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AN EMPIRICAL EVALUATION OF MARKET TIMING ABILITIES OF INDIAN FUND MANAGERS ON EQUITY LINKED SAVINGS SCHEME

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THE Indian financial system in general and the mutual fund industry in particular continue to take turn around from early 1990s. Growth and development of various mutual fund products in Indian capital market has proved to be one of the catalytic instruments in generating momentous investment growth in the capital market. Therefore the present study evaluates the performance of thirty-one tax planning schemes in India over the period 1994-95 to 2002-2003. This paper studies the return and risk situation in some of the funds during the last few years in order to judge the performance of the professional investments experts in India. Hence to examine the market timing abilities of Indian fund managers, have been applied two models to achieve a superior risk-return tradeoff. The results indicate that the fund managers under study have not been successful in reaping returns in excess the market rather they are timing the market in the wrong direction.

Introduction

With the emphasis in increase in domestic savings and improvement in deployment of investment through markets the need and scope for mutual fund operation has increased tremendously. The mutual fund is a vehicle that enables millions of small and large savers spread across the country as well as internationally to participate in and derive the benefit of the capital market growth. It is an alternative vehicle of intermediation between the suppliers and users of investible resources. The vehicle is becoming increasingly popular in India and abroad due to higher investor return, relatively lower risk and cost. Thus the involvement of mutual funds in the transformation of Indian economy has made it urgent to view their services not only as financial intermediary but also as pace setter as they are playing a significant role in spreading equity culture.

Recent Trends in Mutual Fund

The mutual fund industry in India is a little over three decades old evolutions but the real impetus has come after the change in the mutual fund regulation way back in 1993. At the end of 1993, the mutual fund industry had assets under management of 470.04 billion. With the entry of private sector funds in 1993, a new era started in the Indian Mutual Fund Industry, giving the Indian investors a wider choice of fund families. The number of mutual fund houses went on increasing, with a many foreign mutual funds setting up funds in India and also the industry has witnessed several mergers and acquisitions. As at the end of January 2003, there were 33 mutual funds with total assets of 1218.05 billion. In February 2003, following the repeal of the Unit Trust of India Act 1963, UTI was bifurcated into two separate entities.

One is the specified undertaking of the Unit Trust of India with assets under management of Rs.298.35

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billion at the end of January 2003. The second is the UTI Mutual Fund ltd, Sponsored by State Bank of India, Punjab National Bank of India, Bank of Borada and Life Insurance Corporation. As at the end of October 31, 2003, there were 31 funds, which manage assets of 1267.26 billion under 386 schemes.

Literature Survey

In keeping with the economic frames, several scholars have investigated whether or not mutual funds out perform the market. Friend, Brown, Herman and Vickers did the first extensive and systematic study of mutual funds. The study considered 152 mutual funds with annual data from 1953 to 1958. While the study did not adjust the benchmark portfolio for the not-yet-discovered beta, the authors did adjust their market return to be comparable to the funds they studied. They created an index of standard and poor's indexes of five securities, with the elements weighted by their representation in the mutual funds sample.

The study anticipated the equilibrium concept of Grossman and Stiglitz. It recognized that funds cost of active management is well in excess of 100 basis points, not counting trading costs. Because the mutual funds in their sample nearly matched the market index, after subtracting expenses, the authors concluded that the overall results do not suggest widespread in efficiency in the industry. The fund managers were not able to forecast security price well enough.

Friend and Vickers (1965) evaluated the performance of mutual funds against the randomly constructed portfolios. The study concludes that mutual funds on the whole have not performed superior to random portfolio.

Jack Treynor (1965) developed a methodology for performance evaluation of a mutual fund that is referred to as reward to volatility measure, which is defined as average excess return on the portfolio. This is followed by Shape's (1966) reward to variability measure, that is average excess return on the portfolio divided by the standard deviation of the portfolio.

Jensen's (1968) classic study developed an absolute measure of performance based upon the Capital Asset Pricing Model and reported that mutual funds did not appear to achieve abnormal performance when transaction costs were taken into account.

Carlsen (1970) evaluated the risk-adjusted performance and emphasized that the conclusions drawn from calculations of return depend on the time period, type of fund and the choice of benchmark. Carlsen essentially recalculated the Jensen and Shape results using annual data for 82 common stock funds over the 1948-67 periods. His results contradicted both Sharpe and Jensen.

Fama(1972) developed a methodology for evaluating investment performance of managed portfolios. He suggested that the overall performance could be broken down into several components.

John McDonald (1974) examined the relationship between the stated fund objectives and their risks and return attributes. The study concludes that, on an average the fund managers appeared to keep their portfolios within the stated risk. Some funds in the lower risk group possessed higher risk than funds in the most risky group.

James R.F. Guy (1978) evaluated the risk-adjusted performance of UK investment trusts through the application of share and Jensen measures. The study concludes that no trust had exhibited superior performance compared to the London Stock Exchange Index.

Grinblatt and Titman(1989) concludes that some mutual funds consistently realize abnormal returns by systematically picking stocks that realize positive excess returns. Richard A. Ippolito(1989) concludes that mutual funds on an aggregate offer superior returns. But expenses and load charges offset them. This characteristics the efficient market hypothesis.

Henriksson(1984) reported that mutual fund managers were not able to follow an investment strategy that successfully times the return on the market portfolio.

IP and HO(1989) examined the performance of mutual funds in the Asia-Pacific markets and reported that many of the funds performed worse than a random portfolio on risk-adjusted basis. The study also found that the mutual funds did particularly poorly in diversification, thereby, bearing very high proportion of market risk.

Ariff and Johnson(1990) made an important study in Singapore and found that the performance of Singapore unit trusts spread around the market performance with approximately half of the funds performing below the market and another half performing above the market on a risk-adjusted basis. Cole and IP(1993) investigated the performance of Australian equity trusts. They found evidence that portfolio managers were unable to earn overall positive excess risk-adjusted returns.

Allen and Tan(1998) studied for U.K and found that both raw returns and risk-adjusted returns exhibited strong evidence of persistence in the long run but this evidence appears to reverse in the short run.

Selective Indian Works

A number of academics, professionals have written articles explaining the concept, function and importance of mutual funds in the development of the capital market in India.

Ajay Shah and Susan Thomas (1994) studied the performance evaluation of 11 mutual fund schemes and conclude that except one scheme others schemes earned inferior returns than the market in general.

Kaura and Jayadev (1995) evaluated the performance of growth-oriented scheme by using Jensen, Treynor and Sharp measures found that the schemes have not performed well.

Nalini Prava Tripathy (1996) has evaluated the performance of growth oriented schemes by using CAPM model and Jensen, Treynor, Sharpe measures and conclude that performance appraisal is not a difficult task rather return of the scheme will depend upon the performance of mutual funds. So the fund may produce returns either above or below average but it may be superior over the long run. Again in her further study (1998) conclude that the involvement of mutual funds in the transformation of Indian economy has made it urgent to view their services not only as financial intermediary but also as a pace setter as they are playing a significant role in spreading equity culture.

Gupta & Sehgal(2000) reported that Mutual Fund Industry had performed reasonably well during their period of study.

Amitabh Gupta (2000) has examined the market timing abilities of India fund managers using weekly NAV data for 73 mutual fund schemes from 1994 to 1999. He found that the results do not support the hypothesis that managers of closed ended schemes can time the market easily.

Objective of the Study

Professional investment experts who ensure efficient diversification of their portfolio manage mutual funds. The funds are, therefore, expected to reduce risk and earn returns higher than these on a random selection of market securities. Hence the present study has been undertaken with the object of examining the market timing abilities of Indian fund managers to reward higher return to the investors.

Testing of Hypothesis

The study has been test the following hypothesis in respect of performance evaluation of the Indian mutual funds.

- Mutual fund managers display distinct market timing abilities.
- Managers of tax saving schemes are more likely to exhibit market-timing abilities.
- Fund Managers of closed-ended schemes are likely to be more successful in timing the market.

Methodology

Generally investors invest in mutual fund by considering capital appreciation, better liquidity, less risk and tax liability. So the study makes a comprehensive evaluation of equity-linked schemes. For the purpose of the study, schemes have been taken from 1994-95 to 2001-2002. A total of 31 schemes over the seven-year period are selected. The following fund from UTI, LIC, Can Bank, IND Bank, PNB Bank, SBI, BOI Bank mutual fund has taken for study. The risk is calculated on the basis of month end Net Asset values. Further BSE national index assessed as market index or benchmark. The returns are computed on the basis of the Net Asset Values of the different schemes and returns in the market index are computed on the basis of the BSE National Index on the respective date. The NAVs are adjusted assuming dividends are reinvested at the ex-dividend NAV. In this study the weekly yields on 91-day Treasury bills have been used as a surrogate for risk-free rate of return

Return: The returns are computed as follows:

$$R_{pt} = In\left(\frac{NAV_{t+1} - NAV_t}{NAV_t}\right)$$

Where Rpt is return on the fund during the period 't', where 't' stands for time and NAV stands for Net Asset value of the fund. In is the natural logarithm to the base 'e'.

The average return on the market portfolio is determined as follows:

Where R_p is the average return on the mutual fund schemes.

$$R_p = \sum_{t=1}^{n} R_{pt}/n$$

BSE national index are taken as benchmark. Similarly return on index is computed by the following formula.

$$R_{mt} = \left(\frac{In\ Index_{t+1} - Index_t}{Index_t}\right)$$

Where R_{mt} is the returns on the basis of the BSE National Index. In the natural logarithm to the base 'e'.

The average return on market index is as follows:

$$R_m = \sum_{t=1}^{n} R_{mt}/n$$

where R_m is the average return on the market.

Risk: Standard deviation of monthly returns is to be taken as risk. Sharpe pointed out, "It is generally highly correlated with familiar measures and thus provides an adequate surrogate.

$$\delta p = \left\{\left[\frac{1}{n}\sum_{t=1}^{n}(R_{pt} - R_p)^2\right]\right\}^{1/2}$$

where δP is total risk of the scheme portfolio. The logarithmic standard deviation is to be expressed in percentage after multiplying it by 100. The total risk on the market line portfolio is

$$\delta m = \left\{ \left[\frac{1}{n} \sum_{t=1}^{n} (R_{mt} - R_m)^2 \right] \right\}^{1/2}$$

where δm is total risk of the market portfolio.

In order to obtain systematic risk (Beta) of the portfolio, CAPM version of market model is applied. The estimable form of CAPM is

$R_P = a + \beta_P R_m + e_P$

R_p is the return on the mutual fund scheme

R_m is the return on the market index

a is the constant term

b_p is the systematic risk (Beta)

e_p is the error term

Higher β indicates a high sensitivity of fund returns against market returns, the lower value indicates a low sensitivity.

Methods of Market Timing

The market timing of sample mutual fund schemes have been evaluated by using the two measures. A brief description of these measures is as follows:

Treynor and Mazuy Model

These are several procedures that have been proposed to correct the effect of timing ability on the estimate of beta. The first is a quadratic regression proposed by Treynor and Mazuy. This regression is

$R_p - R_f = a + b (R_m - R_f) + g (R_m - R_f)2 + e_p$

R_f = Risk – free Return

E_p = Random error turn

α, β And γ are parameter of the model.

The parameters in the above model can be estimated by using standard regression methodology. Treynor and Mazuy have argued that estimated value of parameter γ in the above formula act as a measure of market timing skill of the fund manager. If fund managers could able to select the time correctly, the estimated value of γ would be significantly positive. On the contrary if the estimated value of γ should not be significantly different from zero, the fund managers are not be able to select the market timing correctly.

The average beta of the portfolio would be constant when the fund manager is not engaged in market timing and only concentrates in stock selection. In this case the fund return and market return would be a linear relationship. Even if the fund manager changed the beta and would not be successful in

assessing the market timing, still it shows the linear relationship. Treynor and Mazuy argued that in case the fund manage was able to successfully assess the market direction and changes the portfolio beta, it would find a higher than normal beta. In that situation it implies that the fund is doing better. When the market declines, the fund has a lower than normal beta. In such situations the plots of the fund returns against the market returns would lie above the linear relationship and would give a curvature to the scatter of points.

Henriksson and Merton model

Another return-based approach for estimating timing performance is the option approach developed by Merton and Hendrickson. The regression used is similar to the Treyner Mazuy regression. In contrast to the linear beta, adjustment of the Treyner and Mazuy framework, the portfolio beta in the HenrikSson and Merton study is assumed to switch between two betas. A large value if the market is expected to do well i.e. when $R_m > R_f$ up market and a small value otherwise i.e. when $R_m < R_f$ (down market). Therefore, it is argued that a successful market timer would select a high up market beta and a low down-market beta. Thus such a relationship can be estimated by equation using a dummy variable.

$$R_p - R_f = a + b\,(R_m - R_f) + g\,[D\,(R_m - R_f)] + E_p$$

Where D is a dummy variable that equals o for $R_m > R_f$ and –1 otherwise.

So that beta of the portfolio is β in a up-market and $(\beta\text{-}\gamma)$ in a down markets. Parameter γ indicates the difference between the two betas and significant value of γ would indicate market timing ability of the fund managers.

Empirical Analysis

The Table 1 presents the empirical results for the Treynor and Mazuy model The Table 1 depicts that out of thirty-one mutual fund schemes investment managers of only two schemes, viz., Dhan 80 cc B (2) P-C, Boinanza 80 cc(B) Plan-A appear to be successful market timers. The observed t-value for their gamma coefficients is found to be significant and positive at five per cent level. There are other six schemes for which the t-values are significant but are negative. These schemes are MELS- 95, MELS-96, MEP-95, MEP-96, canpep-94, Magnum tax profit -94,. So in terms of Treynor and Mazuy formulation, majority of the Indian fund managers does not seem to be engaged in market timing activities, Also the fund managers market the time in the wrong direction.

The Table 2 shows the results of Henriksion and Merton model. It is found that only one scheme, viz, Boinanza 80 cc(B) p-A showed market timing skills. The t-value for gamma was found to be statistically significant and positive at 5 per cent level. Other schemes exhibited wrong market timing abilities of fund managers. Thus in terms of both the model the results indicated that only one scheme Boinanza 80cc(B) plan -A was found to be reflect market timing abilities. So the empirical results do not lend support to the hypothesis that Indian fund managers are able to time the market. These results are similar to those repeated by other researchers utilising data from Indian mutual funds. In a nutshell it is to be said that none of the schemes rewarded the investors and the main constraint on the portfolio managers is that they can not book the profits when the market is boom phase due to lack of depth in the market. At the same time there are no hedging instruments available for them to hedge the market uncertainties.

Conclusion

This paper has empirical analysed the market timing abilities of Indian fund manager in form of two models i.e. one by Treynor and Mazuy and the other by Henriksson and Merton. The results indicated here do not lend support to the hypothesis that Indian fund managers are able to time the market correctly. There is only one scheme where market timing ability of the fund managers was exhibited.

Table 1: Results of Treynor & Mazuy Model

S.No.	Scheme Name	Beta	S.E Beta	t-beta	Gamma	S.E. Gamma	t-Gamma	R2
1	LIC Dhan 80CCB(2)P–A	.695	.162	4.305	.225	1.383	.162	.215
2	LIC Dhan 80CCB(2)P–B	.642	.108	5.919	–4.266	.929	–.005	.341
3	LIC Dhan 80CCB(2)P–C	.935	.189	4.938	3.353	1.622	2.068	.304
4	LIC Dhan P–C	.671	.140	4.805	–.607	1.195	–.508	.254
5	LIC Dhan P–A	.652	.085	7.717	–3.630	.724	–.050	.467
6	LIC Dhan P–B	.637	.085	7.467	9.479	.731	.130	.452
7	PNB ELSS–91	.664	.093	7.113	.187	.799	.234	.428
8	PNB ELSS–92	.691	.093	7.402	.416	.800	.520	.450
9	Indshelter–B	.669	.103	6.521	1.050	.879	1.195	.397
10	Indshelter–A	.664	.129	5.138	1.263	1.106	1.142	.294
11	MEP–92	.742	.153	4.840	–6.214	1.312	–.047	.257
12	MEP–91	.830	.099	8.348	.363	.851	.430	.509
13	Canpep–93	.723	.109	6.605	–.106	.937	–.011	.391
14	Canpep–92	.837	.138	4.634	.329	1.178	.280	.242
15	Canpep–91	.700	.137	5.097	.159	1.176	.135	.278
16	Boinanza 80cc P–B	.493	.189	2.607	–.611	1.622	–.377	.091
17	MagGift P–B	.760	.139	5.480	–.538	1.188	–.453	.307
18	MagGift P–A	.979	.165	5.916	–1.248	1.417	–.881	.342
19	MELS–91	.824	.136	6.041	.140	1.168	.120	.350
20	Boinanza 80cc(B) P–A	.663	.125	5.303	2.209	1.071	+2.063*	.316
21	Canster 80L–90	.553	.097	5.720	1.089	.827	1.316	.342
22	Indsheild P–B	.535	.147	3.627	.122	1.263	.096	.163
23	Indsheild P–A	.594	.087	6.854	.590	.742	.795	.415
24	MEP–93	.814	.109	7.487	.119	.931	.128	.453
25	Magnum tax profit–94	.476	.103	4.639	–2.092	.878	–2.383*	.278
26	Canpep–94	.440	.108	4.067	–2.095	.925	–2.264*	.234
27	MEP–96	.436	.070	6.255	–2.124	.596	–3.561*	.422
28	MEP–95	.425	.101	4.210	–3.697	.864	–4.281*	.335
29	MEP–94	.467	.124	3.764	–1.478	1.062	–1.392	.187
30	MELS–96	.485	.109	4.451	–1.870	.933	–2.004*	.253
31	MELS–95	.651	.140	4.635	–3.319	1.202	–2.763*	.291

* Significant at 5% level.

Table 2: Results of Heriksson & Merton Model

S.No.	Scheme Name	Beta	S.E Beta	t-beta	Gamma	S.E. Gamma	t-Gamma	R2
1	LIC Dhan 80CCB(2)P-A	1.004	.263	3.809	6.923	.047	1.460	.239
2	LIC Dhan 80CCB(2)P-B	.836	.177	4.716	4.370	.032	1.370	.358
3	LIC Dhan 80CCB(2)P-C	1.212	.321	3.774	5.792	.058	1.002	.272
4	LIC Dhan P-C	.598	.231	2.587	-1.548	.042	-.372	.253
5	LIC Dhan P-A	.859	.136	6.295	4.663	.025	1.900	.494
6	LIC Dhan P-B	.832	.138	6.019	4.382	.025	1.761	.475
7	PNB ELSS-91	.745	.154	4.834	1.809	.028	.652	.431
8	PNB ELSS-92	.807	.154	5.237	2.546	.028	.919	.454
9	Indshelter-B	.691	.172	4.020	3.382	.031	.109	.385
10	Indshelter-A	.585	.216	2.713	-1.948	.039	-.502	.283
11	MEP-92	.616	.253	2.433	-2.830	.046	-.621	.261
12	MEP-91	.928	.164	5.647	2.150	.030	.727	.511
13	Canpep-93	.843	.180	4.672	2.716	.032	.837	.397
14	Canpep-92	.749	.227	3.295	2.476	.041	.605	.245
15	Canpep-91	.745	.227	3.276	9.904	.041	.242	.278
16	Boinanza 80cc BP-B	2.423	.306	.079	-.105	.055	-1.907	.136
17	MagGift P-B	.898	.229	3.919	3.178	.041	.771	.311
18	MagGift P-A	1.122	.275	4.086	3.401	.049	.688	.339
19	Mels-91	.995	.224	4.436	3.853	.040	.954	.359
20	Boinanza 80cc(B) P-A	.997	.207	4.816	7.817	.037	2.099*	.317
21	Canster 80L-90	.802	.158	5.084	5.485	.028	1.931	.360
22	Indsheild P-B	.605	.244	2.479	1.566	.044	.357	.164
23	Indsheild P-A	.753	.142	5.288	3.495	.026	1.365	.425
24	MEP-93	1.046	.177	5.921	5.214	.032	1.640	.474
25	Magnum tax profit-94	.671	.174	3.855	4.675	.031	1.494	.242
26	Canpep-94	.527	.185	2.847	2.246	.033	.675	.182
27	MEP-96	.457	.126	3.637	7.571	.023	.335	.316
28	MEP-95	.262	.187	1.402	-3.171	.034	-.942	.167
29	MEP-94	.686	.205	3.341	5.146	.037	1.392	.187
30	MELS-96	.623	.184	3.381	3.368	.633	1.015	.220
31	MELS-95	.833	.243	3.426	4.561	.044	1.042	.224

* Significant at 5% level

These results are also similar with earlier research, which was conducted by the developed capital market.

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