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    STATEMENT OF THE PROBLEM

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    HYPOTHESES

    RESEARCH METHODOLOGY

    RESULTS & DISCUSSION

    FINDINGS

    RECOMMENDATIONS/SUGGESTIONS

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    SCOPE FOR FURTHER RESEARCH

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- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

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PERFORMANCE EVALUATION OF TOP PERFORMING MUTUAL FUND MANAGERS: AN ANALYTICAL STUDY FROM INDIA

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ABSTRACT

The present study is an attempt to evaluate the stock selectivity and market timing skills of Indian mutual fund managers from the period of January 2008 to March 2014. The study has adopted Jensen's model, Treynor-Mazuy's(TM) model and Henriksson-Merton's(HM) model for the analysis . In this study, we have evaluated the performance of fund managers of top fifteen equity mutual funds of India .The results indicate that the mutual fund managers neither have stock selectivity skills nor they are able to time the market correctly. It signals that they should adopt specific investment strategies as well as market timing techniques to enhance the portfolio returns. Moreover, if these practices are adopted by the managers, it will attract the attention of the Indian investors towards the mutual fund industry.

KEYWORDS
Henriksson-Merton's (HM) model, Jensen's model, market timing skill, Stock selectivity, Treynor-Mazuy's(TM) model.

INTRODUCTION

The mutual fund industry was established in India with the setting up of Unit Trust of India (UTI) in 1964 by Government of India. Since the inception of the first mutual fund in India by the enactment of the Unit Trust of India (UTI) Act, the growth of the Indian mutual fund industry has been steady and robust. The objective behind this is to provide investors, professionally managed services, to route their investments in stocks, bonds, short-term money market instruments and/or other securities.

Indian mutual fund industry, though, has evolved over the years but investment in mutual funds have been minimal as compared to other investment avenues, inspite of the savings rate in India been between 30-35 percent since last few years. Despite the efforts made by the distributors, still it continues to be a 'push' product rather than a 'pull' product.

The industry recorded total assets under management (AUM) of INR 8,800 billion as on Dec. 2013 while the highest AUM recorded in Aug. 2013 as INR 9580 billion. Though a decline was seen in AUM in Dec. 2013, the AUM of equity funds increased by 4-5 percent on account of rising stock prices.

Witnessing the challenges facing the industry, this paper tries to evaluate the performance of mutual fund managers in terms of their market timing and selectively skills. This will also help the distributors in convincing & guiding the investors about using mutual funds as a financial tool to achieve their goals.

Moreover, the academicians and practitioners are also immensely keen to know the investment portfolio performance. The area that is still difficult to evaluate, is the accurate performance measurement of mutual fund managers. Hence, an attempt is made in this paper to evaluate the performance of the top performing mutual funds and understand whether this good performance is by chance or by design i.e. the timing ability and selectivity skills of the fund managers.

The purpose of this paper is to analyze the performance of mutual funds & hence, that of mutual fund managers that operate in India. This topic is well analyzed for European countries and the USA, but the research on performance of the mutual fund industry in developing economies is relatively less.

In this paper, we measure the value of mutual fund managers in the Indian financial industry. We examine their performance using three models proposed by Jensen (1968), Treynor & Mazuy (1966) and Henriksson & Merton (1981). However, to measure the performance of mutual fund managers accurately, there are three key characteristics, which are required to be analyzed. These three characteristics that influence the mutual fund returns are asset allocation, security selection and market timing.

The Jensen (1968) measure primarily examines the security selection & asset allocation ability of mutual fund manager. The measurement of the market timing skills of the mutual fund managers is done by the two models proposed by Treynor and Mazuy (1966) and Henriksson and Merton (1981).

Fama (1972) gave this suggestion that portfolio manager's ability to predict the market can be divided into two parts: micro forecasting or stock picking ability & macro forecasting or market timing ability.

Microforecasting or stock selection requires the ability to judge the stocks which are over or undervalued relative to market returns. Microforecasting actually tries to predict the non-systematic or security specific return of the stock. However, the macro forecaster judges the expected returns of the market portfolio. Thus, it is very crucial and of great importance to know that the past performance of the mutual fund was due to the selectively and market timing skills of the fund managers or merely due to luck.

The remainder of the paper is organized as follows. Section 2 details the review of literature on market timing & selectivity, Section 3 deals with objectives of the study,section 4 describes our research design, section 5 deals with results & discussions. The next section deals with conclusions & suggestions The last section gives the limitations of the study and the scope for future research.

LITERATURE REVIEW

A number of empirical studies have been conducted on mutual funds in the western countries as well as in India. Review of literature plays an important role in research as it considers the enormous efforts made by the academicians and researchers in the particular area.

A summary of some of the empirical studies that have influenced this research work is given in this section.

The earliest studies on performance of mutual funds showed different results. William F. Sharpe (1966) used the Sharpe ratio to measure the performance of mutual funds. He evaluated the performance over two time periods i.e. 1944-1953 and 1954-1963 and concluded that a positive relationship existed between these two periods.

On the contrary, Jensen (1968) measured the performance of mutual funds in a path-breaking study in which 115 mutual funds were evaluated in the period between 1945-1964. He derived a measure i.e. Jensen's alpha to evaluate them. It estimated the forecasting ability of the fund manager which contributes in the rate of return of the mutual fund. The conclusion of his study was quite different from the previous studies. He concluded that there was minimal evidence of any fund performing significantly better than expectations.

A number of studies show that market beta is sufficient to explain the expected return of the portfolio, but Fama & French (1992) proposed a three-factor model to include non-market risk factors i.e. size factor, SMB (the monthly return difference between the returns on small & big size portfolios) and a value factor, HML (the monthly return difference between the returns on the high and low book-to-market ratio portfolios) in addition to the market factor.

Carhart (1997) developed a four-factor model in which he included another factor known as a momentum factor constructed by the monthly return difference between the returns on the high and low prior return portfolios, to capture the cross-sectional return patterns.

Treynor and Mazuy (1966) examined 57 open-ended mutual funds for the period from 1953 to 1962 to investigate whether the fund managers can outguess the market. They came with a conclusion that the fund managers do not have the ability to outguess the market.

Henriksson and Merton (1981) developed a model quite similar to the one which was used by Treynor and Mazuy (1966) in which they developed a statistical framework to judge the market timing ability of fund managers with the help of parametric and non-parametric tests. Henriksson (1984) further evaluated 116 mutual funds from 1968 to 1980 and did not find any evidence of market timing ability of fund managers.

Kon S. (1983) proposed an empirical methodology for measuring the market timing performance of investment managers. The results of this study indicate that the fund managers have significant timing ability at the individual level but at the group level they do not have any extra information regarding the returns of the market portfolio.

Lee & Rahman (1990) by their study indicated that the fund managers have superior & significant micro and macro forecasting ability at the individual fund level.

Gupta and Sehgal (1998) studied 73 mutual fund schemes to evaluate the market timing abilities of fund managers and concluded that only 3 schemes out of 73 showed market timing abilities of fund managers.

Roy and Deb (2004) evaluated a sample of 89 funds by conditional performance evaluation method, a framework supported by Ferson and Schadt. The time period of the study was over the period of January 1999 to July 2003. The results indicate that the use of conditioning lagged information variables improves the performance of mutual fund schemes in the Indian context.

Chander (2006) evaluated the timing skills & stock selection abilities of 80 Indian mutual fund managers over a period of five years from January 1998 to December 2002 by using Fama (1992), TM (1966) and HM (1981) models. The conclusion of the research was that the Indian fund managers were not having the market timing ability although it revealed a significant stock selection abilities of fund managers as well as persistence of such skills.

Deb et al (2007) again examined the market timing skills, using traditional (TM, 1966; and HM, 1981) and conditional (Ferson & Schadt, 1996) models, of 96 Indian mutual fund managers. The study concluded the presence of stock selection abilities but lack of market timing abilities among the fund managers.

Sehgal & Jhanwar (2008) evaluated the performance of selected 59 equity based mutual funds during 2000-2004 in India. They suggested that multi-factor benchmarks provide better selectivity and timing measures compared to one factor CAPM. They showed the improved evidence of stock selectively amongst Indian mutual fund managers by using daily returns i.e. high frequency data against monthly returns.

Shanmugham and Zabiulla (2011) studied the stock selectivity strategies of equity mutual fund managers in India using Jenson's measure. It concluded that conditional evaluation measurement techniques are relevant for assessing the selectivity performance of Indian fund managers.

An indepth review of the literature shows that some issues are still there which need to explored especially in the Indian context. Although, in the past decade, work has been done in this field, yet most of the studies have used monthly data for measuring fund performance. If the data is of high interval, it is difficult to assess the performance of fund managers accurately. Thus, the present study uses daily returns of the top 15 selected equity mutual funds growth- oriented schemes to study the skills of fund manager. Moreover, the study is also relevant as it evaluates the top performing mutual fund schemes whose fund managers have an important role in their returns. In the present scenario of challenges faced by the mutual fund industry in terms of investments, this research paper can throw some light on the stock selectivity and market timing ability of fund managers of top equity mutual fund schemes. Thus, the present study gives an insight on the future of mutual fund industry in India.

OBJECTIVES OF THE STUDY
The aim of the present study is -
(i)   To evaluate the performance of top 15 equity mutual fund schemes (Growth- oriented) (selected with the help of websites and other financial data).
(ii)   To judge the performance of the fund managers of the above selected schemes on their stock selectivity & market timing skills.

HYPOTHESIS
The plethora of studies provided some evidence of stock selectivity skills amongst mutual fund managers but very little evidence about the market timing ability in them. Hence, the following hypotheses have been evolved on the basis of above literature review:
H0:   Mutual fund managers use the stock selectivity skills to manage portfolios.
H0:   Mutual fund managers possess specific market timing abilities.

RESEARCH DESIGN
The research design adopted for evaluating the stock selectivity & market timing skills of the fund managers , is as follows:
A set of 15 top performing growth oriented equity mutual funds schemes, was identified from the website www.valueresearchonline.com which provides an online information of the top rated mutual funds of each category. In this study we have selected top rated equity mutual funds as on June 2013.
The rationale behind choosing the equity mutual funds, which are performing well in the market, is that we expect that the selectivity and timing skills of the fund managers should be most significant in these schemes. This study also gives us idea that the high returns in these schemes is due to the efficiency of fund managers or it is merely by chance.
The period chosen is between Jan 2008 to Mar 2014. This period is chosen because during this period Indian capital market has witnessed major upheavals as a result of occurrence of important events & turmoils at the domestic as well as international front. These were structural reforms and high volatility in the Indian mutual fund industry alongwith subprime crisis at the international level.

DATA SOURCE
The data set used in this study is secondary in nature. The secondary data have been collected for a sample of fifteen top performing equity mutual fund schemes during the period Jan 2008 to Mar 2014. The data used in the study mainly comprise of the daily net asset values (NAV) from Jan 2008 to Mar 2014 of the schemes, which has been collected from the factsheets of mutual fund companies, brochures and the various websites, a number of research oriented websites like that of AMFI (http://www.amfiindia.com) has been used to download the NAV (net asset values) data as well as to select the top fifteen equity mutual fund schemes. The data related to benchmark indices like BSE Sensex and CNX Nifty has been collected from the websites of Bombay stock exchange (http://www.bseindia.com) and National stock exchange (http://www.nseindia.com) respectively. In this study 91 day treasury bill of GOI is used as a market proxy for risk-free rate. The data for 91-day treasury bill has been obtained from the website of RBI (http://www.rbi.org.in)

MODEL DESCRIPTION
A brief description of the models used to test the selectivity & market timing skills of the mutual fund managers in this research paper is given below:
(a)   *Jensen's Model* – Jensen's model helps to evaluate the selectivity skills of fund managers i.e. their ability to identify undervalued or overvalued securities. The superior returns earned out of the ability of stock selection can be known from Jensen's alpha.
Jensen's measure may be represented in the following equations:
$$Rpt - Rft = \propto pt + \beta pt(Rmt - Rft) + \in pt - - - - (1)$$

Where

Rpt = return of the fund 'p' for period 't'

Rft = risk-free return for period 't'

Rmt = return on the benchmark (market) portfolio for period 't'

∈pt = random error term

α_{pt}, β_{pt} are the parameters of the model and are estimated by OLS techniques. A positive and significant value of α_{pt} will indicate superior selectivity skills of the fund managers.

As shown in equation (1) the excess fund return is regressed with excess market return. Here, excess fund return and that on the market, in comparison to the risk free return are acting as dependent and independent variables respectively. In this Jensen's α_{pt} i.e. the intercept of this regression equation measures the portfolio manager's predictive ability to achieve higher return than expected for the given riskiness. Beta coefficient measures the systematic risk of the portfolio.

However, it is assumed the systematic risk exposure is constant for the given time period i.e. β_{pt} is constant and hence, the above equation is actually evaluating the superior stock selectivity skills or its absence in a fund manager. Thus, a positive and significant value of α_{pt} will definitely show superior microforecasting abilities of the fund manager unlike a negative value which indicates wrong microforecasting abilities.

There are studies (Lee and Rahman, 1990 and Henriksson, 1984) which indicate that the market timing activities of the fund manager would have an impact on the results of microforecasting ability tests i.e. the values of α_{pt} will be distorted. Hence, it is imperative to evaluate the impact of both stock selectivity and market timing skills of the fund managers.

Two models developed by Treynor & Mazuy (1966) and Henriksson & Merton (1984) have been employed in this study to test both the selectivity and market timing skills of the fund managers.

(b) **TM Model**: Treynor and Mazuy (1966) added a quadratic term (squared term) to the excess - return version of the Jensen's single index model to detect the market timing skills of the portfolio managers. The model suggested by them can be represented in the following equation:

$$Rpt - Rft = \propto p + \beta p (Rmt - Rft) + \gamma p (Rmt - Rft)^2 + \in pt - - - (2)$$

Where $\propto p, \beta p$ & γp are the parameters of the model.

The parameters can be calculated by using standard regression methodology. According to this model, if γp has a statistically significant positive value it indicates that the mutual fund manager possess market timing skills where as if γp is negative valued, there is lack of market timing ability in fund managers. An insignificant value of γp also indicates that the fund managers cannot time the market efficiently.

However, if αp is having a significant positive value, it indicates the stock selectivity skills of the fund managers, as in the Jensen's model.

(c) **HM Model** – Henriksson & Merton (1981) developed a simpler model to assess the market timing abilities of the fund managers. According to this model, the fund manager allocates the funds in risk-free assets and equities depending on its ability to forecast the excess market returns in future i.e. his market timing ability. Thus, he will select the assets with higher value of β when the market is expected to perform better i.e. Rm≥Rf and similarly, will select those assets whose β value is low when the market is expected to go southwards i.e. Rm ≤ Rf.

Thus, such a relationship can be estimated by involving the dummy variable. The relationship can be exhibited in the form of the following regression equation:

$$Rmt - Rft = \propto p + \beta p (Rmt - Rft) + \gamma p [D(Rmt - Rft)] + \in pt \quad Eq. (3)$$

Where D is the dummy variable that is equal to 'O' for the period when Rmt ≥ Rft and -1 when Rmt ≤ Rft.

α_p, β_p & γ_p are the parameters of the regression equation (3)

Here, the parameter β_p corresponds to the up-market (bullish) beta of the portfolio whereas ($\beta_p - \gamma_p$) indicates the bearish or down-market beta of the portfolio. Thus, it is clear that γ_p is the difference between the values of these two betas & a significantly positive value of γ_p indicates the market timing ability of the fund managers. In other words, a statistically significant positive value of γ_p indicates, superior macro forecasting skills of the fund manager and vice versa.

VARIABLE DESCRIPTION

The variable **return** is used in this study to employ the three models i.e. the Jensen model (1968), Treynor Mazuy Model (1966) & the Henriksson Merton model (1981)

RETURN

The returns for each of the sample schemes has been calculated by using the following formula:

$$Rpt = \frac{NAV\, p,t}{NAV\, p,(t-1)} - 1$$

where R_{pt} = Return of the sample mutual fund scheme (portfolio) on the basis of NAV for period 't'

$NAV_{p,t}$ = Net asset value of fund 'p' in period 't'

$NAV_{p,(t-1)}$ = Net asset value of fund 'p' in period 't-1'

t & t-1 indicate present & previous day NAVs respectively.

Similarly, the returns for the market index have been computed as follows:

R_{mt} = $\dfrac{\text{Market Index t} - \text{Market Index t-1}}{\text{Market Index t-1}}$

Where R_{mt} = Return of the market index for period t.

Market Index t = Market value of the index in period t.

Market Index t-1 = Market value of the index in period 't-1'.

't' and 't-1' are the present day and previous day market value of the index respectively.

Likewise, the risk free return (R_{ft}) has been calculated by taking the yield of 91 – day treasury bill as the surrogate for risk free return. We converted the T- bill yield in annualized form (R_{aft}) into daily form as follows:

R_{ft} = $\dfrac{\ln(1+R_{aft})}{365}$

R_{aft} is the annualized yield as reported in the RBI website (http://www.rbi.org.in) at time t.

EMPIRICAL FINDINGS & DISCUSSION

Appendix 1 represents the output for SBI FMCG FUND obtained by employing the E-views software for the three models on the basis of which the analysis is done. Similar outputs are obtained for the rest of the sample mutual fund schemes**.**

Table 1.1, 1.2 and 1.3 show the consolidated estimated results of the Jensen's, TM and HM model respectively for the top 15 mutual funds analyzed for the study. We have also reported the t-statistics and p-values of the estimated coefficients.

ASSESSMENT USING JENSEN'S MODEL

The stock selectively skills of the mutual fund managers for the sample mutual fund schemes is calculated using equation (1) of the Jensen's model. The summary of stock selectivity is presented in table 1.1. It is clearly seen from the results of this table that all the sample mutual fund schemes are characterized by negative alphas that are statistically significant at five percent level of significance. This indicated that the stock selection skills of fund managers of these schemes appear to be questionable. Thus, the results of selectivity based on Jensen's model reveal that the Indian mutual fund managers do not have superior selectivity skills during the period under consideration.

The above analysis infers that the supernormal performance of the selected mutual fund schemes is due to random chance and the fund managers of these schemes do not possess superior selectivity skills.

ASSESSMENT USING TM MODEL

Table 1.2 presents the empirical results for the TM (1966) model using equation (2) for the sample mutual fund schemes. The observation and analysis of the results in table 1.2 reveals that the fund managers of all the top fifteen growth oriented equity mutual fund schemes do not possess superior selectivity skills as the alphas generated are negative and statistically significant at five percent level of significance.

According to Treynor and Mazuy, gamma on the equation (2) is a measure of market timing skill of fund managers. In another column of the table 1.2, we have the coefficient gamma (γ) values of the various mutual fund schemes selected for the study. The coefficient gamma is negative for 13 schemes and only for two schemes it is positive. The two schemes for which we have positive gamma values are ICICI PRU focus blue chip fund and HDFC TOP 200 fund but none of these are statistically significant at five percent level of significance. However, out of the thirteen sample schemes with negative gamma coefficients only seven of the schemes are found to be statistically significant at five percent. This clearly indicates that the managers of these seven schemes were applying their timing skills but not so in the right direction. These schemes were ICICI PRU FMCG fund, Birla Sunlife Equity Fund, SBI Pharma fund, DSP Black Rock Top 100 equity fund, UTI Pharma & Healthcare fund, Kotak Global emerging market fund and UTI equity fund. The fact that these funds are among the top fifteen best performing funds in their category proves that the performance is merely because of the random luck of the investors and prevailing market conditions, the skills of the fund managers are not playing any positive role in it.

ASSESSMENT USING HM MODEL

Table 1.3 presents the empirical results using HM model by applying equation (3) for the sample mutual fund schemes. An analysis of the table shows that fund managers of all the sample mutual fund schemes have generated negative alpha values and most of them are statistically significant. The alpha values are not significant at 5% level of significance for two schemes only i.e. UTI equity fund and HDFC TOP 200 fund. Thus, it overall indicates that none of the fund managers of the sample mutual fund schemes possess superior microforecasting or stock selection abilities.

The coefficient gamma values representing the market timing abilities of the fund managers are shown in the next column of the same table. The gamma values of 10 mutual fund schemes are positive but none of them are statistically significant at 5% level of significance. However, the gamma value of UTI Pharma fund is positive as well as statistically significant at 10% level of significance.

The gamma coefficient values of five of the sample schemes are negative and two of these schemes are statistically significant. This shows that 20% of the sample mutual fund schemes were able to record statistically significant γ values. The results show that few schemes have shown positive gamma value but except one all of them are not significant statistically. Thus, it supports the view that even fund managers of the top performing funds do not exhibit remarkable ability to time the market. They were not able to switch over their fund's β and take the advantage of market movements to earn superior returns from the market timing skill.

Thus, an analysis of the table showing the results of HM model clearly gives us an evidence that the Indian mutual fund managers neither possess good stock selectivity skills nor market timing abilities.

CONCLUSION & SUGGESTIONS

In this research paper, performance of Indian managers of top fifteen growth oriented equity mutual fund schemes were analyzed in terms of their stock selectivity and market timing skills by applying three models namely Jensen Model TM model and the HM model.

The empirical evidences indicate that most of the fund managers do not exhibit superior selectivity skill and market timing ability according to each of the three models adopted in this study. Thus, this proves that both the null hypotheses are false.

In accordance with the other Indian and global studies, this study suggests that the fund managers were not able to provide superior premiums to the investors by their extraordinary skills. The negative values of gamma indicate perverse market timing strategies of the fund managers. The fund managers have failed to capitalize on their professional expertise.

The research study, thus, concludes that even the fund managers of the top performing funds in India are not involved in efficient market timing and stock selection activities. They are more dependent on the market movements and do not provide any value addition to the portfolios of the mutual fund schemes, which they are supposed to manage.

The research findings of the present study suggest that the fund managers of Indian mutual fund industry should adopt proper investment research before selecting a particular security for investment and this would definitely help them out in enhancing their stock selection ability and thus, adding value to the portfolios managed by them. Besides this, they should also follow any of the market timing strategies like fundamental indicators, technical indicators or societal indicators to time the market efficiently.

LIMITATIONS

The present study should be interpreted with caution due to few limitations. Firstly, it has a sample of only open ended growth oriented equity mutual funds which invest maximum percentage of their investment in equities and their main aim is capital appreciation. Secondly, the sample period of the study is only six years though it includes both the bearish (2008) and bullish (2013) phases of the Indian stock market.

Inspite of the above mentioned limitations, the study is quite relevant in the present scenario where we have to incorporate certain pertinent measures to attract the interest of investors towards the mutual fund industry in India.

The present study contributes to the above cause by guiding the fund managers to take few valuable steps so that they can not only add value to the portfolios of their investors but also exhibit effective professional skills.

SCOPE FOR FURTHER RESEARCH

A fruitful area of research related to the present study may be to use the conditional models to analyze the market timing skills and stock selectivity abilities of the Indian mutual fund managers.

Further, the study can be extended by examining not only open ended but also closed ended equity and dividend schemes. Thus, future research could be done by considering a larger sample over a longer time span.

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APPENDIX

APPENDIX 1
SBI FMCG FUND
Jensen model
Dependent Variable: RPT_RFT
Method: Least Squares
Date: 05/25/14 Time: 21:20
Sample (adjusted): 1/04/2013 3/21/2014
Included observations: 295 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RMT_RFT	0.646145	0.039436	16.38458	0.0000
C	-0.001960	0.000472	-4.151675	0.0000
R-squared	0.478141	Mean dependent var		-0.005693
Adjusted R-squared	0.476360	S.D. dependent var		0.009815
S.E. of regression	0.007102	Akaike info criterion		-7.050105
Sum squared resid	0.014779	Schwarz criterion		-7.025109
Log likelihood	1041.891	F-statistic		268.4545
Durbin-Watson stat	1.834848	Prob(F-statistic)		0.000000

APPENDIX 1 (Contd.)
TM MODEL
Dependent Variable: RPT_RFT
Method: Least Squares
Date: 06/03/14 Time: 16:16
Sample (adjusted): 1/04/2013 3/21/2014
Included observations: 295 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RMT_RFT	0.599517	0.046732	12.82898	0.0000
RMT_RFT_2	-3.655088	1.984954	-1.841397	0.0666
C	-0.001706	0.000490	-3.480143	0.0006
R-squared	0.484131	Mean dependent var		-0.005693
Adjusted R-squared	0.480598	S.D. dependent var		0.009815
S.E. of regression	0.007073	Akaike info criterion		-7.054871
Sum squared resid	0.014609	Schwarz criterion		-7.017376
Log likelihood	1043.593	F-statistic		137.0178
Durbin-Watson stat	1.844007	Prob(F-statistic)		0.000000

APPENDIX 1 (Contd.)
HM MODEL
Dependent Variable: RPT_RFT
Method: Least Squares
Date: 05/25/14 Time: 21:39
Sample (adjusted): 1/04/2013 3/21/2014
Included observations: 295 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RMT_RFT	0.688836	0.056490	12.19405	0.0000
DUMMY	0.001436	0.001360	1.055314	0.2922
C	-0.002784	0.000912	-3.051543	0.0025
R-squared	0.480124	Mean dependent var		-0.005693
Adjusted R-squared	0.476563	S.D. dependent var		0.009815
S.E. of regression	0.007101	Akaike info criterion		-7.047132
Sum squared resid	0.014723	Schwarz criterion		-7.009638
Log likelihood	1042.452	F-statistic		134.8362
Durbin-Watson stat	1.829897	Prob(F-statistic)		0.000000

TABLE 1.1: RESULTS OF JENSEN'S MODEL: FUNDWISE ANALYSIS

TOP 15 MUTUAL FUNDS	α_p	t(α)	p(α)	β_p	t(β)	p(β)
SBI FMCG Fund	-0.0019	-4.15	0	0.646145	16.38458	0
ICICI Pru. FMCG Fund	-0.0024	-10.9	0	0.483641	38.307	0
Birla Sun Life Eq. Fund	-0.0076	-6.153	0	0.869256	86.71	0
SBI Pharma Fund	-0.0024	-9.015	0	0.4988	33.678	0
L&T Global Real Assets Fund	-0.0052	-9.485	0	0.0648	1.385	0.1668
DSP BR Top100 Eq. Fund	-0.0011	-7.911	0	0.7692	93.412	0
ICICI Pru.Focus Bluechip Eq Fund	-0.0009	-5.08065	0	0.780276	79.6653	0
Franklin India Bluechip Fund	-0.0008	-6.3132	0	0.821008	113.9952	0
UTI Pharma& Healthcare Fund	-0.0028	-13.3529	0	0.397644	32.82032	0
Kotak Global Emerging Market Fund	-0.0027	-8.19153	0	0.509479	28.27249	0
BNP Paribas equity Fund	-0.0013	-11.2231	0	0.755862	81.25805	0
Axis Equity Fund	-0.0007	-8.64366	0	0.862915	139.535	0
UTI Equity Fund	-0.0014	-10.9202	0	0.700421	94.70113	0
Canara Robecco Large Cap Fund	-0.0014	-14.4668	0	0.751887	100.0195	0
HDFC Top 200 Fund	-0.0009	-5.20589	0	0.808923	85.55886	0

NOTE: In the above table α_p represents the stock selectivity skills of mutual fund managers. β_p represents the systematic risks of the portfolio of the respective mutual fund scheme.

t(α),p(α), **t(β)**, p(β) represent the t- statistics and p – values of α and β coefficients respectively.

TABLE 1.2: RESULTS OF TREYNOR & MAZUY'S MODEL: FUNDWISE ANALYSIS

TOP 15 MUTUAL FUNDS	α_p	t(α)	p(α)	γ_p	t(γ)	p(γ)
SBI FMCG Fund	-0.00171	-3.48	0.0006	-3.655	-1.8413	0.0666
ICICI Pru. FMCG Fund	-0.00204	-8.88	0	-1.724	-5.7296	0
Birla Sun Life Eq. Fund	-0.00061	-4.564	0	-1.762	-3.2292	0.0013
SBI Pharma Fund	-0.00195	-7.1082	0	-1.547	-5.8811	0
L&T Global Real Assets Fund	-0.00352	-4.234	0	-9.565	-1.91	0.0581
DSP BR Top100 Eq. Fund	-0.00095	-6.3058	0	-0.8999	-4.564	0
ICICI Pru.Focus Bluechip Eq Fund	-0.00093	-5.20744	0	0.202236	1.173795	0.2407
Franklin India Bluechip Fund	-0.00074	-5.5538	0	-0.29257	-1.688013	0.0916
UTI Pharma& Healthcare Fund	-0.00242	-11.0026	0	-1.942472	-6.754819	0
Kotak Global Emerging Market Fund	-0.00204	-6.07764	0	-2.161558	-6.842179	0
BNP Paribas equity Fund	-0.00122	-9.75258	0	-1.048196	-2.080713	0.0378
Axis Equity Fund	-0.00064	-7.71528	0	-0.296846	-0.877318	0.3805
UTI Equity Fund	-0.00125	-9.20887	0	-0.796089	-4.497435	0
Canara Robecco Large Cap Fund	-0.00131	-12.8913	0	-0.636144	-1.550451	0.1214
HDFC Top 200 Fund	-0.00096	-5.36767	0	0.223592	1.317423	0.1879

NOTE: In the above table α_p represents the stock selectivity skills of mutual fund managers. γ_p represents the market timing ability of the portfolio managers of the respective mutual fund schemes.

t(α),p(α), **t(γ)**, p(γ) represent the t- statistics and p – values of α and γ coefficients respectively.

TABLE 1.3: RESULTS OF HENRIKSSON MERTON'S MODEL: FUNDWISE ANALYSIS

TOP 15 MUTUAL FUNDS	α	t(α)	p(α)	γ	t(γ)	p(γ)
SBI FMCG Fund	-0.00278	-3.0515	0.0025	0.001436	1.055	0.2922
ICICI Pru. FMCG Fund	-0.00257	-6.0144	0	0.000252	0.4037	0.6865
Birla Sun Life Eq. Fund	-0.00111	-4.6782	0	0.000619	1.707	0.0881
SBI Pharma Fund	-0.00382	-7.4629	0	0.0024	3.246	0.0012
L&T Global Real Assets Fund	-0.00523	-4.9012	0	0.00009	0.0587	0.953
DSP BR Top100 Eq. Fund	-0.00075	-2.096	0.0071	-0.00067	-1.666	0.0959
ICICI Pru.Focus Bluechip Eq Fund	-0.00086	-2.59536	0.0095	-1.68E-05	-0.035158	0.972
Franklin India Bluechip Fund	-0.00107	-4.4035	0	0.000467	1.307513	0.1912
UTI Pharma& Healthcare Fund	-0.00347	-8.46173	0	0.001069	1.781624	0.075
Kotak Global Emerging Market Fund	-0.00311	-4.94957	0	0.000712	0.783576	0.4334
BNP Paribas equity Fund	-0.00131	-5.82083	0	-2.01E-05	-0.058327	0.9535
Axis Equity Fund	-0.0008	-5.45881	0	0.000248	1.109013	0.2677
UTI Equity Fund	-0.00038	-1.34195	0.1798	-0.00149	-3.74464	0.0002
Canara Robecco Large Cap Fund	-0.00118	-6.55539	0	-0.00033	-1.19975	0.2306
HDFC Top 200 Fund	-0.00056	-1.71378	0.0868	-0.00055	-1.166028	0.2438

NOTE: In the above table α_p represents the stock selectivity skills of mutual fund managers. γ_p represents the market timing ability of the portfolio managers of the respective mutual fund scheme.

t(α),p(α), **t(γ)**, p(γ) represent the t- statistics and p – values of α and γ coefficients respectively.

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