A descriptive Study on the Security Aspects of Various Alternate Channels of the Banks

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Abstract
Banking Industry is facing a challenge due to change in service delivery, adding more alternative channels for distributing their services with better service standards. Alternate delivery channels and new channel integration with the Core Banking System (CBS) has increased to a greater extent due to two reasons, one is the peer pressure and the second is regulatory requirement. All these alternative channels were connected with the CBS by way of an interface as a channel. The reason why none of these alternate services were not within the CBS is obvious that each and every distribution channel is using various communication media which are out of the CBS provider's control and are exposed to security threat. Hence the impact here is the security!!! This study was conducted within Tamil Nadu among top two private and public sector banks’ users to measure the level of consumer self-confidence for using alternative channels for banking services and how these consumers’ self confidence helps to identify the perceived risk associated with the alternative channels they prefer to transact. How do consumers think about the organisation through the judgement and feelings associated with these alternative channels? Consumer behaviour is measured through E-Loyalty (electronic loyalty). E-Loyalty measures the consumer behaviour towards the alternative channel banking services provided by the banks. Based on that how clients are repeatedly using these services, their level of trust with respect to the alternative channel banking services is analysed.

Key Words: Alternate channel banking, Perceived Risk, Branch Banking, e-banking services, banking services, Technology management in banks, Security aspects of banking services

Statement of the problem
Globally banks are facing a major change in terms of providing their services to their customers like going for core banking solution, installing more number of ATMs, introducing Internet banking and more channels by investing a few millions. From the analyst point of view, many banks are forced to take up more initiatives on implementing as much of alternative channels as possible. On the other hand, there are so many factors influencing the banks to be more cautious on their decision considering the risk(s) and the threat(s) like hacking, phishing, virus and more… which creates resistance amongst the users who are supposed to use the channel. Hence banks are in an urgent need to provide solutions to the users, which is the main objective of this study.

Objectives
This research study focussing on the following research objectives
1) To know the profile of alternate banking users.
2) To study the demographic characteristics of respondents and consumer self-confidents dimensions
3) To study the demographic characteristics of respondents and perceived risk dimensions
4) To scrutinize the impact of demographic and rational factors of consumer self-confidents and perceived risk dimensions.
5) To analyze and rank the level of perceived risk in the various alternate banking channels
6) To evaluate the perceived risk dimensions in alternate banking channels

Literature Review
Perceived Risk

The concept of “perceived risk”, was first introduced by Bauer in 1960, refers to the perceived dangers and uncertainty during and after purchases, until then the concept of “Risk” was popular in the field of economics, it has been successfully used in the theories of decision making in economics, finance and decision sciences. Research on customer risk perceptions and risk dimensions continues, and different researchers have categorised this in different ways:

Jacoby and Kaplan (1972) have put risk dimensions into six groups: (1) financial, (2) performance, (3) psychological, (4) physical, (5) social, and (6) time (Cases, 2002).

Roselius (1971) classified risk types as: (1) performance, (2) physical, (3) socio-psychological and (4) time risk. (Özer ve Gurpınar, 2005).

Stone and Mason (1995) determined that risk perception had six dimensions: (1) financial, (2) social, (3) time, (4) performance, (5) psychological, and (6) physical.

Lovelock, et.al. (1999) suggest seven risk types in the services sector: (1) financial, (2) time, (3) functional, (4) psychological, (5) physical, (6) social, and (7) sensorial.

Littler and Melanthiou (2006) mention six types of risks perceived by customers of internet banking (1) financial, (2) performance, (3) time, (4) social, (5) psychological, and (6) security risks.

Customers’ risk perceptions pertaining to the purchase of a product can be different from that pertaining to the purchase of a service. Purchasing services electronically or purchasing financial services on the internet can cause higher levels of risk perception. However, the customers’ individual characteristics and previous buying experiences directly impact their risk perceptions (Clarke and Flaherty, 2005).

Chen and Chang (2005) report that as developments in information technology (IT) reduce business transparency and increase customers’ risk perceptions, the topic has become an important issue for firms providing internet-based services.

E-loyalty

In order to reap the benefits of having loyal customers and gaining a competitive advantage online, companies need to develop a thorough understanding of the antecedents of loyalty on the World Wide Web (e-loyalty), such as business factors [Bhattacherjee 2001] or personal characteristics [Magi 2003]. In order to investigate the importance of e-loyalty, the identification of variables influencing repeat purchasing behavior and word-of-mouth recommendation is a crucial area of research [Srinivasan et al. 2002]. This holds especially true for those industries which already depend heavily on their reputations and long-lasting relationships in the offline world, as is the case with the financial sector. The widespread adoption of online banking services calls for research investigating those factors which are responsible for keeping customers loyal.

A model explaining the antecedents of loyalty in the online banking industry has to incorporate factors which take into account the characteristics of the industry as well as those of the medium. Therefore, one should consider antecedents such as trust (being important online and offline) and the perceived quality of the Web site (being important only online). Besides being topics of scholarly research in the information systems domain, these issues have been long discussed in marketing. More than two decades have passed since the concept of relationship marketing was first mentioned in the marketing literature [Berry 1983]. Drivers such as intense competition, demanding customers and enablers such as the Internet are the reason why relationship marketing has increasingly attracted the attention of researchers and practitioners alike [Sheth and Parvatiyar 2002]. In relationship marketing research, the concept of customer loyalty plays a central role [Christopher et al. 2004]. The preeminent
importance of retaining customers is supported by several studies [Chen et al. 2002], confirming the relevance of customers' loyalty to a firm's profitability.

New forms of online communication offer a host of new and promising opportunities for customer retention on the World Wide Web, while at the same time intensifying competition [Vatanasombut et al. 2004]. In particular, this applies to company-controlled communication, giving companies the ability to customize information with regard to the individual needs of a particular customer and to optimize the customer's feedback opportunities [Kierzkowski et al. 1996]. At the same time, companies also face completely new challenges arising from customer-controlled Internet communication, such as the growing importance of brand strength, economies of scale and size [Gallaugher 1999].

In view of these changed circumstances in the buyer-seller interaction, researchers and practitioners have to rethink previous concepts of loyalty [Luo and Seyedian 2003/04]. Empirical studies comparing customer satisfaction and loyalty in online and offline environments show substantial differences in terms of customer attitudes and behavior [Shankar et al. 2003]. At the same time, the integration of Internet technology into the customer loyalty concept is rarely discussed in the relationship marketing literature [Wirtz and Lihotzky 2003].

**Consumer self-confidence**

Building upon a number of studies about the availability of product information, merchandising practices, and store design, Titus and Everett (1995) proposed the consumer retail search process model. It postulates that the search for product information may be guided by epistemic and hedonic constructual systems. The epistemic system, representing the shopper's system of logic, gives rise to a need for the design of in store information displays and merchandising practices, the sine qua none of the epistemic system. The emotionally laden hedonic system is the sensate orientation that accompanies the shopping experience. The retail search model suggests that the individual and the combined effects of these two constructual systems may lead to an efficient, pleasurable, and satisfying shopping experience. Mall and store research supports the aforementioned hedonic and epistemic postulates of the model. In a mall study, a sensate environmental factor was causally related to the excitement associated with the shopping trip and a desire to continue shopping (Wakefield and Baker, 1998). In store research, a positive emotional state explained one’s satisfaction with the shopping experience (Babin and Darden, 1996). In other store research, shopper’s hedonic reaction to and utilitarian orientation towards the shopping experience were associated with their overall satisfaction with the marketplace offerings (Babin, Darden and Griffin, 1994; Griffin, Babin, and Modianos, 2000). In a second mall study, Shim and Eastlick (1998) report a composite measure of product knowledge and emotional variables contributes to one’s overall frequency of shopping and average monthly mall expenditures. Knowledge based and emotional variables contribute also to an increase in the amount of time and money spent in shopping (Babin, Griffin, and Boles 1997).

Efficient, pleasurable, and satisfying shopping experiences are thought also to contribute to the consumer’s personal and social confidence in decision making (Bearden, Hardesty and Rose, 2001). According to the authors, consumer self-confidence is the “…extent to which an individual feels capable and assured with respect to his or her marketplace decisions and behaviours” (p. 122). These feelings of competence characterize the personal and the social outcomes associated with shopping decisions. Shoppers who consider themselves capable of and assured of their personal shopping decisions will experience a minimal level of doubt about those decisions (cf. Folkes and Kiesler, 1991)

Similarly, socially capable and assured shoppers possess a high level of confidence about the social consequences of their personal consumption/shopping related decisions. Stated somewhat differently, when information about the outcomes of the shopping event are communicated to one’s friends and acquaintances, the comments made by these significant others influence the shopper’s consumption related social self-confidence (Folkes and Kiesler, 1991).

Finally, the consumer retail search process model, in conjunction with other research, provides also a foundation for the development of additional insight into the nature of retail word of mouth communication. To be more explicit, when consumers interact successfully with shopping
environments, they acquire personal and social information which can be passed along to their friends and acquaintances (Titus and Everett, 1995; cf. Higie, Feick, and Price, 1987). This transmission should not be thought of as automatic. That is, since the personal and social nature of the shopping experience (Tauber, 1972) leads to the acquisition of information that will influence one’s personal outcomes and social outcomes (Bearden et al., 2001), and since self-confidence influences word of mouth communication (Reynolds and Darden, 1971; Summers, 1970).

**Research Methodology**

The methodology adopted in this study to identify the perception of bank customers towards services and risk aspects in alternate channels. This study is having the nature of infinite population. It is not easy to estimate the customers of banks in Tamil Nadu. Apart from the official source of information, no more information is available about the banking customers in each city.

The researcher has selected five major corporations in Tamil Nadu viz., Chennai, Coimbatore, Madurai, Tiruchirapalli and Salem. The survey for this present research has been taken from these cities.

Data for this research study has been collected from the respondents after completing their transactions in ATMs (Automatic Teller Machines) in these cities, because ATM is the only alternate channel available for public freely. Banks are selected on the basis of brand value and their global ranking. The top two public sector and private sector banks have been taken for this study.

**Sample size determination**

**Nature of universe**: basically universe for this study is heterogeneous in nature. People those who are using alternate channels is infinite in nature.

**Number of classes proposed**: this study measures the usage and acceptance of alternate channels among bank customers. Both public and private sector bank customers were the respondents for this study. In public sector bank top two banks were selected based on its global ranking and top two private sector banks also selected. So, these four classes of customers are classified based on their most preferred banks. These six class of banks also having sub-groups based on demographic variables.

**Reliability Statistics:**

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>No. of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.974</td>
<td>176</td>
</tr>
</tbody>
</table>

Source: Compiled by Researcher

Cronbach’s alpha test is used to measure the reliability of the instrument being used to get the response from the respondents. The above test refers to the reliability of the overall measurement of perception of alternate channel among the respondents. One hundred and seventy six functional variables apart from the demographic variables are used to measure the reliability. Minimum reliability for the instrument is about .6 to .8 for attaining minimum reliability. This study is having 0.974 alpha (ie., 97.4% of reliability) value. It infers that this instrument has good standards of reliability.
Internal validity

| Source: Compiled by Researcher |

The above table depicts the internal validity of the instrument. F-test used to test the internal ability of the instrument is valid for measuring the variable. P value for the F-test is below 0.05. It infers that the variables are having significant relationship for measuring customer perception of alternate channels.

**Data collection:**

The primary data are collected from the sample size of 600 Respondents living in Chennai, Coimbatore, Madurai, Trichy and Salam. The questionnaires were left with the respondents and given sufficient time to fill up. The data are collected from the period of September 2012 to January 2013.

Well-structured questionnaire used to collect responds from the respondents. Both demographic and functional variable were presented in the questionnaire as three part: Profile of the Respondent, Branch Banking and Alternate Channel Banking. First part contains Demographic variables include eight questions. Second and third part contains Functional variables viz., questions from customer awareness, E-Servqual, E-Loyalty and perceived risk. Functional Variables include one hundred and fifty questions. Out of which eleven questions asked from branch banking, one about frequency of using alternate channel banking services, seven questions from customer awareness, thirty questions from E-Servqual, nineteen questions from E-Loyalty and one hundred and two questions from perceived risk.

Secondary data collected for the purpose of constructing research problem, measurement of variables using various techniques, literature reviews and framing methodology. Secondary data collected from websites, journals, and some published sources.

**Method of Analysis:**

**Analysis of Variance:**

One way Analysis of Variance was applied to identify if there is any variation between influencers of high involvement and low involvement factors which influencing security aspects of banks.

**Two way tables**

When analysis of categorical data is concerned with more than one variable, two-way tables (also known as contingency tables) are employed. These tables provide a foundation for statistical inference, where statistical tests question the relationship between the variables on the basis of the data observed.

**Chi-square test**

Chi square test was administered to find out if there is any association between demographic variables in terms of their perception towards security aspects of banks.

**Pearsons Correlation technique**

Persons Correlation technique was used to identify various security aspects of banks.
Multiple Regression analysis & AMOS (Analysis of Movement of Structure)

Regression analysis was used to formulate a model for predicting various aspects of perception of services and risk associates with the public sector and private sector banks. Within the framework of job choice dimensions are number of variables which are having the scope studying its awareness, loyalty, service quality and perceived risk.

Using the regression model it was proposed to construct a model. The general regression model (linear) is of the type:

\[ Y = a + b_1X_1 + b_2X_2 + \ldots + b_{15}X_{15} \]

Where \( y \) is the dependent variable and \( X_1, X_2, \ldots, X_{15} \) are the independent variables expected to be related to \( y \) and expected to explain or predict \( y \). \( b_1, b_2, b_3, \ldots, b_{15} \) are the coefficients of the respective independent variables, which will be determined from the input data.

Cluster Analysis

Cluster analysis is a multivariate statistical technique which groups unknown number of persons / objects / occasions into groups such that the members of each group are having similar characteristics / attributes. The primary objective of Cluster Analysis is to define the structure of the data and identifying the most similar observations to place them into groups. The different groups to be determined in Cluster Analysis are not pre-defined as in Discriminant Analysis. This analysis is ideally suited for segmentation applications in management research like studying using of alternative channel of banking service. The method of clustering may be either hierarchical or non-hierarchical or both. The outcome of this analysis is much superior when the results from the hierarchical order are used for the analysis along with the non-hierarchical. Thus hierarchical and non-hierarchical techniques should be viewed as complementary clustering techniques rather than as competing techniques.

ANOVA

To study which of the variables is statistically significant across the clusters result of Cluster analysis, ANOVA was employed.

Garrett’s ranking technique

To find out the most significant factor which influences the respondent, Garrett’s ranking technique was used. As per this method, respondents have been asked to assign the rank for all factors and the outcome of such ranking have been converted into score value with the help of the following formula:

\[ \text{Percent position} = \left[ 100 \left( \frac{R_{ij} - 0.5}{N_j} \right) \right] / N_j \]

Where

- \( R_{ij} \) = Rank given for the \( i \)th variable by \( j \)th respondents
- \( N_j \) = Number of variable ranked by \( j \)th respondents

With the help of Garrett’s Table, the percent position estimated is converted into scores. Then for each factor, the scores of each individual are added and then total value of scores and mean values of score is calculated. The factors having highest mean value is considered to be the most important factor.

Factor Analysis

Factor analysis is a statistical method used to describe variability among observed, correlated variables in terms of a potentially lower number of unobserved variables called factors. For example, it is possible that variations in four observed variables mainly reflect the variations in two unobserved variables. Factor analysis searches for such joint variations in response to unobserved latent variables.
The observed variables are modelled as linear combinations of the potential factors, plus "error" terms. The information gained about the interdependencies between observed variables can be used later to reduce the set of variables in a dataset. Computationally this technique is equivalent to low rank approximation of the matrix of observed variables. Factor analysis originated in psychometrics, and is used in behavioral sciences, social sciences, marketing, product management, operations research, and other applied sciences that deal with large quantities of data.

Factor analysis is related to principal component analysis (PCA), but the two are not identical. Latent variable models, including factor analysis, use regression modelling techniques to test hypotheses producing error terms, while PCA is a descriptive statistical technique.[1] There has been significant controversy in the field over the equivalence or otherwise of the two techniques.

**Component Matrix & Rotated Component Matrix**

If there are two or more components in the component matrix, the pattern of loadings is based on the SPSS Rotated Component Matrix. If there is only one component in the solution, the Rotated Component Matrix is not computed, and the pattern of loadings is based on the Component Matrix.

**SEM (Structural Equation Modeling)**

Structural Equation Modeling is a very general statistical modeling technique, which is widely used in the behavioural sciences. It can be viewed as a combination of factor analysis and regression or path analysis. The interest in SEM is often on theoretical constructs, which are represented by the latent factors. The relationships between the theoretical constructs are represented by regression or path coefficients between the factors. The structural equation model implies a structure for the covariances between the observed variables, which provides the alternative name covariance structure modeling. However, the model can be extended to include means of observed variables or factors in the model, which makes covariance structure modeling a less accurate name.

Structural Equation Modeling provides a convenient framework for statistical analysis that includes several traditional multivariate procedures, for example factor analysis, regression analysis, discriminant analysis, and canonical correlation, as special cases. Structural equation models are often visualized by a graphical path diagram. The statistical model is usually represented in a set of matrix equations.

**COVARIANCES**

Covariance is a measure of how much two random variables change together. If the greater values of one variable mainly correspond with the greater values of the other variable, and the same holds for the smaller values, i.e., the variables tend to show similar behavior, the covariance is positive.[1] In the opposite case, when the greater values of one variable mainly correspond to the smaller values of the other, i.e., the variables tend to show opposite behavior, the covariance is negative. The sign of the covariance therefore shows the tendency in the linear relationship between the variables. The magnitude of the covariance is not easy to interpret. The normalized version of the covariance, the correlation coefficient, however, shows by its magnitude the strength of the linear relation.

A distinction must be made between

1. The covariance of two random variables, which is a population parameter that can be seen as a property of the joint probability distribution, and
2. The sample covariance, which serves as an estimated value of the parameter.
Theoretical model for measuring customer perception towards alternate banking services

Demographic variables
- Age
- Gender
- Marital status
- Education qualification
- Occupation
- Family type
- Income

Customer Risk Perception on Security Aspects
- Financial risk
- Performance risk
- Time risk
- Social risk
- Psychological risk
- Security risk

Self-confidence Dimensions
- Information acquisition
- Personal outcome decision making
- Social outcome decision making
- Persuasion knowledge

Customer choice of alternate banking

Channel choices
- Purpose of branch banking
- Problems in branch banking
- Usage level of alternate banking

Customer transaction decision with alternate channel

E-Loyalty
- Trust
- Top of the mind
- Repetitive purchase
Limitations

Although utmost care has been taken to ensure that the data collected and the analysis done with good reliability and consistency is of highest standard and free from all bias using the approved methodology & tools, yet it suffers from the following limitations:

1) Lack of available secondary data to use along with the primary data collected by source of questionnaire for various analysis
2) Lack of prior research on the Alternate distribution channel of banking services in the aspect of perceived risk, however there are few with respect to specific channel like internet banking but not covering all the channels which is the Gap identified by the researcher
3) Data collection was limited to selected top two bank customers from Public sector and Private sector separately based on their global ranking
4) The Study cannot be generalized to major cities in India, because the findings of alternate banking channels were based on the responses given by consumers living in major cities in Tamilnadu viz., Chennai, Coimbatore, Madurai, Trichy and Salem.
5) This research tried to identify the perceived risk for the alternate channels, which were in the top in India, which implies that researchers can identify perceived risk for other banking services, and other financial services.
6) This research covers only ATM, credit card, debit card, phone banking, internet banking & mobile banking channels.

However, notwithstanding the limitations indicated above, the study has been carried out objectively maintaining the ethics of social survey & research. There are lot of future scope for doing a research on wider basis as per the below proposal.

Conclusion of the study

The growth of alternative delivery channels is redefining the role and use of the bank branch; earlier branches were stand alone and did not have any relation with other branches. However, now core banking system (CBS) is playing a vital role, CBS has been implemented in almost all banks, by which the customer can access his account from any of the branch of the bank other than where he maintains his account. But due to some limitations and constraints in using banking branches for the transactions, alternate banking channels are the best solution to solve the problems existing in branch banking.

This present study is an attempt to evaluate the consumer risk perception, preference and behavior towards the alternate banking channels. A separate model has been provided to evaluate the risk perception of customers while operating alternate banking channels. Most of the researchers have concentrated on the risk perception of banking industry. But in the present study the researcher has made an attempt to evaluate the consumer self-confidence influencing the risk perception of usage of alternate banking channels. Hence, this research has made a new attempt for evaluating the risk perception based on socio-economic and demographic variables.

Through this research, the researcher has offered various suggestions and measures for further improvement of various alternative channels of banking services and branch banking services to satisfy the valuable customers in all aspects.

References:


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