DATA MINING TECHNIQUES FOR ANALYSING THE INVESTMENT BEHAVIOUR OF CUSTOMERS IN LIFE INSURANCE SECTOR IN INDIA

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ABSTRACT

Advancement of technology has paved the way for analyzing the different aspects of customers. Technology such as data ware house and data mining has made a significant contribution in almost the entire service sector where companies associated with providing the services to the customers can gain competitive advantages. The Data mining techniques are used to extract hidden patterns, from large amount of data in the from of data ware house. In the present research paper emphasis is on investor's investment behavior in life insurance sector of india by using data mining techniques such as factor analysis-descriptive data mining techniques.

Keywords: *Data mining (DM), Factor analysis, Data warehouse*

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INTRODUCTION

The rapid growth of accumulation of digital data by various life insurance companies is attributed to the growth in the field of information technology. The lots of valuable information hidden in the data is hardly exploited unfortunately the data collections from which to derive useful information have a chaotic structure are often of doughtfull- quality & error prone and not fully integrated. In order turning data into information we need. Data mining techniques [2]

The primary goal of data mining is to extract knowledge from data to support decision making. It is also known as technique of exploring data in order to discover previously unknown patterns. By performing data mining interesting regulates or high level information can be extracted from data bases and viewed or browsed from different angles The discovered knowledge can be applied to decision making, process control, information management and query processing[1] In this paper important data mining technique factor analysis has been applied to find out investment behavior in life insurance sector of india by the investors.

RELATED WORK

The behaviour of customer can be analyzed by using different techniques and the features were extracted in different research papers depending upon the technique used by the author. One approach i.e statistical technique is used to explore the impact of insurance on economic growth and interaction of insurance and banking in promoting the economic growth in ex-Yugoslavia region (2004-2008).The study shows that insurance companies contributed to economic growth both as institutional investors and insurance risk managers [7].The other researcher had used the same statistical technique to examine the behaviour of investors in selection of life insurance/mutual fund as investment vehicle in Indian prospective by making a comparative study[6].Most of the proposed method use data mining techniques to analyze the customer behaviour. Business organizations usually have large data base of their customers and their purchase pattern are usually hidden. By using data mining techniques depending upon the information required the purchasing pattern of customers can be identified which result in improvement in products and profit of the organization [3]. In other research study customer relationship management (CRM) can be maintained by using data mining techniques such as chi-square automated interactions detection(CHAID) to gain competitive advantage over other firms such as identification of valuable customers, predict future behaviour and enable firms to make proactive knowledge-driven decisions[4].Also in

other research project the goal of predictive data mining in clinical medicine is to derive models that can use patient specific information to predict the outcome of interest and thereby support clinical decision making which in turn is used in daily clinical practice[5].In a study for swiss life from life insurance business for this data mining environment is set up in the form of analysis, data mining & learning environment of Rentenanstalt/swisslife(ALDER).which integrates a palettes of tools for automatic data analysis. By using these data mining techniques potential clients can be added and customer losses can be avoided and capability can be sharpened as compared to other insurance companies[2].Previous study identified the trend of customer investment behaviour in life insurance sector in India using predictive data mining techniques. By using these techniques new products can be developed and marketing strategies can be implemented also. Life insurance companies may focus on that segment of customers, from here maximum policies can be captured [8].

However, after reviewing the literature it has been ascertain that a few works has been done in reference to life insurance Sector of India

ANALYSIS AND INTERPRETATIONS

In this research paper the author has used data mining technique of factor analysis to identify the investment behavior in life insurance sector of india, on the data collected from the 125 respondents belonging to northen region of india in the form of questionnaire using SPSS software

Reliability of data was tested by cronbach's alpha. Since there are 125 respondent and 10 variables. The satisfactory value of alpha should be more than .5 In this present study cronbach's alpha value found out to be .673 insuring good reliability of scale.
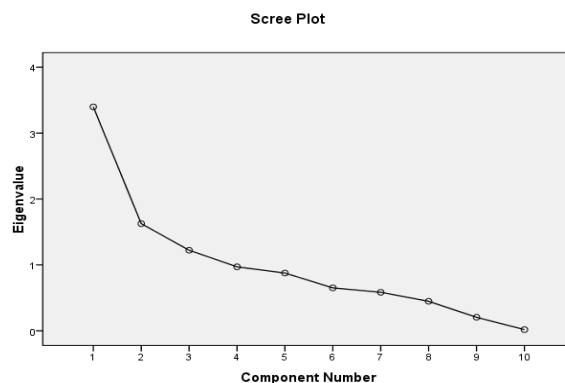
Table 1

Reliability Statistics	
Cronbach's Alpha	N of Items
.673	10

Kaiser-meyer-oklin(KMO) &Bartlett's Test of sphericity were conducted for checking the adequacy of the data. Both the tests ensures the adequacy of data for application of factor analysis.

Table 2

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.723
Bartlett's Test of Sphericity	Approx. Chi-Square	675.343
	Df	45
	Sig.	.000

After checking the adequacy of the data correlation between variables was checked with correlation matrix. Whose value was found out to be equal to or greater than 0.3, which shows that variables are highly correlated to each other. principal component analysis(PCA) was used for extraction of number of factors to be retained was on the basis of Eigen value criterion. An eigen value represents the amount of variance associated with the factor. Thus the factors having eigen value greater than 1 are considered significant & less than 1 are discarded.On perusal of graph it is clear that three components have eigen value greater than unity and total variance of these factors is on higher side. So based on the data collected from respondents three factors were formed so by data reduction we can extract the investment behavior of the customers.

Scree Plot

CONCLUSION:

In the present Scenario in Life Insurance sector in India, the companies can have competitive edge over other companies by managing & analyzing their customer data base efficiently. By using data mining techniques the important information can be extracted from these customer data bases and the life insurance companies can gain the customers and new products can be developed which suits to the customers, which in turn increases the profitability of the company.

Potential Customer: - By using the data mining techniques the life insurance companies can segment the customer data base. i.e. Analysis of the customers can be made depending upon session/ geographical / financial base. So with the help of mining techniques typical profiles of life insurance customers with respect to the various Insurance products can be find out i.e. which type of customers are interested in certain kind of life insurance product.

Developing New Products: - The profitability of the life insurance companies can be incresed by identifying the sound financial customer segment and marketing strategy can be made for them accordingly. If the life Insurance companies fail to deliver the right product to right customers the company will show down ward trend. So with the help of data mining techniques by using the available data from different customers different products can be developed for different customers and marketing strategy can be made for them.

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