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An Empirical Analysis of Market Timing Performance of Indian Asset Management Companies under Unconditional Model

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Abstract This main purpose of the research is to examine the market timing and stock selection abilities of the Indian Asset Management Companies (AMC's) from April 2000 to March 2014. To achieve the major objective of the study, unconditional market timing techniques are applied on a sample size of 62 mutual fund schemes developed by Treynor & Mazuy (1966) and Henriksson & Merton (1981). The research also characterized the results on the basis of institutional sponsorships and investment objectives of the sample mutual fund schemes managed by asset management companies. The study confirms the presence of stock selection abilities but Indian asset management companies do not exhibit the market timing abilities to create additional value to the managed funds within the study period.

Keywords Portfolio Evaluation, Stock Selection, Market timing, Asset management companies

1. Introduction

The Indian capital market witnessed unprecedented growth and development since globalization and these developments relate to innovation of financial instruments and one such preferred investment option is mutual funds. Mutual fund is an investment vehicles created by asset management companies, specializing in pooling saving of both retail and institutional investors (Abdullah, Hassan & Mohamad, 2007). The asset management industry plays an important role in the financial intermediation of investible funds in the capital market. Global Asset management industry has witnessed a remarkable growth during last fifteen years. As per the periodical report revealed by Investment Company Institute (2015) and International Investment Fund Association (2015), Asset under Management (AUM) of the worldwide industry increased to $31.38 trillion at the end of fourth quarter of 2014. The America region has the largest contribution in the AUM and numbers of schemes as it hold $ 18.01 trillion of AUM and 22962 of mutual fund schemes. The America region is followed by Europe, Asia and Pacific and Africa. The AUM of the Asia Pacific was $3.64 trillion which increased by more than 3 times as compared to figure of the year 2000. These statistics confirmed the increasing dominance of the emerging market of Asia Pacific in the global asset management industry.

Table 1. Global Asset Management Industries- Region-Wise

(AUM in US$ Million)

REGION	Asset Under Management		No. of Schemes	
	2000	2014	2000	2014
America	7424112	18012199	12676	22962
Europe	3296016	9576475	25524	35163
Asia and Pacific	1133979	3646276	13158	20373
Africa	16921	146474	334	1171
World	**11871028**	**31381425**	**51692**	**79669**

Source: ICI- Factbook 2015 and IIFA- Industry Statistics 2015

Stock selection and market timing is the two important component in the performance evaluation of asset management company. Deb, Banerjee, & Chakrabarti (2007) defined the market timing as skills imply assessing correctly the direction of the market, whether bull or bear and positioning their portfolio accordingly and stock selection skills as a process of micro forecasting which generally forecasts price movement that are under or overvalued relative to stock identification of individual stocks that are under or overvalued relative to equities in general. In simple terms Oueslati, Hammami & Jilani (2014) explained selectivity skills as the ability of the fund managers to pick up undervalued assets whereas the market timing skills denote to predict future market fluctuations.

The evaluation of the performance of asset management companies has the prominent importance for the academicians and investors. The popularity of investment in mutual fund schemes managed by these companies has

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grown dramatically since the private sector companies were allowed to enter in the market. India steadily emerged as a center of attractive investment opportunities, owing to high GDP growth rate and rising level of per capita income. The asset management industry is one of the fast growing sectors in India since economic reforms in 1991. The asset under management (AUM) of Indian asset management companies increased from Rs. 90587 crore (3.85 per cent of the GDP) in 2000-01 to Rs. 905120 crore (15.74 per cent of the GDP) in 2013-14. The growth of the industry provide wide variety of investment option to the investors since there are 1638 mutual fund schemes at the end of March 2014. The penetration of the industry also shows the remarkable growth over the period of time. This research mainly focused on the research problem that whether the investment performance of Indian Asset Management Companies provides risk adjusted return to the investors and whether they were able to time the market effectively during the study period. The study aims to find out whether asset management companies are able to add the value in the investment with their stock selection and market timing strategies. The study contributes in providing an analytical framework to assess the performance of Indian AMC's in capital market since 2000.

This research paper consists of five sections which starts with introduction and followed by brief review of relevant existing studies. The next section provides the methodology followed by empirical result of the research based on models developed by Treynor & Mazuy (1966) and Henrsiksson & Merton (1981). The final section presents conclusion of the research paper.

2. Literature Review

It is always a difficult practice to adopt the appropriate evaluation models to assess the performance of portfolio managed by asset management companies. Some of the important studies which develop evaluation techniques include Treynor (1965), Sharpe (1966), Jensen (1968) and Fama (1972). Jensen (1968) is the most widely used and heavily criticized performance technique in comparison with Treynor (1965) and Sharpe (1966). Some of the critiques were Admati & Ross (1985), Dybvig & Ross (1985), and Grinblatt & Titman (1989). Argument was given as study of Jensen classifies the successful market timers as poor performers. The pioneer contribution in the field of portfolio evaluation was given by Treynor & Mazuy (1966) and Henriksson & Merton (1982) who developed a model to test the market timing ability of asset management companies. Treynor & Mazuy (1966) studied the 57 US growth and balanced mutual fund schemes during the period of 1953 to 1962 and proposed a model which is extension of Capital Asset Pricing Model (CAPM) propounded by Jensen (1968). They concluded that there is no statistical evidence that funds managers have successfully outguessed the market. Henriksson & Merton (1982) conducted a study with an objective to develop more qualitative approach of measuring the market timing. There were 67 sample mutual fund schemes analyzed for the period of 1968 to 1980. They suggested that the parametric test could be used without assumptions on distribution of portfolio returns if any asset management company has an ability to forecast the future observation.

Apart from these benchmark studies, a rich literature reported a very little presence of market timing ability of fund manager such as Chang and Lewellen (1984), Chua and Woodward (1986), Sinclair (1990), Gallo and Swanson (1996), Chen, Ferson and Peters (2003), Jiang, Yao & Yu (2007). Jiang (2001) proposed a nonparametric test for market timing ability of fund managers to analyze large sample of mutual funds that have different bench mark indices. In the most recent studies, Bodson, Cavenaile & Sougne (2013) globally investigated the market timing abilities of fund managers from the perspective of market return, market wide volatility and aggregate liquidity. They found very few schemes display market timing skills.

In the major recent studies, Angelidis T. et al. (2013) introduced a new factor exposure based approach for measuring the static and dynamic timing capabilities of asset managers. The research suggested that evaluating stock selection skill and market timing ability in a way that was consistent with common asset management practices. They concluded that earlier studies were failed to measure skill stock selection and market timing because they ignore the manager's self-reported benchmark in the performance evaluation process. Skrinjaric T. (2013) attempted to find evidence of market timing abilities of Croatian funds estimating He selected the sample of ten funds based on highest assets in 2010 and 2011 in Croatia and monthly data was collected from December 2002 to November 2011 for analysis. The result had indicated a lack of market timing abilities of selected funds and the reason was lack of good forecasting abilities and presence of defensive behavior. Eleonora G. (2012) in their research evaluated the performance of 220 open ended equity mutual funds of European countries (from weak and strong economies) for a period of 8 years from January 2004 to December 2011. He split the study period in two four year sub periods in order to examined their performance prior to global financial crisis and after its brunt in 2008. He found that fund managers reported absence of market timing, no mutual fund showed abnormal returns and information ratio indicated that only Italian fund managers had stock picking abilities.

Sheikh M. J. & Noreen U. (2012) analyzed the performance of the fund managers of U.K. and their market timing abilities. The study employed two widely accepted performance measurement techniques i.e. Jensen alpha measure and Treynor and Mazuy market timing hypothesis. They concluded that the fund managers lacked the ability to predict the market movement on consistent bases. They were unable to outperform the market and could not beat the benchmark. They found that fund managers also lack market timing abilities which support the efficient market hypothesis proposed by Fama and any chance of outperforming the market was merely a random chance and

this could not be done on consistent bases. Villadsen M. (2011) provided a performance analysis of 60 Danish mutual funds in the period from 2001-2009. This study includes the investment performance measures and market timing models (T&M Model) to evaluate the performance of sample mutual fund schemes. It was found that 8 mutual fund schemes investing in Danish stocks showed significant timing abilities and in remaining schemes timing abilities were nort present.

In the country specific studies Dieu (2015) in French market, Mushah, Senyo, & Nuhu (2014) in Ghana market, Cuthberston & Nitzsche (2014) in German, Afza & Rauf (2009) in Pakistan, Cuthbertson, Nitzsche & Sullivan (2006) in UK, Kader & Qing (2007) in Hong Kong, Lhabitany (2001) in Swiss market, Dewi & Ferdian (2012) in Malaysia, Philippas (2002), Low (2012) in Greek market, Ashraf (2013) in Saudi Arabia, Christensen (2005) in Danish market found very less evidence of market timing ability of fund managers to generate additional value of the investors.

In the Indian context some efforts are made to evaluate the market timing ability of Asset management companies. Ramesh & Dhume (2014) analyzed the market timing ability and stock selection skills of Indian fund managers based on 68 open ended mutual fund schemes and concluded that Indian mutual fund managers were not good at timing the market whereas they possess excellent stock selection skills for choosing the portfolio. Zabiulla (2014) examined the portfolio strategy of Indian fund managers and the impact of asset size and market capitalization on the fund performance and found that fund managers did not exhibit any stock selection skills and market timing ability to provide additional value to the investment. Tripathi (2006) Deb, Banerjee & Chakrabarti (2007), Sondhi & Jain (2006), Bhuvaneswari & Selvam (2011) found the insignificant performance of market timing abilities of asset management companies. Dhar & Mandal (2014) revealed that majority of the fund managers were unable to time the market correctly during the study period and suggested that conditioning only the public information improves the coefficient of determination. Roy & Deb (2004) examined the effect of incorporating lagged information variables into the evaluation of performance of fund manager. They suggested that the use of conditioning lagged information variables improves the performance of the mutual funds, causing the alphas to shift towards the right and reducing the number of negative timing coefficient. Some studies like Bollen & Busse (2001), Jiang, Yao, and Yu (2007), Huang & Wang (2010) and Cao, Chen, Liang, & Lo (2011) are the exception to the literature in the evaluation of the performance of fund managers found significant market timing ability.

Table 2. Description of sample mutual fund schemes and Benchmark Index

Sample Mutual Fund Scheme	Code	Benchmark	Code	Launch	Net Assets	Institutional Sponsorship	Investment Objective
Baroda Pioneer Equity Linked Saving Scheme 96	1	S&P BSE Sensex	R	3/1/1996	27.3	Bank Sponsored	Growth
Birla Sun Life 95 – Growth	2	S&PBSE Sensex	R	2/1/1995	646.5	Private	Hybrid
Birla Sun Life Advantage Fund – Growth	3	S&P BSE 200	O	2/1/1995	286.3	Private	Growth
Birla Sun Life Buy India Fund – Growth	4	S&P BSE 200	O	1/1/2000	33.8	Private	Growth
Birla Sun Life Gilt Plus Liquid Plan – Growth	5	S&P BSE Sensex	R	10/1/1999	26.1	Private	Income
Birla Sun Life Gilt Plus PF Plan – Growth	6	S&P BSE Sensex	R	10/1/1999	32.4	Private	Income
Birla Sun Life Income Plus – Growth	7	S&P BSE Sensex	R	10/1/1995	5129.1	Private	Income
Birla Sun Life India Opportunities Fund – Growth	8	CNX 500	A	12/1/1999	39.4	Private	Growth
Birla Sun Life MNC Fund – Growth	9	CNX MNC	E	12/1/1999	443.9	Private	Growth
Birla Sun Life Monthly Income Plan – Growth	10	S&P BSE Sensex	R	11/1/2000	115.1	Private	Hybrid
Birla Sun Life New Millennium – Growth	11	S&P BSE Teck	S	1/1/2000	68.5	Private	Growth
CanaraRobeco Gilt PGS- Growth	12	S&P BSE Sensex	R	12/1/1999	18.8	Bank Sponsored	Income
CanaraRobeco Monthly Income Plan – Growth	13	S&P BSE Sensex	R	4/1/1988	207.3	Bank Sponsored	Hybrid
DSP BlackRock Balanced Fund – Growth	14	S&P BSE Sensex	R	5/1/1999	482.3	Private	Hybrid
DSP BlackRock Bond Fund - Retail Plan – Growth	15	S&P BSE Sensex	R	4/1/1997	292.1	Private	Income
Escorts Income Plan – Growth	16	S&P BSE Sensex	R	3/1/1998	28.1	Private	Income
Franklin India Bluechip– Growth	17	S&P BSE Sensex	R	11/1/1993	4787.8	Private	Growth
Franklin India Opportunity Fund – Growth	18	S&P bse 200	O	2/1/2000	274.3	Private	Growth
Franklin India Prima Plus – Growth	19	CNX 500	A	9/1/1994	2014.4	Private	Growth
Franklin Infotech Fund – Growth	20	S&P BSE IT	P	8/1/1998	157.1	Private	Growth
Franklin Templeton India Balanced Fund –	21	S&P BSE Sensex	R	12/1/1999	215.2	Private	Hybrid

Sample Mutual Fund Scheme	Code	Benchmark	Code	Launch	Net Assets	Institutional Sponsorship	Investment Objective
Growth							
Templeton India Pension Plan – Growth	22	S&P BSE Sensex	R	3/1/1997	246.7	Private	Hybrid
HDFC Equity Fund – Growth	23	CNX 500	A	12/1/1999	10444.9	Private	Growth
HDFC High Interest Fund- Dynamic Plan – Growth	24	S&P BSE Sensex	R	4/1/1997	867.5	Private	Income
HDFC Prudence Fund – Growth	25	S&P BSE Sensex	R	1/1/1994	5146	Private	Hybrid
HDFC Tax Saver – Growth	26	CNX 500	A	3/1/1996	3505.3	Private	Growth
HDFC Top 200 – Growth	27	S&P BSE 200	O	9/1/1996	10319.7	Private	Growth
ICICI Prudential Balanced – Growth	28	S&P BSE Sensex	R	10/1/1999	640.1	Private	Hybrid
ICICI Prudential FMCG – Growth	29	CNX FMCG	C	3/1/1999	217.4	Private	Growth
ICICI Prudential Technology Fund – Growth	30	S&P BSE IT	P	1/1/2000	213.7	Private	Growth
ICICI Prudential Top 100 Fund – Cumulative	31	CNX Nifty	F	6/1/1998	468.5	Private	Growth
ICICI Prudential Top 200 Fund – Growth	32	S&P BSE 200	O	9/1/1994	446.2	Private	Growth
ING Core Equity Fund – Growth	33	S&P BSE 200	O	5/1/1999	57/7	Private	Growth
ING Income Fund - Regular Plan – Growth	34	S&P BSE Sensex	R	5/1/1999	11.7	Private	Income
JM Balanced – Growth	35	S&P BSE Sensex	R	12/1/1994	6.5	Private	Hybrid
JM Equity – Growth	36	S&P BSE Sensex	R	12/1/1994	31.7	Private	Growth
Kotak 50 – Growth	37	CNX Nifty	F	12/1/1998	627.4	Private	Growth
Kotak Balance – Growth	38	S&P BSE Sensex	R	11/1/1999	341.3	Private	Hybrid
Kotak Bond Deposit – Growth	39	S&P BSE Sensex	R	11/1/1999	150.82	Private	Income
L & T Triple Ace - Regular – Growth	40	S&P BSE Sensex	R	3/1/1997	1326.5	Private	Income
L & T Ultra Short Term Fund - Regular – Growth	41	S&P BSE Sensex	R	11/1/1997	795.57	Private	Income
LIC Nomura Bond Fund – Growth	42	S&P BSE Sensex	R	5/1/1999	140.5	Institution	Income
LIC Nomura Equity Fund	43	S&P BSE Sensex	R	2/1/1993	288.7	Institution	Growth
LIC Nomura MF Growth Fund – Growth	44	S&P BSE Sensex	R	8/1/1994	67.2	Institution	Growth
LIC Nomura Tax Plan	45	S&P BSE Sensex	R	3/1/1997	28.7	Institution	Growth
PRINCIPAL Balanced Fund – Growth	46	S&P BSE Sensex	R	12/1/1999	16	Private	Hybrid
PRINCIPAL Index Fund – Growth	47	CNX Nifty	F	6/1/1999	8.4	Private	Growth
Reliance Growth – Growth	48	S&P BSE 100	N	10/1/1995	4105.7	Private	Growth
Reliance Vision – Growth	49	S&P BSE 100	N	10/1/1995	2411.5	Private	Growth
SBI Magnum Balanced Fund – Growth	50	S&P BSE Sensex	R	10/1/1995	488.2	Bank Sponsored	Hybrid
SBI Magnum Equity Fund – Growth	51	CNX Nifty	F	11/1/1990	1048.7	Bank Sponsored	Growth
SBI Magnum Multiplier Plus 93 – Growth	52	S&P BSE 200	O	2/1/1993	1055.4	Bank Sponsored	Growth
SBI Magnum Tax Gain Scheme 93 – Growth	53	S&P BSE 100	N	3/1/1993	4141.6	Bank Sponsored	Growth
Sundaram Growth Fund – Growth	54	S&P BSE 200	O	3/1/1997	170.6	Private	Growth
Tata Balanced Fund – Growth	55	S&P BSE Sensex	R	10/1/1995	616.2	Private	Hybrid
Tata Ethical Fund - Appreciation (Formerly Select Equity Fund)	56	S&P BSE Sensex	R	5/1/1996	130.7	Private	Growth
Tata Pure Equity Fund – Growth	57	S&P BSE Sensex	R	5/1/1998	616.1	Private	Growth
Tata Tax Saving Fund	58	S&P BSE Sensex	R	3/1/1996	128.1	Private	Growth
Tata Young Citizens Fund	59	S&P BSE Sensex	R	10/1/1995	173.7	Private	Hybrid
Taurus Bonanza Exclusive Growth Scheme 95	60	S&P BSE 100	N	2/1/1995	19.8	Private	Growth
Taurus Discovery Fund – Growth	61	S&P BSE Sensex	R	9/1/1994	21	Private	Growth
Taurus Starshare Fund – Growth	62	S&P BSE 200	O	1/1/1994	150.3	Private	Growth

Source: Researcher Compilation

The literature review provides the need to conduct the research specially in Indian context. Bollen and Busse (2001) suggested that daily data are significant to draw the inferences than monthly and yearly data. In the Indian context, very few studies conduct the study based on daily data. Present study used daily frequency to evaluate the marketing ability of asset management companies. In this study result is also presented in sponsorship institution and objective classification of sample mutual fund schemes. The sample size and study period is also relatively large compared with earlier studies in order to provide meaningful observation. Therefore present study is an attempt to fill the uncovered area of existing literature.

3. Methodology

Sample Schemes

The study followed purposive sampling and the basic purpose is to draw the inferences on the basis of consistent samples which are in existence during entire study period. The samples mutual fund schemes are selected on the basis of schemes operating in the entire study period. First the asset management companies are selected which are in operation from 2000-01 to 2013-14. Than schemes are identified which are operating during the whole study period for selected companies. The study used a sample of 62 mutual fund schemes which belong to 19 Asset Management Companies, related to Bank sponsored, Institution and Private asset management companies. While 7 schemes from three bank sponsored companies, 4 schemes from one Institution companies and 51 schemes have taken from fifteen private asset management companies. Investment objective wise classification of the 62 schemes involves 36 growth schemes, 14 hybrid schemes and 12 income schemes. For the convenience in analysis, code is allotted to the sample mutual fund schemes and benchmark index. The details relating to the sample schemes and their respective benchmark index are given in Table 2.

The choice of the sample mutual fund schemes is largely been guided by the fact that sufficient information is available for the schemes and the sample is representative of all investment objective and institution sponsorship of the industry. In some cases the data is not available for benchmark index. The reason being index was launched after the starting period of the study. For such schemes S&P BSE Sensex is taken as benchmark index.

Objectives of the study

1. To analyze the stock selection ability and market timing ability of asset management companies in India.
2. To compare the market timing abilities of asset management companies in the context of institutional sponsorship and investment objectives.

Sources of Data

The study employed the secondary sources of data. The data have been collected from the various websites such as SEBI, AMFI, Value Research India, R.R. Finance, respective websites of mutual funds and benchmark index. For evaluating the stock selection and market timing abilities of sample mutual fund schemes the daily Net Asset Value (NAV) is taken into consideration for the period from April 2000 to March 2014. The closing value of respected benchmark indexes is also used to calculate the daily market return in the above mention period. The various performance evaluation techniques applied in the analysis are:

Models

Market timing of the asset management companies is tested through Treynor & Mazuy (1966) and Henriksson & Merton (1981) conditional Models. These models are based on the assumption that market timing can be estimated by establishing the relationship between risk and return while other variables remain constant. The description of the models is:

Treynor & Mazuy Market Timing Model (Unconditional)

Treynor & Mazuy (1966) have suggested that to examine the market timing abilities of fund managers a quadratic or squared term should be added to the excess return version of the market model. The model is specified as

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

where,

R_p*= denotes the average return of the mutual fund scheme,*

R_m*= denotes the average return of market or benchmark index,*

R_f*= denotes the average return on risk-free assets,*

α, β *and* γ *are the parameter of the model.*

ε_{pt} *= denotes to the error term.*

α, β, γ are the parameters of the model and can be estimated by the quadratic regression technique while all other symbols have their usual meanings. According to Treynor and Mazuy, γ is the measure of market timing. A significantly positive value of γ denotes the presence of market timing ability.

Henriksson & Merton Market Timing Model (Unconditional)

Henriksson & Merton (1981) proposed a similar but simple model to test the market timing abilities of the fund manager. Treynor & Mazuy (1966) argued in the model that the fund manager who times the market, is continuously changing the beta of his portfolio depending upon the magnitude of the ($R_m - R_f$) term. However, Henriksson & Merton in their model took a more qualitative approach to market timing. They assumed that the market timers are required to forecast whether $R_m \geq R_f$, (up markets) or $Rm \leq Rf$ (down markets) and select a fund beta accordingly (a large value if the market is expected to do well, i.e. $R_m \geq R_f$ and a small value otherwise, i.e. when $Rm \leq Rf$. The model is:

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

where

D is a dummy variable that equals to 0 in up markets, i.e. Rm ≥ Rf and -1 otherwise, i.e. when Rm ≤ Rf. The other symbols are as defined in equation as

R_p= denotes the average return of the mutual fund scheme,

R_m= denotes the average return of market or benchmark index,

R_f= denotes the average return on risk-free assets,

α, β and γ are the parameter of the model.

ε_{pt} = denotes to the error term

4. Empirical Results

This matrix is given in Table 3 gives a clear idea of risk-return relationship of all the samples in relation to the benchmark portfolio. The investor can link his investment to the quadrants on the lines of matrix. It can be clearly observed that all the bank sponsored and institutional schemes belong to low return quadrants and the majority of the private asset management schemes relate to high return segment. In the objective classification, most of the growth schemes provide high return while taking low and high risk while all hybrid and majority of the income schemes follows the low risk strategy. The finding of risk and return matrix of Zabiulla (2014) was consistent with the Fama & French (1992) confirmed that high return may be attainable by portfolio having low risk. In the present study 13 sample schemes provide high return and taking low risk and most of the schemes belong to private asset management companies.

To test the market-timing abilities of the Indian fund managers, two models proposed by Treynor & Mazuy (1966) and Henriksson & Merton (1981) have been utilized. Table 4 presents the summary of stock selectivity and market timing results of Treynor and Mazuy model. It can be observed from the table that the alpha value (α) of 15 mutual fund schemes were statistically significant out of which 12 (19.36 per cent of the total sample) schemes have the positive α value. These twelve schemes witnessed the successful stock selection ability of the asset management companies in terms of Treynor & Mazuy formulation. It was found that rests of the 47 schemes (75.8 per cent) were insignificant which have the positive α value.

The table showed that out of 62 mutual fund schemes asset managers of only 2 schemes (3.22 per cent) appears to be successful market timers. The observed value for their gamma coefficient is found to be positive and significant in terms of p value at five per cent level of significance. There are other ten sample schemes for which p value are significant but are negative. Rest of the fifty sample mutual schemes (80.64 per cent) depicts the insignificant value in which fourteen schemes have positive and thirty six have the negative gamma coefficient value.

Table 3. Risk-Return Matrix of the Sample Mutual Fund Schemes

High Return and Low Risk Funds (19)		**High Return and High Risk Funds (8)**	
$R_p>R_m$, $\sigma_p<\sigma_m$		**$R_p>R_m$, $\sigma_p>\sigma_m$**	
Sponsored Institution		*Sponsored Institution*	
Bank Sponsored	0	Bank Sponsored	0
Institutional	0	Institutional	0
Private	19	Private	8
Investment objective		*Investment objective*	
Growth	14	Growth	7
Hybrid	0	Hybrid	0
Income	5	Income	1
Low Return and Low Risk Funds (22)		**Low Return and High Risk Funds (13)**	
$R_p<R_m$, $\sigma_p<\sigma_m$		**$R_p<R_m$, $\sigma_p>\sigma_m$**	
Sponsored Institution		*Sponsored Institution*	
Bank Sponsored	3	Bank Sponsored	4
Institutional	2	Institutional	2
Private	17	Private	7
Investment objective		*Investment objective*	
Growth	3	Growth	12
Hybrid	11	Hybrid	1
Income	8	Income	0

Table 4. Result of Treynor & Mazuy Model of Sample Mutual Fund Schemes

Scheme No.	Stock Selection Coefficient		Market Timing Coefficient		R^2
	A	p (α)	Γ	p (γ)	
1	0.000	0.182	-0.282	0.389	0.002
2	0.000	0.940	-0.496	0.038	0.012
3	0.000	0.801	-0.667	0.050	0.002
4	0.000	0.208	-0.481	0.069	0.008
5	0.000	0.000	0.025	0.154	0.001
6	0.000	0.000	0.021	0.788	0.000
7	0.000	0.000	0.158	0.003	0.003
8	0.000	0.568	-0.591	0.104	0.002
9	0.000	0.617	-0.705	0.035	0.002
10	0.000	0.000	0.063	0.249	0.005
11	0.000	0.689	0.021	0.946	0.029
12	0.000	0.000	-0.032	0.641	0.000
13	0.000	0.000	-0.010	0.879	0.000
14	0.000	0.315	0.102	0.638	0.001
15	0.000	0.000	0.061	0.101	0.001
16	0.000	0.834	-0.111	0.840	0.000
17	0.000	0.548	-0.402	0.204	0.009
18	0.000	0.680	-0.120	0.744	0.007
19	0.000	0.674	-0.225	0.460	0.009
20	0.000	0.987	-0.437	0.029	0.025
21	0.000	0.930	-0.613	0.006	0.017
22	0.000	0.067	-0.147	0.278	0.003
23	0.000	0.611	0.059	0.855	0.002
24	0.000	0.000	0.162	0.000	0.004
25	0.000	0.499	-0.181	0.380	0.001
26	0.000	0.669	0.497	0.166	0.003
27	0.000	0.847	0.273	0.368	0.010
28	0.000	0.500	-0.140	0.567	0.001
29	0.000	0.625	-0.297	0.420	0.000
30	0.000	0.537	-0.697	0.000	0.007
31	0.022	0.331	-2.904	0.904	0.000
32	0.000	0.983	-0.138	0.687	0.001
33	0.000	0.552	-0.679	0.109	0.002
34	0.000	0.000	-0.016	0.754	0.001
35	-0.001	0.041	0.231	0.467	0.000
36	0.000	0.527	-0.488	0.172	0.001
37	0.000	0.957	-0.507	0.095	0.005
38	0.000	0.070	-0.576	0.026	0.001
39	0.000	0.000	-0.042	0.377	0.000
40	0.000	0.000	-0.042	0.377	0.000
41	-0.001	0.000	-0.038	0.814	0.001
42	0.000	0.000	-0.130	0.209	0.000
43	0.000	0.286	0.219	0.535	0.000
44	0.000	0.500	-0.217	0.535	0.002
45	0.000	0.336	-0.444	0.190	0.001
46	0.000	0.175	-0.010	0.967	0.001
47	0.000	0.462	0.052	0.863	0.000

Scheme No.	Stock Selection Coefficient		Market Timing Coefficient		R^2
	A	p (α)	Γ	p (γ)	
48	0.023	0.312	-6.681	0.805	0.000
49	0.000	0.359	-0.516	0.095	0.001
50	0.000	0.186	-0.203	0.455	0.000
51	0.000	0.138	0.312	0.339	0.000
52	0.000	0.856	-0.788	0.030	0.004
53	0.000	0.541	-0.755	0.058	0.001
54	0.000	0.882	-0.348	0.298	0.007
55	0.000	0.930	-0.545	0.033	0.002
56	0.000	0.603	-0.292	0.433	0.000
57	0.000	0.597	-0.619	0.064	0.009
58	0.000	0.233	-0.271	0.506	0.001
59	-0.001	0.003	-0.056	0.835	0.000
60	0.000	0.895	-0.195	0.576	0.000
61	0.014	0.566	36.544	0.190	0.020
62	0.000	0.542	-0.985	0.006	0.004

Source: Compile from daily return of the sample mutual fund schemes taken from SEBI and benchmark return taken from their respective website.

Table 5. Testing of Hypothesis (Treynor & Mazuy Model)

Treynor and Mazuy	Significant		Insignificant		Total
	Positive	Negative	Positive	Negative	
Sponsored Institution					
Bank Sponsored	0	1	1	5	7
Institutional	0	0	1	3	4
Private	2	9	12	28	51
Total	2	10	14	36	62
Investment Objective					
Growth	0	6	9	21	36
Hybrid	0	4	3	7	14
Income	2	0	2	8	12
Total	2	10	14	36	62

Source: Researcher Compilation

Table 6. Result of Henriksson and Merton Model of Sample Mutual Fund Schemes

Scheme No.	Stock Selection Coefficient		Market Timing Coefficient		R^2
	A	p (α)	Γ	p (γ)	
1	0.0000	0.7610	0.0010	0.4000	0.0020
2	0.0000	0.4290	0.0000	0.6650	0.0110
3	0.0000	0.6050	0.0010	0.1760	0.0010
4	0.0000	0.3360	0.0010	0.1350	0.0080
5	0.0000	0.0000	0.0000	0.9930	0.0000
6	0.0000	0.0110	0.0000	0.0940	0.0010
7	0.0000	0.0000	0.0000	0.1250	0.0010
8	0.0000	0.7640	0.0000	0.6250	0.0010
9	0.0000	0.7290	0.0000	0.7680	0.0000
10	0.0000	0.0000	0.0000	0.2220	0.0050
11	-0.0010	0.1570	-0.0020	0.1420	0.0290
12	0.0000	0.0050	0.0000	0.0710	0.0010
13	0.0000	0.0050	0.0000	0.0750	0.0010
14	0.0000	0.4290	0.0000	0.7560	0.0010

Scheme No.	Stock Selection Coefficient		Market Timing Coefficient		R^2
	A	p (α)	Γ	p (γ)	
15	0.0000	0.0000	0.0000	0.2090	0.0000
16	-0.0010	0.4120	-0.0010	0.4180	0.0000
17	0.0000	0.6550	0.0000	0.6990	0.0080
18	0.0000	0.8300	0.0000	0.8820	0.0070
19	0.0000	0.7100	0.0000	0.7560	0.0080
20	-0.0010	0.1360	-0.0010	0.1960	0.0240
21	0.0000	0.4050	0.0000	0.6480	0.0150
22	0.0000	0.2500	0.0001	0.7970	0.0030
23	0.0000	0.7940	-0.0001	0.8980	0.0020
24	0.0000	0.0000	0.0000	0.9590	0.0000
25	0.0000	0.3860	0.0000	0.0450*	0.0010
26	0.0000	0.3750	0.0010	0.2600	0.0020
27	0.0000	0.4650	0.0000	0.5820	0.0100
28	0.0000	0.2600	0.0000	0.4550	0.0010
29	0.0000	0.9480	0.0000	0.9380	0.0000
30	-0.0010	0.1770	-0.0010	0.2390	0.0030
31	0.0010	0.9700	-0.0410	0.4930	0.0000
32	0.0010	0.2540	0.0010	0.1180	0.0020
33	-0.0010	0.1500	-0.0010	0.3480	0.0020
34	0.0000	0.0000	0.0001	0.4820	0.0010
35	-0.0010	0.0880	0.0000	0.4870	0.0000
36	-0.0010	0.0910	-0.0010	0.1980	0.0010
37	0.0000	0.2600	-0.0010	0.3220	0.0050
38	0.0000	0.3250	0.0000	0.4890	0.0000
39	0.0000	0.0050	0.0000	0.0000*	0.0050
40	0.0000	0.0000	0.0000	0.0290*	0.0020
41	-0.0010	0.0110	0.0000	0.9860	0.0010
42	0.0000	0.0040	0.0000	0.9020	0.0000
43	0.0000	0.5790	0.0000	0.9980	0.0000
44	-0.0010	0.2590	-0.0010	0.4620	0.0030
45	-0.0010	0.0090	-0.0020	0.0270	0.0020
46	-0.0010	0.1160	0.0000	0.3720	0.0010
47	0.0000	0.9940	0.0000	0.5970	0.0000
48	-0.0010	0.9700	-0.0480	0.4200	0.0000
49	0.0000	0.4510	0.0000	0.5290	0.0000
50	0.0000	0.2340	0.0000	0.7820	0.0000
51	0.0000	0.3400	0.0000	0.8110	0.0000
52	0.0000	0.3400	0.0000	0.5980	0.0020
53	-0.0010	0.1050	-0.0010	0.2810	0.0000
54	0.0000	0.3320	-0.0010	0.3960	0.0070
55	0.0000	0.6080	0.0000	0.9440	0.0010
56	0.0000	0.6080	0.0000	0.9440	0.0010
57	0.0000	0.5390	-0.0010	0.4560	0.0080
58	-0.0010	0.0920	-0.0010	0.3120	0.0010
59	0.0000	0.1950	0.0000	0.4400	0.0000
60	0.0000	0.6130	0.0010	0.3780	0.0010
61	-0.0070	0.8620	-0.0630	0.3330	0.0020
62	0.0000	0.7310	0.0000	0.7910	0.0020

Source: Compile from daily return of the sample mutual fund schemes taken from SEBI and benchmark return taken from their respective website.

Table 7. Testing of Hypothesis (Henriksson & Merton Model)

Henriksson and Merton	Significant		Insignificant		Total
	Positive	Negative	Positive	Negative	
Sponsored Institution					
Bank Sponsored	0	0	6	1	7
Institution	0	1	2	1	4
Private	3	0	34	14	51
Total	3	1	42	16	62
Investment Objective					
Growth	0	1	20	15	36
Hybrid	1	0	13	0	14
Income	2	0	9	1	12
Total	3	1	42	16	62

Source: Researcher Compilation

The value of gamma is the measure of market timing abilities of the asset management companies. The table 5 reveals the result of the hypothesis of Trynor & Mazuy Model in terms of sponsored institution and investment objectives. It can be observed from the table that only 2 sample mutual fund schemes (Birla Sun Life Income Plus and HDFC High Interest Fund- Dynamic Plan) are significant at five per cent level of significance and show a positive gamma value. Rest of the 60 schemes is either statistically insignificant or statistically significant but having negative gamma value. In case of sponsored institution, only private companies show market timing abilities. The bank sponsored sample managed schemes have only one scheme which is to be found significant with negative gamma value and none of the scheme of institution asset management companies is found to be significant. In terms of investment objective, superior market timing abilities is reflected by 2 sample managed schemes belong to income schemes. From these results it can be interpreted that 2 (3.22 per cent) of the sample mutual fund schemes are reflect the significant positive market timing abilities.

Table 6 shows the result of Henriksion & Merton model. According to table, the number of funds with positive selectivity coefficient was 47 in all the sample mutual fund schemes, of which only fourteen schemes were statistically significant. On the other hand there are 15 negative coefficients, out of which two are found to be statistically significant. In terms of market timing, it is found that only three schemes showed the market timing skills which have positive significant value. The P value for gamma was found to be statistically significant and positive at 5 per cent level of significance. Other schemes exhibited wrong market timing abilities of asset management companies. Majority of sample schemes (93.55 per cent) were found to be insignificant while only 4 schemes (6.45 per cent) showed the successful market timing abilities in terms of Henriksion and Merton Model.

Table 7 reveals the result of the hypothesis of Henriksson & Merton Model in terms of sponsored institution and investment objectives. It can be observed from the table that only 3 sample mutual fund schemes (HDFC Prudence Fund, Kotak Bond Deposit, L & T Triple Ace) are significant at five per cent level of significance and show the positive gamma value. Rest of the 59 schemes is either statistically insignificant or statistically significant but having negative gamma value. In terms of sponsored institution, only private companies show market timing abilities. The institutional sample managed schemes have only one scheme which is found to be significant with negative gamma value and none of the scheme of bank sponsored asset management companies is found to be significant. In terms of investment objective, superior market timing abilities is reflected by 3 sample managed schemes where 2 belong to income schemes and one belong to hybrid scheme. From these results it can be interpreted that only 3 (4.83 per cent) of the sample mutual fund schemes are reflect the significant positive market timing abilities. The empirical results do not lend support to the hypothesis that Indian asset Management companies are able to time the market.

So in terms of market timing models, majority of the Indian Asset Management Companies do not seem to be engaged in market timing activities and Indian fund managers market the time in the wrong direction. The result indicates that most of the Indian asset management companies focused only on stock selection rather than market timings. With respect to market timing abilities of the Indian asset management companies, the majority of asset managers followed preserve market timing. The result shows that the fund managers are not successful in reaping market premium and failed to forecast the broad market trends accurately. The outcome of the study is in conformity with the findings of Sinclair (1990), Gallo and Swanson (1996), Tripathi (2006), Sondhi & Jain (2006), Jiang, Yao & Yu (2007), Bhuveneswari & Selvem (2011), Mushah, Senyo, & Nuhu (2014), Ramesh & Dhume (2014), Zabiulla (2014), and Dieu (2015) indicating the inability of fund managers in market timing.

5. Conclusions

In this paper, forecasting and market timing abilities of Indian asset management companies are examined with the help of models proposed by Treynor & Mazuy (1966) and Henriksson & Merton (1981) with a sample size of 62 mutual fund schemes. The results are also categorized in sponsorship institutions (Bank sponsored, Institution and Private Asset management companies) and investment objectives (Equity, Income and Hybrid schemes). The analysis reveals that superior performance of sample mutual fund schemes during the study period have occurred due to stock selection ability of asset management companies rather than their market timing abilities. The result pertaining to market timing abilities of asset management companies in terms of both the two models- Treynor & Mazuy and Henriksson and Merton, do not support the hypothesis that Indian Asset management companies are able to time the market correctly. From the analysis we found that mutual fund schemes are able to time the market but in wrong direction and few schemes are able to time the market correctly. Zaibulla (2014) concluded in their study that fund manager failed to position their portfolio to take advantage of stock market trends during the economic cycle. The result of the present study is consistent with earlier studies which also found poor performance of poor market timing ability of asset management companies in India over a period of 2001-2014. This study is not free from limitations as it is restricted to the sample of 62 mutual fund schemes related to 19 asset management companies in India Another limitation is some of the benchmark indexes are established after the commencement of study period. In place of such indexes S&P BSE 30 index is used as a benchmark proxy All the official sources, from where the data has been taken do not provide the complete data. The data available is only for the recent three or five years which is not enough to conduct a research. This study based on the data provided by corporate bodies. Research is continuous process that provides opportunities for future researches. This research confine to portfolio performance measures and unconditional model of market timings, however future researches may apply conditional model of market timing, DEA techniques, Fama-French three factor models and Carhart four factor models. The research can be conducted on the different categorization such as on the basis of investor's preferences (SIP, SWP, and STP), schemes based on capitalization (Large Cap, Mid cap and Small cap) and special schemes like Exchange Traded funds, Fund of Funds, Index Funds, Money Market Funds and Offshore Funds.

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