

MACRO FORECASTING ABILITIES OF MUTUAL FUND MANAGERS IN THE INDIAN CAPITAL MARKET

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ABSTRACT

Mutual funds are the most significant route of collective investing and provide investors with the benefits of professional portfolio management and greater diversification. The Indian Mutual Fund Industry has registered healthy growth during the last four decades. The assets managed by mutual funds in India at the end of March 2010 stood at 613,978.94 crores. Using daily data from April 2006 to December 2009, this study empirically examines the macro forecasting abilities of thirty five equity mutual fund managers in India. The macro forecasting performance was analysed using Treynor and Mazuy Model (1966) and Henriksson and Merton Model (1981). The study concluded that the fund managers of the sample equity schemes failed to assess the market movements correctly. It implies that these fund managers were unable to adjust the portfolio composition in anticipation of favourably capitalising on future movements in the stock market.

Keywords: *Macro Forecasting Abilities, Equity Mutual Funds, Gamma Coefficient.*

Introduction:

Mutual funds are the most significant vehicle of collective investing and provide investors with professional asset management and great diversification (Rompotis, 2008). The contribution of mutual funds to the growth of capital markets measured on the basis of mutual fund assets as a percentage of market capitalisation is 10% for India as compared to 28% for UK, 81% for Brazil, 75% for France, 104% for USA, and 123% for Australia. However, the Indian mutual fund industry is growing at a much higher rate as compared to other major countries. The CAGR over a period of ten years for the mutual fund industry in India is 22% as compared to USA (5.7%), UK (6.6%), France (9.8%) and Australia (11%). This shows the tremendous scope for the growth of mutual funds in India (Mitra, 2009). Performance (Shah and Hijazi, 2005) evaluation of mutual funds is important for the investors and portfolio managers as well. Historical performance evaluation provide an opportunity to the investors to assess the performance of portfolio managers as to how much return has been generated and what risk level has been assumed in generating such returns.

The essence of performance evaluation is to measure the value of the services (if any) provided by the portfolio management industry. It is to investigate whether a fund manager helps enlarge the investment opportunity set faced by the investing public and, if so, to what extent the manager enlarges it. (Chen, Z. and Knez, P, 1996)

The question as to whether or not the fund managers have macro-forecasting (market timing) abilities is an intriguing one examined in the mutual fund performance literature. Macro forecasting implies correctly outguessing the future market movements and allocating the funds across different asset classes, often restricted to equities and short-term government debt, in an optimum manner. To put it differently, macro forecasting abilities involves timely rebalancing of the portfolios, switching of funds among various asset classes and taking advantage of broad market movements. Superior timing abilities help to generate abnormal returns when the market price deviates from its true value.

The fund manager engaged in active market timing must forecast whether the stock market will experience an up market or down market in the next period. An up market is defined as one where the market returns exceeds the risk-free rate of return and down market is one where the market return is less than risk-free rate of return. The successful market timer increases the portfolio weight on equities prior to market advances (up market) and decreases the portfolio weight on equities prior to market declines (down market). If the fund manager expects that the stock market would experience a bullish trend, he stays in the market and otherwise for a bearish market. A perfect macro forecasting abilities avoids every bear market and does not miss a single bull market.

A number of studies have analysed whether the differences in investment styles are associated with differences in performance. Fund size (Indro *et al.*, 1999) is a key variable in explaining fund performance. They found that the efficiency of an active management strategy depends upon the size of the net assets. Size and value account for the differences in fund performance (Brown and Goetzmann, 1997; Carhart, 1997). Gupta and Sehgal, (1997) analysed the performance of open-ended and close-ended funds. Chan *et al.*, (2002) confirms that size (small, mid and large) and book-to-market (value and growth) are useful descriptors of fund styles. Sondhi and Jain, (2006) evaluated the performance of Indian mutual funds on the basis of type, size and ownership of mutual funds. Ferruz *et al.*, (2009) examined the influence of fund size on investment strategy in Spanish mutual fund market.

Empirical studies done in developed and emerging capital markets widely documents that active funds do not outperform the market (for example Jensen, 1968; Bird *et al.*, 1983; Grinblatt and Titman, 1989; Elton *et al.*, 1993; Malkiel 1995; Grubber, 1996; Jayadev, 1996; Sawicki and Ong, 2000; Abdel-Kader and Qing, 2007; and Barras *et al.*, 2010). Studies have been done in portfolio strategies to examine stock selection and market timing abilities of fund managers (Treyner and Mazuy, 1966; Henriksson and Merton, 1981; Lee and Rahman, 1990; Chen *et al.*, 1992; Coggin *et al.*, 1993; Jaydev, 1996; Bello and Janjigian, 1997; Rao and Venkateswaralu, 2000; Bollen and Busse, 2001; Sethu, 2001; Drew *et al.*, 2005; Chander, 2006; Tripathy, 2005; Deb *et al.*, 2007; Sehgal and Jhanwar, 2008; Thanou, 2008; Ferruz *et al.*, 2009; Chopra, 2011 and Shanmugham and Zabiulla, 2011)

The residue of this paper is structured as follows. Section two provides the data and their sources. The methodology employed for the present study is explained in section three. Section four describes the empirical findings and discussions based on which the final section five gives the summary of the paper along with conclusions.

Data and Sources of Data:

Sample:

The study is based on a sample of 35 equity diversified (growth oriented) mutual fund schemes to examine the macro forecasting abilities of fund managers in India. These schemes are aggressive in nature and are ranked based on their three year performance by ICRA as on 31st December 2009. Based on ownership pattern, twenty eight equity schemes belong to private sector while seven equity schemes belong to the public sector.

Period of Study:

The study spans the period from April 2006 to December 2009.

Data:

The data set used in this study is secondary in nature. Daily Net Asset Values (NAVs) of the sample equity diversified schemes are taken from the website of Association of Mutual Funds in India (AMFI). S&P CNX 500 is used a market proxy and its daily index close values are collected from the website of National Stock Exchange (NSE). The bank rate given in the RBI website is used as a surrogate for risk free rate of return.

The daily NAV data have been converted into daily return by using the following equation:

$$R_{it} = \ln(NAV_t / NAV_{t-1}) * 100 \dots (1)$$

Daily return on market portfolio has been calculated using equation (1) except that in place of NAV we have used closing index values. Econometric Views 5.1, the premier forecasting and analysis package is used for estimations.

Objective of the Study and Hypothesis:

The objective of this study is to examine the macro forecasting abilities of equity mutual fund managers in India using emerging market data.

The following hypothesis is put to test:

H_0 = Mutual fund managers are not successful at market timing.

H_a = Mutual fund managers are successful at market timing.

Limitations of the Study:

1. The study is restricted to a sample of 35 equity mutual fund schemes.
2. The study uses the two widely used measures of market timing abilities in their conventional form. The estimates are not conditioned for market information variables.

Methodology:

To examine the macro forecasting abilities of fund managers, the two traditional models that are widely recognised in finance literature in this parlance. They are:

1. Treynor and Mazuy Model (1966)
2. Henriksson and Merton Model (1981)

The description of these models is presented below:

Treynor and Mazuy Model:

Treynor and Mazuy added a quadratic term to the Jensen's single index model to test the market timing skills of portfolio managers. Besides examining the validity of the Jensen's measure, the model decomposes the sources of performance implied by index model. The model is based on the premise that portfolio returns are a non – linear function of the market return.

The specification of the model is given by:

Table 1: Results of Treynor & Mazuy Model

Sl. No.	Mutual Fund Schemes	Gamma	S.E. Gamma	t-Gamma	R ²
1	Birla Sun Life Basic Industries	0.0040	0.0040	0.9962	0.9523
2	Birla Sun Life Buy India Fund (Plan B)	-0.0014	0.0054	-0.2601	0.8592
3	Birla Sun Life India GenNext Fund	-0.0069	0.0030	-2.2735*	0.8694
4	Birla Sun Life India Opp. Fund (Plan B)	-0.0079	0.0033	-2.3850*	0.8842
5	Birla Sun Life Infrastructure Fund (Plan A)	0.0052	0.0051	1.0278	0.9510
6	Birla Sun Life MNC Fund	-0.0075	0.0020	-3.8113*	0.8349
7	Canara Robeco Infrastructure Fund	0.0045	0.0033	1.3475	0.9419
8	Fidelity Equity Fund	0.0013	0.0011	1.1554	0.9657
9	Fidelity India Special Situations Fund	0.0037	0.0044	0.8310	0.9161
10	Franklin India Flexi Cap Fund	0.0031	0.0015	2.0755*	0.9570
11	HDFC Capital Builder Fund	-0.0050	0.0023	-2.1431*	0.8847
12	HDFC Core & Satellite Fund	0.0016	0.0026	0.6249	0.9032
13	HDFC Equity Fund	0.0035	0.0025	1.4115	0.9295
14	HDFC Premier Multi - Cap Fund	0.0004	0.0026	0.1519	0.9087
15	HDFC Top 200	0.0049	0.0025	1.9815	0.9553
16	ICICI Prudential Infrastructure Fund	-0.0076	0.0034	-2.2677*	0.9443
17	ICICI Prudential Service Industries Fund	-0.0017	0.0014	-1.1852	0.9204
18	LIC Equity Fund	0.0001	0.0035	0.0239	0.9110
19	PRINCIPAL Services Industries Fund	-0.0033	0.0023	-1.4581	0.9338
20	Reliance Diversified Power Fund	0.0016	0.0035	0.4667	0.8859
21	Reliance Growth – Growth	-0.0029	0.0039	-0.7575	0.9165
22	SBI Magnum Multiplier Plus 93	0.0010	0.0034	0.2778	0.8929
23	SBI MSU - Emerging Businesses	-0.0003	0.0060	-0.0571	0.8172
24	Sundaram BNP Paribas CAPEX Opp. Fund	0.0119	0.0090	1.3220	0.8525
25	Sundaram BNP Paribas Rural India Fund	-0.0008	0.00488	-0.1640	0.87140
26	Tata Dividend Yield Fund	-0.0081	0.0037	-2.2014*	0.8716
27	Tata Equity P/E Fund	-0.0057	0.0029	-1.9346	0.8964
28	Tata Infrastructure Fund	-0.0013	0.00295	-0.4466	0.89339
29	Tata Life Sciences and Technology Fund	-0.0128	0.0050	-2.5790*	0.7556
30	Tata Select Equity Fund	-0.0117	0.00188	-6.2087*	0.90756
31	Tata Service Industries Fund	-0.0013	0.0030	-0.4466	0.8934
32	Taurus Bonanza Fund	0.0024	0.0039	0.6189	0.9029
33	UTI Master Value Fund	-0.0098	0.0036	-2.7233*	0.8021
34	UTI MNC Fund	-0.0071	0.0032	-2.2146*	0.8210
35	UTI Opportunities Fund	0.0054	0.0025	2.1417*	0.9226

* Significant @ 5% level

$$R_p - R_f = \alpha + \beta(R_m - R_f)_t + \gamma(R_m - R_f)_t^2 + \varepsilon_{pt} \quad \text{--- (2)}$$

Where R_p = Return on the fund

R_f = Risk – free rate of return

R_m = Return on the market portfolio

ε_{pt} = Error term

α , β and γ are the parameter of the model. The intercept of the quadratic regression ‘ γ ’ captures the market timing skills of the fund managers. A statistically significant positive value of ‘ γ ’ would indicate superior macro forecasting skills. While a statistically insignificant negative value of ‘ γ ’ indicate inability of the fund manager to time the market.

Henriksson and Merton Model :

Unlike Treynor and Mazuy model, Henriksson and Merton proposed a different test of market timing skills. According to them, the market timer allocates capital between risk free assets and equities based on forecasts of the future excess market returns. The market timers will select a higher value of beta when the market is expected to perform better ($R_m \geq R_f$) and select a lower value of beta when the market is expected to do poor ($R_m \leq R_f$). The relationship is estimated by involving a dummy variable.

The specification of the model is given by:

$$R_p - R_f = \alpha + \beta(R_m - R_f)_t + \gamma[D(R_m - R_f)_t] + \varepsilon_{pt} \quad \text{----- (3)}$$

Table 2: Results of Henriksson and Merton Model

Sl. No.	Mutual Fund Schemes	Gamma	S.E. Gamma	t-Gamma	R ²
1	Birla Sun Life Basic Industries	-0.0024	0.05072	-0.0474	0.9518
2	Birla Sun Life Buy India Fund (Plan B)	-0.0895	0.06005	-1.4909	0.8606
3	Birla Sun Life India GenNext Fund	-0.1143	0.04459	-2.5625*	0.8695
4	Birla Sun Life India Opp. Fund (Plan B)	-0.1207	0.04492	-2.6863*	0.884
5	Birla Sun Life Infrastructure Fund (Plan A)	-0.0008	0.06364	-0.0127	0.9501
6	Birla Sun Life MNC Fund	-0.1329	0.033	-4.028*	0.8357
7	Canara Robeco Infrastructure Fund	0.00699	0.04693	0.14886	0.9412
8	Fidelity Equity Fund	0.00478	0.02071	0.2307	0.9656
9	Fidelity India Special Situations Fund	-0.0108	0.06335	-0.1712	0.9156
10	Franklin India Flexi Cap Fund	0.03293	0.02439	1.35005	0.9568
11	HDFC Capital Builder Fund	-0.1014	0.03388	-2.9936*	0.8854
12	HDFC Core & Satellite Fund	0.01298	0.03715	0.34943	0.9031
13	HDFC Equity Fund	0.03028	0.03668	0.82541	0.9291
14	HDFC Premier Multi - Cap Fund	-0.0031	0.03685	-0.0854	0.9087
15	HDFC Top 200	0.06855	0.03069	2.23392*	0.955
16	ICICI Prudential Infrastructure Fund	-0.087	0.05007	-1.7372	0.9433
17	ICICI Prudential Service Industries Fund	-0.0575	0.02617	-2.1964*	0.9208
18	LIC Equity Fund	-0.0221	0.04886	-0.4523	0.911
19	PRINCIPAL Services Industries Fund	-0.0552	0.03258	-1.6955	0.9338
20	Reliance Diversified Power Fund	-0.0454	0.04883	-0.9301	0.8861
21	Reliance Growth – Growth	-0.1023	0.04412	-2.3191*	0.9178
22	SBI Magnum Multiplier Plus 93	-0.0438	0.04684	-0.9351	0.8932
23	SBI MSU - Emerging Businesses	-0.1384	0.07823	-1.7696	0.8196
24	Sundaram BNP Paribas CAPEX Opp. Fund	0.00374	0.12493	0.02991	0.8476
25	Sundaram BNP Paribas Rural India Fund	-0.0634	0.06345	-0.9986	0.872
26	Tata Dividend Yield Fund	-0.1345	0.05096	-2.6393*	0.8718
27	Tata Equity P/E Fund	-0.1131	0.03915	-2.8887*	0.8973
28	Tata Infrastructure Fund	0.01577	0.04492	0.35105	0.9584
29	Tata Life Sciences and Technology Fund	-0.1559	0.07442	-2.095*	0.7519
30	Tata Select Equity Fund	-0.174	0.04529	-3.8421*	0.9068
31	Tata Service Industries Fund	-0.0548	0.04065	-1.3473	0.8937
32	Taurus Bonanza Fund	-0.0414	0.05389	-0.7686	0.9029
33	UTI Master Value Fund	-0.1939	0.04688	-4.1347*	0.8044
34	UTI MNC Fund	-0.1103	0.04455	-2.4754*	0.8208
35	UTI Opportunities Fund	0.05477	0.0412	1.32962	0.922

* Significant @ 5% level

Where R_p = Return on the fund

R_f = Risk – free rate of return

R_m = Return on the market portfolio

D = Dummy variable that equals to '0' for

$R_m \geq R_f$ and '-1' otherwise

ϵ_{pt} = Error term

α , β and γ are the parameter of the model. The intercept of the quadratic regression ' γ ' captures the market timing skills of the fund managers. A positive and significant value of γ indicates superior macro forecasting abilities of the fund manager. If gamma does not deviate significantly from zero, the fund manager fails to outguess

the market. If the γ is significantly negative there has been perverse market timing undertaken by the manager.

The parameters in the above equations (2) and (3) are estimated by using standard regression methodology. The results are corrected for autocorrelation and heteroskedasticity using Newey – West's (1987) correction.

Empirical Results And Analysis:

In the Treynor – Mazuy model, the macro forecasting ability of the fund manager is explained by γ coefficient. A positive and significant macro forecasting coefficient value (γ) implies superior macro forecasting abilities of the fund managers. Table 1 shows the results of Treynor - Mazuy model. The analysis of the table reveals that out of 35 equity mutual fund schemes, the fund managers of only

two schemes viz., Franklin India Flexi Cap Fund and UTI Opportunities Fund appear to be successful market timers. This is evident from the observed t- values for their gamma coefficient, which are found to be significant and positive at 5% level of significance. While the t – values for gamma coefficient for ten schemes is negative and is statistically significant. However, out of remaining 23 schemes, 14 schemes have posted positive gamma coefficient and 9 schemes have posted negative gamma coefficient but their corresponding t – statistic is insignificant at 5% level. It signals that the fund managers were assessing the market movements in wrong direction. Table 2 shows the results of Henriksson and Merton Model. The analysis of the table reveals that out of 35 equity mutual fund schemes, the fund managers of only one scheme viz., HDFC Top 200 showed superior macro forecasting skills. The t – ratio for its gamma coefficient was found to be statistically significant and positive at 5% level. While the t – values for gamma coefficient for twelve schemes is negative and is statistically significant. However, out of remaining 22 schemes, 8 schemes have posted positive gamma coefficient and 14 schemes have posted negative gamma coefficient but their corresponding t – statistic is insignificant at 5% level. Thus, it is evident that the fund managers were not successful market timers.

Following both the formulations, the results failed to support the view that the fund managers were engaged in active macro forecasting. Thus, our results are consistent with the previous studies that the fund managers lack macro forecasting abilities. Thus, the null hypothesis is accepted against the alternate hypothesis of successful market timings abilities of fund managers.

Conclusion:

This paper empirically examined the macro forecasting abilities of equity mutual fund managers during the recent 45 months that span from April 2006 to December 2009. The study employed two models of macro forecasting abilities viz., Treynor and Mazuy Model and Henriksson and Merton Model

Using Treynor and Mazuy Model, it is found that only two schemes were successful market timers. Only one scheme has showed better performance in terms of market timing abilities using Henriksson and Merton Measure.

It is concluded that the fund managers of the sample equity schemes failed to assess the market movements correctly. It implies that these fund managers were unable to adjust the portfolio composition in anticipation of favourably capitalising on future movements in the stock market.

It signals that the fund managers failed to portray any macro forecasting skills. Even though, the managers of some schemes were timing their portfolio holdings but were timing in the wrong direction.

Future research can employ other versions of macro forecasting abilities such as Grinblatt and Titman (1989) and Fabozzi and Francis (1979) methodology using emerging data. Besides their conventional form, these

models can be conditioned for public information variables to separate the fund manager's performance on account of private information using a large sample.

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