>Convergent Validity</td>
<td>p values associated with loadings be lower than 0.05 and the loadings be greater than 0.5</td>
<td>Variance Inflation Factor (VIF)&lt;5; all indicator weights should be with p&lt;0.05</td>
</tr>
<tr>
<td>5</td>
<td>Discriminant Validity</td>
<td>The square root of AVE should be higher than any of the correlations involving that latent variable</td>
<td></td>
</tr>
</tbody>
</table>

In this study the perceived service quality construct was conceptualized as a second order construct and all the other constructs were first order constructs. For the analysis of the second order construct using WarpPLS 3.0, it was required to calculate the latent variable scores at first by creating models with latent variables and indicators without linking. These latent variable
scores were used to define the second order construct in the final model. The path coefficients and associated p-values were obtained by running structural equation modeling in WarpPLS 3.0.

4.9.5 Structural Equation Modeling

Structural equation Modeling (SEM) is a confirmatory technique used to determine whether the model developed for the research is valid for data and is a combination of confirmatory factor analysis and path analysis. Since the study required the hypothesized model to be tested for the best-fit of the data, structural equation modeling was considered the appropriate analysis method.

Structural Equation Modeling includes a number of statistical methodologies meant to estimate a network of causal relationships, defined according to a theoretical model, linking two or more latent complex concepts, each measured through a number of observable indicators. The term structural equation model refers to both the structural and measurement model together. In a structural equation modeling (SEM) analysis, the inner model (structural model) is the part of the model that describes the relationships between the latent variables considered in the model. The outer model (measurement model) is the part of the model that describes the relationships between the latent variables and their indicators. Therefore the path coefficients are inner model parameter estimates whereas weights and loading are measurement model parameter estimates depending on whether the measurement model is formative or reflective. WarpPLS 3.0 estimates enable evaluation of measurement model as well as structural model simultaneously. However when second order constructs are used, the measurement model for first order constructs are evaluated separately.
All hypotheses were tested using structural equation modelling in WarpPLS 3.0. The model fit with the data was assessed. The path coefficients and associated p values were obtained.

4.9.5.1 Partial Least Squares Approach

For the analysis of the research model, a variance based approach or Partial Least Squares (PLS) approach was adopted in this study. Unlike covariance based approach, the PLS approach, introduced by H. Wold in 1975, focuses on maximizing the variance of the dependent variables explained by the independent ones instead of reproducing the empirical covariance matrix (Haenlein & Kaplan, 2004). It is an iterative algorithm that separately solves out the blocks of the measurement model and then, in a second step, estimates the path coefficients in the structural model. Therefore, PLS-based Structural Equation Modeling is claimed to explain at best the residual variance of the latent variables and, potentially, also of the manifest variables (indicators) in any regression run in the model (Fornell & Bookstein, 1982).

The relationships among variables associated with natural and behavioural phenomena are usually nonlinear, with U-curve and S-curve relationships being particularly common (Kock, 2012). WarpPLS 1.0 introduced in 2009 is a powerful Partial Least Squares (PLS) based SEM software that identifies nonlinear or “warped” relationships among the latent variables (hence the name of the software) and estimates the path coefficients accordingly. The WarpPLS 3.0 software released in 2012 was used in the study. The Warp3 PLS regression algorithm tries to identify a relationship between latent variables defined by a function whose first derivative is a U-curve and, if that relationship exists, the algorithm transforms (or “warps”)
the scores of the predictor latent variables so as to better reflect the U-curve relationship in the estimated path coefficients in the model. The warping takes place during the estimation of path coefficients, and after the estimation of all weights and loadings in the model.

PLS-based Structural Equation Modeling has several key advantages over covariance-based Structural Equation Modeling. It has the advantage that it involves no assumptions about the population or scale of measurement (Fornell & Bookstein, 1982) and therefore works without assumptions about the distribution and with all types of measurement scales. The presence of formative indicators in the model can lead to severe identification problems in covariance based Structural Equation Modeling (MacCullum & Brown, 1993). The PLS based approach can be used for models with either reflective, formative or both types of indicators as it does not create such problems (Fornell & Bookstein, 1982).

4.9.6 Independent Sample t Test and ANOVA

Independent sample t tests were done to demonstrate whether or not the mean scores between men and women and also between switchers and non switchers were significantly different with respect to the customers’ likelihood of considering switching their primary account due to the three switching triggers, their switching intention and perceived service quality. The Levene’s test for equality of variances was done to see if the different groups have about the same or different amounts of variability between scores. Analysis of variance (ANOVA) was used to test for significant difference of switching triggers, switching intentions and perceived service quality among different age groups, occupation groups and income groups.
4.10 Conclusion

The chapter outlined the principles underlying the design of the study and the research methodology used. The details regarding the research approaches used, data sources, sampling method used, research instrument, and the statistical tools that are made use of are also brought out in this chapter. The qualitative and quantitative works involved in the study have been discussed in detail. The procedure adopted to develop the scales for measuring switching triggers and perceived service quality and the procedure employed for validation of scales have also been discussed. The chapter throws light on the format of the questionnaire, pretesting of questionnaire, the sampling design and data collection. The steps and methods employed for analysis of data and the statistical tools used have also been discussed. Structural Equation Modeling has been considered the appropriate analysis method for the study. Partial Least Squares based Structural Equation Modeling using WarpPLS 3.0 has been used in the study.

The next chapter discusses in detail the analysis of data.