
THE CHANGING FACE OF MUTUAL FUNDS IN INDIA
- AN EMPIRICAL STUDY ON MUTUAL FUNDS

N.Prasanna Kumar*

ABSTRACT

Mutual funds

The driving force of mutual fund is the safety of the principal guaranteed, plus the added advantage of capital appreciation together with the income earned in the form of interest or dividend. A mutual fund collects the savings from small investors, invest them in government and other corporate securities and earn income through interest and dividends besides capital gains.

Definition of a mutual fund

The securities and Exchange Board of India (Mutual Funds) Regulations, 1993 defines a mutual fund a fund established in the form of a trust by a sponsor, to raise monies by the trustees through the sale of units to the public, under one or more schemes, for investing in securities in accordance with these regulations.

Origin of the fund

The origin of the mutual fund dates back to the very dawn of commercial history. It is said that Egyptians and Phoenicians sold their shares in vessels and caravans with a view to spreading the risk attached with these risky ventures. The real credit of introducing the mutual fund goes to the foreign and Colonial Government Trust of London established in 1868. A large numbers of close-ended mutual funds were formed in the U.S.A in 1930 followed by many countries in Europe, the Far East and Latin America. The mutual fund in India gained momentum only in 1980 even though it began in the year 1964 with the Unit Trust of India launching its first fund, the Unit Scheme 1964.

Classification of Mutual Funds

- 1) On the basis of execution and operation mutual fund can be classified as- Close ended and Open ended
- 2) On the basis of yield and investment pattern mutual fund can be classified as; Income Fund ,Growth Fund, Balance Fund, Specialized mutual Fund, Money Market and Taxation Fund.

The present study was conducted to analyze the performance of the different mid- cap mutual fund scheme with the special reference to Karvy mutual fund services.

*Assistant Professor, Dept of Internationals Business Studies, Acharya Nagarjuna university Guntur-AP

Performance evaluation

Performance evaluation is an important process of the invest management. The performance of a fund has to be measured in relation to the board investment objective of "the fund and its anticipated risk return relationships. Performance measurement must also take into account the future liabilities related to the asset in the portfolio and liquidity management, finally benchmark should be used for assessment i.e. the return of the portfolio judged in relation to in some benchmark portfolio. An ideal benchmark should cover the manager's style appropriate weightage and clearly identifiable objective and its return must be measurable.

Objective of the study

To study about the performance of various mid- cap mutual funds using the various tools available and rank them in a systematic order over a period of 5 years of time and to find out the risk and return of each scheme and thereby, creating awareness about mid- cap schemes of mutual funds among the investors and also this study has been aimed at giving the investors an idea of choosing the mutual funds on the basis of performance from an array of options.

The various mid- cap funds which are selected for the study is as follows:

HDFC Mid- Cap Opportunities Fund

ICICI Prudential Mid- Cap Fund

Kotak Mid- Cap Fund

Sahara Mid- Cap Fund

SBI Magnum Mid- Cap Fund

The specific objectives are;

- * To compare the performance of different mid- cap mutual fund schemes.
- * To study the best performing funds using Sharpe's, Treynor's and Jensen's measures.
- * To calculate the systematic and unsystematic risk for mid- cap mutual fund schemes.
- * To rank the funds on the basis of Sharpe's, Treynor's and Jensen's index.
- * To suggest the most suitable funds that are best suited to each investors.

SIGNIFICANCE OF THE STUDY

The study is intended to analyze the performance of various mid- cap mutual funds for the past 5 years and as such the real performance of these funds can be known as which of the funds is performing well and better for investment and also to get an idea about which of the selected mid- cap mutual funds will be of more importance to the investors in terms of risk and return proportion.

The study focuses on the following aspects:

* The importance of the study arises for learning the various tools that are available for measuring the performance of selected schemes of mid- cap funds.

* To know the risk & return associated with the selected funds.

* To chose best fund for investment for investors taking into account the elements of risk and return.

* To project selected mid- cap mutual fund as the productive system for investing activities.

Research methodology

Fundamental to the success of any formal finance project a sound research design. The function of a research design is to ensure that the required data are collected. A research design is pure and simple frame work or plan for a study that guides the collection of data and analysis.

Data collection Method

Information for this study has been collected from previous records namely from the annual reports of the selected mid- cap mutual fund schemes of the past five years. The primary data as well as secondary data is used for the study.

Primary data are collected from informal interview with investor relationship officer and discussions with other staff members of the branch. Secondary data are collected from annual reports of the funds, official websites, periodicals.

Period of study

The data collected for a period of 5 years, from 1st January 2007 to 31 December2011. The selected funds along with their respective returns from the year 2007- 2011 are as follows:

TOOLS AND TECHNIQUES FOR DATA ANALYSIS

A). SHARPE'S PERFORMANCE INDEX

A ratio developed by Nobel Laureate Bill Sharpe to measure risk-adjusted performance. Sharpe index measures the risk premium of the portfolio relative to the total amount of risk in the portfolio. This risk premium is the difference between the portfolio's average rate of return and the riskless rate of return. The standard deviation of the portfolio indicates the risk. The index assigns highest values to the assets that have best risk- adjusted average rate of return.

B). TREYNOR'S PERFORMANCE INDEX

The performance measure developed by Jack Treynor is referred to as Treynor ratio or 'reward to volatility ratio. It is the ratio of the reward or risk premium to the volatility of return as measured by portfolio of beta.

Treynor's ratio (TR) = $(R_p - R_f) / \beta_i$

Where

R_p is the realized return on the portfolio

R_f is the risk free rate of return

B_i is the portfolio Beta

C). JENSEN'S PERFORMANCE INDE

The absolute risk adjusted return measure was developed by Michael Jensen and commonly known as Jensen's measure. A risk-adjusted performance measure that represents the average return on a portfolio over and above that 'predicted by the capital asset pricing model (CAPM), given the portfolio's beta and the average market return. This is the portfolio's alpha. In fact, the concept is sometimes referred to as "Jensen's alpha".

Jensen's measure = $ER(p) = R_f + (R_m - R_f)$

Where,

R_f is the risk free rate.

R_m is the average market' return during the period.

B_i is the systematic risk of the portfolio.

The differential return is calculated as follows:-

$= R_p - E(R(p))$

D is the differential return earned.

R_p = is the actual return earned on the portfolio.

$E(R_p)$ = is the expected return.

D). Standard Deviation

In mutual fund the standard deviation tells as how much the return on fund is deviating from the expected normal returns. S.D- Standard deviation can also be calculated as the square root of the variance.

E). Beta

Beta is calculated using regression analysis, and you can think of beta as the tendency of funds returns to respond to swings in the market. Beta measures the degree to which the particular fund is affected by the market as a whole.

F). Variance

Variance denotes the difference or deviation in a mutual fund.

Fund Name	HDFC Mid- Cap Opportunities Fund	ICICI Prudential Mid- Cap Fund	Kotak Mid- Cap Fund	Sahara Mid- Cap Fund	SBI Magnum Mid- Cap Fund
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2007	31.2	59.4	54.1	72.9	65.3
2008	-51.7	-68.4	-63.4	-59.6	-72
2009	91.0	96.5	85.8	100.7	98.4
2010	31.4	17.9	26.3	21.3	13.5
2011	-18.7	-32.8	-27.4	-27.4	-26.3

(The above stated funds selected from mid- cap mutual fund schemes)

Limitation of the study

The study is conducted only on five schemes.

The study was limited to time constraint.

Research was conducted only for the past five years.

The analysis is based on historical data and thus indicates the past performance which may not always be indicative of the future performance.

About the funds HDFC mid- Cap Opportunities Fund Investment Objective

The aim of the fund is to generate long-term capital appreciation from a portfolio that is substantially constituted of equity and equity related securities of mid- and small-cap companies.

Scheme Details

Fund Type	- Open-Ended
Investment Plan	- Growth
Launch date	- May 07, 2007
Benchmark	- CNX Midcap
Minimum Investment	- Rs.5000

1. ICICI Prudential mid- cap Fund (G)

Investment Objective - Prudential ICICI Emerging STAR Fund is an open-ended equity diversified scheme. The objective of the scheme is to generate long-term capital appreciation by investing the corpus in diversified portfolio of stocks with market capitalization between Rs 100 crore and Rs 2500 crore.

Scheme details

Fund Type - Open-Ended
Investment Plan - Growth
Launch date - Oct 05, 2004

Benchmark - CNX Midcap

Minimum Investment - Rs.5000

2. Kotak mid- cap Fund (G)

Investment Objective - To generate capital appreciation from a diversified portfolio of equity and equity related Investment securities.

Scheme details

Fund Type	-	Open-Ended
Launch date	-	Jan 28, 2005
Benchmark	-	CNX Midcap
Minimum Investment	-	Rs.5000

3. Sahara mid- cap Fund (G)

Investment Objective- An open ended growth fund with an objective to achieve long term capital growth at medium level of risks by investing primarily in mid-cap stocks.

Scheme details

Fund Type	-	Open-Ended
Investment Plan	-	Growth
Launch date	-	Dec 22, 2004
Benchmark	-	CNX Midcap
Minimum Investment	-	Rs.1000

4. SBI Magnum mid- cap Fund (G)

Investment Objective- To provide investors with opportunities for long-term growth in capital along with the liquidity of an open-ended scheme by investing predominantly in a well diversified basket of equity stocks of Midcap companies.

Scheme details

Fund Type	-	Open-Ended
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Investment Plan	-	Growth
Launch date	-	Mar 17, 2005
Benchmark	-	CNX Midcap
Minimum Investment	-	Rs.5000

1. Calculation of Variance (\sum^2)

$$\sum^2 = \frac{(x - \bar{x})^2}{N}$$

CALCULATIONS OF VARIANCE

Fund name	$\sum (x - \bar{x})^2$	N	\sum^2
HDFC Mid- Cap Opportunities Fund	11878.51	5	2375.70
ICICI Prudential Mid- Cap Fund	17861.25	5	3572.25
Kotak Mid- Cap Fund	14613.41	5	2922.68
Sahara Mid- Cap Fund	17883.01	5	3576.60
SBI Magnum Mid- Cap Fund	18759.53	5	3751.90

VARIANCE OF SELECTED FUNDS

Fund name	\sum^2
HDFC Mid- Cap Opportunities Fund	2375.70
ICICI Prudential Mid- Cap Fund	3572.25
Kotak Mid- Cap Fund	2922.68
Sahara Mid- Cap Fund	3576.60
SBI Magnum Mid- Cap Fund	3751.90

$$S.D = \sqrt{\frac{\sum (x - \bar{x})^2}{N}}$$

N

Interpretation – Variance denotes the difference or deviation in a mutual fund return. It is a measure of risk and shows the variability in return of the portfolio. SBI Magnum Mid- Cap fund is having the highest variance in its returns among the selected funds. HDFC Mid- Cap opportunities fund is showing the lowest variance. So it is more consistent than other funds.

Calculation of standard deviation

CALCULATION OF STANDARD DEVIATION

Fund name	$\sum (x - \bar{x})^2$	N	S.D
HDFC Mid- Cap Opportunities Fund	11878.51	5	48.74
ICICI Prudential Mid- Cap Fund	17861.25	5	59.76
Kotak Mid-Cap Fund	14613.41	5	54.06
Sahara Mid- Cap Fund	17883.01	5	59.80
SBI Magnum Mid- Cap Fund	18759.53	5	61.25

STANDARD DEVIATION OF SELECTED FUNDS

Fund name	S.D
HDFC Mid- Cap Opportunities Fund	48.74
ICICI Prudential Mid- Cap Fund	59.76
Kotak Mid-Cap Fund	54.06
Sahara Mid- Cap Fund	59.80

SBI Magnum Mid- Cap Fund	61.25
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Interpretation – The above table shows the Standard Deviation of the selected schemes of mid- cap funds. Standard Deviation is used to measure the variability in returns over a period of time. The Standard Deviation of the funds lies between 48% and 61%. HDFC Mid-Cap Fund and Kotak Mid- Cap Fund shows comparatively low fluctuations. So, these funds are best suited to an investor who is averse of risk.

3. Calculation of Beta values

$$\text{Beta} = \frac{N\sum xy - \sum x \cdot \sum y}{N\sum x^2 - (\sum x)^2}$$

$$N\sum x^2 - (\sum x)^2$$

CALCULATION OF BETA VALUES

Fund name	N	$\sum XY$	$\sum X$	$\sum Y$	$\sum X^2$	$(\sum X)^2$	
HDFC Mid-Cap Opportunities Fund	5	15554.46	59.84	53.2	21129.64	3580.82	.73
ICICI Prudential Mid-Cap Fund	5	19561.97	59.84	42.6	21129.64	3580.82	.93
Kotak Mid- Cap Fund	5	17647.39	59.84	45.4	21129.64	3580.82	.83
Sahara Mid-Cap Fund	5	20016.13	59.84	77.9	21129.64	3580.82	.93
SBI Magnum Mid- Cap Fund	5	20074.13	59.84	48.9	21129.64	3580.82	.95

BETA VALUES OF SELECTED FUNDS

Fund name	
HDFC Mid- Cap Opportunities Fund	.73
ICICI Prudential Mid- Cap	.93

Fund	
Kotak Mid-Cap Fund	.83
Sahara Mid- Cap Fund	.93
SBI Magnum Mid- Cap Fund	.95

Interpretation – The above chart shows the Beta Values of selected schemes of mid- cap mutual funds. Beta is the measure of systematic risk. It compares the sensitivity of a fund with movement in the market. From the above table, it reveals that most of the funds shows conservational movement towards market. ICICI Prudential Mid- Cap fund, Sahara Mid- Cap Fund and SBI Magnum Mid- Cap funds are more aggressive than the market.

CALCULATIONS OF SHARRPE'S INDEX

$$\text{Sharpe Ratio (SR)} = \frac{(\text{Rp}-\text{Rf})}{\text{S.D}}$$

Where,

Rp is the realized return o the portfolio

Rf is the free rate of return

S.D is the standard deviation of the fund

CALCULATION OF SHARRPE'S INDEX

FUND NAME	Rp	Rf	S.D	Sharpe's Index
HDFC Mid- Cap Opportunities Fund	16.64	6	48.74	.22
ICICI Prudential Mid- Cap Fund	14.52	6	59.76	.14
Kotak Mid- Cap Fund	15.08	6	54.06	.17
Sahara Mid- Cap Fund	21.58	6	59.80	.26
SBI Magnum Mid- Cap Fund	15.78	6	61.25	.16

SHARPE'S INDEX

FUND NAME	Sharpe's Index
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HDFC Mid- Cap Opportunities Fund	.22
ICICI Prudential Mid- Cap Fund	.14
Kotak Mid-Cap Fund	.17
Sahara Mid- Cap Fund	.26
SBI Magnum Mid- Cap Fund	.16

Interpretation- The above table shows the SHARPE'S index of selected schemes. Lesser negative value than the market indicates better performance than the market. Sahara Mid- Cap Fund have higher performance than other funds, followed by HDFC Mid- Cap Opportunities Fund and Kotak Mid- Cap Fund.

CALCULATIONS OF TREYNOR'S RATIO

$$\text{TREYNOR'S RATIO (TR)} = \frac{(R_p - R_f)}{\beta_i}$$

Where,

R_p is the realized return on the portfolio

R_f is the risk free rate of return

β_i is the portfolio beta

CALCULATIONS OF TREYNOR'S RATIO

TREYNOR'S INDEX

Fund name	Treynor's index
HDFC Mid- Cap Opportunities Fund	14.57
ICICI Prudential Mid- Cap Fund	9.16
Kotak Mid-Cap Fund	10.93
Sahara Mid- Cap Fund	16.75
SBI Magnum Mid- Cap Fund	10.29

FUND NAME	Rp	Rf	¥	TREYNOR'S Index
HDFC Mid-Cap Opportunities Fund	16.64	6	.73	14.57
ICICI Prudential Mid- Cap Fund	14.52	6	.93	9.16
Kotak Mid-Cap Fund	15.08	6	.83	10.93
Sahara Mid-Cap Fund	21.58	6	.93	16.75
SBI Magnum Mid- Cap Fund	15.78		.95	10.29

Interpretation- The above table shows the TREYNOR'S index of selected schemes of funds. On this basis, Sahara Mid- Cap Fund shows the high performance in the market among the selected funds.

CALCULATIONS OF JENSEN'S PERFORMANCE INDEX

THE EXPECTED RETURN

$$E R (p) = R_f + \beta (R_m - R_f)$$

CALCULATIONS OF JENSEN'S PERFORMANCE INDEX

FUND NAME	Rf	¥	Rm	Rp	JENSEN'S INDEX
HDFC Mid-Cap Opportunities Fund	6	.73	17.96	16.64	14.73
ICICI Prudential	6	.93	17.96	14.52	17.12

Mid- Cap Fund					
Kotak Mid- Cap Fund	6	.83	17.96	15.08	15.92
Sahara Mid- Cap Fund	6	.93	17.96	21.58	17.12
SBI Mid- Cap Fund	6	.95	17.96	15.78	17.36

JENSEN'S INDEX

FUND NAME	JENSEN'S INDEX
HDFC Mid- Cap Opportunities Fund	14.73
ICICI Prudential Mid- Cap Fund	17.12
Kotak Mid-Cap Fund	15.92
Sahara Mid- Cap Fund	17.12
SBI Magnum Mid- Cap Fund	17.36

Interpretation- From the above analysis of JENSEN'S index, SBI Magnum Mid- Cap fund is giving maximum returns to the investors and, HDFC Mid- Cap Opportunities fund is the least performing fund.

Ranking of funds on the basis of Sharpe's Index

RANKING OF FUNDS ON THE BASIS OF SHARPE'S INDEX

FUND NAME	RANKING
HDFC Mid- Cap Opportunities Fund	2
ICICI Prudential Mid- Cap Fund	5
Kotak Mid- Cap Fund	3
Sahara Mid- Cap Fund	1
SBI Magnum Mid- Cap Fund	4

Interpretation- On the basis of market performance, the funds are ranked. Sahara Mid- Cap fund has been ranked 1st, followed by HDFC Mid- Cap Opportunities fund ranked 2nd, Kotak Mid- Cap fund ranked 3rd, SBI Magnum Mid- Cap fund 4th and ICICI Prudential Mid- Cap fund ranked last.

Ranking of funds on the basis of Treynor's Index

RANKING OF FUND ON THE BASIS OF TREYNOR'S INDEX

FUND NAME	RANKING
HDFC Mid- Cap Opportunities Fund	2
ICICI Prudential Mid- Cap Fund	5
Kotak Mid- Cap Fund	3
Sahara Mid- Cap Fund	1
SBI Magnum Mid- Cap Fund	4

Interpretation- On the basis of Treynor's index, funds are ranked. Sahara Mid- Cap fund shows high performance and ranked 1st, followed by HDFC Mid- Cap fund ranked 2nd, Kotak Mid- Cap fund ranked 3rd, SBI Magnum Mid- Cap fund 4th and ICICI Prudential Mid- Cap fund ranked 5th.

Ranking of funds on the basis of Jensen's Index

RANKING OF FUND ON THE BASIS OF JENSON'S INDEX

FUND NAME	RANKING
HDFC Mid- Cap Opportunities Fund	4
ICICI Prudential Mid- Cap Fund	2
Kotak Mid- Cap Fund	3
Sahara Mid- Cap Fund	2
SBI Magnum Mid- Cap Fund	1

Interpretation- On the basis of Jensen's index, funds are ranked. SBI Magnum Mid- Cap fund ranked 1st, followed by Sahara Mid- Cap fund and ICICI Prudential Mid- Cap fund ranked 2nd, Kotak Mid- Cap fund

ranked 3rd and HDFC Mid- Cap fund ranked 4th.

CALCULATION OF STADARD DEVIATION

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Interpretation – The above table shows the Standard Deviation of the selected schemes of mid- cap funds. Standard Deviation is used to measure the variability in returns over a period of time. The Standard Deviation of the funds lies between 48% and 61%. HDFC Mid-Cap Fund and Kotak Mid- Cap Fund shows comparatively low fluctuations. So, these funds are best suited to an investor who is averse of risk.

CALCULATIONS OF VARIANCE

Fund name	$\sum (x - \bar{x})^2$	N	σ^2
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Interpretation – Variance denotes the difference or deviation in a mutual fund return. It is a measure of risk and shows the variability in return of the portfolio. SBI Magnum Mid- Cap fund is having the highest variance in its returns among the selected funds. HDFC Mid- Cap opportunities fund is showing the lowest variance. So it is more consistent than other funds.

FINDINGS

- * SBI Magnum mid- Cap fund has high beta value showing high risk and HDFC Mid- Cap fund and Kotak Mid- Cap fund has low standard deviation, showing low fluctuations, so its return is high and low risk..
- * Sahara mid- Cap fund and SBI Magnum Mid- Cap funds are having high Sharpe and Jensen's index. Therefore, they are the best performers in the market.
- * Sahara mid- Cap fund is having high Treynor's index, so its return is high.
- * According to Jensen's performance measure the SBI Magnum mid- cap fund is fluctuating better as its actual return is greater than expected.
- * SBI Magnum mid- cap fund is having high standard deviation. So, this fund is having the high risk among the selected funds.
- * SBI Magnum mid- cap fund is having the highest variance in its return among the selected funds. HDFC mid- cap opportunities fund is showing the least variance.
- * On the basis of market performance, the funds are ranked, Sahara mid- cap fund has been ranked first, followed by HDFC mid- cap opportunities fund second, Kotak mid- cap fund third, SBI Magnum mid- cap fund fourth and ICICI Prudential mid- cap fund ranked last.

* On the basis of Jensen's performance index, SBI Magnum mid- cap fund has been ranked first, followed by Sahara mid- cap fund and ICICI Prudential mid- cap fund ranked second, Kotak mid- cap fund ranked third and HDFC mid- cap opportunities fund ranked last.

* On the basis of Treynor's index the funds are ranked, Sahara mid- cap fund has been ranked first, followed by HDFC mid- cap opportunities fund ranked second, Kotak mid- cap fund third, SBI Magnum mid- cap fund ranked fourth and ICICI Prudential mid- cap fund ranked fifth.

* Kotak Mid- Cap fund has been showing a steady performance while ranking on the basis of Sharpe, Treynor and Jensen's index. So, it can be understood that this fund has been giving a good and fair return irrespective of the risk involved and the market conditions.

CONCLUSION

The performance of mutual fund can be measured by using different performance evaluation technique like Sharpe index, Jensen model, On the basis of market performance, HDFC mid- cap opportunities fund ranked second, Kotak mid- cap fund third, SBI Magnum mid- cap fund fourth and ICICI Prudential mid- cap fund ranked fifth.

The investor who is going to buy any of the funds should have a clear idea about the performance of that fund over the years along with the average return he is going to earn with the minimum risk involved in it and also after getting adequate guidance from the fund manager of a particular fund, then only he must buy any of the fund. When all the conditions are met by an investor before making any investment, the investor is certainly going to achieve the end result of achieving best probable returns.