Chapter IV

TEST OF HYPOTHESIS

• RESEARCH METHODOLOGY
• ANALYTICAL TOOLS AND TECHNIQUES
• DATA ANALYSIS
TEST OF HYPOTHESIS

RESEARCH METHODOLOGY

Research in common parlance refers to search for knowledge. Redman and Mory define research as a “systematized effort to gain new knowledge.” The research carried by the author is basically Empirical in nature. Empirical research is that type of research where we try to deduce some logic or prove any hypothesis based on our survey reports. The researcher took a working hypothesis and then collected the data to prove or disprove this hypothesis. The hypothesis taken by the author for analyzing investment pattern in stake trading and mutual funds with reference to Varanasi city are:

HYPOTHESIS OF THE STUDY: STOCK MARKET

Hypothesis 1:

(Ho): Investment made in Share Market is independent of the Income Group.

(Ha): Investment made in the Share Market is not independent of the Income Group.
Hypothesis 2:

(Ho): Investment made in Share Market is independent of the age group of the Investors.

(Ha): Investment made in the share market is not independent of the age group of the Investors.

HYPOTHESIS OF THE STUDY: MUTUAL FUND

Hypothesis 1:

(Ho): Investment made in Mutual Funds is independent of the Income Group.

(Ha): Investment made in Mutual Funds is not independent of the Income Group.

Hypothesis 2:

(Ho): Investment made in Mutual Fund is independent of the age group of the Investors.

(Ha): Investment made in the Mutual Fund is not independent of the age group of the Investors.
The data used in the research work is both primary and secondary in nature. The primary data has been collected by doing field survey and asking questions from people who were thought to have the desired information. Sample designing was done before the data was collected. A sample design is a definite plan for obtaining a sample from a given population. All items in any field of inquiry constitute a "Universe" or "Population". The entire population of Varanasi city was taken as the Universe of the Research. After selecting the Universe of the research size of the sample was decided. The sample size used in the research work has been 1000. Care was exercised to ensure the representation of people from all categories, i.e. occupation categories; income categories; age categories and sex. Due to budgetary constraint the sample size has been kept small. Large sampling size increases the cost of the collecting data and also enhances the systematic bias. Keeping this in mind the sample size has been kept small. The probability sampling technique has been used for collecting the sample. In probability sampling every population has a chance of being selected. The data has been collected by following the Cluster Sampling technique. “The theory of clustering is that the means of sample clusters are unbiased estimates of the population mean.” The main target of the research has been the people, who:
* Have monthly income more that Rs. 8,000
* Are Households, Individuals, Students, Businessmen etc.
* Have some money for savings and investments after their daily expenses.
* Have ability to bear risk to some extent.
* Are profit oriented and optimistic.
* Are not traditional or conservative.

The cluster or sampling units for collecting the sample have been Blocks for collecting the sample from the households, affiliated Colleges from collecting sample from the Students, industrial estates and business hubs for collecting sample from the businessmen etc.

The time period for the research work has been 24 months. i.e. Feb 2007 to Jan 2009.

**ANALYTICAL TOOLS USED**

Methods of processing and analysis of data

* Classification of data based on differences of degree of a characteristic.
* Tabulation of data according to responses to each question.
* Analysis of data.
**Objective of the Study**

* The general purpose of this study is to determine the key factors affecting customer's investment decision in mutual funds & stake trading.

* The prime reason for why the project was undertaken was to know the perception of the investors regarding mutual fund & stake trading.

* To know the awareness among customers about savings and investments.

* To know the factors governing in the selection of the instrument for their savings and investment requirements.
* To know the factors which attract the investors to invest in a particular mutual fund.

* To find out whether the investors are satisfied with the services given by different mutual fund companies (AMC’s).

* To know the awareness about mutual fund among distributors as well as customers.

**LIMITATIONS**

* The budget and time constraint was one of the major problems.

* The sample size taken is limited to 1000.

* The study is having area constraint. The blocks and colleges have been selected using cluster sampling methods.

* The study is limited to selected mutual fund schemes etc.
Q1. Your Income (annual) lies in the range between

a. Less than 1 lacs (28.00%)
b. Between 1 to 3 lacs (28.80%)
c. Between 3 to 5 lacs (23.20%)
d. 5 lacs and above. (20.00%)
The question was asked to know the annual income of the people so that the hypothesis that "Investment made in share market is independent of the Income Group (i.e. Income earned by the Investors)" could be tested. The author found that out of 1000 respondents, 28% (280 people) of them were having income below Rs.1 Lacs, 28.8% (288) of them were having income in the range between 1 to 3 lacs, 23.2% (232) of them were having income in the range of 3 to 5 lacs, whereas 20% (200) of them were having income 5 lacs and above. Thus we see that in Varansi city approximately 57% of the people were having income not more than 3 lacs rupees, whereas only 20% of the respondents said that they earn 5 lacs and above. As we all know that the people having more income tend to save more so we can commonly assume that the people earning 5 lacs and above would be investing more in the share market. The veracity of this assumption will be tested through the chi square test ($\chi^2$), in the later part of this analysis.
Q2. Do you invest in share market?

a. Yes. (29.2%).

b. No (70.8%).

This question was asked to ascertain that how many of the total respondents i.e. 1000, do actually invest in the share market. From the answers received out of 1000 respondents 292 respondents i.e. 29.2% said Yes they invest in the share market whereas 708 i.e. 70.80% of the people said that they do not invest in the share market. We can therefore decipher that the awareness regarding investing in share market is still
very less in the people of Varanasi city. Many of them even though aware of the share market are reluctant to invest in it because of the risk attached with it. People in the lower income group prefer to invest in banks and post office schemes rather than investing in the share market. The technicalities involved regarding investment in share market i.e. opening of Demat and trading account etc, scams which have taken place in the past, risk associated with the investment in shares etc. act as an impediment in the way of motivating the people to make them invest in share market.

On the basis of the above two questions we will be testing our first hypothesis which says that, “Investment made in Share Market is independent of the Income Group.” Through this hypothesis we will be trying to establish that there exist a relationship between the Income earned by the people of Varanasi city and the investment made by them in the share market.
HYPOTHESIS TESTING

Hypothesis:

(Ho): Investment made in Share Market is independent of the Income Group.

(Ha): Investment made in the Share Market is not independent of the Income Group.

On the basis of the data collected from question number one and two, we can categorize the given data in a following manner.

<table>
<thead>
<tr>
<th>Category</th>
<th>Below 1 Lacs</th>
<th>1 lacs to 3 lacs</th>
<th>3 lacs to 5 lacs</th>
<th>5 lacs and above</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Of Persons who Invest in Share Market</td>
<td>20</td>
<td>56</td>
<td>96</td>
<td>120</td>
<td>292</td>
</tr>
<tr>
<td>No. Of Persons who Do Not Invest in Share Market</td>
<td>260</td>
<td>232</td>
<td>136</td>
<td>80</td>
<td>708</td>
</tr>
<tr>
<td>Total</td>
<td>280</td>
<td>288</td>
<td>232</td>
<td>200</td>
<td>1000</td>
</tr>
</tbody>
</table>

Since the sample size is quite large hence we will be applying Chi square ($\chi^2$) test. Therefore:

\[
E_{11} = \frac{292 \times 280}{1000} = 81.76;
E_{12} = \frac{292 \times 288}{1000} = 84.10
\]

\[
E_{13} = \frac{292 \times 232}{1000} = 67.74;
E_{14} = \frac{292 \times 200}{1000} = 58.40
\]

\[
E_{21} = \frac{708 \times 280}{1000} = 198.24;
E_{22} = \frac{708 \times 288}{1000} = 203.90
\]

\[
E_{23} = \frac{708 \times 232}{1000} = 164.26;
E_{24} = \frac{708 \times 200}{1000} = 141.60
\]
On the basis of the above calculations the table of expected frequencies will be:

<table>
<thead>
<tr>
<th></th>
<th>81.76</th>
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<th>58.40</th>
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**Applying Chi square($X^2$) Test**

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</tr>
</tbody>
</table>

The degree of freedom $v(nu) = n-k$

or $v = (r-1)(c-1) = (2-1)(4-1) = 3$

Chi square($X^2$) = $\sum [(O-E)^2 / E] = 187.57$

For $v(nu)=3; (X^2)_{0.05}=7.81$

Note: The calculated value of Chi square($X^2$) 187.57 is much greater than the table value i.e. 7.81. Hence the null hypothesis is rejected and alternate hypothesis holds true, which says that the investment made in the share market is not independent of the income group of the investors. We therefore conclude that the investment made by the people in the share market is not independent of the income group (income earned by the people). In lucid terms we can say that the people with higher income invest more in the share market than the people having less income. The people having higher income have more saving capacity and therefore they invest in the share market more when compared to the people having lower income.
Q.3 What is your age group?

a. Below 20. (22.80%)
b. Between 20 to 39. (26.40%)
c. Between 40 to 59. (26.80%)
d. 60 and Above (24.00%)
The above question was asked to study that whether there exist any relationship between the age group of the people of Varanasi and the investment made by them in the share market or not. Out of 1000 respondents, 228 (i.e. 22.8%) of them were below 20 years in age, 264 (i.e. 26.4%) of them were of the age group 20-39 years, 268 (i.e. 26.8%) of them were of the age group of 40-60 years, and 240 (i.e. 24%) were of the age group of 60 years and above. As per the data derived from the second question out of 1000 respondents 292 of them said that they invest in share market. When we further classify those 292 respondents according to the age group of the people we find that only 24 people were of the age group below 20 years, 100 people were of the age group of 20-39 years, 116 people were of the age group of 40-59 years, whereas 52 people were of the age group of 60 years and above.

On the basis of Question number two and three, we will be testing our second hypothesis which says that, “Investment made in Share Market is independent of the Age Group.” Through this hypothesis we will be trying to establish that there exist a relationship between the Age group of the people of Varanasi city and the investment made by them in the share market.
HYPOTHESIS TESTING

Hypothesis:

(Ho): Investment made in Share Market is independent of the age group of the Investors.

(Ha): Investment made in the share market is not independent of the age group of the Investors.

On the basis of the data collected we can categorize the given data in a following manner.

<table>
<thead>
<tr>
<th>Category</th>
<th>Age Below 20</th>
<th>Age Between 20-39</th>
<th>Age Between 40-59</th>
<th>Age 60 &amp; Above</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Of Persons who Invest in Share Market</td>
<td>24</td>
<td>100</td>
<td>116</td>
<td>52</td>
<td>292</td>
</tr>
<tr>
<td>No. Of Persons who Do Not Invest in Share Market</td>
<td>204</td>
<td>164</td>
<td>152</td>
<td>188</td>
<td>708</td>
</tr>
<tr>
<td>Total</td>
<td>228</td>
<td>264</td>
<td>268</td>
<td>240</td>
<td>1000</td>
</tr>
</tbody>
</table>

Since the sample size is quite large hence we will be applying Chi square ($\chi^2$) test. Therefore:

\[
E_{11} = \frac{292 \times 228}{1000} = 66.58
\]
\[
E_{12} = \frac{292 \times 264}{1000} = 77.08
\]
\[
E_{13} = \frac{292 \times 268}{1000} = 78.26
\]
\[
E_{14} = \frac{292 \times 240}{1000} = 70.08
\]
\[
E_{21} = \frac{708 \times 228}{1000} = 161.42
\]
\[
E_{22} = \frac{708 \times 264}{1000} = 186.92
\]
\[
E_{23} = \frac{708 \times 268}{1000} = 189.74
\]
\[
E_{24} = \frac{708 \times 240}{1000} = 169.92
\]
On the basis of the above calculations the table of expected frequencies will be as follows:

<p>| | | | | | |</p>
<table>
<thead>
<tr>
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</table>

<table>
<thead>
<tr>
<th>O</th>
<th>E</th>
<th>(O-E)^2</th>
<th>(O-E)^2 / E</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>66.58</td>
<td>1813.06</td>
<td>27.23</td>
</tr>
<tr>
<td>204</td>
<td>161.42</td>
<td>11.23</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>77.08</td>
<td>525.32</td>
<td>6.81</td>
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<tr>
<td>164</td>
<td>186.92</td>
<td>2.81</td>
<td></td>
</tr>
<tr>
<td>116</td>
<td>78.26</td>
<td>1424.30</td>
<td>18.20</td>
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<tr>
<td>152</td>
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</tr>
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<td>188</td>
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The degree of freedom \( \nu = n-k \)
\( \nu = (r-1)(c-1) \)
\( = (2-1)(4-1) \)
\( = 3 \)

\( \text{Chi square}(X^2) = \sum [(O-E)^2 / E] = 80.36 \)
For \( \nu = 3; \) \( (X^2)0.05 = 7.81 \)

Note: The calculated value of \( X^2 \) is much greater than the table value. Hence the hypothesis is rejected. We therefore conclude that the investment made by the people in the share market is not independent of the age group (age of the people) of the people of Varanasi. People in the age group below 20 years invest less in the share market because they are not financially independent and apart from that they are also having very less knowledge about the mechanism of share trading. In the age group of 20-39 years we find that 100 out of total 264 people of this age group invest in share market. There is increase in number when compared to the people of age group below 20 years, because people of this age group are financially independent and have more risk bearing capacity. They invest in the share market not only to save taxes and keeping future growth in mind but also to maximize their returns. Similar reasons could be given for the people falling in the age group of 40-59 years. This group contributes maximum in the share market because the people in this age are having very high income and are positioned at the top posts of various firms. They see share market as an Investment avenue and are not reluctant in taking risk. However in the age group of 60 years and above we see a sharp decline in the number who people who invest in share market i.e. only 52 people of this age group said that they have invested in share market. The reason which could be given for this is that in this age the people normally retire and their earning also decreases, they try to avoid high risky investment and are more inclined towards investing in securities which provide safe and consistent returns like post office and bank deposit schemes, govt. securities etc.
Q.4. What is your favourite mode of trading in share market?

a. Online Trading 35.62%
b. Offline Trading 64.38%
This question was asked to have one general understanding regarding the mode through which people invest in the share market. Out of total 292 respondents who said that they invest in share market, 104 (i.e. 35.62%) of them said that they invest through online trading method whereas 188 (i.e. 64.38%) of them said that they invest through offline trading method. The reason which could be attributed for higher offline trading when compared to online trading is that, people in Varanasi city are having less awareness about the online trading and very few people are having access to computer system and internet. Another significant reason which could be given is that the offline trading accounts are cheaper to open and maintain when compared to online accounts.
Q5. What is your risk appetite?

a. High Risk. (31.50%)
b. Low Risk taking. (21.92%)
c. Moderate Risk Taking (46.58%)
The question above in general was put forward to test the risk bearing capacity of the people of Varanasi city. Out of 292 people who said that they invest in share market 92 (i.e. 31.50%) of them said that they are ready to take High risk in the share market, and 64 (i.e. 21.92%) of them said that they can not afford to take high risk and will quit the market if their portfolio is adversely affected whereas 136 (i.e. 46.58%) of them said that they are ready to take moderate risk. This shows that the majority of the people who invest in the share market are having moderate risk bearing capacity. The people in the age group of 20 to 59 years were willing to take more risk than compared to the people lying in the age group of 60 years and above. The reason why young working people are ready to take more risk whereas old people are reluctant in taking risk has already been discussed above.
Q.6 In what types of shares do you invest?

a. Growth Shares  (20.55%)  
b. Income Shares  (12.33%)  
c. Defensive Shares  (06.85%)  
d. Cyclical Shares  (04.10%)  
e. Speculative Shares  (02.74%)  
f. All of the above  (24.66%)  
g. Do not invest category wise  (28.77%)
The question in general was asked to know whether the people of Varanasi plan and categorize their investment before investing in share market or not. As can be seen from the chart above out of 292 people who invest in share market, 84 (i.e. 28.77%) people said that they do invest category wise and their investment is based upon their likes and dislikes. 60(i.e. 20.55%) people said that they invest in Growth shares, Growth shares are those shares which shows higher growth than the overall growth of the economy and that particular sector[121], 36(i.e. 12.33%) people said that they invest in Income shares, These stocks belong to the companies that have comparatively stable operations and limited growth opportunities.[10] Eg: stocks such as Cadburys, HUL etc. 20(i.e.06.85)people said that they invest in Defensive shares, Defensive shares are those shares which are immune to the decline in the economy, [11] like pharma etc, whereas only 8 i.e.(2.74% ) people said that they like to invest in those shares where high speculative activities take place, 12 (i.e. 4.10%) people said that they invest in cyclical shares. Cyclical shares are those shares which follow the Business cycle.[12] Eg: Automobile sector stocks. 72 (24.66%) people said that they invest in almost all the categories mentioned above.
Q.7 What is the duration of your Investment?

a. Long Term (24.65%).
b. Medium Term (35.62%).
c. Short Term (15.08%).
d. Daily Intra-day Trading (24.65%).
The question was put forward to know the duration for which the people of Varanasi City invest their money. Out of 292 people who said that they invest in share market 72 (i.e. 24.65%) of them said that they have invested for Long term, equal number of people i.e. 72 (24.65%) said that they are daily intra day traders and they purchase and sell shares daily. 104 (i.e. 35.62%) of them said that they have invested for Medium term and 44 (i.e. 15.08%) of them said that they have invested for short term duration. By Long term we mean Investment made for the period of more than an year. By Medium term we mean the investment made for the period of more than six months but less than one year. By short term we mean investment made for the period of less than six months. By daily Intra day traders we mean the person who buy and sell the shares same day. ie. they invest only for a period of a single day.
Q.8 Why do you invest in shares?

a. For Getting Higher Returns. (47.95%).

b. For Tax Benefits. (15.06%).

c. For Long term benefits. (34.26%).

d. For participating in companies affairs. (02.73%).
This question aims to study the objective of why the people of Varanasi invest in share market. Out of 292 people who invest in share market 140(i.e. 47.95%) said that they invest for getting higher returns on their investment. 44(i.e. 15.06%) of them said that they invest in the share market for getting Tax benefits, 100(i.e. 34.26%) of them said that they invest in the share market to get long term benefits. Long term benefits means receiving Dividends, bonus, capital appreciation accruing due to increase in share prices etc., 8 (i.e. 02.73%) of them said that they invest in share market for participating in companies affairs. These are HNI investors who purchase shares to participate in the policy making affairs, and to get positions in the Board of the Company.
Q.9 What type of investor are you?

a. Retail (55.40%)

b. HNI (44.60%)
The question was put forward to understand the types of Investors residing in Varanasi city. HNI (High Net worth Individuals) are those individuals who have invested more than 5 lac rupee in the share market and who have high risk bearing capacity and trade actively in the market. Out of 292 people who said that they invest in share market 48 (i.e. 16.44%) of them said that they have invested more than 5 lac rupee in the share market whereas 244 (i.e. 83.56%) of them said that they have invested less than 5 lac rupee in the share market. Those people who have invested less than 5 lac rupee in the share market are Retail Investors. The risk bearing capacity of retail investor is less and they invest in small proportion. Thus we conclude that majority of the investors of Varanasi city are Retail Investors and the proportion of HNI investors is significantly less in comparison to Retail Investors.
Q. 10 What type of services you expect from broking houses?

a. Effective pay-in / pay-out (15.07%).
b. Safe and Fair Trade Practices (16.43%).
c. Tips (market research /advisory) (17.81%).
d. Technological support. (17.81%).
e. All of the above. (32.88%).
The question was put before the investors to know the services which they expect from their broking houses 44(i.e. 15.07%) of the people said that they expect effective pay in and pay out services from their brokers, 48(i.e. 16.43%) of the people said that they expect their broker to follow safe and fair trade practices. By safe and fair trade practices they mean that the shares are not purchased and sold from their account without their knowledge, 52(i.e. 17.81%) said that they expect their broker to provide effective tips and news regarding shares so that they can make money from the market and minimize their risk, equal number of people say 52(i.e. 17.81%) said that they expect their broker to provide technological support like installation and updating of trading software's, providing necessary demo to run these software's so that they can trade from their personal computers etc., 96(32.88%) people said that they expect almost all the facilities mentioned above from their brokers.
Q.1. Your annual income lies in the range between:

a. Less than 1 lacs (28.00%)

b. Between 1 to 3 lacs. (28.80%)

c. Between 3 to 5 lacs. (23.20%)

d. 5 lacs and above. (20.00%)
The question was put before the investors of Varanasi to find their annual range of income so that the hypothesis that "Investment made in Mutual Funds is independent of the Income Group" could be tested. Out of 1000 people 280(28%) said that they earn less than one lacs per annum, 288(28.8%) said that they earn between one to three lacs per annum, 232(23.2%) said that they earn between three to five lacs per annum, whereas 200(20%) said that they earn five lacs and above per annum. We all know that high income people tend to save more therefore, it can be commonly assumed that the people earning 5 lacs and above would be investing more in the share market. The veracity of this assumption will be tested through the Chi square($\chi^2$) test in the later part of this analysis.
Q.2. Do you invest in mutual funds?

a. Yes (37.6%)

b. No (62.4%)
This question was asked to ascertain that how many of the total respondents i.e. 1000, do actually invest in the mutual funds. From the responses received, out of 1000 respondents 376 (37.6%) said Yes they invest in mutual funds, whereas 624 (62.4%) people said that they do not invest in mutual funds. On the basis of the above two questions we will be testing our next hypothesis which says that, "Investment made in Mutual Funds is independent of the Income Group." Through this hypothesis we will be trying to establish that there exist a relationship between the Income earned by the people of Varanasi city and the investment made by them in mutual funds.
HYPOTHESIS TESTING

Hypothesis:

(Ho): Investment made in Mutual Funds is independent of the Income Group.

(Ha): Investment made in Mutual Funds is not independent of the Income Group.

On the basis of the data collected from question number one and two, we can categorize the given data in a following manner.

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</tbody>
</table>

Since the sample size is quite large hence we will be applying Chi square ($\chi^2$) test. Therefore:

\[
E_{11} = \frac{376 \times 280}{1000} = 105.28;
\]

\[
E_{12} = \frac{376 \times 288}{1000} = 108.29;
\]

\[
E_{13} = \frac{376 \times 232}{1000} = 87.23;
\]

\[
E_{14} = \frac{376 \times 200}{1000} = 75.20;
\]

\[
E_{21} = \frac{624 \times 280}{1000} = 174.72;
\]

\[
E_{22} = \frac{624 \times 288}{1000} = 179.71;
\]

\[
E_{23} = \frac{624 \times 232}{1000} = 144.77;
\]

\[
E_{24} = \frac{624 \times 200}{1000} = 124.80;
\]
On the basis of the above calculations the table of expected frequencies will be:

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>105.28</td>
<td>108.29</td>
<td>87.23</td>
<td>75.20</td>
<td>376.00</td>
</tr>
<tr>
<td>174.72</td>
<td>179.71</td>
<td>144.77</td>
<td>124.80</td>
<td>624.00</td>
</tr>
<tr>
<td>280.00</td>
<td>288.00</td>
<td>232.00</td>
<td>200.00</td>
<td>1000.00</td>
</tr>
</tbody>
</table>

Applying Chi square ($\chi^2$) Test.

<table>
<thead>
<tr>
<th>O</th>
<th>E</th>
<th>(O-E)$^2$</th>
<th>(O-E)$^2$ / E</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>105.28</td>
<td>7272.68</td>
<td>69.08</td>
</tr>
<tr>
<td>260</td>
<td>174.72</td>
<td>7272.68</td>
<td>41.62</td>
</tr>
<tr>
<td>76</td>
<td>108.29</td>
<td>1042.64</td>
<td>9.62</td>
</tr>
<tr>
<td>212</td>
<td>179.71</td>
<td>1042.64</td>
<td>5.80</td>
</tr>
<tr>
<td>124</td>
<td>87.23</td>
<td>1352.03</td>
<td>15.50</td>
</tr>
<tr>
<td>108</td>
<td>144.77</td>
<td>1352.03</td>
<td>9.33</td>
</tr>
<tr>
<td>156</td>
<td>75.20</td>
<td>6528.64</td>
<td>86.81</td>
</tr>
<tr>
<td>44</td>
<td>124.80</td>
<td>6528.64</td>
<td>52.31</td>
</tr>
<tr>
<td><strong>Total</strong> &amp; <strong>290.09</strong> &amp; <strong>Total</strong> &amp; <strong>290.09</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The degree of freedom \( \nu = n-k \)

or \[ \nu = (r-1)(c-1) \]

\[ = (2-1)(4-1) \]

\[ = 3 \]

Chi square ($\chi^2$) = \[ \sum \frac{(O-E)^2}{E} = 290.09 \]

For \( \nu = 3 \); \( (\chi^2)_{0.05} = 7.81 \)

Note: The calculated value of Chi square ($\chi^2$) 290.09 is much greater than the table value i.e. 7.81. Hence the null hypothesis is rejected and alternate hypothesis holds true, which says that the investment made in the mutual funds is not independent of the income group. We therefore conclude that the people having higher income have more saving capacity and therefore they invest in the mutual funds more in comparison to the people having lower income. The people with higher income have more saving capacity therefore, they invest more in mutual funds when compared to the people having lower income.
Q.3. What is your age group?

a. Below 20 yrs (22.80%)
b. Between 20 to 39 yrs. (26.40%)
c. Between 40 to 59 yrs. (26.80%)
d. 60 yrs and above. (24.00%)
This question was asked to study that whether there exist any relationship between the age group of the people of Varanasi and the investment made by them in mutual funds or not. Out of 1000 respondents 228 (i.e. 22.8%) of them were below 20 years in age, 264 (i.e. 26.4%) of them were of the age group 20-39 years, 268 (i.e. 26.8%) of them were of the age group of 40-60 years, and 240 (i.e. 24%) were of the age group of 60 years and above. From the data received from the second question out of 1000 respondents 376 of them said that they invest in mutual funds. When we further classify those 376 respondents according to the age group of the people we find that only 24 people were of the age group below 20 years, 132 people were of the age group of 20-39 years, 136 people were of the age group of 40-59 years, whereas 84 people were of the age group of 60 years and above.

On the basis of Question number two and three, we will be testing our next hypothesis which says that, "Investment made in Mutual Fund is independent of the Age Group." Through this hypothesis we will be trying to establish that there exist a relationship between the Age group of the people of Varanasi city and the investment made by them in mutual funds.
HYPOTHESIS TESTING

Hypothesis:

(Ho): Investment made in Mutual Fund is independent of the age group of the Investors.

(Ha): Investment made in the Mutual Fund is not independent of the age group of the Investors.

On the basis of the data collected we can categorize the given data in a following manner.

<table>
<thead>
<tr>
<th>Category</th>
<th>Age Below 20</th>
<th>Age Between 20-39</th>
<th>Age Between 40-59</th>
<th>Age 60 &amp; Above</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Of Persons who Invest in Share Market</td>
<td>24</td>
<td>132</td>
<td>136</td>
<td>84</td>
<td>376</td>
</tr>
<tr>
<td>No. Of Persons who Do Not Invest in Share Market</td>
<td>204</td>
<td>132</td>
<td>132</td>
<td>156</td>
<td>624</td>
</tr>
<tr>
<td>Total</td>
<td>228</td>
<td>264</td>
<td>268</td>
<td>240</td>
<td>1000</td>
</tr>
</tbody>
</table>

Since the sample size is quite large hence we will be applying Chi square($\chi^2$) test. Therefore:

\[
\begin{align*}
E_{11} &= \frac{376 \times 228}{1000} = 85.73 ; \\
E_{12} &= \frac{376 \times 264}{1000} = 99.26 ; \\
E_{13} &= \frac{376 \times 268}{1000} = 100.77 ; \\
E_{14} &= \frac{376 \times 240}{1000} = 90.24 ; \\
E_{21} &= \frac{624 \times 228}{1000} = 142.27 ; \\
E_{22} &= \frac{624 \times 264}{1000} = 164.74 ; \\
E_{23} &= \frac{624 \times 268}{1000} = 167.23 ; \\
E_{24} &= \frac{624 \times 240}{1000} = 149.76 ;
\end{align*}
\]
On the basis of the above calculations the table of expected frequencies will be as follows:

<table>
<thead>
<tr>
<th>O</th>
<th>E</th>
<th>(O-E)^2</th>
<th>(O-E)^2 / E</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>85.73</td>
<td>3810.59</td>
<td>44.44</td>
</tr>
<tr>
<td>204</td>
<td>142.27</td>
<td>3810.59</td>
<td>26.78</td>
</tr>
<tr>
<td>132</td>
<td>99.26</td>
<td>1071.90</td>
<td>10.80</td>
</tr>
<tr>
<td>132</td>
<td>164.74</td>
<td>1071.90</td>
<td>6.50</td>
</tr>
<tr>
<td>136</td>
<td>100.77</td>
<td>1241.15</td>
<td>12.31</td>
</tr>
<tr>
<td>132</td>
<td>167.23</td>
<td>1241.15</td>
<td>7.42</td>
</tr>
<tr>
<td>84</td>
<td>90.24</td>
<td>38.93</td>
<td>0.43</td>
</tr>
<tr>
<td>156</td>
<td>149.76</td>
<td>38.93</td>
<td>0.26</td>
</tr>
</tbody>
</table>

\[ \chi^2 \text{ Total} = 108.94 \]

The degree of freedom \( \nu = n-k \)

or \( \nu = (r-1)(c-1) \)

\( = (2-1)(4-1) \)

\( = 3 \)

Chi square \( \chi^2 = \sum [(O-E)^2 / E] = 108.94 \)

For \( \chi^2 = 3; \ (\chi^2)_{0.05} = 7.81 \)

Note: The calculated value of \( \chi^2 \) 108.94 is much greater than the table value 7.81. Hence the hypothesis is rejected. We therefore conclude that the investment made by the people in the mutual fund is not independent of the age group (age of the people) of the people of Varanasi. It can be inferred from the table above that people in the age group below 20 years invest less in the mutual funds because they are not financially independent and apart from that they are also having very less knowledge about mutual funds. In the age group of 20-39 years we find that 132 out of total 264 people of this age group invest in share market. There is increase in number when compared to the people of age group below 20 years, because people of this age group are financially independent and invest more. They invest in the mutual funds not only to save taxes and keeping future growth in mind but also to maximize their returns and minimize risk, for we all know that mutual funds are less risky than shares. Similar reasons could be given for the people falling in the age group of 40-59 years. This group contributes maximum in the share market because the people in this age are having very high income and are positioned at the top posts of various firms. They see mutual funds as an Investment tool to save taxes, minimize risk and get safe returns. However in the age group of 60 years and above we see a decline in the number who people who invest in mutual funds, i.e. only 84 people of this age group said that they have invested in mutual funds. The reason which could be given for this is that at this age the people normally retire and their earning also decreases, they try to avoid any sort of risks. At this age investors prefer to invest in securities which provide safe and consistent returns like post office and bank deposit schemes, govt. securities etc.
Q.4  Do you think fluctuation in share market affects your investment in Mutual Funds?

a. Yes (62.77%).
b. No (37.23%).
The question in general was asked to find whether the fluctuations in share market make any impact on the investor’s decision to invest in mutual funds or not. 236 (i.e. 62.77%) people replied that their investment in mutual funds is affected by the movement of the share market, whereas 140 (i.e. 37.23%) people said that their investment in mutual funds is not affected by the movement of share market. This is a generally observed phenomenon that when the markets are in bull phase people invest in mutual funds more whereas when the markets are in bear phase people invest less in mutual funds. This however is not a healthy trend because the smart investors invest in the market and mutual funds when the shares are trading at lower prices and valuations are more attractive.
Q5. In what type of Mutual fund you have invested your money?

a. Open Ended fund. (20.71%)
b. Close Ended Fund (73.41%)
c. Interval Fund. (6.38%)
Open ended funds are those which offer its units on a continuous basis and accept funds from the investors continuously. Repurchase is carried out on a continuous basis which helps the investors to withdraw their money at any time. In other words, there is uninterrupted entry and exit into the funds. The open ended funds have no maturity period and they are not listed in the stock exchanges, whereas close ended funds have fixed maturity period and the units are listed on the stock exchange. Interval funds are those funds which possess the characteristics of both open and close ended funds. They can be listed in the stock exchange and may be available for repurchase during specific period at net asset value or related prices. Out of total 376 people who invest in share market, 76 (i.e. 20.21%) people said that they have invested in open ended schemes, 276 (i.e. 73.41%) people said that they have invested in close ended schemes, whereas only 24 (i.e. 6.38%) people said that they have invested in interval funds. Investors mostly invest in close ended funds because the companies normally launch close ended schemes, and these funds in long term offer more returns when compared to other type of funds.
Q.6 In what type of Mutual Fund Schemes you have invested your money?

a. Growth Scheme  (25.53%)  b. Income Scheme  (20.21%)
c. Balanced Scheme  (22.34%)  d. Money Market Scheme  (05.32%)
e. Tax Saving Scheme  (17.02%)  f. Index Scheme  (09.57%)
The open ended and close ended schemes are classified on the basis of their objective i.e. Growth schemes aims to provide capital appreciation over medium to long term, these funds invest their money in equities. Out of 376 person who said that they invest in mutual funds, 96 (i.e. 25.54%) person said that they prefer to invest in Growth schemes. Income scheme aims to provide a regular return to its unit holders, 76 (i.e.20.21%) out of 376 person prefer to invest in Income schemes. Mostly these funds deploy their funds in fixed income securities. Balanced scheme funds are invested in equities and debt instruments. 84 (i.e. 22.34%) out of 376 person prefer to invest in balanced scheme. Money Market scheme funds are invested on money market instruments like treasury bills, commercial paper etc. Out of 376 person, 20 (i.e.5.32%) person said that they invest in money market schemes. Money market schemes offer very less returns hence these schemes are less preferred. Tax saving scheme offer tax rebate to investors. 64 (i.e. 17.02%) out of 376 person invest in Tax Saving Schemes. Index scheme funds are invested on the equities of the index. Out of 376 person, 36 (i.e.9.57%) person said that they prefer to invest in Index schemes.
Q.7 What is the purpose behind your investment in Mutual Funds?

a. Capital Appreciation  (22.34%).

b. Tax Benefits          (19.15%).

c. Risk Minimization and portfolio diversification. (19.15%)

d. All of the above.     (39.36%)
The question in general was put forward before the investors to understand the purpose for which people invest in Mutual Funds. Out of 376 person 84 (i.e. 22.34%) said that the purpose behind their investment is Capital Appreciation, 72 (i.e. 19.15%) people said that they invest in Mutual Funds to save Taxes, and equal number of people i.e. 72 (19.15%) said that they invest in MF’s to gain the advantage of portfolio diversification and risk minimization, whereas 148 (i.e. 39.36%) people said that they invest in MF’s for all the reasons mentioned above.
Q.8. While investing in Mutual Funds as an investor, what do you look for?

a. Good Portfolio Management  (11.70%)
b. Past performance of the company and scheme  (15.96%)
c. Nature of the scheme  (19.15%)
d. Brand of the company.  (17.02%)
e. All of the above.  (36.17%)
The question was asked to know what the customers look for before investing in Mutual Funds. Out of 376 persons who said that they invest in Mutual Funds, 44 (i.e. 11.7%) people said that they expect good portfolio management, 60 (i.e. 15.96%) people said that they look for the past performance of the company and scheme while investing in Mutual Funds, 72 (i.e. 19.15%) people said that they look to the nature of scheme before investing in Mutual Funds, 64 (i.e. 17.02%) people look for the Brand of the company before investing in Mutual funds, 136 (i.e. 36.17%) people said that consider all the reasons mentioned above before investing in Mutual Funds.
Q.9. If in future your income increases, then will you invest more in Mutual Funds?

a. Yes (56.38%)

b. No (43.62%).
The question was asked to know whether the people will invest more in Mutual Funds if their income increases in future or not. Out of 376 person 212 (i.e. 56.38%) said that they will invest more in Mutual funds if their income increases in future because Mutual funds are comparatively safe mode of investment, whereas 164 (i.e. 43.62%) people said that they will not invest more in Mutual funds even if their income increases in future because of the several reasons like, Mutual funds are subject to market risk and the capital appreciation is quite slow and the tax benefit ends after a certain limit of investment. These investors said that they would prefer to invest in other assets like Land, Antiques, Gold, and Commodity etc.
Q.10. Are you satisfied with the performance of your fund?

a. Yes  (61.70%).
b. No    (38.30%).
The question was asked to know whether the customers are satisfied with the performance of their mutual fund scheme or not. Out of 376 persons who said that they have invested in Mutual Funds, 232 (i.e. 61.70%) of them said that they are satisfied with the performance of their fund whereas 144 (i.e. 38.30%) persons said that they are not satisfied with the performance of their fund. Most of the person who said that they are not satisfied with the performance of their fund entered the scheme when its NAV was very high and NAV came down significantly with the correction in the market. Since the mutual funds are subject to market risk hence proper care should be exercised before choosing the scheme and purchasing units at high NAV should be avoided.
QUESTIONNAIRE

STAKE TRADING

Q1. Your Income (annual) lies in the range between
   a. Less than 1 lacs
   b. Between 1 to 3 lacs
   c. Between 3 to 5 lacs
   d. 5 lacs and above.

Q2. Do you invest in share market?
   a. Yes.
   b. No

Q3. What is your age group?
   b. Between 20 to 39.
   c. Between 40 to 59.
   d. 60 and above

Q4. What is your favourite mode of trading in share market?
   a. Online Trading
   b. Offline Trading

Q5. What is your risk appetite?
   a. High Risk.
   b. Low Risk taking.
   c. Moderate Risk Taking.

Q6. In what types of shares do you invest?
   a. Growth Shares
   b. Income Shares.
   c. Defensive Shares.
   d. Cyclical Shares.
   e. Speculative Shares
   f. All of the above.
   g. Do not invest category wise
Q.7 What is the duration of your Investment?
   a. Long Term.
   b. Medium Term.
   c. Short Term.
   d. Daily Intra-day Trading

Q.8 Why do you invest in shares?
   a. For Getting Higher Returns.
   b. For Tax Benefits.
   c. For Long term benefits.
   d. For participating in companies affairs.

Q.9 What type of investor are you?
   a. Retail
   b. HNI

Q.10 What type of services you expect from broking houses?
   a. Effective pay-in / pay-out.
   b. Well informed steps.
   c. Tips (market research /advisory)
   d. Technological support.
   e. All of the above.
QUESTIONNAIRE

MUTUAL FUND

Q.1. Your annual income lies in the range between:
   a. Less than 1 lacs
   b. Between 1 to 3 lacs.
   c. Between 3 to 5 lacs.
   d. 5 lacs and above.

Q.2. Do you invest in mutual funds?
   a. Yes
   b. No

Q.3. What is your age group?
   a. Below 20 yrs
   b. Between 20 to 39 yrs.
   c. Between 40 to 59 yrs.
   d. 60 yrs and above.

Q.4. Do you think fluctuation in share market affects your investment in Mutual Funds?
   a. Yes
   b. No

Q.5. In what type of Mutual fund you have invested your money.
   a. Open Ended fund.
   b. Close Ended Fund
   c. Interval Fund.
Q.6. In what type of Mutual Fund Schemes you have invested your money?
   a. Growth Scheme   b. Income Scheme
   c. Balanced Scheme  d. Money Market Scheme
   e. Tax Saving Scheme  f. Index Scheme

Q.7. What is the purpose behind your investment in Mutual Funds?
   a. Capital Appreciation
   b. Tax Benefits
   c. Risk Minimization and portfolio diversification.
   d. All of the above.

Q.8. While investing in Mutual Funds as an investor, what do you look for?
   a. Good Portfolio Management
   b. Past performance of the company and scheme
   c. Nature of the scheme
   d. Brand of the company.
   e. All of the above.

Q.9. If in future your income increases, then will you invest more in Mutual Funds?
   a. Yes
   b. No

Q.10. Are you satisfied with the performance of your fund?
   a. Yes
   b. No
REFERENCES


