

ANALYSIS OF THE RISK AND RETURN RELATIONSHIP OF EQUITY BASED MUTUAL FUND IN INDIA

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Abstract:

The last decade has seen a tremendous growth in the mutual fund industry. As per the latest data the assets under management in this industry is more than Rs.8.13 thousand billion. Today the Indian market is flooded with more than a thousand mutual fund schemes, promising better returns than others.

In this paper an attempt has been made to analyze the performance of equity based mutual funds. A total of 15 schemes offered by 2 private sector companies and 2 public sector companies, have been studied over the period April 1999 to April 2013(15 years). The analysis has been made using the risk-return relationship and Capital Asset Pricing model (CAPM).

The overall analysis finds that Reliance and UTI have been the best performers, Kotak an average performer and SBI the worst performer which gave below-expected returns on the risk-return relationship.

Keywords: MF, AUM, CAPM, UTI, SBI, NAV, Risk-Return, India, Comparison.

Introduction:-

A Mutual fund is a professionally managed type of collective investment scheme that pools money from many investors and invests it in stocks, bonds, short-term money market instruments and other securities. There are many reasons why investors prefer mutual funds. Buying shares directly from the market is one way purchased, understanding the future business prospects of the company, finding

out the track record of the promoters and the dividend, bonus issue history of the company etc. an informed investor therefore prefer the mutual fund route. They invest in a mutual fund scheme which in turn takes the responsibility of investing in stocks and shares after due analysis and research. The investors need not bother with researching hundreds of stocks. It leaves it to the mutual fund and its professional fund management teams.

The history of mutual funds in India can be dated back to 1963, when UTI was established, by an act of parliament. As on 30th April 2013, the total number of mutual fund schemes in India are 1309, which is worth Rs. 8,13,531 crores(AUM). In this context it becomes pertinent to study the pattern and behavior of the Mutual fund schemes, to which the common man is still unaware of it. The risk-return relationship is perhaps one of the best ways to analyze the performance of a mutual fund.

Objectives of the Study:-

The last decade has seen a tremendous growth in the mutual fund industry. As per the latest data the asset under management (AUM) in this industry is more than Rs.5.8 thousand billion. Today the Indian market is flooded with more than a thousand mutual fund schemes, promising better returns than others. However for a common man, it becomes a challenge to select the best portfolio to invest. With this, it becomes pertinent to analyze the performance of these AUM. An attempt has been made to study the performance of Equity based mutual funds in India.

The objective of the study is to bring out a comparison between the performance of equity based mutual funds of public and private sectors in India. The basic tool would be the Capital Asset Pricing Model (CAPM). Using CAPM one can calculate the expected rate of return for a portfolio, given its risk. So, in this paper the first task is to calculate the risk associated with a mutual fund. This is denoted by beta in CAPM. A collective data for period of 15 years has been considered to calculate beta. Once we calculate beta, we can easily calculate the expected rate of return from a mutual fund. The analysis finds that, the private and public sector mutual funds both perform well when it takes risks or not.

Review of Literature:-

- Amporn soongswang (2009) studied 138 open ended equity mutual funds managed by 17 asset management companies in Thailand during the period 2002-2007. When the mutual funds were measured using Treynor ratio, sharp ratio and Jensen's alpha, showed that performance of Thai open ended mutual funds significantly outperform the market. However, by using the Data Envelopment analysis (DEA) technique, the results suggested that for 3 month time period of investment only, the open ended equity mutual fund significantly outperform the market.
- Sathya Swaroop Debashish (2009) measured the performance of the equity based mutual funds in India. 23 schemes were studied over a period of April 1996 to March 2009 (13 years). The analysis was done on the basis of mean return, beta risk, co-efficient of determination, sharp ratio and Jensen alpha. The first analysis has been done on the basis of returns, followed by a comparison between market returns and the return on schemes, it was concluded that UTI mutual fund schemes and Franklin Templeton schemes have performed excellently in public sectors respectively.

Data and Methodology:-

The period of study is 1999-2013. A total of 15 Equity based mutual fund schemes have been considered. Out of 8 belong to the private sector companies namely Reliance Mutual Fund and Kotak Mutual Fund, while the rest belong to the public sector companies namely UTI and SBI. For calculation of the risk, the study has used the daily closing Net Asset Value (NAV) of the mutual funds along with daily closing price of the benchmark stock index- SENSEX. The main idea of the study is to calculate the expected return from a scheme, and then comparing it with its actual rate of return

over the given time period. To find how risky a scheme is, we calculate its risk co-efficient beta, as defined in the CAPM.

We define the following terms for this:

R_i : Daily growth rate of Mutual Fund

$$R_i = \frac{NAV_i - NAV_{i-1}}{NAV_{i-1}} \dots \dots \dots (1)$$

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Where NAV_i denotes the net asset value of a scheme at time i .

\bar{R}_i : Mean daily growth rate of a scheme.

$$\bar{R}_i = \sum_{i=1}^n \frac{R_i}{n} \dots \dots \dots (2)$$

Similarly for market index, which is either NIFTY or SENSEX, we define:-

R_{mi} : Daily Growth rate of the Market index

$$R_{mi} = \frac{I_i - I_{i-1}}{I_{i-1}} \dots \dots \dots (3)$$

\bar{R}_m : Mean daily growth rate the market index.

$$\bar{R}_m = \sum_{i=1}^n \frac{R_{mi}}{n} \dots \dots \dots (4)$$

Where R_{mi} the Growth rate of market index and 'n' is the number of days for which it has been studied.

Risk free Rate of Return (R_f)

$$\beta = \frac{\sigma_{m,i}}{\sigma_m^2} = \frac{Cov(R_i, R_m)}{Var(R_m)} = \frac{\sum((R_i - \bar{R}_i)(R_{mi} - \bar{R}_m))}{\sum((R_{mi} - \bar{R}_m)^2)} \dots \dots (5)$$

Expected Rate of Return ($E(R_i)$)

After calculating the risk parameter (beta) of an asset, and the annual growth rate of the market index, we calculate the expected rate of return of the mutual fund scheme. The formula is derived from the CAPM:

$$E(R_i) = R_f + \beta (E(R_m) - R_f) \dots \dots \dots (6)$$

In this study R_f is taken as the fixed deposit rate in the nationalized banks.

From the Capital Asset Pricing Model, the beta of an asset, which measures the risk of assets, is calculated by formula:

Empirical Findings

Table 1: performance of schemes of the basis of their Risk and Return Parameters

M F	SL N O	E M F sc he me s	β	A R %	ERR (%)	AR R (%)	Di ffe re nce	Perf orma nce
U T I M F	1	L & M	0.84	4.30	5.48	9.75	4.27	AA
	2	TA X	0.84	4.30	4.66	3.81	-0.85	A
	3	B A N	1.03	8.86	7.98	9.73	1.75	A
	4	LA R GE	0.83	4.30	4.98	6.15	1.17	A
S B I M F	5	M UL	0.89	4.30	6.16	3.10	-3.06	BA
	6	TE C N	0.87	8.65	9.94	9.80	-0.14	A
	7	H Y	0.89	5.20	6.63	7.17	0.54	A
R E L I A N C E	8	L & M	1.05	4.30	5.48	2.53	-2.95	BA
	9	B A N	0.94	8.86	7.98	11.13	3.15	AA
M F	10	M U L	0.96	4.30	6.16	3.78	-2.38	BA
	11	T A X	0.98	4.30	4.66	7.56	2.90	AA
	12	LA R	0.79	4.30	4.98	4.23	-0.75	A

K O T A K M F		G						
	13	H Y	0. 81	4. 76	6.63	6.54	-0. 09	A
	14	L & M	0. 84	4. 30	5.48	6.77	1. 29	A
	15	B A N	1. 06	4. 05	7.98	2.53	-5. 45	BA

Abbreviations:-

EMF - Equity mutual fund, β – Risk, AR – Annual return, ERR – Expected rate of return, ARR – Actual rate of return, L&M – Large and Medium, TAX – Tax saving plan, BAN – Banking, MUL – Multi cap, TECN- Technology, HY – Hybrid, AA- Above Average, A – Average, BA – Below Average.

Returns

Using equation (5) we calculate the beta value of a scheme which is listed in the third column of the table. A beta value of greater than 1 implies that the asset is more risky than market, and vice-versa. The period of study need not be same for all the mutual fund schemes, because the data of inception for all of them is different. So the fourth column depicts the annual rate of growth of market index, which is either SENSEX or NIFTY, for the aforesaid period. Now, using the formula in equation (6), we calculate the expected rate of return for the particular mutual fund scheme which is commensurate with its risk. The next column indicates the actual rate of return for the asset. Now the difference between the expected and actual rate of returns would lead us to the conclusion. If the difference is positive i.e. if the actual rate of return is greater than the expected return, the asset lies above the security market line and vice-versa. Consequently, we say that the mutual fund scheme has over performed and vice-versa.

However if the aforesaid difference is within the range of 2%, it implies that the scheme is very close to the security market line and classified as averagely performed.

Table 2: Comparison between Public and Private sector companies.

Type	Company Name	NO. of Schemes	OP	UP	AP
Private MF Company	Reliance MF	04	02	02	00
	Kotak MF	04	00	01	03
Public MF company	SBI MF	03	00	01	02
	UTI MF	04	01	00	03

OP – Over Performance, UP- Under Performance, AP – Average Performance.

Result

Out of 15 mutual fund schemes analyzed, 8 belong to the private sector companies, while 7 belong to the public sector companies. The percentage of schemes which have over-performed is 50%, 0%, 25% and 0% for Reliance, Kotak, UTI and SBI respectively. In other words, 25% of the private sector schemes, and 14.28% of the public sector schemes have over-performed. From a different perspective 37.5% of the private schemes and 14.28% of the public sector schemes have underperformed.

Systematic Risk (Beta)

In the Capital Asset Pricing Model, the risk of any asset is measured by calculating its beta (β). It measures how risky an asset is, with respect to the market. If beta of a scheme is greater than unity it implies that it's riskier than the market index and vice-versa. In this analysis of 15 schemes, there is a just 3 schemes whose beta is greater one, which is Banking Sector fund and large cap fund of private

and public sectors. Despite its high risk factor, it has 2 of them performed below average and 1 fund performed average margin of 1.75%. In the range of beta (.9-1.0), there are total 6 mutual fund schemes out of 15.

This shows that nearly 6 of them are almost as risky as the Stock market. Among these 6 funds 80% of funds perform below average. The other funds which are below the range of beta 0.90, there are total 9 mutual fund schemes out of 15 which performs average and above average. The contribution of Reliance, Kotak, SBI and UTI are 4, 3, 4 and 4 respectively. In terms of individual percentage, these are 100%, 75%, 100% and 100% respectively.

Conclusions

The study has investigated the performance of Equity based mutual fund schemes in India, using CAPM. In the long run, the private and public companies have performed well. While Reliance and Kotak mutual fund industries have been the best performers than the UTI and SBI mutual fund industries. In this all four SBI has a worst performer. The result clearly indicate that over the period of last 15 years, the private sector mutual fund companies have outperformed then the public sectors and by observing 1st Table, the performance of each and every mutual fund mainly not depend on the risk and return relationship, some of the specified schemes only mainly depend upon the risk and return relationship. The overall analysis finds the Private sector mutual fund schemes better than the public sector schemes and less risky as well.

References

Websites

1. www.sebi.org
2. www.sbimf.com
3. www.utimf.com

4. www.amfiindia.com
5. www.valuereserachonline.com
6. www.mutualfundindia.com
7. www.reliancecmf.com
8. www.kotakmf.com

Journals:

1. Soongswang Ampoorn, Open-ended Equity Mutual Funds, International Journal of Business and Social Science Vol.2 No.17.
2. Vaidyanathan R, Capital Asset Pricing Model The Indian Context, the ICAFI Journal of APPLIED FINANCE, Vol. 1, No. 2.
3. Debasish Satya Swaroop (2009), Investigating Performance of Equity-based Mutual Fund Scheme in Indian Scenario, KCA. Journal of Business Management. Vol.2, ISSUE.2