CHAPTER-I

INTRODUCTION AND DESIGN OF THE STUDY

1.1 INTRODUCTION

An investor has numerous investment options to choose, depending on his risk profile and expectations of returns. As such, different investment options represent a different risk-return trade off. The low risk investments are those that offer assured, but lower returns, whereas the high risk investments provide the potential to earn greater returns. Hence, an investor’s risk tolerance plays a vital role in choosing the most suitable investment. Various investment options are available such as bank deposits, investment on commodities like gold and silver, post office savings schemes, public provident fund, company fixed deposits and stock market options like bonds and debentures, mutual funds and equity shares of the various types of investment options. Gold happens to be one of the best options to be included in the portfolio for diversifications of risk.

Gold is always considered as one of the best investment alternatives available with common Indian investor. Indians consider the investment in gold as a traditional method of investment. As a world’s top consumer of gold, India accounts for 20% of world gold demand. If we consider the price growth of gold since 2001, it has risen by as much as 450 percent. As the importance of gold investment is increased due to extreme unpredictable change in the financial markets, economic uncertainty and fears that national currencies will lose their value etc, force the investment in gold. It is mainly because gold is always considered as the best means to hedge against market volatility. As its importance is increased in the investment arena, now a days gold is measured as equivalent to investment opportunities in the mainstream of financial markets.
Gold ETFs can be defined in several ways. According to Bang (2009) gold ETF is basically an open-ended mutual fund that is invested in standard bullion as its underlying asset. It is also known as paper gold. These instruments are listed on the stock exchanges and hence, can be bought and sold just like buying and selling of shares. The first gold exchange traded funds was launched in March 2003 on the Australian Stock Exchange. In U.S the Gold ETF trading began on the New York Stock Exchange (NYSE) in 2004. These ETFs are traded under the symbol “GLD”. Different people define and perceive GLDs differently based on their own notions. Some people perceive that they will own physical gold by investing in the shares of Gold ETFs. However, it is not the right perception. The objective of GLDs is not to provide investors with the opportunity to own gold bullion by investing in the shares of GETF. Rather, GETFs are designed to track the price of gold. Gold ETF Index Fund is a kind of gold-based assets. It tracks the gold price and each share represents one-tenth of an ounce of gold. For the purpose of transaction convenience, storage security, transaction costs and low liquidity, transparency of transactions and much other investment advantage, gold ETF has become widely accepted.

At present, ETF demand for gold has become the fastest growing area; its growth rate is higher than jewellery and industrial consumption. The demand for gold ETFs and similar products is rapidly increasing over recent times. According to the statistics, the first gold ETF since its inception was in March 2003, approximately attracting 180 bullion U.S dollars investment, which is equivalent to 650 metric tonnes of gold, i.e. 10 percent of the world’s total demand. During this period, the price of gold has also been doubled. Before the introduction of the gold ETF, there was no hedge to the risk of the stock and bond markets. At that time, the main investment was through the purchase of gold stocks and funds to hedge the risk, but such ways lead to lack of transparency, liquidity, and also bear gold mine operations and the risk of mismanagement. Ross Norman (2010) an internationally known
gold analyst at the Bullion Desk, said gold ETF market had greatly improved its availability in a short span of time. The first gold ETF listed on the Australian Stock Exchange (ASX), launched under the symbol “Gold” has made a very good introduction to the sales, in June 2003, and it has raised to 340 million ounces of gold, and attracted the international community to the GETF. As the New York Stock Exchange successfully listed the Street Tracks Gold Shares, gold ETF opened a prelude to a rapid development. Since then, the United Kingdom, South Africa, Switzerland, India and other countries also have launched similar products. Gold ETF is trading gold on the widened channels on one hand which improved the international market gold demand, on the other, it also expands the market capacity. China is the world’s largest gold producer and the second largest consumer. Gold production in China is mainly concentrated in Shandong, Henan, Fujian, Liaoning, Hunan, Shaanxi and other places. At present the prices in China’s gold market, gradually align with the international gold market.

Over the past few years, there has been a significant development in Indian gold ETF market even though the size of the industry is small as Indian investors seek wider access to more liquid gold investments. Hence ETFs have gained more popularity among them. The Indian gold ETF industry offers 14 gold ETFs and 11 gold fund of funds (FoFs). The total AUM of Gold ETF as of June 30, 2014, was at Rs. 8,093 crores while the AUM of Gold FoF was at Rs.3,226 crores. As of December, 2013, the collective holding by Indian ETFs in gold was at 30.2 tones (approx).

Gold ETF is an open ended exchange traded funds, listed in the stock exchange, available for trading with an intention of offering the investors a means of participating in the gold bullion market without the necessity of taking physical delivery of gold. However, the performance of the scheme may differ from that of the domestic prices of gold due to the expenses or other related factors. All gold bullion held in the scheme is an allocated account
with the custodian which shall have the purity of 99.5%. A demat account and registration with the broker (member of NSE/BSE) are mandatory for the investors who are willing to invest in Gold ETFs.

1.2 SIGNIFICANCE OF THE STUDY

Every investor has different perception regarding the risk and return. There is a general rule of risk and return where “higher the risk, higher the returns and lower the risk and lower returns”. The return and risk combination depend upon the investors choices and his or her actions.

There are so many destinations for investment, as already discussed in the introduction, such as equity shares, bonds, debentures, bank deposits, gold, silver and many more and their “risk and return” relation always differs from each other. But investment should be of such type that may produce high return with minimum risk and that is convenient to do. According to these criteria, gold is much attractive and most productive in terms of return in present scenario. India is one of the largest consumers of gold. The most important point is that everyone is not able to invest or purchase gold. The investors who have less amount of savings or funds to invest, are not being able to do this because of the prices and scarcity nature of gold. Gold investment requires a large amount to get adequate growth and return on investments. To make investment in gold, which is possible for such investors, there is the most popular type of investment called “Gold Exchange Traded Funds (GETFs), where the investors can invest large amount.

Gold ETFs provide investors a means of participating in the gold bullion market, without the necessity of taking physical delivery of gold, and to buy and sell by participating through the trading of security on stock exchange. The gold ETF would be a passive investment. When the price of gold rises up, the ETF enhances its value, and when the price comes down, the ETF loses value.
Gold ETF tracks the performance of Gold Bullion, GETFs provide returns, before expenses, which closely correspond to the returns provided by physical gold. Each unit is approximately equal to the price of 1 gram of gold. But, there are Gold ETFs which also provide a unit which is approximately equal to the price of \( \frac{1}{2} \) gram of gold.

It is clear that ETFs on stock market indices are beneficial to investors since they provide exposure to the return and risk characteristics of an entire index without the need to purchase each constituent. Investors can thus obtain diversifying assets at a lower cost. Since bars and coins are traded at lower volumes, bid-ask spreads will be relatively large. Hence, if ETF providers (or authorized participants) can increase the volume traded, they can offer narrower bid-ask spreads which means that the investors can gain exposure to the price of gold at a lower cost and also receive a higher price when they sell shares of their Gold ETFs. The lower bid-ask spreads are the result of higher volumes facilitated by providing the lower storage costs. The storage costs are significant if a small amount of gold is stored but it decreases if large amount of gold is stored. The advantages of investing in Gold ETFs are as follows:

- It can be easily sold in the secondary market on a real time basis (ie., at the prevailing market price) whereas, while selling physical gold, the jeweler will deduct some charges.
- Investors need not worry about the storage and security aspects that are typically associated with investing in physical gold.
- It is ideal for the retail investors to trade as minimum lot size in one unit on secondary market.
- ETFs have a transparent pricing mechanism.
- Finally, Gold ETFs assure purity of gold. As per SEBI requirements, the purity of underlying gold in GETFs should be 0.995 fineness and above.
Based on the above advantages of investing gold ETFs, the present study can help investors to make prudent decisions, considering risk-return trade during the time of investment.

1.3 STATEMENT OF THE PROBLEM

In recent years, Indian investors have started investing in gold exchange traded funds (GETFs). The investors can buy small quantities of gold which are free from the hassles of storage and safety. These ETFs are akin to share of the company and are traded on stock exchanges. One of the key reasons behind the increased investment in ETFs is the ease and conveniences of holding gold in demat form. Though the investors do not possess any gold themselves, regulators require a 100% gold reserve corresponding to the amount of investment. The increased demand for gold and investment in Gold ETFs thereof, can be seen from the increased Asset Under Management (AUM) under GETFs. The widening Current Account Deficit (CAD) provoked the government to take measures to reduce gold investments and accordingly in 2013, the central bank barred the banks and non-banking finance companies from extending loans against units of Gold Exchange Traded Funds (GETFs) and Gold Mutual Funds.

The primary reason for the difference is that in the case of investing in Gold ETFs, there is a range of charges, such as management and advisory fees, marketing and distribution expenses, custodian charges and other operational expenses. The expense ratio of Gold ETFs is around 1%. Apart from the charges, tracking error also brings down the returns of Gold ETF’s to a small extent.

Another drawback is that sometime GETFs are illiquid, which impairs the buying and selling flexibility of these ETFs. Further Gold ETFs require demat account and the conversion option is possible only if the investors hold 1000 units (1kg) gold of GETFs. Based on the above issues, the following questions were probed:
1. Why are gold ETFs existing?

2. Do GETFs provide safety of investment for investors?

3. Is the principal amount really protected in GETFs?

4. Whether the risks are covered in GETFs investment for investors?

5. Is the performance of gold ETFs similar across the global markets?

1.4 OBJECTIVES OF THE STUDY

The following are the objectives of the study

1. To evaluate the performance of Gold Exchange Traded Funds.

2. To analyse the socio-economic profile of the Gold Exchange Traded Funds investors in Tamil Nadu.

3. To study investors’ behaviour towards investment in Indian Stock Market in general and Gold Exchange Traded Funds in particular.

4. To analyse the factors influencing the investors’ towards investment in Gold Exchange Traded Funds in Tamil Nadu.

5. To identify the common problems faced by the investors towards investing in Gold Exchange Traded Funds in Tamil Nadu.

1.5 RESEARCH METHODOLOGY

The research methodology includes nature of the study, nature of the data, data collection instrument, sample size determination, sampling procedure, hypotheses and framework of analysis.

1.5.1 Nature of the Study

As far as primary data are concerned, the study aims to analyse and describe the socio-economic profile of the respondents, factors influencing investment, investors’ perception, and investors’ behaviour towards Gold Exchange Traded Funds (GETFs). This study also ascertains the problems faced by the investors of gold exchange traded funds.
Further, the study evaluates the performance of GETFs by using secondary data. Hence, the research design applied for this study is empirical, analytical and descriptive in nature.

1.5.2 Nature of the Data

Both primary and secondary data were used in this study. The primary data were collected from investors of GETFs in all the 10 city corporations of Tamil Nadu. The details regarding socio-economic profile of the investors, factors influencing investment, investors’ perception, investors’ behaviour and problems faced by the GETFs investors were collected by using a well structured interview schedule.

The secondary data were collected from reports published by the Gold Exchange Traded Funds, SEBI and Association of Mutual Funds in India. The secondary data were also collected from journals, magazines, periodicals and dailies.

1.5.3 Data Collection Instrument

The questions in the interview schedule were designed pertaining to the statement of the problem and objectives of the study. The variables identified from review of literature were taken into account while drafting the interview schedule. The opinion from a panel of members comprising experts in the field of stock market, security analysis, portfolio management, statistics, psychology, economics and commerce was sought for, at every stage of designing the final interview schedule.

Reliability Test for Data Collection Instrument

Confirmatory Factor Analysis (CFA): Confirmatory factor analysis is a visual representation that specifies the model’s constructs indicator, variables and interrelationship. CFA provides quantitative measures that assess the reliability and validity of the constructs or theoretical model.
Table 1.1

Confirmatory Factor Analyses (CFA)

<table>
<thead>
<tr>
<th>Construct</th>
<th>No. of Variables</th>
<th>Chi-Square</th>
<th>P-Value</th>
<th>GFI</th>
<th>AGFI</th>
<th>CFI</th>
<th>RMR</th>
<th>RMSEA</th>
<th>No. of Variables after CFA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factors Influencing Investment</td>
<td>12</td>
<td>41.094</td>
<td>0.068</td>
<td>0.982</td>
<td>0.966</td>
<td>0.990</td>
<td>0.029</td>
<td>0.030</td>
<td>10</td>
</tr>
<tr>
<td>Investors’ Perception</td>
<td>10</td>
<td>19.491</td>
<td>0.192</td>
<td>0.989</td>
<td>0.975</td>
<td>0.995</td>
<td>0.026</td>
<td>0.026</td>
<td>8</td>
</tr>
<tr>
<td>Investors’ Behaviour</td>
<td>14</td>
<td>56.139</td>
<td>0.058</td>
<td>0.980</td>
<td>0.961</td>
<td>0.991</td>
<td>0.033</td>
<td>0.029</td>
<td>12</td>
</tr>
<tr>
<td>Problems faced by the Investors</td>
<td>14</td>
<td>19.978</td>
<td>0.068</td>
<td>0.987</td>
<td>0.970</td>
<td>0.985</td>
<td>0.031</td>
<td>0.038</td>
<td>11</td>
</tr>
</tbody>
</table>

From the table 1.1, it is found that the calculated P Value for all the factors is greater than 0.050 which indicates the model is perfectly fitting. Here GFI (Goodness of Fit Index) value and AGFI (Adjusted Goodness of Fit Index) value are close to 1 which means that it is a perfectly fit model and also it is found that RMR (Root Mean Square Residuals) and RMSEA (Root Mean Square Error of Approximation) value are less than 0.06 which indicated it is perfectly apt model.

**Cronbach Alpha Test:** Reliability means the ability of a measuring instrument to give accurate and consistent results. In this research, statements are used to study and analyse the factors influencing investment towards gold exchange traded funds, investors’ perception, investors’ behaviour and problems faced by the investors of GETFs. For all the statements Likert’s five point scale has been used.

To measure the reliability of the instrument, Cronbach alpha test has been applied. If the alpha value is more than 0.6, it is presumed that the instrument is reliable. The measured reliability value is given in the following table.
Table 1.2
Cronbach Alpha Test Report

<table>
<thead>
<tr>
<th>S.No</th>
<th>Variable</th>
<th>Cronbach Alpha Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Stage-I</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(First 25 Respondents)</td>
</tr>
<tr>
<td>1</td>
<td>Factors Influencing Investment</td>
<td>0.739</td>
</tr>
<tr>
<td>2</td>
<td>Investors’ Perception</td>
<td>0.549</td>
</tr>
<tr>
<td>3</td>
<td>Investors’ Behaviour</td>
<td>0.838</td>
</tr>
<tr>
<td>4</td>
<td>Problems faced by the Investors of GETFs</td>
<td>0.805</td>
</tr>
</tbody>
</table>

From the table 1.2, it is clear that the alpha value has improved in the second stage. The alpha value for data collected from the second 25 respondents is more than 0.6 for all the variables which means the statements used to measure the variable are reliable in stage II. There is no much difference between alpha for stage I and stage II for the factors 1, 3 and 4 which indicates that no error has been contributed in the test results. But for the variable 2 i.e., investors perception the value is below 0.6 in the first stage and it is above 0.6 in the second stage.

**Split-Half Test:** Split-Half method of reliability test reflects the correlation between two halves of an instrument. The instrument is administered and the results are separated by item into randomly selected halves. If the correlation co-efficient is high the instrument is said to have high reliability as regards to the internal consistency.

Table 1.3
Split-Half Reliability Test

<table>
<thead>
<tr>
<th>S.No</th>
<th>Variable</th>
<th>Alpha (Phase-I)</th>
<th>Alpha (Phase-II)</th>
<th>Guttman Split-half</th>
<th>Correlations Between Forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Factors Influencing Investment</td>
<td>0.695</td>
<td>0.703</td>
<td>0.856</td>
<td>0.749</td>
</tr>
<tr>
<td>2</td>
<td>Investors’ Perception</td>
<td>0.602</td>
<td>0.687</td>
<td>0.713</td>
<td>0.693</td>
</tr>
<tr>
<td>3</td>
<td>Investors’ Behaviour</td>
<td>0.682</td>
<td>0.792</td>
<td>0.874</td>
<td>0.786</td>
</tr>
<tr>
<td>4</td>
<td>Problems faced by the Investors of GETFs</td>
<td>0.677</td>
<td>0.840</td>
<td>0.841</td>
<td>0.763</td>
</tr>
</tbody>
</table>
Table 1.3 reveals that the alpha values for Part I and part II of the randomly selected responses are more than 0.6. The correlation between part I and part II is also significant. This means that there is an internal consistency among the data. This reliability tests show that each and every statement is useful to analyse the factors influencing investment towards GETFs, investors’ perception, investors’ behaviour and problems faced by the investors of GETFs.

**Validity Test for Data Collection Instrument**

Validity testing means testing the instrument whether it has the ability to measure what it intends to measure. Here two types of validity tests are applied. They are content validity and criterion validity.

**Content Validity:** Content validity measures whether instrument or measurement scale provides adequate coverage. This can be tested by judgment or panel evaluation. The researcher has used both his judgment and panel evaluation to decide the content validity of the interview schedule. The panel is constituted comprising experts from the fields of stock market, security analysis, portfolio management, statistics, psychology, economics and commerce. Their opinions were sought for, regarding content and coverage aspects of the interview schedule. Their suggestions were incorporated in order to cover the subject completely.

**Criterion Validity:** Criterion related validity reflects the success of measures used for prediction or estimation. Predictive validity refers to the extent to which an outcome could be predicted and concurrent validity refers to the extent to which estimate of current behaviour or condition could be made. This can be judged in terms of four qualities viz., relevance, freedom from bias, reliability and availability. The relationship between factors influencing investment, investors’ perception and investors’ behaviour towards gold exchange traded funds is positive and direct. In this study it has been proved with the help of ‘Pearson
Correlation’, that factors influencing investment, is having significant correlation with investors’ perception towards gold exchange traded funds.

After conducting pilot study the following questions were removed from interview schedule to make the questionnaire understandable and purposeful.

Part-I: Socio Economic Profile of the Respondents

1. Which of the following Exchange Traded Funds (ETFs) do you invest in?
   a. Equity ETFs ☐ b. Debt ETFs ☐ c. Gold ETFs ☐ d. World indices ☐

Part-II: Factors Influencing Investment

<table>
<thead>
<tr>
<th>S.No</th>
<th>Particulars</th>
<th>SDA</th>
<th>DA</th>
<th>N</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Various tax benefits available in gold ETFs are boosting up overall investments</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2</td>
<td>The administrative charges charged by Gold ETFs are reasonable</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3</td>
<td>Simple procedure in making investment and redemption, availability of different lot size of units, good personal relation can boost the Gold ETF investments</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Part-III: Investors’ Perception

1. Gold is generally believed to be a symbol of security and prosperity | ☐  | ☐  | ☐ | ☐ | ☐  |
| 2. Growth plan of Gold ETF is the best way of making investment     | ☐  | ☐  | ☐ | ☐ | ☐  |
| 3. Systematic Investment Plan provides a better opportunity for growth | ☐  | ☐  | ☐ | ☐ | ☐  |

Part-IV: Investors’ Behaviour

1. I make riskier investments for maximum gain | ☐  | ☐  | ☐ | ☐ | ☐  |
| 2. I invest in gold ETFs purely based on scheme’s expense ratio      | ☐  | ☐  | ☐ | ☐ | ☐  |
| 3. I always invest in gold ETFs based on self analysis of different schemes | ☐  | ☐  | ☐ | ☐ | ☐  |

Part-V: Problems Faced by Investors in GETFs

1. Asset management fee (Holding cost) charged by fund house for gold ETFs is high | ☐  | ☐  | ☐ | ☐ | ☐  |
| 2. When selling Gold ETF schemes it may delay in clearing and settlement | ☐  | ☐  | ☐ | ☐ | ☐  |
The final interview schedule contains the following five parts:

- Part-I: Socio economic profile of the respondents
- Part-II: Factors influencing investment towards GETFs
- Part-III: Investors’ perception towards GETFs
- Part-IV: Investors’ behaviour towards GETFs
- Part-V: Problems faced by the GETFs investment

1.5.4 Sample Size Determination

The following formula is applied to determine the optimum sample size.

\[ n = \frac{Z_{a/2}^2 p q}{e^2} \]

Where,

- \( e = 0.02 \) (since the estimate should be within 2\% of the true value)
- \( Z_{a/2} = 1.96 \) (as per table of area under normal curve for the given confidence level of 95\%)
- \( P = 0.05 \) (It is calculated on the basis of result of a pilot study)
- \( q = 0.05 \)

\[ n = \frac{(1.96)^2 (0.05) (1-0.05)}{(0.02)^2} \]

Sample Size \( n = 456 \)

1.5.5 Sampling Procedure

The Gold Exchange Traded Funds investors of Tamilnadu represent the population for the study. The sample respondents from GETFs agencies of city corporations have been selected by adopting probability sampling method.
Based on the nature of the study, 456 respondents were chosen from city corporations of Tamilnadu such as Salem, Erode, Coimbatore, Tiruppur, Chennai, Madurai, Tiruchirapalli, Tirunelveli, Vellore and Tuticorin, but six respondents were neglected due to inadequate information provided by the respondents. 450 respondents have been selected through the simple random sampling method.

Table 1.4

Selection of Sample Respondents from the Study Area

<table>
<thead>
<tr>
<th>S.No</th>
<th>Name of the City</th>
<th>No.of sample Respondents from each city</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Salem</td>
<td>45</td>
</tr>
<tr>
<td>2</td>
<td>Erode</td>
<td>45</td>
</tr>
<tr>
<td>3</td>
<td>Coimbatore</td>
<td>45</td>
</tr>
<tr>
<td>4</td>
<td>Tiruppur</td>
<td>45</td>
</tr>
<tr>
<td>5</td>
<td>Chennai</td>
<td>45</td>
</tr>
<tr>
<td>6</td>
<td>Madurai</td>
<td>45</td>
</tr>
<tr>
<td>7</td>
<td>Tiruchirapalli</td>
<td>45</td>
</tr>
<tr>
<td>8</td>
<td>Tirunelveli</td>
<td>45</td>
</tr>
<tr>
<td>9</td>
<td>Vellore</td>
<td>45</td>
</tr>
<tr>
<td>10</td>
<td>Tuticorin</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>450</strong></td>
</tr>
</tbody>
</table>

1.5.6 Hypotheses

The following hypotheses have been formulated with respect to socio-economic variables, factors influencing investment, investors’ perception and investors’ behaviour towards GETFs.

1. There is no significant association between socio-economic variables and investors’ behaviour towards GETFs.
2. There is a positive impact on factors influencing investment and investors perception towards GETFs.
3. There is a positive impact on investors’ perception and investors’ behaviour.
4. There is a positive impact on independent variables (11 statements) and problems faced by the GETFS investors.
1.5.7 Statistical Tools Used

The data thus collected were systematically arranged into tabular form and analysed with the help of univariate and multivariate statistical tests. The following statistical tools are used for analysing the primary data.

(i) **Mean**: Mean is commonly used to measure of central tendency in the present research on many occasions like gender, age, place of residence, marital status, educational qualification, annual income, monthly savings, type of family, number of dependents, financial advisor, savings objective and preferred mode of investments in GETFs of respondents.

(ii) **Factor Analysis**: Factor analysis attempts to identify underlying variables, or factors, that explain the pattern of correlations within a set of observed variables. Factor analysis is often used as data reduction tool to identify a small number of factors that explain most of the variance observed in a much larger number of manifest variables. Seven methods of factor extraction are available but in this study Principle Component analysis is used. Five methods of rotation are available, including direct oblimin and promax for non-orthogonal rotations but the author felt that it is convenient to use Varimax rotation for the purpose of the study. Three methods of computing factor scores are available, and scores can be saved as variables for further analysis. The researcher took mean value of variables included into factor to find out score for the factors. Here, factor analysis is used to study the investors’ perception and behaviour as well as to analyse the problems faced by the GETFs investors.

(iii) **Cluster Analysis**: This procedure attempts to identify relatively homogeneous groups of cases based on the selected characteristics, using an algorithm that can handle large numbers of cases. For the purpose of the study cluster analysis is used to
group the respondents into three categories such as high perception, medium perception, and low perception with regard to investors’ perception. Similarly, the respondents are grouped into three categories such as good behaviour, medium behaviour and low behaviour. As far as problems faced by the investors are concerned they are classified into three groups namely, respondents with high problems, respondents with medium problems and respondents with low problems. For the purpose of cluster analysis K-means cluster is used.

(iv) **Discriminant Analysis:** Discriminant analysis is useful to build a predictive model of group membership based on observed characteristics of each case. The procedure generates a discriminant function (or, for more than two groups, a set of discriminant functions) based on linear combinations of the predictor variables that provide the best discrimination between the groups.

(v) **Correlation:** The bivariate correlation procedure computes Pearson’s correlation coefficient, with its significance levels to measure how variables are related. The correlation analysis in SPSS produces r value along with its significance. In normal circumstances if r value is more than 0.5 it is assumed that there exists a significant relation between two variables but in SPSS if the significant value is less than 0.05 it is stated that there exists a good relationship between two variables. Correlation is used only for two metric variables. The partial correlation procedure computes partial correlation coefficients that describe the linear relationship between two variables while controlling the effects of one or more additional variables. The partial correlation is used to find out the relationship between socio-economic variables and investors’ behaviour towards GETFs.

(vi) **Multiple Regression:** Multiple regression analysis represents a logical extension of two variable regression analysis. Instead of single independent variable two or more
independent variables are used to estimate the values of a dependent variable. The following are the three main objectives of multiple regression analysis:

1. To drive an equation which provides an estimate of dependent variable from values of the two or more independent variables. It is accomplished by deriving an appropriate regression equation by the method of least squares.

2. To obtain a measure of the error involved in using this regression equation as a basis for estimation. It is achieved through the calculations of a standard error of estimate.

3. To obtain a measure of the proportion of variance in the dependent variable accounted for or ‘explained by’ the independent variables. It is achieved by computing the multiple coefficient of determination.

The multiple regression equation describes the average relationship between these variables and this relationship is used to predict or control the dependent variable. Here it is used to measure the influence of socio-economic variables (Independent variables) on problems faced by the investors (Dependent variable).

(vii) **Chi-square Test** : Chi-square test is a testing tool used for testing hypothesis. Chi-square test is a non-parametric test in which no rigid assumptions are necessary about the population. In this research chi-square test is used as a test of independence to explain whether two attributes are associated or not without indicating strength or direction of relationship. When the SPSS package is used for chi-square test, Pearson chi-square, likelihood-ratio chi-square, and linear-by-linear association chi-square are displayed with degrees of freedom and significance value. Fisher's exact test and Yates' corrected chi-square are computed for 2x2 tables. Here, significance value means the level of significance of particular chi-square value for those degrees of freedom. If the level of significance is less than 0.05 the particular null hypothesis
will be rejected and the alternate hypothesis can be stated that there exists a significant association between those two attributes.

(viii) **Structural Equation Modeling (SEM):** Structural Equation Modeling (SEM) is a methodology for representing, estimating and testing a network of relationships between variables (measured variables and latent constructs). SEM requires specification of a model based on theory and research. It is a multivariate technique incorporating measured variables and latent constructs, and it explicitly specifies measurement error. A model (diagram) allows for specification of relationships between variables. SEM tests hypothesized patterns of directional and non directional relationships among a set of observed (measured) and unobserved (latent) variables (Macailum & Austin, 2000). According to Kline (1998), the two goals in SEM are:

1. To understand the patterns of correlation/covariance among a set of variables and
2. To explain as much of their variance as possible with the model specified.

SEM is similar to traditional methods like correlation, regression and analysis of variance in many ways. First, both traditional methods and SEM are based on linear statistical models. Second, statistical tests associated with both methods are valid if certain assumptions are met. Traditional methods assume multivariate normality. Third, neither approach offers a test of causality. Traditional statistical methods normally utilise one statistical test to determine the significance of the analysis. However, SEM relies on several statistical tests to determine the adequacy of model fit to the data.

According to Hu and Bentler (1999), the comparative FIT Index (CFI) is equal to the discrepancy function adjusted for sample size. CFI ranges from 0 to 1 with a larger value indicating better model fit. Acceptable model fit is indicated by a CFI value of 0.90 or greater. Root Mean Square Error of Approximation (RMSEA) is related to residual in the
model. RMSEA values range from 0 to 1 with a smaller RMSEA value indicating better model fit. Acceptable model fit is indicated by an RMSEA value of 0.06 or less.

If model fit is acceptable, the parameter estimates are examined. The ratio of each parameter estimate to its standard error is distributed as a Z-Statistic and is significant at the 0.05 level if its value exceeds 1.96 and at the 0.01 level if its value exceeds 2.56 Hoyle (1995). Unstandardised parameter estimates retain scaling information of variables and can only be interpreted with reference to the scales of the variables. Standardised parameter estimates are transformations of unstandardised estimates that remove scaling and can be used for informal comparisons of parameters throughout the model. Standardised estimates correspond to effect-size estimates.

If unacceptable model fit is found, the model could be revised when the modifications are meaningful. Model modification involves adjusting a specified and estimated model by either freeing parameter that were fixed or fixing parameters that were free. The lagrange multiplier test provides information about the amount of chi-square change that results if fixed parameters are freed (Hoyle 1995). In this study structural equation model is used to analyse the impact of independent variables on factors influencing investment towards GETFs, and then impact of factors influencing investment on investors’ perception. The model is also to study the impact of investors’ perception on investors’ behaviour.

1.5.8 Financial Tools Used for Analysing Secondary Data

The following tools were employed to analyse the secondary data.

(i) **Sharpe ratio**: Sharpe ratio is also known as Sharpe index. The ratio measures the performance of an investment by adjusting it for the risk (standard deviation). The ratio measures the excess return per unit of risk. It is calculated as follows:
Sharpe ratio  = (ARp - Rf)/σp

Arp = Average Return on Portfolio

Rf = Risk Free Rate

σp = Standard deviation of Portfolio

(ii) **Treynor ratio:** Treynor ratio is also known as reward to volatility ratio or Treynor measure. It is risk adjusted measure which is based on systematic risk. It is similar to Sharpe ratio with a difference that it is uses beta as a measure of volatility. The higher the ratio the better the performance of a portfolio. It is calculated as follows:

Treynor ratio  = (ARp - Rf)/βp

Arp = Average Return on Portfolio

Rf = Risk Free Rate

βp = Portfolio Beta

(iii) **Jensen measure:** It is risk adjusted performance measure that represents average return on a portfolio above that is predicted by the Capital Assets Pricing Model (CAPM), given the portfolio beta and average market return. This is portfolio Alpha, therefore this ratio is also known as Jensen alpha. It is calculated as follows:

Jensen ratio  = ARp – (Rf + βp(ARm - Rf))

Arp =Average Return on Portfolio

Rf = Risk Free Rate

βp = Portfolio Beta

Arm =Average return on Market

Positive alpha is a good indicator whereas negative alpha is a bad indicator of the portfolio performance.

(iv) **Sharpe’s differential return measure:**

Sharpe’s differential return is measured by the following formula.

\[ R_p - [R_f + (R_m - R_f) \frac{\sigma_p}{\sigma_m}] \]

Where,

Rp = Average Return of Portfolio

Rf = Risk Free Return
\( R_m \) = Average Market Return

\( \sigma_p \) = Fund Risk

\( \sigma_m \) = Market Risk.

Hence, Sharpe’s differential return measures the ability of the fund manager in diversifying the portfolio. This indicates that higher the Sharpe’s differential return, well diversified will be the portfolio.

**(v) Fama’s break up measure:**

The risk – adjusted performance measures discussed earlier reflected the overall performance of the sample schemes. However, it will be useful to breakdown the performance into different components of performance. Thus, the performance of the GETF schemes has also been examined on the basis of Fama’s components of Investment Performance Measure.

The actual fund return can be decomposed into four components as suggested by Fama:

1. Risk free returns (ARf)
2. Compensation for Systematic Risk (i.e., Impact of \( \beta \)) = \((AR_m – AR_f) \beta\)
3. Compensation for inadequate diversification (Impact of imperfect diversification) = \((AR_m – AR_f) (\sigma_p / \sigma_m - \beta)\)
4. Net Superior returns due to selectivity = \((AR_p – AR_f) – [(\sigma_p/\sigma_m)(AR_m – AR_f)]\)

In the above, second and third components indicate the impact of market risk (systematic risk) and diversification respectively. By altering systematic and unique risk a portfolio can be reshuffled to get the desired level of return. A portfolio manager can earn superior returns by identifying the undervalued securities through constant research and professional acumen. The ability of selectivity can be known with the help of the fourth component. Selectivity is the ability (professional acumen) of the fund manager to select undervalued securities (Priced lower than their true value at a point of time) in order to earn higher returns. A positive high value indicates that the fund has achieved superior returns and investors are benefited out of selectivity exercised by the fund manager.
1.6 PERIOD OF THE STUDY

The period of the study was from 2012 to 2014. With a view to gaining insight into gold exchange traded funds, a detailed study was conducted. The review of literature and conceptual framework of the study took six months period. Preparation of interview schedule and conducting pilot study took another six months. The collection of primary data from the investors of GETFs and collection of secondary data from Gold Exchange Traded Funds took one year of time. The analysis and interpretation of the data took another six months. The last six months period was utilised for rough drafting and finalizing the form of thesis. As far as the performance evaluation of gold exchange traded funds is concerned, the period of the study was covered from 1st April 2009 to 31st March 2014.

1.7 AREA OF THE STUDY

Respondents were made from all the city corporations of Tamil Nadu such as Salem, Erode, Coimbatore, Tiruppur, Chennai, Madurai, Tiruchirapalli, Tirunelveli, Vellore and Tuticorin.

1.8 SCOPE OF THE STUDY

The study considers the socio-economic profile of Gold ETF investors, factors influencing investment, perception and behaviour of GETFs. For describing and analyzing the above aspects, primary data are used. The study also considers 14 gold exchange traded funds for their performance evaluation. For this purpose, secondary data are used.

The study is an eye opener for the investors in the general and to gold exchange traded funds (GETFs) investors in particular to study thoroughly the opportunities and threats on select 14 GETFs with the help of both primary and secondary data analysis. The present study will also help policy makers in SEBI, stock exchange, Government of India and stock brokers. The ultimate aim of the study is for the welfare of investors who are interested in investing in GETFs. The fluctuating markets can be analysed easily and necessary regulations may be initiated for the causes of high level volatility in gold exchange traded funds.
1.9 LIMITATIONS OF THE STUDY

1. The study is confined to 10 city corporations of Tamil Nadu only. The various alternatives of gold investment such as physical form (jewellery, coin and bar), Gold savings fund, E-Gold and Gold futures are excluded from the study.

2. The study is confined to Gold Exchange Traded Funds (GETFs) only. The study is excluded from other gold investment avenues.

3. The independent variables included in the study are restricted to select variables only.

1.10 CHAPTERISATION SCHEME

The present study is organized into five chapters:

**Chapter I**
It presents introduction and design of the study consisting of introduction, significance of the study, statement of the problem, objectives of the study, scope of the study, limitations of the study and research methodology.

**Chapter II**
It covers Review of Literature.

**Chapter III**
It deals with the performance evaluation of Gold ETFs, including Gold investment options, gold ETFs advantages, disadvantages, gold ETFs versus physical gold, objectives of GETFs, Evolution, growth and performance evaluation of gold exchange traded funds in India.

**Chapter IV**
It presents the data analysis and interpretation.

**Chapter V**
It contains summary of findings, suggestions and conclusion of the study.