# PERFORMANCE OF MUTUAL FUNDS AND INVESTORS' BEHAVIOR

Synopsis of the Thesis to be submitted in fulfillment of the requirements for the Degree of

# DOCTOR OF PHILOSOPHY In MANAGEMENT

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# PERFORMANCE OF MUTUAL FUNDS AND INVESTORS' BEHAVIOR

# 1. INTRODUCTION

Saving is the surplus of income over expenditure and when such savings are invested to generate more money, it is called investment. Livestock, land and precious metals are some of the traditional investment options. During 19<sup>th</sup> century, revolution in investment took place through the banking system as it provide many investment options like Fixed deposits (FDs), government bonds, Public Provident Fund (PPF) to its investors. With the development of capital market, investment in stocks became a good option for generating higher returns. However, greater risk and lack of knowledge about the movement of stock prices were also associated with them. Therefore, mutual funds emerged as an ultra modern method of investment to lessen the risk at low cost with experts' knowledge.

According to Association of Mutual Funds in India (AMFI), a Mutual Fund is a trust that pools the savings of a number of investors who share a common financial goal and invest it in capital market instruments such as shares, debentures and other securities. The income earned and capital appreciation thus realised are shared by its unit holders in proportion to the number of units owned by them. Thus, it offers to common man an opportunity to invest in a diversified, professionally managed basket of securities at a relatively low cost.

In India, Mutual Fund industry started in 1963 with the formation of Unit Trust of India (UTI). It was the **first phase** (1964–1987) of Indian mutual fund industry during which UTI enjoyed a complete monopoly. In the **second phase** (1987–1993), Government of India allowed public sector banks and financial institutions to set up mutual funds. **Third phase** (1993–2003) started with the entry of private sector and foreign funds. The **fourth phase** (since February 2003 till date), is the age of consolidation and growth. As on 31 March 2012, there are 44 mutual fund companies with 1309 schemes and the average asset under management as Rs 66,47,920 million with a wide variety such as Open-Ended, Close-Ended, Interval, Growth, Income, Balanced, Equity Linked Savings Scheme (ELSS) and so on that caters to the investors' needs, risk tolerance and return expectations.

Because of the large number of mutual fund companies and schemes, retail investors are facing problems in selecting right funds. Also, it is of paramount importance for policy makers, governing bodies and mutual fund companies to analyse as which schemes are efficient performers. Therefore, to study the performance of mutual funds in terms of

efficiency and the methods of improving it is of crucial importance. In general, Net Asset Value (NAV) is taken as criteria for the performance measurement and it is based on the risk-return trade off [58],[73],[95],[102],[103]. Apart from risk, mutual fund schemes possess several characteristics or attributes that might affect their performance [42],[30],[55],[66]. It is essential to know which attribute results in efficient performance and which deteriorates it. Indian mutual fund industry is still lacking far behind in terms of total assets with respect to other developed nations. One of the main reasons for poor growth is the lack of awareness and investors' trust on companies and policy makers [101],[79],[98],[33],[82],[80]. Therefore,

for promoting the growth of Indian mutual fund industry, it is very crucial to understand the investors' behaviour towards different investment options and for mutual funds. For motivating investors towards the investment in mutual funds, companies must know the

factors in which these are lacking in comparison to other investment options.

From the above discussion, it can be concluded that Indian mutual fund industry is in its growth phase and possesses a tremendous scope for development. Some crucial issues which need to be investigated are the analysis of mutual funds' performance in terms of their efficiency, impact of various attributes on performance and behaviour of investors towards mutual funds and other investment options.

# 2. OBJECTIVES OF STUDY

On the basis of rationale of the study and literature review, objectives of present study are-

- 1. To study the performance of mutual funds in India.
- 2. To study the performance of mutual funds with respect to different performance attributes.
- 3. To develop a framework for performance measure of mutual funds in India.
- 4. To study the behaviour of Indian individual investors towards the investment of their savings.
- 5. To study the perception of Indian individual investors towards the investment in mutual funds.

For fulfilling these objectives, further in depth literature review is carried out and has been discussed in section 3. Section 4 presents the research methodology of the study; section 5 describes the analysis and interpretation. Findings of the study have been depicted in section 6 and section 7 provides suggestions and conclusions. In section 8 further scope of the research has been provided.

#### 3. IN DEPTH LITERATURE REVIEW

#### 3.1 PERFORMANCE OF MUTUAL FUNDS

During early years, the rate of return was the only measure of performance. **Markowitz** (1952) & Tobin (1958) suggested risk measure in terms of variability of returns [73], [102]. **Treynor** (1965), **Sharpe** (1966) and **Jensen** (1968) compared the returns of professionally managed portfolios to that of some standard benchmark [103], [95], [58]. **Cumby & Glen** (1990) and **Lahbitant** (1995) found funds underperforming their benchmark [29], [65].

Murthi et. al. (1997) proposed problems associated with traditional performance measures as identifying the appropriate benchmark, not accounting for the transactions cost and introduced Data Envelopment Analysis (DEA) as a performance measure in terms of efficiency [75]. In India, Chander (2000) found the funds outperform while Singh & Singla (2000) found that funds underperform their benchmark [18], [99]. Gupta (2001) found mixed results [48]. Galagedera & Silvapulle (2002) found that funds were efficient in long term [41]. In 2004, Gupta & Gupta and Rao et al. found funds outperforming their benchmark [49], [89]. Lin and Chen (2008) found the number of efficient funds higher in the year 2003 than 2001 and 2002 [69]. Soongswang & Sanohdontree (2011) found varied outcomes [100].

Some authors enhanced a new vein of research seeking to analyse the relationship between funds' performance and their attributes as discussed below [66], [55], [42], [30].

## (i) PAST PERFORMANCE

The studies on the relationship of current performance of mutual funds with their past performance reveal that the relationship exists only in some cases as shown in table 3.1.

**Period Covered** Relationship Author Type of funds (No. of funds) Sharpe(1966) 1954-63 (34) All No Jensen(1968) 1945-64 (115) All No John and Donald(1974) 1960-69 (123) All No Chang & Lewellen(1984) 1971-79 (67) All No Lehmann & Modest(1987) 1968-82 (130) All Yes Growth Stock Grinblat & Titman(1989) 1975-84 (157) No Grinblat & Titman(1992) 1974-84 (279) All Yes Hendricks et al.( 1993) 1974-88 (165) **Equity** Yes (short term) Malkiel(1995) 1971-91 (724) Equity Partial Elton & Gruber(1996) 1985-94 (270) All Yes Cai et al. (1997) 1981-92(64) Open ended Yes Philpot et al.(1998) 1982-93(27) Bond No Allen & Tan(1999) 1989-95(131) All Yes

**Table 3.1:** Studies on the attribute PAST PERFORMANCE

Cortez et al.(1999)	1994-98(12)	Equity	Yes
Casarin et al.(2000)	1988-99(57)	Equity	No
Droms & Walker (2001)	1971-90 (151)	Equity	Partial (short term)
Cortez & Silva (2002)	1994-98(12)	All	Yes
Roy & Deb (2004)	1992-03 (133)	Open ended	Yes
Chander (2005)	1998-02 (80)	All	No
Huij & Derwall (2005)	1990-03 (3316)	Bond funds	Yes
Bauren et al. (2006)	1990-03 (143)	Equity, balanced	short term
Sehgal & Jhanwar (2007)	2000-04 (59)	All	No
Deb et al. (2008)	2000-05	All	Yes
Tsolas (2011)	2008–10 (15)	NR ETFs	Yes

# (ii) ASSET SIZE, EXPENSE RATIO, LOAD STATUS, RISK, INVESTMENT STYLE, AGE OF MUTUAL FUND SCHEME

Table 3.2 depicts the studies on different attributes with respect to the performance of the mutual funds.

 Table 3.2: Past Literature on the Relationship between Performance and Attributes

Author	Period Covered (No. of funds)	Type of funds	Relationship
ASSET SIZE			
Grinblatt & Titman (1989)	1975-84 (157)	Growth Stock	Nil
Gorman ( <b>1991</b> )	1973-85 (355)	All	N
Grinblatt & Titman (1994)	1974-84 (279)	Equity	N
Droms & Walker (1996)	1971-90 (151)	Equity	Nil
Philpot et al. (1998)	1982-93 (27)	Bond funds	P
Indro et al. (1999)	1993-95 (683)	Active	P
Dalquist et al. (2000)	1992-97 (210)	Equity & Bond	N & P
Peterson et al. (2001)	1992-00	All	Nil
Jan & Hung (2003)	1961-00 (16435)	All	P
Karlsson & Persson (2005)	2000-04 (44)	Equity	P
Haslem et al. (2008)	2006 (136)	Index funds	P
Babalos et al. (2009)	2000-06 (491)	All	P
EXPENSE RATIO			
Lakonishok (1981)	1955-64 (70)	All	N
Ippolito ( <b>1989</b> )	1965-84 (143)	All	P
Grinblatt & Titman (1994)	1974-84 (279)	Equity	N
Droms & Walker (1996)	1971-90 (151)	Equity	P
Malhotra & McLeod (1997)	1992-93 (2367)	Equity & Bond funds	N &P
Apap & Griffith (1998)	1983-93 (4459)	Equity	N
Dalquist et al. (2000)	1992-97 (210)	Equity, bond, money marke	t N
Jan & Hung (2003)	1961-00 (16435)	All	N
Dowen & Mann (2004)	2003	Equity & Fixed Income	Nil & N
Karlsson & Persson (2005)	2000-04 (44)	Equity	N
Haslem et al. (2008)	2006 (136)	Index funds	N
Babalos et al. (2009)	2000-06 (491)	All	N
LOAD STATUS			

Ficher & Minet ( <b>1964</b> )		All	Nil
Ippolito (1989)	1965-84 (143)	All	P
Droms & Walker (1994)	1971-90 (108)	International Equity	Nil
Droms & Walker (1996)	1971-90 (151)	Equity	Nil
Malhotra & McLeod (1997)	1992-93 (2367)	Equity & Bond funds	N & P
Dellva & Olson (1998)	1987-92 (568)	Equity	N
Jan & Hung (2003)	1961-00 (16435)	All	P
Anderson et al. (2004)	1997-01 (348)	Real Estate	N
RISK			
Sharpe (1966)	1954-63 (34)	All	P
Dellva & Olson (1998)	1987-92 (568)	Equity	P
Anderson et al. (2004)	1997-01 (348)	Real Estate	N
Karlsson & Persson (2005)	2000-04 (44)	Equity	N
Tsolas (2011)	2008–10 (15)	NR ETFs	N
INVESTMENT STYLE			
Malhotra & McLeod (1997)	1992-93 (2367)	Equity & Bond fundds	Yes
Dalquist et al. (2000)	1992-97 (210)	Equity, Bond, money market	Yes
Shi & Seiler (2002)	1989-99 (180)	Growth & Value	Yes
Jan & Hung (2003)	1961-00 (16435)	All	Yes
Papadamou & Stephanides (2004)	1997-02 (31)	All	Yes
Rao (2006)	2005-06 (42)	Growth, Dividend	Yes
Belgacem & Hellara (2011)	1999-06 (120)	Growth, Income, Balanced	Nil
AGE OF MUTUAL FUND SCH	EME		
Malhotra & McLeod (1997)	1992-93 (2367)	Equity & Bond funds	P
Peterson et al.( 2001)	1992-00	All	Nil
Otten & Bams (2002)	1991-98 (506)	Equity	N
Karlsson & Persson (2005)	2000-04 (44)	Equity	N
Haslem et al. (2008)	2006 (136)	Index funds	P
Babalos et al. (2009)	2000-06 (491)	All	P
Belgacem & Hellara (2011)	1999-06 (120)	Growth, Balanced	P

Note: P denotes the positive and N denotes the negative relationship.

# 3.2 INVESTORS' BEHAVIOUR

Little effort has been made by researchers to study investors' behaviour towards mutual funds and other investment options. Madhusudhan & Jambodekar (1996) revealed that investor expect better services while they invest for safety of principal, liquidity and capital appreciation [56]. Syama Sunder (1998) found that the awareness was poor in small cities. Brand image and return were the prime factors for investment [101]. Panda and Tripathy (2002) found that investors were unsatisfied except from UTI. [79]. Singh and Chander (2004) concluded that poor regulation and control, under–performance and inefficient management are the cause of non investment [98]. Desigan et al. (2006) found that women investors are hesitant for investment in mutual funds [33].

**Parihar et al.** (2009) found that respondent's age, gender and income were significantly associated with their attitude whereas education and occupation were not associated with the same. [82]. **Pandey** (2011) found that younger people aged below 35, graduate people and the salaried person were easier to sell the funds and there was a large untapped market there [80].

#### 3.3 EMPIRICAL METHODS

This section discusses the method of investigations i.e., models and techniques used in the past literature for analysing mutual funds' performance and investors' behaviour (table 3.3).

 Table 3.3:
 Literature on Empirical Methods

#### I. PERFORMANCE EVALUATION

## 1. Risk – adjusted measures - Sharpe Ratio, Treynor ratio and Jensen's alpha:

John and Donald (1974), Lehmann & Modest (1987), Cumby & Glen (1990), Grinblatt & Titman (1994), Lhabitant (1995), Cai et al. (1997), Kao et al. (1998), Redman et al.; Singh & Singla; Chander (2000), Gupta (2001), Sapar & Madava (2003), Chander & Singh; Gupta & Gupta; Rao et al; Tripathy (2004), Soongswang & Sanohdontree (2011)

- **2. Rate of Return Measure:** Bogle (1992), Gupta (2001), Sapar & Madava (2003), Gupta & Gupta; Tripathy (2004)
- 3. Fama's Components of Investment Performance:

Sapar & Madava (2003), Gupta & Gupta; Tripathy (2004), Muthappan & Damodharan (2006)

- **4. Fama French Three Factor Model:** Cai et al. (1997)
- **5. Carhart four Factor Model:** Chan et al.; Otten & Bams (2002)
- 6. Stochastic Dominance Efficiency Test:

Nair and Ramanathan (2002), Kuosmanen (2007), Lozano & Gutie´rrez (2008)

# 7. Data Envelopment analysis (DEA):

Murthi et al. (1997), McMullen and Strong (1998), Baso and Funari (2001), Galagedera & Silvapulle (2002), Anderson et al.; Rao et al (2004), Gregoriou et al. (2005), Chen & Lin (2006), Kuosmanen (2007), Lozano & Gutie´rrez; Lin & Chen (2008), Soongswang & Sanohdontree, Chen, Chiu & Li, Tsolas (2011)

#### **II.FUND ATTRIBUTES**

- 1. Simple and Multiple Regression Analysis: Grinblatt & Titman (1992), Grinblatt & Titman; Droms & Walker (1994), Droms & Walker (1996), Malhotra & McLeod (1997), Apps & Griffith; Dellva & Olson; Philpot et al. (1998), Allen and Tan (1999), Dahlquist et al. (2000), Dowen & Mann (2004), Agudo & Magallon; Christensen; Karlsson and Persson (2005), Redman (2006), Belgacem & Hellara (2011)
- 2. Jensen and Carhart Alpha: Ippolito (1989), Babalos et al. (2009)
- 3. Logistic Regression model: Galagedera & Silvapulle (2002)
- **4. Tobit Regression Model:** Tsolas (2011)
- 5. Rank Categories:

Ficher & Minet (1964), Elton et al. (1996), Bauer et al. (2006), Sehgal & Jhanwar (2007)

- **6. Carhart's four factor model:** Chan et al (2002)
- 7. Autocorrelation Coefficients: Christensen (2005)
- 8. Time-Series Self-Financing Portfolio Approach: Hendricks et al. (1993), Carhart (1997)
- **9. Fama & MacBeth (1973) Methodology:** Roy & Deb (2004)
- **10. Stochastic Dominance Approach:** Jan & Hung (2003)
- III. INVESTORS' BEHAVIOUR
- 1. Weighted Average Score: Singh & Chander (2004), Chitra & Srideevi (2011)

#### 2. Factor Analysis:

Rajeshwari & Murthy (2002), Kiran & Rao; Singh & Chander (2004), Ranganat (2006)

- **3. Chi Square test:** Parihar et al. (2009)
- **4. Z test:** Pandey (2011)
- 5. Likert's Scale, Spearman's Rank Correlation and Co-variability: Panda & Tripathy (2002)
- **6. Multidimensional scaling Technique:** Panda & Tripathy (2002)
- 7. Multinomial Logistic Regression: Kiran & Rao (2004), Ranganat (2006)

From the studies, it was found that DEA is the most suitable technique for analysing efficiency of mutual funds in this study.

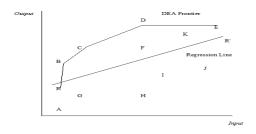
# DATA ENVELOPMENT ANALYSIS (DEA)

DEA is a non parametric linear programming method. It is the ratio of the weighted sum of outputs to the weighted sum of inputs such that, efficiency of all the units is less than or equal to unity. DEA measures the efficiency in two steps. First, an empirical production frontier-benchmark for all Decision making units (DMUs) is identified as the ratio of weighted sum of outputs to weighted sum of inputs. Second, efficiency for each individual DMU is calculated as its distance from the frontier. For improving the performance DEA provides a weighted combination of efficient schemes called Peer Group for each inefficient scheme.

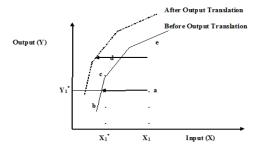
DEA handles multiple inputs and outputs. Mutual funds being examined are compared to the funds having similar objectives i.e., its peers. It handles the traditional measures' problems as benchmark selection and transaction costs [44], [46], [75]. It is a better technique than regression analysis (figure 3.2) [94], [12]. In figure 3.1, based on the regression analysis, DMU F and K perform well whereas, as per the DEA, these did not perform well.

#### **Handling Negative Data**

Negative data has been handled by the translation invariance property of the DEA technology. *Translation Invariance* means that efficiency of a particular DMU will be unchanged to the translation of one or more of outputs of all DMUs by a scalar quantity [97] [22] (figure 3.2). In the present study, the output variable SHARPE contains some negative values that have been converted into positive by employing translation variance.



**Figure 3.1:** Comparison of DEA Efficient Frontier to Regression Line



**Figure 3.2:** Input Oriented BCC Model Translation Invariance

# 4. RESEARCH METHODOLOGY

In this section the researcher has explained the research methodology used which include attributes taken for analysing the mutual funds' performance, data used and its collection. Also time period of the study, population, sample, sampling frame and the models and techniques employed for analysing the data have been discussed in detail.

#### 4.1 ATTRIBUTES

The attributes considered by the researcher in the study have been discussed as under:

*i. LOAD STATUS (LOAD):* It the fee charged by Mutual Fund Company. Load status has been taken as a dummy variable in many past studies [36],[55],[85]. In the present study, it is coded as 1 for schemes with load fee, 0 otherwise.

*ii. EXPENSE RATIO (EXPENSE):* It is per unit cost incurred in managing the mutual fund and has been obtained by the average of six years expense ratios of mutual fund schemes i.e., April, 2006 to March, 2012.

*iii. MINIMUM INITIAL INVESTMENT (MINII):* Minimum initial investment is the minimum amount needed initially by the investors to invest in a mutual fund scheme.

*iv. RISK (RISK)*: Two risk measures as standard deviation ( $\sigma$ ) and beta ( $\beta$ ) have been used in the past researches [95] [74] [3] [61] [23] [32] [21], [105], [69], [100]. In the present study, risk measure beta ( $\beta$ ) has been used for analysing the efficiency of fund schemes and standard deviation ( $\sigma$ ) has been taken for analysing the relationship of performance with attributes.

*Standard Deviation or Total Risk of Portfolio:* Standard deviation ( $\sigma$ ) represents the total risk of the portfolio. The  $\sigma$  of all the sample schemes has been calculated on the yearly returns.

Systematic Risk or Beta ( $\beta$ ): Systematic risk is that component of total portfolio risk which is not controlled through the process of diversification.  $\beta$  of mutual fund schemes has been obtained through eq. (i) by using standard regression methodology.

$$R_{\text{pt}} = \alpha_{\text{p}} + \beta_{\text{p}} \, R_{\text{mt}} + \dot{\boldsymbol{\xi}}_{\text{p}} \qquad \qquad .....(i)$$

Where,  $R_{pt}$  = return on mutual fund scheme for the year t

 $R_{mt}$  is the return on the market index for time t;  $\alpha_p$  represents the coefficient term

 $\beta_p$  beta coefficient, the measure of sensitivity;  $\dot{\xi}_p$  is the error term

v. AGE OF THE MUTUAL FUND SCHEMES (LAGE): Age has been calculated in years from the inception date of the mutual fund scheme till 31<sup>st</sup> March, 2012 and natural logarithm of the fund's age has been taken as done in past studies [71], [90] and [9].

vi. ASSET SIZE (ASSETS): Asset size of a mutual fund is the market value of all the securities held in its portfolio. It has been computed by taking the natural logarithm of the mutual fund's assets as on 31st march, 2012 as done in past studies [85], [35], [90] and [9].

vii. ASSET RATIO (ASSETR): Asset ratio of the mutual fund has been calculated as:

The ratio above 1 indicates a positive and ratio less than one indicates a negative asset flow.

*viii. RISK ADJUSTED RETURN (SHARPE):* Risk adjusted return has been computed by Sharpe Ratio  $(S_p)$  also called as the reward to variability ratio. It has been employed in many researches [65], [36], [37] and [85].  $S_p$  for the sample mutual fund schemes have been computed by the equation,  $S_p = (R_p - R_f) / \sigma_p$ 

Where,  $S_p$  stands for the Sharpe ratio of mutual fund schemes (April, 2006 to March, 2012).  $R_p$  is the average yearly return on the mutual fund scheme<sup>1</sup> from April, 2006 to March, 2012  $R_f$  is the average risk free rate of return (91 days T-Bills) from April, 2006 to March, 2012  $\sigma_p$  stands for the total risk or the standard deviation of the yearly returns of portfolio

*ix. JENSEN'S ALPHA (ALPHA):* This measure given by Michael C. Jensen (1968) is a regression of excess fund return with excess market return and has been used by many researchers worldwide [65], [32], [6], [83], [26]. The Jensen's alpha for the sample schemes has been calculated using Jensen's model provided in eq. iii.

$$R_{\text{pt}}-R_{\text{ft}}=\alpha_{\text{p}}+\beta_{\text{p}}\left(R_{\text{mt}}-R_{\text{ft}}\right)+\epsilon_{\text{pt}} \tag{iii}$$

Where,  $R_{pt}$  = return on mutual fund scheme for the year t;

 $R_{ft}$  = risk free return for the year t;  $R_{mt}$  = return on the market portfolio in year t  $\alpha_p$ =Alpha, the intercept that measures the stock selection capability;

$$\beta_p = \text{Beta of the portfolio and} \qquad \qquad \epsilon_{pt} = \text{Error term}$$

Step 2: Yearly returns, 
$$R_t = [(1+r_1)(1+r_2)...(1+r_{12})] - 1$$

<sup>&</sup>lt;sup>1</sup> R<sub>p.</sub> the average return on the portfolio has been calculated by the following method-

<sup>&</sup>lt;u>Step 1:</u> Monthly rate of return for all the sample mutual fund schemes for 72 months (April, 2006 to March, 2012) has been computed as  $r_t = \{(NAV_t + D_t) / NAV_{t-1}\}$ -1 Where, NAV<sub>t</sub> is the NAV at the month end t, NAV<sub>t-1</sub> is the NAV at the month end t-1 and D<sub>t</sub> are the ex-dividend in period t. According to Association of Investment Management and Research Performance Presentation standards (AIMR-PPS), monthly returns are geometrically linked to produce more accurate annual return calculations. (Reilly and Brown, 2003)

 $R_t$  is the return for year t (t = 2007, 2008, 2009, 2010, 2011, 2012) and  $r_1$ ,  $r_2$ , ..... $r_{12}$  are the monthly rate of return for the specific year under study.

<sup>&</sup>lt;u>Step 3:</u> average return of the mutual fund scheme,  $R_p = Average$  of yearly returns  $(R_1, R_2, R_3, R_4, R_5, R_6)$ 

x. PAST PERFORMANCE (LSHARPE): It has been measured by Sharpe Ratio  $(S_p)$ -equation (ii) above as,  $S_p = (R_p - R_f)/\sigma_p$ 

Here, R<sub>p</sub> and R<sub>f</sub> have been calculated for the period from April, 2006 to March, 2011.

The expected relationship of these attributes with performance is positive.

#### 4.2 HYPOTHESES

Null hypothesis for first objective of the study i.e, to evaluate mutual funds' performance is:

H<sub>0</sub>: The sample mutual fund schemes do not perform efficiently.

 $H_0$  has been investigated by employing DEA in which attributes LOAD, EXPENSE, RISK ( $\beta$ ) and MINII are the input variables and SHARPE, ALPHA have been taken as output variables. For fulfilling the second objective of the research, attributes considered are LAGE, ASSETS, ASSETR, LSHARPE and RISK ( $\sigma$ ) and five hypotheses have been formulated as:

 $H_{0a}$ : Age of the mutual fund schemes is not related to their efficiency.

H<sub>0b</sub>: Asset Size of the mutual fund schemes is not related to their efficiency.

H<sub>0c</sub>: Asset Ratio of the mutual fund schemes is not related to their efficiency.

H<sub>0d</sub>: Past performance of the mutual fund schemes is not related to their efficiency.

 $H_{0e}$ : Risk ( $\sigma$ ) of the mutual fund schemes is not related to their efficiency.

#### 4.3 TIME PERIOD AND POPULATION

To study the performance of Indian mutual funds industry, a time period of six years (April, 2006 to March, 2012) has been taken. Hence, all the 463 open ended mutual fund schemes that were operational on 1 April, 2006 are the population for the study.

Further, to study the investors' behaviour, primary data is considered. Therefore, all the 'Mutual Fund Investors (MFI)', i.e., those who invest in mutual funds and 'Non Mutual Fund Investors (NMFI)', i.e., those who do not invest in mutual funds are the universe or population. Data required from the investors is very sensitive and indicative in nature as it comprises of the information regarding their savings and investments. Most of the investors are hesitant and unsecure in providing this kind of data on mails and phone calls. Hence, only possible way was personal interaction. Therefore, due to time and resources limitation, scope of the study for investors' behaviour has been limited to Delhi and National Capital Region.

# 4.4. SAMPLE

#### 4.4.1 SECONDARY DATA SAMPLING

Sample mutual fund schemes have been selected through following criteria:

Only those mutual fund schemes that were launched before March, 2006 have been considered. Only open- ended mutual fund schemes have been considered because they

possess several advantages over close-ended mutual funds [95],[58],[51],[13],[78] and[8]. Moreover, data for very few close ended mutual funds schemes was available. All those schemes which have been redeemed, closed or merged after March 31, 2006, have been excluded from the study. In the present research, apart from NAV, data for other attributes as asset size, expense ratio is also required. Therefore, only those schemes for which complete data set are available for the period of study has been considered. Those schemes which invest some percentage of its corpus in equities and have primary or secondary objective as capital appreciation have been considered for the study [10], [34].

By considering the above said criteria, out of 463 schemes, 119 (table 4.1) fits into the sample from Growth, Income, Balanced and ELSS investment styles (Annexure A).

 Table 4.1:
 Sampling Frame for the mutual fund schemes

Investment	Equity	Income	Balanced	Equity Linked	Total
Style	Funds	Funds	Funds	Saving Schemes	
Number	48	30	23	18	119

#### 4.4.2 PRIMARY DATA SAMPLING

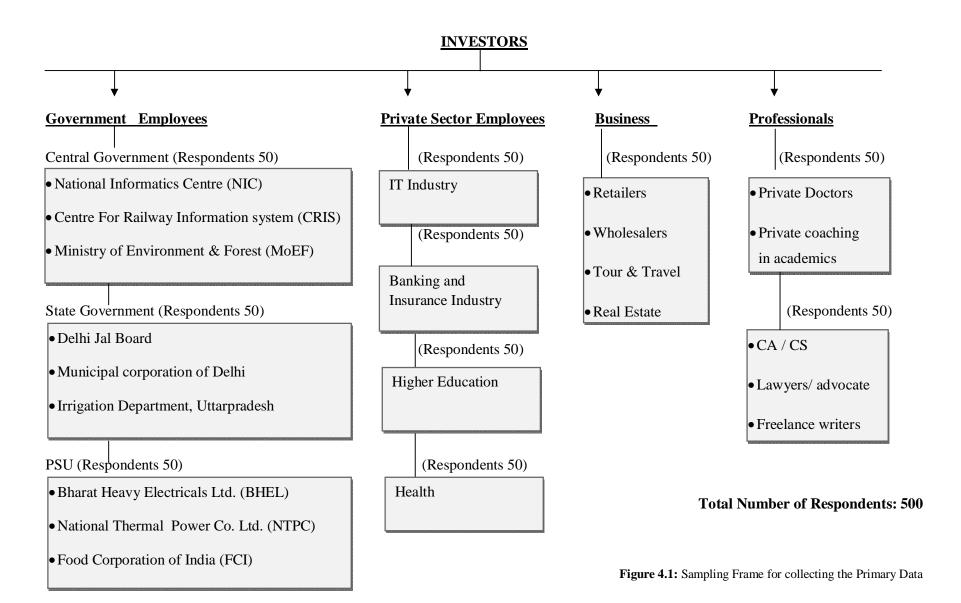
Stratified random sampling has been used. Initially four major categories have been formed out of the total population as Government sector, Private sector, Business and Professionals. Further, each major category has been subdivided into total ten subcategories. Fifty respondents have been randomly selected from each subcategory. (figure 4.1).

## 4.5 DATA COLLECTION

#### 4.5.1 SECONDARY DATA COLLECTION

Some of the secondary data attributes as expense ratio is declared on yearly basis. Therefore, for maintaining the unanimity, yearly data has been used. For calculating RISK( $\beta$ ) Bombay Stock Exchange Sensex (BSE Sensex) Index has been considered as surrogate for market portfolio. BSE Sensex has been a widely accepted market proxy [17] &[62]. Yield on 91-day Treasury Bills (T-bills) has been used as a surrogate for risk free rate of return as done by most of the researcher [67],[60],[18],[48],[104],[76] and[62].

Databases used for collecting these data are Alpha data base of CMIE, RBI Bulletin, Website of AMFI, Bombay Stock Exchange, mutual funds companies and Value Research.



#### 4.5.2 COLLECTION OF PRIMARY DATA

Primary data has been collected through questionnaire. After discussion with experts, two separate questionnaires for mutual fund investors (MFI) and non mutual fund investors (NMFI) have been used for analysing the investors' behaviour (Annexure B and C). Validity of the questionnaires was checked and the reliability of both the questionnaires was determined by calculating Cronbach Alpha.

The value of Cronbach Alpha coefficient came out as 0.72 for the questionnaire of MFI and 0.77 for NMFI. Therefore, both the questionnaires are found to be valid and reliable enough. 500 copies of final questionnaire were mailed/distributed to 250 MFI and 250 NMFI in NCR region. 463 responses were received out of which 440 (218 MFI and 222 NMFI) were found usable and have been studied. Annexure D provides the demographic detail of respondents.

#### 4.6 EMPIRICAL METHODS FOR DATA ANALYSIS

#### 4.6.1 PERFORMANCE OF MUTUAL FUNDS

Following models have been used for evaluating the performance of mutual funds:

#### i. DATA ENVELOPMENT ANALYSIS (DEA)

Performance of mutual fund schemes in terms of their efficiency has been analysed by employing input oriented DEA model. Outputs are the benefits derived from the investment whereas, inputs are the resources expanded by the investors. Therefore, Sharpe Ratio and Jensen's Alpha is taken as the output variables and charges as load fee, expense ratio, risk  $(\beta)$  and minimum initial investment are the input variables.

#### ii. LOGISTIC REGRESSION MODEL

The relationship between mutual funds' attributes and their efficiency has been analysed through logistic regression model as:

 $Logit(p) = a + b_1LAGE + b_2ASSETS + b_3ASSETR + b_4LSHARPE + b_5RISK....(iv)$ 

Where, p =the probability that mutual fund scheme is efficient,

Dependent variable is 1 for efficient scheme and 0 otherwise.

a = constant of the equation;  $b_1$ ,  $b_2$ ,  $b_3$  = coefficient of the independent variables,

LAGE, ASSETS, ASSETR, LSHARPE and RISK = independent variables

#### 4.6.2 INVESTORS' BEHAVIOUR

Analysis of Variance (ANOVA) and Factor Analysis have been employed with the help of SPSS to analyze primary data for studying the investors' behaviour.

#### i. ANALYSIS OF VARIANCE (ANOVA)

ANOVA investigate differences between the means of several populations or groups simultaneously. The one-way ANOVA is used when independent variable is categorical with more than two groups/ population and dependent variable is continuous. The null hypothesis tested is, there is no significant difference among the means of different groups i.e.,  $H_0$ :  $\mu_1 = \mu_2 = \mu_3 = .... \mu_k$  and  $H_1$ : At least two means are different from each other.

1, 2, 3, ......k are the k groups or population of independent variable and  $\mu_1$ ,  $\mu_2$ ,  $\mu_3$ ,...... $\mu_k$  are the means of  $1^{st}$ ,  $2^{nd}$ ,  $3^{rd}$ ,....., $k^{th}$  group respectively.

In the present study, k=9 as investment options viz. FDs, insurance, PO/NSC, gold/e-gold, bonds, PPF, real estate, mutual funds and shares.

In ANOVA, the analysis goes through two steps. First, an F test is carried out to determine if any significant difference exists among any of the means. If the F score is significant, then a second step analysis is carried out to determine where the significant difference lies.

#### ii. FACTOR ANALYSIS

Sometimes, the number of independent variables is too many that increases time and expenditure in data collection and difficulty in making inferences. In such situations, factor analysis is used in data reduction to identify a smaller number of factors. In the present study, there are 11 characteristics of mutual funds that investors look upon before investing in mutual fund schemes as:

Past performance of mutual fund, Current NAV of mutual fund, Rating by a research agency/ Newspaper/ Magazine, Reputation of the mutual fund company, Mutual Fund manager, Portfolio of the scheme (percentage of investment in different co's), Exit load (fee charged at the time of selling of units), Availability of tax benefits, Turnover of the mutual fund scheme (Sales during the period), Asset size/ Total capital of the mutual fund scheme and Mutual Fund is Indian or Foreign.

#### 5. ANALYSIS AND INTERPRETATION

# 5.1 PERFORMANCE OF MUTUAL FUNDS AS EFFICIENCY

Five DEA runs have been performed as DEA Run 1 for all the 119 sample mutual fund schemes, DEA Run 2 for 48 equity oriented schemes, DEA Run 3 for 30 income schemes, DEA Run 4 for 23 balance schemes and DEA Run 5 for 18 ELSS mutual fund schemes.

#### i. Efficiency Score

5

18 ELSS

An efficiency score of one indicates that the scheme is efficient and lies on the efficient frontier. Whereas, a score of less than one indicates that the scheme is inefficient relative to others and lies distant from the efficient frontier. Mutual fund schemes with efficiency scores very near to 1.00 are referred to as "near efficient" because they need only a minor adjustments in their inputs for becoming efficient.

Number of efficient and inefficient schemes for all the five DEA runs has been depicted in table 5.1. From this table, inefficient schemes are highest when the whole sample has been analysed followed by income, equity and balance. Also the percentage of efficient mutual fund schemes is highest for ELSS followed by balance, equity and income.

**DEA** Efficient and Near Efficient Inefficient except Near Efficient Sample Runs No. (Percent) No. (Percent) 88 (74) 119 31 (26) 2 48 Equity 26 (54) 22 (46) 3 30 Income 16 (53) 14 (47) 4 23 Balance 15 (65) 8 (35)

18 (100)

 Table 5.1:
 Efficiency Score

0(0)

In DEA Run 2, out of 26 efficient equity schemes, only one was efficient in DEA Run 1 also and the efficiency score of 22 inefficient schemes is much higher in DEA Run 2 as compared to their scores in DEA Run 1. In the same manner, out of 16 efficient Income schemes in DEA Run 3, 14 were efficient in DEA Run 1 also. The efficiency score of all the 14 inefficient Income schemes is much higher in DEA Run 3 than DEA Run 1. All the 15 efficient Balance schemes from DEA 4 were inefficient during DEA Run 1. However, the efficiency score of 8 inefficient balance schemes is much higher in this Run than DEA Run 1. In case of ELSS, out of the total 18, 16 were efficient in DEA Run 1 also.

Hence, when analysed within a particular investment style, mutual fund schemes are performing much efficiently as compared to when the whole sample set has been analysed.

### ii. Efficient Peer Group

For improving performance, along with the efficiency score, DEA provides an efficient peer group and a set of target inputs or virtual inputs i.e., LOAD, EXPENSE, RISK ( $\beta$ ) and MINII to be followed by each inefficient scheme for achieving efficiency.

By examining the mean of reduction required in each input, it has been identified that in DEA run 1, major cause of inefficiency is load fee followed by expense ratio, minimum initial

investment and risk. For equity oriented schemes, all the inputs need to be reduced in small and almost same percentage. For income schemes, load fee is the major cause of inefficiency. As all the ELSS schemes are efficient, based on the slack values, a minor diminution might be done in expense ratio (table 5.2).

 Table 5.2:
 Cause for Inefficiency (Reduction Requirement in Inputs)

DEA	AV. I	AV. REDUCTION REQUIRED (%) & MEAN TARGET VALUE						
Run	Sample	LOAD	EXPENSE	RISK β	MINII			
1	119	88.04% (0.09)	40.35% (1.07)	39.31% (0.70)	40.18% (2,395.5)			
2	48 Equity	8.41% (0.88)	9.55% (1.95)	9.62% (0.98)	8.06% (4364)			
3	30 Income	52.53% (0.33)	33.89% (0.65)	16.09% (1.17)	21.86% (4677)			
4	23 Balance	8.13% (0.84)	7.42% (1.99)	7.42% (0.69)	7.42% (3,936)			
5	18 ELSS	0	6.65% (1.95)	0.29% (1.03)	0			

# 5.2 PERFORMANCE AND ATTRIBUTES OF MUTUAL FUNDS

Relationship between the performance of mutual funds and their attributes has been analysed through logistic regression equation as:

$$Logit(p) = a + b_1LAGE + b_2ASSETS + b_3ASSETR + b_4LSHARPE + b_5RISK$$

It has been found that with the introduction of independent variables, accuracy level of the model has increased from 70.6 percent to 79.8 percent. Overall significance of the model has been tested using the Model Chi square. Null hypothesis to test the overall fit of the model is: H<sub>0</sub>: The model with only constant is a good fitting model.

Value of Model Chi Square is 24.548 (5 degrees of freedom and p=0.00) that is significant at 95 percent level of confidence and thus,  $H_0$  is rejected. Therefore, model with only constant is a poor fit and the independent variables have a significant contribution.

Which attributes are significant has been found out from the variables in the equation table (table 5.3). LAGE and ASSETR have a significantly negative impact on efficiency. LSHARPE is significantly positively related to the efficiency. Moreover, ASSETR and RISK of the mutual fund schemes do not affect their efficiency significantly.

**Table 5.3:** Variables in the Equation

	В	Wald	df	р	Exp (B)
LAGE	-1.284	3.967*	1	0.046	0.277
ASSETS	-0.112	0.791	1	0.374	0.894
ASSETR	-1.607	5.292*	1	0.021	0.201
LSHARPE	3.039	5.142*	1	0.023	20.879
RISK	0.396	0.530	1	0.467	1.486
Constant	3.582	3.564	1	0.059	35.943

Note: \* means significant at 95 percent level of confidence

#### 5.3 INVESTORS' BEHAVIOUR

#### 5.3.1 INVESTMENT OPTIONS

Investors were asked about the investment options in which they currently invest and to indicate top three of them as per the current investment amount. They were also asked to identify top three investment options that will be preferred by them in future. The researcher has found that maximum number of investors has been investing in FDs followed by real estate, mutual funds, gold/e-gold, PO/NSC, PPF, shares, bonds and insurance. Table 5.4 summarizes these ranks along with the rank as per current investment amount and preferred investment options.

**Table 5.4:** Rank for Various Investment Options

		No. of Investors		Amount of investment		<b>Future Preference</b>	
S.No.	Option	Score	Rank	Score	Rank	Score	Rank
1	FD	293	1	267	3	25	8
2	Insurance	114	9	98	9	44	7
3	P O/ NSC	173	5	128	7	17	9
4	Gold/e- gold	185	4	415	2	647	3
5	Bonds	134	8	103	8	54	6
6	PPF	168	6	200	6	75	5
7	Real Estate	255	2	746	1	736	2
8	MFs	218	3	206	5	143	4
9	Shares	139	7	228	4	749	1

Further, for identifying investors' perception, they were asked to rate all the investment avenues on their parameters as return, risk, liquidity, tax saving and procedural understanding. Investors perceive that shares are the maximum return generating investment option followed by real estate, gold/e-gold, mutual funds and bonds. However, they consider that the risk involved in shares is highest followed by mutual funds, real estate, insurance and bonds. On the liquidity parameter, mutual funds are on the first rank followed by FDs and shares, Bonds, PO/NSC and PPF. Investors perceive that insurance are the most tax savings investment option followed by FDs. Procedural understanding is highest for the investment in PPF followed by FDs, post office/ NSC, gold/e-gold and bonds (table 5.5).

**Table 5.5:** Perception for Investment Options as per the Parameters

	PARAMETERS					
Rank	Return	Risk	Liquidity	Tax Saving	Procedural Understanding	
1	Shares	Shares	MFs	Insurance	PPF	
2	Real estate	MFs	Shares & FDs	FDs	FDs	
3	Gold/e-gold	Real estate	Bonds	PPF & Real estate	PO/ NSC	
4	MFs	Insurance	PO/ NSC	PO/ NSC	Gold/e-gold	
5	Bond	Bonds	PPF	Bonds & MFs	Bonds	
6	PPF	Gold/e-gold	Gold/e-gold	Shares	Insurance & Real estate	
7	PO/ NSC	PPF & PO/NSC	Insurance	Gold/e-gold	MFs	
8	FDs	FDs	Real estate	-	Shares	
9	Insurance	_	-	-	-	

The researcher has also analysed whether a significant difference lies in investors' perception for return, risk, liquidity, tax savings and procedural understanding for nine investment options by employing ANOVA. It has been found that a significant difference lies in investors' perception for these parameters on nine investment avenues (table 5.6). Further, by applying Post Hoc Test (Tukey HSD) the researcher has identified the investment options with significant difference (table 5.7). Investment options that do not possess any significant difference between their score means regarding the perception of any parameter form the homogenous subsets (HS).

 Table 56:
 ANOVA (Analysis of Variance)

S.No.	Parameters	F Ratio	р
1	Return	1350.0	0.00
2	Risk	1673.0	0.00
3	Liquidity	782.3	0.00
4	Tax Savings	937.0	0.00
5	Procedural Understanding	1356.0	0.00

**Note:** \*Degree of freedom (D.F.) associated with variance between the groups is 8 (9-1 = 8) and with variance within groups is 3951 [9\*(440 - 1) = 3951].

Investors perceive return from insurance as unique from other investment options while returns from FDs & PO/ NSC; PPF & bonds; MFs & gold/e-gold and real estate & shares have been perceived almost similar and therefore form homogenous subsets. Investors profess risk involved in the investment of mutual funds different from rest eight investment avenues. Also, bonds & gold/e-gold; real estate & insurance; PPF, PO/NSC & FDs and shares are other four HS on this parameter. For liquidity, four HS formed are real estate; PPF, gold/e-gold & insurance; bonds & PO/ NSC and MFs, FDs & shares. In similar manner, five HS have been formed on the parameter tax saving and procedural understanding (table 5.7).

**Table 5.7:** Homogenous Subsets

	PARAMETERS					
HS	Return	Risk	Liquidity	Tax Saving	Procedural Understanding	
HS1	Insurance	MFs	Real Estate	Gold/ e gold	Shares	
HS2	*	Bonds, Gold/e-gold	PPF, Gold/ e gold, Insurance	Shares	MFs, Insurance, Real Estate	
	PPF. Bonds	·	PO/ NSC	Bonds	Bonds, Gold/ e gold	
111	*	PPF, P O/ NSC, FDs	MFs, FDs, Shares	FDs, Real Estate, PPF,PO/ NSC	FDs, PPF	
HS5	Real Estate, shares	Shares		Insurance	PO/ NSC	

#### 5.3.2 INVESTMENT IN MUTUAL FUND SCHEMES

Most of investors are investing in growth schemes followed by income, balanced, sector funds, ELSS, gold ETF and index funds. Further, it has been found that reputation of the company, rating and past performance are the top three influential characteristics for investment. After that load status, portfolio, tax benefits, asset size, current NAV, fund being Indian or foreign, turnover and fund manager effect the investment decision in that order.

For improving mutual funds' performance, some of the characteristics have been clustered for identifying imperative areas to focus upon. By employing factor analysis, five factors as structure, size, performance, outlook/ status and professional expertise have been extracted from the eleven characteristics discussed above (table 5.8).

Table 5.8: Factors extracted from Characteristics of Mutual funds by Factor Analysis

Structure (F1)	Size (F2)	Performance (F3)	Outlook / Status (F4)	Professional Expertise (F5)
Portfolio	Turnover	Past Performance*	Past Performance*	Reputation
(0.867)	(0.806)	(0.455)	(0.418)	(0.594)
Exit Load	Asset Size	Current NAV	Tax Benefits	MF Manager
(0.877)	(0.673)	(0.632)	(0.840)	(0.703)
MF is Indian or		Dating	MF is Indian or	
Foreign*		Rating (0.703)	Foreign*	
(0.332)		(0.703)	(0.380)	

On comparing the investors' perception for mutual funds with respect to other investment options, it has been found that number of investors for mutual funds is on third rank. Current investment amount in these are on fifth number and it would be fourth preferred option for the future. Investors assess return, risk, liquidity, tax saving and procedural understanding of mutual funds on fourth, second, first, fifth and seventh rank respectively (table 5.9).

Table 5.9: Comparative Analysis of Mutual Funds w.r.t. Other Investment Options

	No. of Inves	stors	Curre	nt Investment A	Amount	Preferred Investment Amount			
RANK	3		5			4			
	Return	R	Risk Liquidity		Tax Saving		Procedural Understanding		
RANK	4		2 1		5		7		

#### 5.3.3 REASONS FOR NON INVESTMENT IN MUTUAL FUNDS

It has been found that management cost charged by the mutual fund companies and less return are the major cause for this. Lack in procedural clarity of investment followed by high risk, no control over the portfolio and lack of awareness is some other factors responsible (table 5.10).

 Table 5.10:
 Factors behind Non Investment in Mutual Funds

Factors Responsible for Non Investment	Score Sum	Score Mean	Rank
Management Cost	986	4.44	1
Less Return	869	3.91	2
Lack in Procedural Clarity	780	3.51	3
High Risk	683	3.08	4
No Control over Portfolio	523	2.36	5
Not Aware of Mutual Fund as an Investment Option	341	1.54	6

# 5.3.4 STEPS TO MOTIVATE INVESTMENT TOWARDS MUTUAL FUNDS

Some measures or steps by mutual fund companies, policy makers and regulatory bodies as strong grievance mechanism, strong regulations and expert advice might motivate NMFI towards the investment in mutual funds. However, giving the information about government regulations and training programme might help a little for the same (table 5.11).

 Table 5.11:
 Steps to Motivate Investment towards Mutual Funds

Steps to Inspire NMFI	Score Sum	Score Mean	Rank
Strong Grievance Mechanism	1099	4.95	1
Strong Regulations	905	4.08	2
<b>Expert Advise</b>	897	4.04	3
Information of Govt. Regulations	681	3.07	4
Training Programme	456	2.05	5

#### 6. FINDINGS OF THE STUDY

This section presents the main findings of the study.

**Findings for objective 1:** *To study the performance of mutual funds in India.* 

1. Out of the total sample, 26 percent schemes have performed efficiently and 74 percent have performed inefficiently. 54 percent Equity schemes are efficient and 46 percent are inefficient. Among Income schemes, 53 percent are efficient and 47 percent are inefficient.

- 65 percent of Balance schemes came out to be efficient and the rest 35 percent are inefficient. Also 100 percent of ELSS schemes came out to be efficient
- 2. DEA analysis has provided an efficient peer group and a set of target inputs or virtual inputs to be followed by each inefficient scheme, in order to achieve efficiency.
- 3. Virtual or target inputs and reduction required in the original value of each input i.e., load fee, expense ratio, risk and minimum initial investment for the entire inefficient mutual fund scheme has also been obtained.
- 4. Major cause of inefficient performance of mutual fund schemes is load fee and expense ratio However minimum initial investment is the least important cause for the same.

**Findings for objective 2:** To study the performance of mutual funds with respect to different performance attributes.

5. Age of the scheme and asset ratio is significantly negatively related to their efficiency whereas past performance is significantly positively related to the efficiency. Also asset size and risk do not have a significant impact on efficiency.

**Findings for objective 3:** To develop a framework for performance measure of mutual funds in India.

6. As per the analysis done through DEA and Logistic Regression, a framework for performance measure of mutual funds has been developed. It reveals that mutual fund attributes as past performance, asset ratio, expense ratio, age of the scheme and load fee have a significant impact on their efficiency performance (figure 6.1).

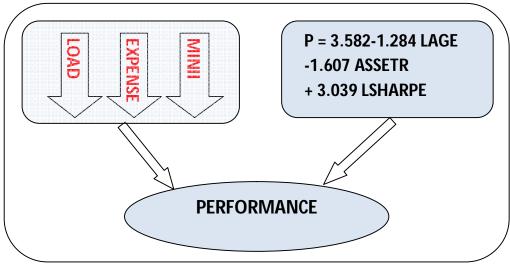


Figure 6.1: Frameworks for Performance Analysis of Mutual Funds

# **Findings for objective 4:** To study the behaviour of Indian individual investors towards the investment of their savings.

- 7. Maximum number of investors has been investing in FDs followed by real estate, mutual funds, gold/e-gold and PO/NSC. Lesser number of investors invests in PPF, shares, bonds and insurance. Maximum amount of investment have been done in real estate, gold/e-gold, FDs, shares and mutual funds in that order. However, shares followed by real estate, gold/e-gold, mutual funds and PPF would be the most preferred investment option.
- 8. After considering all three factors as number of investors investing in a particular option, the amount of investment and the preferred investment option for the future, real estate is the most popular investment option followed by gold/e-gold. Mutual funds stand at third rank with FDs and shares followed by PPF, PO/NSC, bonds and insurance.
- 9. Investors perceive shares as the most return generating option followed by real estate, gold/e-gold, mutual funds and bonds. Shares have been considered as the most risky avenue followed by mutual funds, real estate, insurance and bonds. For liquidity, the rank order is mutual funds, shares, FDs, bonds, PO/NSC and PPF. For tax saving, the rank order is insurance, FDs, PPF, real estate, PO/NSC, bonds and mutual funds. Maximum procedural understanding is for PPF followed by FDs, PO/NSC, gold/e-gold and bonds.
- 10. The researcher has found that investors perceive equally high return from shares and real estate. Other sets of investment avenues perceived similar on this parameter are gold/e-gold and mutual funds; bonds and PPF; PO/NSC and FDs; insurance.
- 11. For risk HS are shares; mutual funds; real estate and insurance; bonds and gold/e-gold; PPF, PO/NSC and FDs. For liquidity, Mutual funds, FDs and shares; bonds and PO/NSc; PPF, gold/e-gold and insurance; real estate are the HS. For tax saving, HS are insurance; FDs, real estate, PPF and PO/NSC; mutual funds and bonds; shares. Similarly, for pocedural understanding, PPF and FDs; PO/NSC; Gold/e-gold and bonds; insurance, real estate and mutual funds form HS.

# **Findings of objective 5:** To study the perception of Indian individual investors towards the investment in mutual funds.

12. Maximum number of investors invests in growth schemes followed by income, balanced, sector funds, ELSS, gold ETF and index funds.

- 13. Mutual funds' characteristic that influence investors' decision the most are reputation of the mutual fund company, rating, past performance, load status and portfolio. Availability of tax benefits, asset size and current NAV also influence the investment decision. However mutual fund is Indian or foreign fund, its turnover and manager have a little impact on the same.
- 14. Based upon the characteristics, five factors influencing the investment decision for mutual funds are their Structure (comprising of portfolio, exit load & mutual fund is Indian or foreign), Size (including its turnover & asset size), Performance (i.e., its past performance, current NAV & rating), Outlook/Status (comprising of past performance, tax benefits & mutual fund is Indian or foreign) and Professional Expertise (i.e., its reputation & mutual fund's manager).
- 15. Mutual funds are gaining popularity. Even though the total money invested is small, but the number of investors are large and they would like to invest more in these in future.
- 16. Investors perceive mutual funds are high risk low return investment which may be a reason of its low popularity. Also, they consider that mutual funds are not good for tax saving and procedural understanding of its investment is also not clear to most of them. However, its liquidity has been considered good.
- 17. Management cost charged by the mutual fund companies is the major cause followed by less return that stops investors from investing in it. While discussing mutual funds' performance researcher has found that their efficiency can be increased by decreasing load fee and expense ratio.
- 18. Strong grievance mechanism, regulations and expert advice might turn NMFI into MFI. However, information about government regulations and training programme would not be of much help in motivating NMFI towards investment in mutual funds.

# 7 SUGGESTIONS AND CONCLUSION

Indian mutual fund industry has completed 48 years till 2012. In spite of such a long experience and huge establishment, most of the mutual fund schemes have been performing inefficiently. Mutual fund companies, AMFI and governing bodies as SEBI should take corrective measures for this. For achieving the efficiency level, all the inefficient schemes might follow their respective peer efficient schemes in the proportion of their target values or

virtual inputs. Load fee and expense ratio have been found as the major cause of inefficiency in mutual fund schemes and hence mutual fund companies might focus on reducing these.

Most of the mutual fund companies are not getting benefited in performance efficiency from their experience. Therefore, older mutual fund schemes must be either wind up or a thorough review of strategy is needed i.e., these must be restructured. Also, large mutual fund schemes with high assets are not performing efficiently. Therefore, mutual fund companies should either improve their management or must occupy limited funds.

Investors consider the Indian mutual fund industry as a non performing one. During April, 2006 to March, 2012, more than half of the mutual fund schemes have risk adjusted performance (Sharpe ratio) below than the industry average risk adjusted return. Therefore, companies should take corrective measures to improve their performance. Also policy makers and governing bodies might abolish the schemes giving poor performance since a long period. Investors consider mutual funds as risky as shares. Its liquidity is perceived as high but tax benefits and procedural understanding are low for this investment avenue. Therefore, there is need to educate investors about the advantages of mutual fund schemes. The AMFI with the help of SEBI should arrange more and more awareness programmes to promote proper understanding of the concept and working of mutual funds.

To conclude the researcher can say that Investors judge mutual fund schemes for investment on the basis of their structure, size, performance, status and professional expertise. Therefore, mutual fund companies should emphasise strong points of their schemes regarding these characteristics. Further, investors expect strong grievance mechanism, regulations and expert advice from mutual fund companies. Most of the investors have been investing in growth, income and balanced mutual fund schemes. They must be made aware about the benefits of other type of schemes also as ELSS, index, fund of funds, international funds, and lifestyle funds and so on.

# 8. DIRECTION FOR FURTHER RESEARCH

The present study is quite holistic covering all the aspects of mutual funds' performance and investors' behaviour. Even than there is some scope to extend the present research.

Present study has been conducted for six years for which whole data set was available. Similar kind of study might be carried for a shorter span of time period say two to three years so that data for large number of mutual fund schemes will be available and sample size may be increased. Due to constraint of time and resources, the study about investor's behaviour

has been limited to major cities of National Capital Region as Gurgoan, Faridabad, Delhi, Meerut, Ghaziabad, Noida and Greater Noida. Such study might be conducted in other parts of the country as well.

#### REFERENCES

- [1] Agudo L. F. and Magallon M. V., "Empirical evidence of performance persistence in a relatively unexplored market: The case of Spanish Investment Funds", Applied Financial Economics Letters, vol. I, pp. 85-88, 2005.
- [2] Allen D.E. and Tan M.L., "A test of the persistence in the performance of U.K. Managed Funds", The Journal of Business Finance & Accounting, vol. 26, no. 5, pp. 559-593, 1999.
- [3] Anderson R. I., Brockman C. M., Giannikos C. and McLeod R. W., "A Non-Parametric Examination of Real Estate Mutual Fund Efficiency", International Journal of Business and Economics, vol. 3, no. 3, pp. 225-238, 2004.
- [4] Apap A. and Griffith J. M., "The Impact of Expenses on Equity Mutual Fund Performance", Journal of Financial Planning, vol. 11, no. 1, pp. 76-81, 1998.
- [5] Babalos V., Kostakis A. and Philippas N, "Managing Mutual Funds or Managing Expense Ratios? Evidence From Greek Fund Industry", 2009, http://ssrn.com/abstract=1016779, accessed on Sep 20, 2012.
- [6] Barinov A., "Measuring Performance of Russian Equity Funds", http://www.nes.ru/~agoriaev/Papers/Barinov%20Measuring%20performance%20of%20Russian%20equity%20funds%20MThesis03.pdf., 2003, Accessed on March 1, 2006.
- [7] Basso A. and Funari S., "A Data Envelopment Analysis Approach to Measure The Mutual Fund Performance", European Journal of Operational Research, vol. 135, no. 3, pp. 477-492, Dec 2001.
- [8] Bauer R., Otten R., and Rad A. T., "New Zealand mutual funds: Measuring performance and persistence in performance", Accounting and Finance, vol. 46, pp. 347-363, 2006.
- [9] Belgacem S. B. and Hellara S., "Predicting Tunisian Mutual Fund Performance Using Dynamic Panel Data Model", The Journal of Risk Finance, vol. 12, no. 3, pp. 208-225, 2011.
- [10] Blake C. R., Elton E. J. and Gruber M. J., "The Performance of Bond Mutual Funds", The Journal of Business, vol. 66, pp. 371-403, 1993..
- [11] Bogle J. C., "Selecting Equity Mutual Funds", Journal of Portfolio Management vol. 18, no. 2, pp. 94-100, 1992.
- [12] Boles J., Donthu N. and Lohtia R., "Salesperson Evaluation Using Relative Performance Efficiency: The Application of Data envelopment Analysis", Journal of Personal Selling & Sales Management, vol. 15, no. 3, pp. 31-49, 1995.
- [13] Cai J., Chan, K. C. and Yamada T., "The Performance of Japanese Mutual Funds", The Review of Financial studies, vol. 10, no. 2, pp. 237-273, 1997.
- [14] Carhart M.M., "On persistence in mutual fund performance", Journal of Finance, vol. 52, pp. 57-82, 1997.
- [15] Casarin R., Pelizzon L. and Piva A., "Performances and performance persistence of Italian equity founds", Working Paper no. 00.06, http://www.greta.it/italiano/pagine/P dfFile/00.06.PDF, 2000, accessed on October 23, 2005.
- [16] Chan L. H., Chen and Lakonishok J., "On Mutual Fund Investment Styles", Review of Financial Studies, vol. 15, pp. 1407-1437, 2002.
- [17] Chander R., "Performance Appraisal of Mutual Funds in India", Unpublished doctoral dissertation, Kurukshetra University, Kurukshetra, 1999.
- [18] Chander R., "Performance Appraisal of Mutual Funds in India", Finance India, vol. 14, no. 4, 1256-1261, 2000.
- [19] Chander R., "Investment performance of managers' stock selection abilities: Empirical evidence from the Indian capital market", Decision, vol. 32, no. 1, pp. 65-90, 2005.
- [20] Chander S. and Singh J., "Performance of Mutual Funds in India: An Empirical Evidence", the ICFAI Journal of Applied Finance, vol. 10, no. 6, pp. 45-62, 2004.
- [21] Chang K. P., "Evaluating Mutual Fund Performance: An Application of Minimum Convex Input Requirement Set Approach", Computers and Operations Research, vol. 31, pp. 929–940, 2004.

- [22] Chehade R. T., "Mutual Fund Performance Evaluation Using DEA", ProQuest Dissertations and Theses, pp. 74-75, 1998.
- [23] Chen Y. C., Chiu Y. H. and Li M. C., "Mutual Fund Performance Evaluation-Application of System BCC Model", South African Journal of Economics, vol. 79, no. 1, pp. 1-16, March 2011.
- [24] Chen Z. and Lin R., "Mutual Fund Performance Evaluation Using Data Envelopment Analysis with New Risk Measures", OR Spectrum 28:375–398, pp. 375-398, 2006.
- [25] Chitra K. and Sreedevi V. R., "Does Personality Traits Influence the Choice of Investment?", The IUP Journal of Behavioral Finance, vol. 8, no. 2, 2011.
- [26] Christensen M., "Danish Mutual Fund Performance Selectivity, market Timing and Persistence", 2005, http://www.hha.dk/af1/wp/fin/F\_2005\_01.pdf. Accessed on January 17, 2006.
- [27] Cortez M. D. C. and Silva F., "Conditioning information on portfolio performance evaluation: A re examination of performance persistence in the Portuguese mutual fund market", Finance India, vol. 16, no. 4, pp. 1393-1408, 2002.
- [28] Cortez M. D. C. R., Paxson, D. A. and Armada, M. J. D. R., "Persistence in Portuguese mutual fund performance", The European Journal of Finance, vol. 5, pp. 342-365, 1999.
- [29] Cumby R. E. and Glen J. D., "Evaluating the Performance of International Mutual Funds", The Journal of Finance, vol. 45, no. 2, pp. 497-521, 1990.
- [30] Dahlquist M., Engstrom P. and Soderlind P., "Performance and characteristics of Swedish mutual fund", Journal of Financial and Quantitative Analysis, vol. 35, no. 3, pp. 409-23, 2000.
- [31] Deb S. G., Banerjee A. and Chakrabarti B. B., "Persistence in performance of Indian equity mutual funds: an empirical investigation", IIMB Management Review, pp. 172-187, June, 2008.
- [32] Dellva W. L. and Olson G. T., "The Relationship Between Mutual Fund Fees and Expenses and Their Effects on Performance", Financial Review, vol. 33, no. 1, pp. 85-103, 1998.
- [33] Desigan G., Kalaiselvi S. and Anusuya L., "Women Investors' Perception Towards Investment: An Empirical Study", Indian Journal of Marketing, April 2006.
- [34] Dinodia P., "Performance Evaluation of Debt Mutual Funds", http://www.iimk.ac.in/archives/events/spandan/Jan2005%20pdf/Perspective/Performance%20Evaluation%20o f%Debt%20Mutual%20Funds.pdf, 2005, accessed on June 17, 2008.
- [35] Dowen R. J. and Mann T., "Mutual Fund Performance, Management Behavior, and Investor Costs", Financial Services Review, vol. 13, pp. 79-91, 2004.
- [36] Droms W. G. and Walker D. A., "Investment Performance of International Mutual Funds", The Journal of Financial Research, vol. 17, no. 1, pp. 1-14, 1994
- [37] Droms W. G. and Walker D. A., "Mutual Funds Investment Performance", The Quarterly Review of Economics and Finance, vol. 36, no. 3, pp. 347-363, Fall 1996.
- [38] Droms W. G. and Walker D. A., "Persistence of mutual fund operating characteristics: returns, turnover rates, and expense ratios", Applied Financial Economics, vol. 11, pp. 457-466, 2001.
- [39] Elton E. J., Gruber M. J. and Biake C. R., "The Persistence of Risk-Adjusted Mutual Fund Performance", Journal of Business, vol. 69, no. 2, pp. 133-157, 1996.
- [40] Fischer G. C. and Minet L. J., "No- Load Mutual Funds", Financial analysts' Journal, vol. 20, no. 1, pp. 64-68, 1964.
- [41] Galagedera D. U. A. and Silvapulle P., "Australian Mutual Fund Performance Appraisal Using Data Envelopment Analysis", Managerial Finance, vol. 28, no. 9, pp. 60-73, Nov. 2002.
- [42] Gorman L., "A Study of the Relationship Between Mutual Fund Return and Asset Size, 1974-1987", Akron Business and Economic Review, vol. 22, no. 4, pp. 53-61, 1991.
- [43] Gregoriou G. N., Sedzro K. and Zhu J., "Hedge fund performance appraisal using data envelopment analysis", European Journal of Operational Research, vol. 64, no. 2, pp. 555-571, 2005.
- [44] Grinblatt M. and Titman S., "Mutual Fund Performance: An Analysis of Quarterly Portfolio Holdings", The Journal of Business, vol. 62, no. 3, pp. 393-416, 1989.
- [45] Grinblatt M. and Titman S., "The Persistence of Mutual Fund Performance", Journal of Finance, vol. 47, no. 5, pp. 1977-1985, 1992.
- [46] Grinblatt M. and Titman S., "Performance Measurement without Benchmarks: An Examination of Mutual Fund Returns", Journal of Business, vol. 66, no. 1, pp. 47-68, Jan 1993.
- [47] Grinblatt M. and Titman S., "A Study of Monthly Fund Returns and Performance Evaluation Techniques", Journal of Financial & Quantitative Analysis, vol. 29, no. 3, pp. 419-444, 1994.

- [48] Gupta A., "Mutual Funds in India: A Study of Investment Management", Finance India, vol. 15, no. 2, pp. 631-637, 2001.
- [49] Gupta O. P. and Gupta A., "Research Methodology for Performance Evaluation of Mutual Funds", In P. P. Arya and Yeshpal (Eds.), Research Methodology in Management Theory and Case Studies, New Delhi: Deep and Deep Publishing Pvt. Ltd., 2004.
- [50] Haslem J. A., Baker H. K. and Smith D. M., "Another Look At S&P 500 Retail Index Funds", 2008, Accessed from http://ssrn.com/abstract=1420298 on Jan 2012.
- [51] Henriksson R. D., "Market Timing and Mutual Fund Performance: An Empirical Investigation", The Journal of Business, vol. 57, no. 1, pp. 73-96, 1984.
- [52] Hendricks D. et al., "Hot Hands in Mutual Funds: Short Run Persistence of Relative Performance, 1974-1988", Journal of Finance, vol. 48, no. 1, pp. 93-130, 1993.
- [53] Huij J. And Derwall J., "Hot Hands in Bond Funds or Persistence in Bond Fund Performance", http://www.eur.nl/fbk/dep/dep5/seminars/051025Huij.pdf, 2005, accessed on January 30, 2006.
- [54] Indro D. C., Jiang C. J., Hu M. Y. and Lee W. Y., "Mutual fund performance: does fund size matter?", Financial Analysts Journal, vol. 55, pp. 74-87, 1999.
- [55] Ippolito R. A., "Efficiency with Costly Information: A Study of Mutual Fund Performance, 1965-1984." Quarterly Journal of Economics, vol. 104, no. 1, pp. 1-23, Feb 1989.
- [56] Jambodekar M. V., "Marketing Strategies of Mutual Funds Current Practices and Future Directions", Working Paper, UTI IIMB Centre for Capital Markets Education and Research, Bangalore, 1996
- [57] Jan Y. C., and Hung M. W., "Mutual Fund Attributes and Performance", Financial Services Review, vol. 12, pp. 165-178, 2003.
- [58] Jensen M. C., "The Performance of Mutual Funds in the Period 1945-1964", Journal of Finance, vol. 23, no. 2, pp. 389-416, 1968.
- [59] John G. and Donald Mc, "Objective and Performance of Mutual Funds, 1960-1969", The Journal of Financial and Quantitative Analysis, vol. 9, no. 3, pp. 311-333, 1974.
- [60] Kao G. W., Cheng L. T. W. and Chan K. C., "International Mutual Fund selectivity and Market Timing During Up and Down Market Conditions", The Financial Review, vol. 33, pp. 127-144, 1998.
- [61] Karlsson T. and Persson M., "Mutual Fund Performance: Explaining the Performance of Swedish Domestic Equity Mutual Funds by Using Different Fund characteristics", http://www.handels.gu.se/epc/archive/00004509/01/0405.47.pdf, 2005, accessed on Jan. 17, 2006.
- [62] Kaur A., "Persistence in Performance of Equity Mutual Funds in India–An Empirical Investigation", International Journal of Management and Computing Sciences (IJMCS), vol. 1, no. 3, pp. 77-86, 2011.
- [63] Kiran D. and Rao U.S., "Identifying Investor Group Segments Based on Demographic and Psychographic Characteristics", MBA Project Report, Sri Sathya Sai Institute of Higher Learning, 2004.
- [64] Kuosmanen T., "Performance Measurement and Best-Practice Benchmarking of Mutual Funds: Combining Stochastic Dominance Criteria With Data Envelopment Analysis", J Prod Anal, Springer, vol. 28, pp. 71–86, 2007.
- [65] Lhabitant F. S., "Mutual Fund Performance: Empirical Tests on Swiss Market", http://www.fmpm.ch/files/1995\_03\_Lhabitant.pdf. 1995, Accessed on January 9, 2013.
- [66] Lakonishok J., "Performance of Mutual Funds versus Their Expenses", Journal of Bank Research, vol. 12, no. 2, pp. 110-113, 1981.
- [67] Lee C. F. and Rahman S., "Market Timing, selectivity and Mutual Fund Performance: An Empirical Investigation", The Journal of Business, vol. 63, no. 2, pp. 261-278, 1990.
- [68] Lehman B. and Modest D., "Mutual Fund Performance Evaluation: A Comparison of Benchmarks and Benchmarks Comparisons", The Journal of Finance, vol. 42, no. 2, pp. 233-265, 1987.
- [69] Lin R. and Chen Z., "New DEA Performance Evaluation Indices and Their Applications in the American Fund Market", Asia-Pacific Journal of Operational Research, vol. 25, no. 4, pp. 421-450, 2008.
- [70] Lozano S. and Gutie´rrez E., "Data Envelopment Analysis of Mutual Funds Based On Second-Order Stochastic Dominance", European Journal of Operational Research, vol. 189, pp. 230–244, 2008.
- [71] Malhotra D. K. and McLeod R. W., "An Empirical Analysis of Mutual Fund Expenses", Journal of Financial Research, vol. 20, no. 2, pp. 175-190, 1997.
- [72] Malkiel B., "Returns From Investing in Equity Mutual Funds 1971 to 1991", Journal of Finance, vol. 50, pp. 549-72, 1995.
- [73] Markowitz H. M., "Portfolio Selection", Journal of Finance, vol. 7, no. 1, pp. 77-81, 1952.

- [74] McMullen P. R. and Strong R. A., "Selection of Mutual Funds Using Data Envelopment Analysis", The Journal of Business and Economic Studies, vol. 4, no. 1, pp. 1-12, 1998.
- [75] Murthi, B. P. S., Choi, Y. K. and Desai P., "Efficiency of Mutual Funds and Portfolio Performance Measurement: A Non-Parametric Approach", European Journal of Operational Research, vol. 98, no. 2, pp. 408-418, April 1997.
- [76] Muthappan P. K. and Damodharan E., "Risk Adjusted Performance Evaluation of Indian Mutual Fund Schemes", Fianace India, vol. 20, no. 3, pp. 965-983, 2006.
- [77] Nair A. S. and Ramanathan A., "Portfolio Analysis of a Mutual Fund Scheme in India: An application of Stochastic Dominance Efficiency Test", Prajnan, vol. 31, no. 3, pp. 197-212, 2002.
- [78] Otten R. and Bams D., "European Mutual Fund Performance", European Financial Management, vol. 8, no. 1, pp. 75-101, 2002.
- [79] Panda T. K. and Tripathy N. P., "An Application of Multidimensional Scaling Model Towards Brand Positioning of Mutual Funds: A Case Study of Tax Saving Schemes", Finance India, vol. 16, no. 3, pp. 991-1003, Sep 2002.
- [80] Pandey A., "Investors' Behaviour: Mutual Fund", SCMS Journal of Indian Management, vol. 8, no. 1, pp. 28, Jan 2011.
- [81] Papadamou S. and Stephanidesz G., "Evaluating the Style-Based Risk Model for Equity Mutual Funds Investing in Europe", Applied Financial Economics, vol. 14, pp. 751–760, 2004.
- [82] Parihar B. B. S., Sharma R. and Parihar D. S., "Analyzing Investors' Attitude Towards Mutual Funds as an Investment Option", The IUP Journal of Management Research, vol. 8, no. 7, pp. 56-64, 2009.
- [83] Peng V., "Selectivity, Timing and The Performance of Listed Property Trusts: Implications For Investment strategies", http://www.prres.net/papers/PRRPJ\_No\_2\_2004\_Peng.pdf., 2004, accessed on May 04, 2007.
- [84] Peterson J. D., Pietranico P. A., Riepe M. W. and Xu, F., "Explaining the Performance of Domestic Equity Mutual Funds", Journal of Investing, vol. 10, no. 3, pp. 81-91, Fall 2001.
- [85] Philpot J., Hearth D., Rimbey J. N. and Schulman C. T., "Active Management, Fund Size and Bond Mutual Fund Returns", The Financial Review, vol. 33, pp. 115-126, 1998.
- [86] Rajeshwari T. R. and Moorthy V. E. R., "Performance Evaluation of selected Mutual Funds and Investor Behaviour", PhD Thesis, Sri Sathya Sai Institute of Higher Learning, Prasanthinilayam, 2002.
- [87] Ranganathan K., "A Study of Fund Selection Behaviour of Individual Investors Towards Mutual Funds- With Reference to Mumbai City", Indian Institute of Capital Markets, 9th Capital Markets Conference Paper, 2006.
- [88] Rao D. N., "Investment Styles and Performance of Equity Mutual Funds in India", 2006, accessed from http://papers.ssrn.com/sol3/papers.cfm?abstract\_id=922595 on 10 Sep 2012.
- [89] Rao N. S.V.D., Shrivastava L. and Ramachandra V. S., "Single and Multi-Criteria Ranking of Mutual Fund Schemes", Working Paper Series, December 20, 2004, http://papers.ssrn.com/sol3/papers.cfm?abstract\_id=873430&download=yes, accessed on June 28, 2012.
- [90] Redman A. L. and Gullett N. S., "Impact of Fund, Management and Market Characteristics On Bond Mutual Fund Performance", Journal of Asset Management, vol. 7, no. 6, pp. 429-442, 2007.
- [91] Roy B. and Deb S. S., "Conditional alpha and performance persistence for Indian mutual funds: Empirical evidence", The ICFAI Journal of Applied Finance, vol. 10, no. 1, pp. 30-48, 2004.
- [92] Sapar N. R. and Madava R., "Performance Evaluation of Indian Mutual Funds", http://papers.ssrn.com/so13/papers.cfm?abstract\_id=433100, 2003, accessed on May 14, 2012.
- [93] Sehgal S. and Jhanwar M., "Short-Term Persistence in Mutual Fund Performance: Evidence from India", 2007, http://papers.ssrn.com/sol13/papers.cfm?abstract\_id=962829, accessed on July 2, 2008.
- [94] Seiford L. and Thrall R., "Recent Developments in DEA", Journal of Econometrics, vol. 46, pp. 7-38, 1990.
- [95] Sharpe W. F., "Mutual Fund Performance", Journal of Business, vol. 39, no. 1, pp. 119-38, 1966.
- [96] Shi S. W. and Seiler M. J., "Growth and Value Style Comparison of U.S. Stock Mutual Funds", American business review, pp. 25-32, 2002.
- [97] Simak P. C., "DEA Based Analysis of Corporate Failure", M.A. Sc. Dissertation, Department of Industrial Engineering, University of Toronto, 1997.
- [98] Singh J. and Chander S., "An Empirical Analysis of Perceptions of Investors towards Mutual Funds", Finance India, vol.18, no. 4, pp. 1673-1692, Dec 2004.
- [99] Singh P. and singla S. K., "Evaluation of Performance of Mutual Funds Using Risk Return Relationship Models", The Indian Journal of Commerce, vol. 53, no. 3, pp. 54-59, 2000.
- [100] Soongswang A. and Sanohdontree Y., "Open Ended Equity Mutual Funds", International Journal of Business and Social Science, vol. 2, no. 17, pp. 127-136, 2011.

- [101] Syama Sundar P.V., "Growth Prospects of Mutual Funds and Investor perception with special reference to Kothari Pioneer Mutual Fund", Project Report, Sri Srinivas Vidya Parishad, Andhra University, Visakhapatnam, 1998.
- [102] Tobin J., "Liquidity Freference as Behavior Towards Risk", Review of Economic Studies vol. 25, pp. 63-85, 1958.
- [103] Treynor J. L., "How to Rate Management of Investment Funds", Harward Business Review, vol. 43, no. 1, pp. 63-75, Jan-Feb 1965.
- [104] Tripathy N. P., "An Empirical Analysis and Performance Evaluation of Mutual Funds in india: A Study on Equity Linked Saving Schemes", The ICFAI Journal of Applied Finance, vol. 10, no. 7, pp. 36-55, 2004.
- [105] Tsolas I. E., "Natural Resources Exchange Traded Funds: Performance Appraisal Using DEA Methodology", Journal of Centrum Cathedra, vol. 4, no. 2, pp. 250-259, 2011.

#### ANNEXURE A

# Sample: 119 Mutual Fund Schemes, Code and their Investment Style

BNP Paribas Dividend Yield Fund-Growth: MF1 (Equity); BNP Paribas Equity Fund-Growth: MF2 (Equity); BNP Paribas Money Plus Fund-Regular Plan Growth: MF3 (Income); BNP Paribas Tax Advantage Plan (Elss)-Growth: MF4 (ELSS); Baroda Pioneer Balance Fund-Dividend: MF5 (Balanced); Birla Sun Life Dividend Yield Plus-Dividend: MF6 (Equity); Birla Sun Life Dynamic Bond Fund-Retail Plan Growth: MF7 (Income); Birla MF8 (Equity); Birla Sun Life Index Fund-Dividend: MF9 (Equity); Sun Life Frontline Equity Fund-Growth: Birla Sun Life MIP-Wealth 25 Plan Growth: MF10 (Income); Birla Sun Life MIP-Wealth 25 Plan Payment: MF11 (Income); Birla Sun Life MNC Fund-Dividend: MF12 (Equity); Birla Sun Life MNC Fund-Growth: MF13 (Equity); Birla Sun Life Midcap Fund-Dividend: MF14 (Equity); Birla Sun Life Midcap Fund-Growth: MF15 (Equity); Birla Sun Life Monthly Income-Growth : MF16 (Income); Birla Sun Life Savings Fund-Retail Plan Growth: MF17 (Income); Birla Sun Life'95 Fund-Dividend: MF18 (Balanced); Birla Sun Life'95 Fund-Growth: MF19 (Balanced); Canara Robeco Balance-Dividend: MF20 (Balanced); Canara Robeco Balance-Growth: MF21 (Balanced); Canara Robeco Equity Diversified-Dividend: MF22 (Equity); Canara Robeco Equity Tax Saver-Dividend: MF23 (ELSS); Canara Robeco Income-Growth: MF24 (Income); DSP Blackrock Balanced Fund-Dividend: MF25 (Balanced); DSP Blackrock Balanced Fund-Growth: MF26 (Balanced); DSP Blackrock India TIGER Fund-Regular Plan Growth: MF27 (Equity); DSP Blackrock Short Term Fund-Growth: MF28 (Income); DWS Premier Bond Fund-Regular Plan Growth: MF29 (Income); DWS Short Maturity Fund-Growth MF30 (Income); DWS Tax Saving Fund-Growth: MF31 (Income); FT India Balanced Fund-Dividend: MF32 (Balanced); FT India Balanced Fund-Growth: MF33 (Balanced); Fidelity Tax Advantage Fund-Dividend MF34 (ELSS); Fidelity Tax Advantage Fund-Growth MF35 (ELSS); Franklin India Bluechip Fund-Growth: MF36 (Equity); Franklin India Flexi Cap Fund-Growth: MF37 (Equity); Franklin India Prima Fund-Growth: MF38 (Equity); Franklin India Taxshield-Growth: MF39 (ELSS); HDFC Balanced Fund-Growth: MF40 (Balanced); HDFC Capital Builder Fund-Dividend: MF41 (Equity); HDFC Capital Builder Fund-Growth: MF42 (Equity); HDFC Cash Management Fund-Savings Plan Growth: MF43 (Income); HDFC Childern Gift Fund-Investment Growth MF44 (Balanced); HDFC Childern Gift Fund-Savings Plan Growth: MF45 (Balanced); HDFC Floating Rate Income Fund-LTP Growth: MF46 (Income); HDFC Growth Fund-Dividend: MF47 (Equity); HDFC Growth Fund-Growth: MF48 (Equity); HDFC High Interest Fund-STP Growth: MF49 (Income); HDFC Long Term Advantage Fund-Growth: MF50 (ELSS); HDFC Multiple Yield-Plan-05 Growth: MF51 (Income); HDFC Prudence Fund-Growth: MF52 (Balanced); HDFC Tax Saver-Growth: MF53 (ELSS); HSBC Income Fund-STP Regular Plan Growth: MF54 (Income); HSBC MIP-Savings Plan Growth: MF55 (Income); ICICI Prudential Balanced Fund-Growth: MF56 (Balanced); ICICI Prudential Blended Plan-Plan A Growth : MF57 (Income); ICICI Prudential Blended Plan-Plan B Growth: MF58 (Income); ICICI Prudential Discovery Fund-Dividend: MF59 (Equity); CICI Prudential Dynamic Plan-Growth: MF60 (Equity): ICICI Prudential Index Fund-Growth: MF61 (Equity): ICICI Prudential MIP-Wealth 25 Plan Growth: MF62 (Income); ICICI Prudential Tax Plan-Growth: MF63 (ELSS); ICICI Prudential Top 100 Fund- Growth: MF64 (Equity); IDFC Super Saver Income Fund-STP Growth: MF65 (Income); ING Balanced Fund-Dividend: MF66 (Balanced); ING Core Equity Fund-Growth: MF67 (Equity); ING Dividend Yield Fund-Dividend: MF68 (Equity); ING Dividend Yield Fund-Growth: MF69 (Equity); ING Short Term Income Fund-Growth: MF70 (Income); ING Tax Savings Fund-Dividend: MF71 (ELSS); ING Tax Savings Fund-Growth: MF72 (ELSS); JM Balanced Fund-Growth: MF73 (Balanced); JM Short Term Fund-Regular Plan Growth: MF74 (Income); Kotak Contra-Dividend: MF75 (Equity); Kotak ContraGrowth: MF76 (Equity); Kotak Flexi Debt-Regular Plan Growth: MF77 (Income); Kotak Tax Saver Scheme-MF79 (ELSS); L&T Ultra Short Term Fund-Regular Growth: **MF78** (ELSS); L&T Tax Saver Fund-Dividend: Plan Cumulative: MF80 (Income); LIC Nomura MF Bond Fund-Growth: MF81 (Income); LIC Nomura MF Floater MIP-Growth: MF82 (Income); Principal Balanced Fund-Growth: MF83 (Balanced); Principal Debt Opportunities Fund-Conservative Plan Regular Plan Growth: MF84 (Income); Principal Dividend Yield Fund-Dividend: MF85 (Equity); Principal Dividend Yield Fund-Growth: MF86 (Equity); Principal Large Cap Fund-Dividend: MF87 (Equity): Principal Large Cap Fund-Growth: MF88 (Equity): Principal Tax Savings Fund-Growth: MF89 (ELSS);RelianceDiversified Power Sector Fund-Retail Plan Bonus: MF90 ( Equity); Diversified Power Sector Fund-Retail Plan Dividend: MF91 (Equity); Reliance Equity Opportunities Fund-Retail Plan Dividend: MF92 (Equity); Reliance Equity Opportunities Fund-Retail Plan Growth: MF93 (Equity); Reliance Tax Saver (Elss) Fund-Growth-Growth: MF94 (ELSS); SBI Blue Chip Fund-Dividend: MF95 (Equity); SBI Blue Chip Fund-Growth: MF96 (Equity); SBI Magnum Balanced Fund-Growth: MF97 (Balanced); SBI Magnum Global Fund-Dividend: MF98 (Equity): SBI Magnum Index Fund-Growth: MF99 (Equity): SBI Magnum Multiplier Plus Fund-Dividend: MF100 (Equity); Sahara Income Fund-Growth: MF101(Income);Sundaram Select Focus-Growth: MF102 (Equity); Tata Balanced Fund-Dividend: MF103 (Balanced); Tata Balanced Fund-Growth: MF104 (Balanced); Tata Dividend Yield Fund-Dividend: MF105 (Equity); Tata Dividend Yield Fund-Growth: MF106 (Equity); Tata Equity Opportunities Fund-Dividend: MF107 (Equity); Tata Floater Fund-Growth: MF108 (Income); Tata Infrastructure Fund-Growth: MF109 (Equity); Tata Life Sciences & Technology Fund-Growth: MF110 (Equity): Tata Tax Saving Fund-Growth: MF111 (ELSS): Taurus Tax Shield-Growth: MF112 (ELSS); Templeton India Children's Asset Plan-Dividend: MF113 (Balanced); Templeton India Children's Asset Plan-Gift Plan Growth: MF114 (Balanced); UTI Balanced Fund-Growth: MF115 (Balanced); UTI Banking Sector Fund-Dividend: MF116 (Equity); UTI Banking Sector Fund-Growth: MF117 (Equity); UTI Master Equity Plan Unit Scheme-Dividend: MF118 (ELSS); UTI Master Equity Plan Unit Scheme-Growth: MF119 (ELSS).

*Note: MFs* represents the code given for each mutual fund scheme.

ii. 1 to 5 years

#### **ANNEXURE B**

**Sample: 218 Mutual Fund Investors (MFI)** 

#### Dear Respondent,

i. Up to 1 year

I am doing research on Indian mutual fund industry. Please fill up the questions given below. The information provided will be kept highly confidential and will be used only for academic purposes.

iii. More than 5 years

1. I prefer to invest for (please tick any one option).

	,								
Please tick your current investment options (can choose more than one) in column A			Indicate top 3 options in which you invest the most. $1 = \text{highest}$ and $3 = \text{lowest}$ .						
		A							
2	Fixed Deposits								
3	Insurance								
4	PO Savings/NSC								
5	Gold / E - Gold								
6	Bonds								
7	PPF								
8	Real Estate								
9	Mutual Funds								
10	Shares								
11	Commodities								

12	Any other pl. Specify	

13. How do you invest in these options? Please ( $\sqrt{}$ ) tick on the appropriate one.

i. Financial Advisor/ Agent	ii. Self	iii. Family and friends

Please indicate how do you rate different investment options on the following criteria? Indicate this by encircling any

number between 1 to 5 where 1= Very Low; 2=Low; 3=Moderate; 4=High; 5=Very High

Hulli	DCI DCIWCCII I to.	y where I = very	y Low, 2–Low, 3–Woderate, 4–High, 3–Very High								
	Options	Return	Risk	Liquidity	Tax Saving	Procedural	Diversification				
						Understanding					
14	Fixed Deposits	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5					
15	Insurance	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5					
16	PO/NSC	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5					
17	Gold / E-Gold	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5					
18	Bonds	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5					
19	PPF	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5					
20	Real Estate	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5					
21	Mutual Funds	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 23 4 5				
22	Shares	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 23 4 5				
23	Commodities	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 23 4 5				

24 From where you purchase mutual fund units? (Please (√) tick the appropriate option)
i. Direct/ Self ii. Through Agent

1. Direct/ Self				11. I nrough Agent							
	se $()$ tick the schemes wher	e you invest	Plea	ise indicate top 3	3 sch	emes	of you	ur inv	estment	t, 1=hig	hest.
25	Income										
26	Growth										
27	Balanced										
28	ELSS Funds										
29	Index Funds										
30	Gold ETF										
31	Sector Funds										
32	Other (pl. Specify)										
	se rate the importance of f							ing it	. Encire	cle any	number
	veen 1 to 5 where 1 = Very L		3 = Mode	rate; 4 = High; 5	S = V				_		
33	Past performance of mutual				1	2	3	4	5		
34	Current NAV of mutual fur				1	2	3	4	5		
35	Rating by a research agency		Magazine	;	1	2	3	4	5		
36	Reputation of the mutual fu	nd company			1	2	3	4	5		
37	Mutual Fund manager				1	2	3	4	5		
38	Portfolio of the scheme (%	of investment i	in differei	nt co's)	1	2	3	4	5		
39	Exit load (fee charged at the	e time of sellin	g of units	)	1	2	3	4	5		
40	Availability of tax benefits				1	2	3	4	5		
41	Turnover of the mutual fun-	d scheme(Sales	s during tl	ne period)	1	2	3	4	5		
42	Asset size/ Total capital of	the mutual fund	d scheme		1	2	3	4	5		
43	Whether Fund is Indian or l	Foreign			1	2	3	4	5		
44.	After investment, how freque	ently you moni	tor the pe	erformance of the	e mu	tual fi	unds?				
i. W	2	nce a month		iii. Once a Yea	ır			iv	. Rarely	у	
45	How often you switch the s	chemes of mut	ual fund i	n a year?							
i. Ne	ever ii. on	e or two times		iii. Three or fo	ur tiı	nes	i	v. Mo	re than	four tir	nes
46.	Which are your most preferr	ed source for to	racking th	e performance of	of the	mutu	ıal fur	nds?			
i	Online reports/ statement	ii. News	Newspaper/ Magazine				Any	other,	please	specify	
iii	Report by financial adviser	/ agents	iv. Frien	Friend/ family member							

47.	Please indicate your annual income (including all sources) by choosing the correct option										
i.	Less than	Rs.3,	00,000			ii. Rs.3,00,000 to Rs.5,00,000					
iii.	Rs.5,00,00	00 to	Rs.8,00,000			iv. Above	Rs.8,00,0	000			
48.	How much	do y	ou invest annually?		i. Less than 50,00	00					
ii. I	Rs.50,000 to	o Rs. 1	,00,000		iii. Rs.1,00,000 t	o Rs.1,50,00	)0 i	iv. Above Rs.1,50,000			
	Please tick ( $$ ) the relevant options in the following questions.										
49.	Age: i. Less than 30 yrs ii. 30				o 40 yrs	iii. 40 to 50	0 yrs	v. above 50 yrs			
50.	Gender i. Male.					ii. Female					
51.	Qualificat	ion		i. Unde	ergraduate						
			iii. Post grad		fessional Qualifica		` I •/				
52.	Profession	1 i. I	Private sector empl	oyee	ii. <b>Govt.</b>	iii. Busine	ess	iv. <b>Professional</b>			
		• I'	Γ Industry		Employee	• Retaile	ers	<ul> <li>Private Doctors</li> </ul>			
		• E	Sanking & Insurance	2	<ul> <li>Central Govt.</li> </ul>	<ul> <li>Whole</li> </ul>	salers	<ul> <li>Coaching in academics</li> </ul>			
		• I	ligher Education		<ul><li>State Govt.</li></ul>	• Tour &	travel	• CA / CS			
		• I	Iealth		• PSU	• Real E	state	<ul> <li>Lawyers / Advocate</li> </ul>			
						Home Internal In		<ul> <li>Freelance writers</li> </ul>			
		V	. Any other pl. Spec	ify							
53.	Name (Op	otiona	l)								

# **ANNEXURE C Sample: 222 Non Mutual Fund Investors (NMFI)**

# Dear Respondent,

I am doing research on Indian mutual fund industry. Please fill up the questions given. The information provided in this questionnaire will be kept highly confidential and will be used only for academic purposes.

1. I prefer to invest for (please tick any one option).

i. Up	to 1 year		ii. 1 to 5 years	iii. More than 5 years				
Please tick your current investment options (can choose more than one) in column A			Indicate top 3 options in which you invest the most. 1 = highest and 3 = lowest.					
		A						
2	Fixed Deposits							
3	Insurance							
4	P O/NSC							
5	Gold / e-gold							
6	Bonds							
7	PPF							
8	Real Estate							
9	Shares							
10	Commodities							
11	Any other pl. Specify	y						

12. How do you invest in these options? Please  $(\sqrt{})$  tick on the appropriate option.

i. Through Financial Adv	visor	ii. Through age	ent/ broker	iii. Self	iv. Self & family and friends				
Please indicate how do you rate different investment options on the following criteria? Indicate this by encircling any									
number between 1 to 5 where 1 = Very Low; 2 = Low; 3 = Moderate; 4 = High; 5 = Very High									
Options R	Return	Risk	Liquidity	Tax Saving	Procedural	Diversification			

										II	nderstar	ding	
13	Fixed Deposits	1 2 3 4 5	1 2 3 4	5 1 2	3 4	5	1 2	3	4 5	1	2 3		
14	Insurance		1 2 3 4		3 4				4 5	1	2 3 4		
15	Post Office	1 2 3 4 5	1 2 3 4	5 1 2	3 4		1 2			1			
	Savings/NSC												
16	Gold / E-Gold	1 2 3 4 5	1 2 3 4	5 1 2	3 4	5	1 2	3	4 5	1	2 3 4	1 5	
17	Bonds	1 2 3 4 5	1 2 3 4	5 1 2	3 4	5	1 2	3	4 5	1	2 3 4	1 5	
18	PPF	1 2 3 4 5				5			4 5	1		1 5	
19	Real Estate		1 2 3 4			5	1 2		4 5	1		1 5	
20	Shares		1 2 3 4			5			4 5	1		1 5	1 2 3 4 5
21	Commodities		1 2 3 4		3 4				4 5	1		1 5	1 2 3 4 5
22		mportance level								inve	esting in	Mutua	al Funds. Please
		Very Low; $2 = \text{Low}$			_		•	_	-				
	Return High R					folio							k of Awareness
	3 4 5 1 2 3			1 2 3 4					2 3				1 2 3 4 5
23													
	mutual funds. Indicate this by encircling any number between 1 to 5 where 1 = Very Low; 2 = Low; 3 =												
:		High; 5 = Very Hight	gh		I	1	2 0	)	1	_			
i.	Training program		1	2 3			5						
ii.	Experts advise					1	2 3			5			
iii.	Strong regulatio					1	2 3			5			
iv.		out government reg	gulations			1	2 3			5			
v.	Strong grievance					1	2 3			5			
24.	_	your <b>annual incor</b>	ne (includ	ing all so									
i.	Less than Rs.3,0	-					Rs.3,00,000 to Rs.5,00,000 Above Rs.8,00,000						
iii.	Rs.5,00,000 to R					iv.	Abov	e R	s.8,0	0,00	0		
25.	<u> </u>	ou <b>invest annual</b> l	ly?										
i.	Less than 50,000					ii. l	Rs. 50	,00	0 to 1	Rs.1,	,00,000		
iii.	Rs. 1,00,000 to I						Abov	e R	s. 1,5	50,00	00		
		he relevant option											
26	Age i. Less th	<u> </u>	ii. 25 to		iii. 3	36 to	45 yrs	S	iv.	46 to	55 yrs	v. a	bove 56yrs
27	Gender	i. Male.	ii. Fema										
28	Qualification	i. Undergraduate	e ii. G	raduate									
	_	iii. Post grad	iv. F	Profession	al Qua	alific	ation		,	v. Ot			y)
29		Private sector Er	nployee	ii. Govt.					iness	-		rofessio	
	• IT Industry Employ						• R					vate Do	
	Banking & Insurance     Central C								esale				in academics
	<ul><li>Higher Education</li><li>Health</li><li>PSU</li></ul>								& tra			A / CS	/ 4 1
	•					Estat				Advocate			
	v	Any other pl. Sp	ecify	<u> </u>			• н	ome	Inte	riors	s  • Fr	eeiance	writers
30													
30	Name (Optional)												

ANNEXURE D
Demographic Distribution

	CATEGORY	NO. OF RESPONDENTS	PERCENTAGE
1. ANNUAL	i. Less than 3,00,000	67	15.00%
INCOME	ii. 3,00,000 to 5,00,000	101	23.00%
(Rs.)	iii. 5,00,000 to 8,00,000	163	37.00%
()	iv. More than 8,00,000	109	25.00%
2. ANNUAL	i. Less than 50,000	59	13.00%
SAVINGS (Rs.)	ii. 50,000 to 1,00,000	113	26.00%
	iii. 1,00,000 to 1.50,000	119	27.00%
	iii. More than 1,50,000	149	34.00%
3. AGE (Yrs.)	i. Less than 30 yrs.	125	28.00%
	ii. 31 to 40 yrs.	175	40.00%
	iii. 41 to 50 Yrs.	117	27.00%
	iv. More than 50 Yrs.	23	5.00%
4. GENDER	i. Male	265	60.00%
	ii. Female	175	40.00%
5.	i. Under Graduate	13	3.00%
QUALIFICATION	ii. Graduate	64	15.00%
	iii. Post Graduate	145	33.00%
	iv. Professional Qualification	218	49.00%
6. PROFESSION	i. Private Sector Employee	175	40.00%
	ii. Government Employee	134	30.00%
	iii. Business	42	10.00%