CHAPTER 6

MARKET TIMING ABILITIES OF FUND MANAGERS

CHAPTER CONTENTS

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The Chapter five has examined the performance of mutual fund schemes with respect to different performance measures. These performance measures focused on stock selection abilities of the Indian mutual fund managers. During the recent period the growth of mutual fund industry is tremendous. More and more companies are entering in to this industry and because of that competition also get increased.

Hence, it is very much important for the fund manager to have market timing skills in addition to stock selection skills. So it can be possible for the fund manager to generate superior returns by careful micro security selection efforts but also by engaging in successful macro market timing activities. This would mean that fund managers are able of judging correctly the direction of the market, whether bull or bear.

This chapter is aimed at examining the market timing abilities of Indian mutual fund managers during the study period. This chapter is divided into two parts. Part 1 presents the empirical results pertaining to market timing abilities of the fund manager with respect to Treynor & Mazuy measure and Henriksson & Merton measure. Part 2 presents the summary and conclusions.

Before discussing the empirical results it would be worthwhile to recall that the study used 137 open ended schemes during the period from January 2000 to December 2009. Data used in the study consist of month end Net Asset Values (NAV) for each of the sample schemes and the NAVs have been adjusted for any dividend, bonus and right issues to obtain the scheme return. These schemes are from public as well as private sectors. The details of the 137 schemes selected for the analysis are given by the way of Appendix- I. The summary relating to the characteristics of the sample schemes are given in Table 6.1.

Two benchmark proxies *viz.*, BSE30 and Nifty50 have been used and 91 days t-bills rate has been used as a proxy for risk free return.

Table 6.1 : Characteristics of the Sample Schemes					
Schemes Characteristics	**Scheme Category-wise Classification**				
Scheme Sponsorship-wise classification	Growth	Income	Balanced	Tax-Planning	**Total Sample Size**
Bank Sponsored: Joint Ventures - Predominantly Indian (BS-JV-PI)	7	4	1	2	14
Bank Sponsored: Joint Ventures - Predominantly Foreign (BS-JV-PF)	1	-	-	1	2
Bank Sponsored: Others (BS-O)	2	3	3		8
Institutions (INST.)	2	6	3	1	12
Private Sector: Indian (PS-I)	15	11	4	3	33
Private Sector: Foreign (PS-F)	11	4	2		17
Private Sector: Joint Ventures - Predominantly Indian (PS-JV-PI)	18	17	6	3	44
Private Sector: Joint Ventures - Predominantly Foreign (PS-JV-PF)	1	2	2	2	7
Total Sample Size	57	47	21	12	137

In respect of the market timing abilities of the fund managers following hypotheses have been framed for the purpose of examination:

H_{018}: Mutual Fund managers do not display distinct Market timing abilities.

H_{019}: The Market timing abilities of Fund Managers of Growth schemes do not differ from those of other schemes.

H_{020}: The Market timing abilities of Fund Managers of the bank sponsored mutual fund schemes do not differ from those of Private sector sponsored mutual funds and Institution sponsored mutual fund schemes.

As discussed in the literature review of the research papers, market timing ability of the fund managers has a great impact on the performance of the mutual funds. It refers to the ability of the managers to anticipate the major moves in the stock market prices and accordingly adjust the composition of their portfolios. Keeping this important determinant of the mutual fund performance into consideration, two major markets timing ability models, the **Treynor and Mazuy Model (1966)**[1] and **Henriksson and Merton Model (1981)**[2], have been employed in order to identify if the fund managers really have the ability to speculate the market returns. These are also referred to as the "squared regression model". A description of these two models is given in chapter four of 'Research Methodology'.

6.1 EMPIRICAL RESULTS

This section discusses the empirical results pertaining to market timing abilities of fund managers and other related issues in terms of the above two formulations. The researcher has used two indices *viz.*, BSE 30 and Nifty 50 as proxies for the market portfolio. The empirical results using both BSE 30 and Nifty 50 have been discussed in details. The order of discussion is as follows:

- Empirical results pertaining to market timing abilities
- Market timing and fund objectives
- Market timing and sponsorship

6.1.1 EMPIRICAL RESULTS PERTAINING TO MARKET TIMING ABILITIES

6.1.1.1 RESULTS OF TREYNOR AND MAZUY MEASURE (1966) ACROSS BOTH THE BENCHMARK CRITERIA

Table 6.2 and Table 6.3 reveal the empirical results for the Treynor and Mazuy model across both the benchmark proxies viz., BSE 30 and Nifty 50 respectively.

Table 6.2 : Results of Treynor and Mazuy Model : BSE 30

Balanced							
Sr. No.	**Beta**	**Standard Error Beta**	**t-beta**	**Gamma**	**Standard Error Gamma**	**t-Gamma**	**R^2**
1	0.748912	0.037063	20.206686	-0.001493	0.002794	-0.534454	0.778984
2	0.749437	0.044804	16.727060	-0.002199	0.003377	-0.651166	0.707411
3	0.695275	0.024114	28.832286	-0.001907	0.001818	-1.049061	0.877776
4	0.351217	0.013866	25.328748	-0.001599	0.001045	-1.529455	0.847511
5	0.369894	0.031338	11.803340	0.001585	0.002362	0.671047	0.546213
6	0.703291	0.054141	12.989980	-0.001035	0.004081	-0.253530	0.592818
7	0.705666	0.032811	21.507244	-0.000523	0.002473	-0.211657	0.799565
8	0.688453	0.030750	22.388373	-0.006997	0.002318	**-3.018883***	0.815209
9	0.667686	0.073271	9.112502	-0.004809	0.005523	-0.870830	0.419886
10	0.767701	0.040654	18.883613	-0.003138	0.003064	-1.024059	0.755303
11	0.628389	0.040240	15.616008	-0.008061	0.003033	**-2.657753***	0.684582
12	0.678899	0.041497	16.360192	-0.005510	0.003128	-1.761728	0.700533
13	0.663994	0.035144	18.893475	-0.005886	0.002649	**-2.222044***	0.757709
14	0.539650	0.054066	9.981270	-0.005268	0.004075	-1.292704	0.466817
15	0.598812	0.150766	3.971785	0.007852	0.011364	0.690968	0.122541
16	0.768666	0.149101	5.155335	0.015398	0.011238	1.370113	0.196220
17	0.818534	0.070517	11.607673	-0.001015	0.005315	-0.190880	0.537538

Sr. No.	Beta	Standard Error Beta	t-beta	Gamma	Standard Error Gamma	t-Gamma	R^2
18	0.750057	0.035812	20.944051	-0.001837	0.002699	-0.680564	0.791157
19	0.581002	0.049197	11.809745	-0.004357	0.003708	-1.174938	0.548880
20	0.625438	0.034186	18.295148	-0.000998	0.002577	-0.387120	0.742813
21	0.353864	0.033448	10.579439	-0.001533	0.002521	-0.607862	0.492190
Growth							
22	1.029915	0.041142	25.033463	-0.001636	0.003101	-0.527527	0.843934
23	1.052305	0.042239	24.913129	0.001398	0.003184	0.439085	0.842541
24	1.066579	0.048264	22.098789	-0.002337	0.003638	-0.642302	0.808295
25	1.082205	0.095546	11.326559	-0.006115	0.007202	-0.849155	0.526944
26	1.031034	0.068195	15.119008	-0.004858	0.005140	-0.945211	0.664529
27	0.718217	0.040865	17.575399	-0.006211	0.003080	**-2.016570***	0.730038
28	0.732905	0.059283	12.362847	-0.003643	0.004468	-0.815212	0.569922
29	0.969169	0.097523	9.937814	0.000540	0.007351	0.073411	0.459864
30	0.547784	0.044162	12.403969	-0.006748	0.003329	**-2.027251***	0.577382
31	0.952332	0.025841	36.853107	-0.002099	0.001948	-1.077821	0.921421
32	0.946025	0.061715	15.328840	0.000995	0.004652	0.213862	0.669494
33	1.013814	0.061143	16.580970	-0.005659	0.004609	-1.227809	0.704733
34	1.000577	0.071022	14.088324	-0.002190	0.005353	-0.409095	0.631490
35	0.933854	0.031830	29.338768	-0.001628	0.002399	-0.678689	0.881354
36	0.902910	0.059798	15.099323	0.001149	0.004507	0.254884	0.662791
37	0.957400	0.094789	10.100328	-0.007933	0.007145	-1.110327	0.471480
38	0.933142	0.088585	10.533843	-0.009984	0.006677	-1.495321	0.494596
39	0.595928	0.056731	10.504459	-0.009161	0.004276	**-2.142327***	0.498678
40	0.969609	0.030977	31.301381	0.000859	0.002335	0.367837	0.894139
41	0.828821	0.068744	12.056627	-0.003541	0.005182	-0.683435	0.557262
42	0.855284	0.044253	19.327166	-0.003778	0.003336	-1.132639	0.763887
43	0.966668	0.033308	29.022119	-0.000862	0.002511	-0.343185	0.879000
44	0.864957	0.065115	13.283601	-0.003103	0.004908	-0.632290	0.604145
45	0.967376	0.059433	16.276683	-0.001650	0.004480	-0.368236	0.695706
46	0.973214	0.035959	27.064867	-0.001084	0.002710	-0.399979	0.863361
47	0.625833	0.055493	11.277604	-0.011543	0.004183	**-2.759679***	0.538634
48	0.934569	0.033384	27.994139	-0.007158	0.002516	**-2.844651***	0.872445
49	0.910320	0.064695	14.071037	-0.006913	0.004876	-1.417745	0.633395
50	0.332972	0.558187	0.596524	-0.026439	0.042073	-0.628405	0.006494
51	1.204684	0.102567	11.745396	0.003298	0.007731	0.426627	0.543399
52	1.031905	0.054911	18.792377	-0.002782	0.004139	-0.672249	0.753133
53	1.085862	0.040892	26.554708	-0.002671	0.003082	-0.866588	0.858954
54	0.979351	0.034689	28.232494	-0.006218	0.002615	**-2.378225***	0.873931

Sr. No.	Beta	Standard Error Beta	t-beta	Gamma	Standard Error Gamma	t-Gamma	R^2
55	0.974682	0.053052	18.372080	-0.004388	0.003999	-1.097253	0.745149
56	1.065478	0.036447	29.233446	-0.001128	0.002747	-0.410645	0.880546
57	0.987294	0.013456	73.374073	-0.001385	0.001014	-1.365467	0.978925
58	0.909232	0.076855	11.830522	0.001226	0.005793	0.211624	0.546822
59	0.978792	0.051939	18.844890	0.000118	0.003915	0.030158	0.753796
60	0.930599	0.045895	20.276590	-0.002283	0.003459	-0.660024	0.780253
61	0.929546	0.077918	11.929727	-0.001669	0.005873	-0.284260	0.551222
62	1.087310	0.066434	16.366732	-0.003491	0.005007	-0.697250	0.698394
63	0.603490	0.062623	9.636853	-0.009036	0.004720	-1.914347	0.455161
64	1.147506	0.066565	17.238985	0.003067	0.005017	0.611382	0.719385
65	1.064959	0.090212	11.805080	-0.005033	0.006800	-0.740115	0.547041
66	1.103700	0.060372	18.281745	-0.002617	0.004550	-0.575168	0.742676
67	0.783726	0.071652	10.938001	-0.001378	0.005401	-0.255237	0.507999
68	1.035624	0.039067	26.509104	0.001474	0.002945	0.500488	0.858327
69	0.892580	0.058215	15.332589	0.001184	0.004388	0.269877	0.669612
70	0.868086	0.046338	18.733613	0.001514	0.003493	0.433607	0.751611
71	0.930513	0.060434	15.397241	0.000126	0.004555	0.027768	0.671472
72	0.985402	0.034425	28.624616	-0.001640	0.002595	-0.631920	0.876095
73	1.091280	0.059108	18.462503	-0.005790	0.004455	-1.299517	0.747309
74	1.012667	0.057308	17.670579	-0.000126	0.004320	-0.029215	0.729156
75	1.120227	0.074317	15.073540	0.004325	0.005602	0.772033	0.662398
76	1.144160	0.065475	17.474734	0.004368	0.004935	0.885092	0.725037
77	0.885224	0.072181	12.263906	-0.001885	0.005441	-0.346390	0.564927
78	0.896687	0.032243	27.810367	-0.000616	0.002430	-0.253366	0.869618
Income							
79	0.001429	0.001111	1.286173	0.000068	0.000084	0.814143	0.019414
80	-0.000556	0.000762	-0.729622	0.000113	0.000057	1.963386	0.036672
81	0.039600	0.021021	1.883789	-0.001434	0.001584	-0.904947	0.036558
82	0.045626	0.025620	1.780879	-0.000541	0.001931	-0.279963	0.027336
83	0.006397	0.015787	0.405164	0.001613	0.001190	1.355688	0.016878
84	0.027683	0.014432	1.918235	-0.001308	0.001088	-1.202452	0.042679
85	0.025300	0.025988	0.973527	-0.000390	0.001959	-0.199129	0.008473
86	0.031220	0.012045	2.591978	-0.001287	0.000908	-1.417962	0.070530
87	0.043451	0.017334	2.506656	-0.000836	0.001307	-0.639705	0.054796
88	-0.000460	0.000961	-0.478947	0.000123	0.000072	1.703747	0.026425
89	0.003101	0.002771	1.119089	-0.000176	0.000209	-0.840926	0.016768
90	0.037065	0.037710	0.982899	-0.001830	0.002842	-0.643701	0.011867
91	-0.022985	0.049074	-0.468380	0.001543	0.003699	0.417118	0.003413

Sr. No.	Beta	Standard Error Beta	t-beta	Gamma	Standard Error Gamma	t-Gamma	R^2
92	0.048104	0.024249	1.983758	-0.000010	0.001828	-0.005544	0.032817
93	0.027261	0.028222	0.965953	-0.001584	0.002127	-0.744675	0.012782
94	0.030089	0.024363	1.235023	-0.003113	0.001836	-1.694929	0.036863
95	-0.080575	0.089558	-0.899690	0.012175	0.006750	1.803601	0.034097
96	0.074885	0.023030	3.251628	-0.002388	0.001736	-1.375705	0.097663
97	0.028721	0.015946	1.801113	-0.000935	0.001202	-0.777570	0.032338
98	0.023456	0.026395	0.888629	0.004014	0.001990	**2.017571***	0.039937
99	0.010680	0.038634	0.276432	0.000259	0.002912	0.088949	0.000722
100	0.006730	0.011575	0.581367	0.000576	0.000872	0.660052	0.006562
101	0.035828	0.020567	1.741994	-0.000149	0.001550	-0.096014	0.025598
102	0.038454	0.026113	1.472579	0.003235	0.001968	1.643511	0.039913
103	-0.000773	0.001341	-0.576244	0.000149	0.000101	1.471218	0.021209
104	-0.003212	0.018000	-0.178464	0.000392	0.001357	0.288996	0.001002
105	0.027777	0.010033	2.768384	-0.001293	0.000756	-1.710225	0.084330
106	0.053763	0.041623	1.291663	-0.000352	0.003137	-0.112299	0.014310
107	0.003645	0.003649	0.998802	-0.000371	0.000275	-1.350057	0.023956
108	0.017206	0.012676	1.357384	-0.001282	0.000955	-1.341514	0.030736
109	0.022153	0.018291	1.211149	0.000734	0.001379	0.532119	0.014757
110	0.147329	0.015361	9.591235	-0.000523	0.001158	-0.451880	0.443085
111	0.239154	0.107200	2.230912	-0.000289	0.008080	-0.035733	0.041166
112	0.034687	0.021270	1.630782	0.000437	0.001603	0.272707	0.022955
113	0.013740	0.028955	0.474529	0.001426	0.002182	0.653420	0.005539
114	0.048859	0.023846	2.048937	-0.000546	0.001797	-0.303810	0.035769
115	0.036942	0.014234	2.595332	-0.001367	0.001073	-1.273942	0.067709
116	0.008205	0.015927	0.515155	0.000285	0.001201	0.237015	0.002744
117	-0.001515	0.007890	-0.191995	0.000201	0.000595	0.337626	0.001310
118	0.033129	0.012523	2.645458	-0.001111	0.000944	-1.177445	0.067877
119	0.043961	0.023439	1.875549	-0.000372	0.001767	-0.210663	0.029859
120	0.054721	0.024838	2.203135	-0.000253	0.001872	-0.134974	0.040358
121	0.013815	0.015507	0.890886	-0.000843	0.001169	-0.721216	0.011307
122	0.029384	0.019488	1.507844	-0.002240	0.001469	-1.524953	0.038500
123	0.076216	0.041056	1.856396	-0.000716	0.003095	-0.231281	0.029358
124	0.023614	0.018419	1.282055	-0.000059	0.001388	-0.042186	0.013997
125	-0.031966	0.073377	-0.435642	0.000437	0.005531	0.079029	0.001693
Tax-Planning							
126	1.046483	0.061589	16.991319	-0.002389	0.004642	-0.514715	0.713701
127	1.054949	0.070026	15.065127	0.001168	0.005278	0.221373	0.661771
128	0.886900	0.076329	11.619418	-0.001112	0.005753	-0.193250	0.538043

Sr. No.	Beta	Standard Error Beta	t-beta	Gamma	Standard Error Gamma	t-Gamma	R^2
129	0.971513	0.062825	15.463844	-0.002141	0.004735	-0.452059	0.673695
130	1.045225	0.056778	18.409063	-0.004001	0.004280	-0.934993	0.745692
131	0.973095	0.055485	17.538101	0.000442	0.004182	0.105596	0.726150
132	1.008841	0.079224	12.734117	-0.010383	0.005971	-1.738708	0.588117
133	0.998069	0.051081	19.538884	-0.009036	0.003850	**-2.346927***	0.769941
134	1.059177	0.083411	12.698263	-0.003737	0.006287	-0.594353	0.582379
135	1.067449	0.104494	10.215392	0.003900	0.007876	0.495115	0.473946
136	1.008285	0.056033	17.994361	-0.006723	0.004223	-1.591769	0.738106
137	1.089163	0.086088	12.651677	0.001889	0.006489	0.291073	0.579851

Note: The Serial Number represents the name of the schemes, which are in the same order as given in Appendix-I.
* Significant at 5% level

An examination of Table 6.2 indicates that, when BSE30 was used as a benchmark proxy for the market, out of 137 mutual fund schemes, only one schemes viz., ICICI Prudential Gilt Fund (Investment Plan) (G) found to be successful market timers. This is evident from the observed t-values for their gamma coefficients, which is found to be significant and positive at five percent level. ICICI Prudential Gilt Fund (Investment Plan) (G) is an **open-ended income scheme** and from the **Private sector.** While there are ten other schemes for which the t-values are significant but are negative. These schemes are Birla Sun Life M N C Fund (G), Franklin FMCG Fund (G), Franklin Pharma Fund (G), ICICI Prudential Balanced Fund (G), ICICI Prudential FMCG Fund (G), ICICI Prudential Growth Plan (G), Kotak Mahindra 30 Unit Scheme (G), Kotak Mahindra Balance (G), LIC Mf Balance Fund (G) and Principal Tax Savings Fund (G). Out of these ten wrong market timers, six are **growth schemes**, three are **balanced schemes** and one is **tax-planning scheme.** Hence, fund managers for these schemes appear to undertake timing activities but were, indeed, unsuccessful, as they were timing in the wrong direction. Out of ten schemes, nine are from **Private sector** and one is from **Institutions (LIC).**

An examination of Table 6.3 indicates that, When Nifty 50 was used as a benchmark proxy for the market; the results are more or less similar. Out of 137 mutual fund schemes, only one schemes viz., ICICI Prudential Gilt Fund (Investment Plan) (G) found to be successful market timers. This is evident from the observed t-values for their gamma coefficients, which is found to be significant and positive at five percent

level. ICICI Prudential Gilt Fund (Investment Plan) (G) is an **open-ended income scheme** and from the **Private sector**. While there are five other schemes for which the t-values are significant but are negative. These schemes are Franklin Pharma Fund (G), ICICI Prudential Balanced Fund (G), ICICI Prudential FMCG Fund (G), ICICI Prudential Growth Plan (G) and Kotak Mahindra Balance (G). Out of these five wrong market timers, three are **growth schemes** and two are **balanced schemes.** Fund managers for these schemes appear to undertake timing activities but were, indeed, unsuccessful, as they were timing in the wrong direction. All these five schemes are from **Private sector.**

Table 6.3 : Results of Treynor and Mazuy Model : Nifty 50

Sr. No.	Beta	Standard Error Beta	t-beta	Gamma	Standard Error Gamma	t-Gamma	R^2
Balanced							
1	0.740860	0.036804	20.129945	-0.000206	0.002625	-0.078540	0.778194
2	0.740964	0.044517	16.644489	-0.000671	0.003175	-0.211164	0.706024
3	0.688785	0.023644	29.131352	-0.000859	0.001687	-0.509568	0.880414
4	0.344372	0.014403	23.910530	-0.000799	0.001027	-0.777505	0.832573
5	0.362681	0.031504	11.512329	0.001788	0.002247	0.795447	0.533275
6	0.692373	0.054113	12.794975	0.000330	0.003860	0.085569	0.586031
7	0.692216	0.033622	20.588464	-0.000037	0.002398	-0.015400	0.785804
8	0.683004	0.029897	22.845271	-0.005117	0.002133	**-2.399506***	0.822228
9	0.653637	0.072779	8.981150	-0.005279	0.005191	-1.016863	0.417515
10	0.753351	0.040764	18.480796	-0.003632	0.002908	-1.249164	0.749620
11	0.612136	0.040968	14.941672	-0.006223	0.002922	**-2.129383***	0.667265
12	0.674899	0.040452	16.684091	-0.004172	0.002885	-1.445757	0.710386
13	0.659582	0.034117	19.332895	-0.004536	0.002434	-1.863791	0.767616
14	0.533581	0.053307	10.009532	-0.004952	0.003802	-1.302421	0.472493
15	0.596791	0.149554	3.990464	0.005784	0.010668	0.542227	0.121286
16	0.782504	0.147389	5.309106	0.013583	0.010513	1.291993	0.200647
17	0.821840	0.068737	11.956236	0.000407	0.004903	0.082930	0.552791
18	0.750422	0.034084	22.016835	0.000081	0.002431	0.033390	0.807475
19	0.582580	0.047963	12.146452	-0.002591	0.003421	-0.757269	0.563624
20	0.625727	0.032861	19.041466	0.000367	0.002344	0.156711	0.758146
21	0.349602	0.033101	10.561760	-0.001473	0.002361	-0.623656	0.493872
Growth							
22	1.019672	0.040830	24.973601	0.000572	0.002912	0.196257	0.843563
23	1.041131	0.042241	24.647494	0.002942	0.003013	0.976358	0.839736
24	1.059393	0.047197	22.446089	0.000037	0.003367	0.010955	0.813427

Sr. No.	Beta	Standard Error Beta	t-beta	Gamma	Standard Error Gamma	t-Gamma	R^2
25	1.069201	0.094776	11.281351	-0.003817	0.006761	-0.564639	0.526284
26	1.017532	0.067923	14.980639	-0.002441	0.004845	-0.503902	0.661293
27	0.713502	0.039680	17.981498	-0.005066	0.002830	-1.789843	0.740957
28	0.738220	0.057390	12.863243	-0.001445	0.004094	-0.352961	0.589803
29	0.965287	0.096221	10.032008	0.001789	0.006864	0.260682	0.464876
30	0.541571	0.043560	12.432811	-0.005592	0.003107	-1.799549	0.581539
31	0.938847	0.026748	35.099804	-0.000456	0.001908	-0.238738	0.914318
32	0.920989	0.063218	14.568410	0.001146	0.004509	0.254122	0.647053
33	0.997873	0.061108	16.329719	-0.004079	0.004359	-0.935861	0.699847
34	0.983849	0.071145	13.828718	-0.000690	0.005075	-0.136012	0.623650
35	0.922998	0.031924	28.911917	0.000082	0.002277	0.036076	0.878533
36	0.893459	0.059468	15.024263	0.003048	0.004242	0.718538	0.660594
37	0.927285	0.095709	9.688564	-0.004684	0.006827	-0.686077	0.451614
38	0.908897	0.089153	10.194844	-0.006459	0.006359	-1.015623	0.479026
39	0.588296	0.055742	10.553892	-0.008701	0.003976	**-2.188365***	0.507422
40	0.957416	0.031604	30.294218	0.002448	0.002254	1.085801	0.887854
41	0.814641	0.068652	11.866183	-0.002022	0.004897	-0.412855	0.550614
42	0.843772	0.044067	19.147477	-0.002691	0.003143	-0.855975	0.761716
43	0.953427	0.033905	28.120548	0.000530	0.002418	0.218951	0.872401
44	0.858745	0.064206	13.374787	-0.001319	0.004580	-0.287943	0.608290
45	0.946448	0.060421	15.664194	-0.000232	0.004310	-0.053756	0.679930
46	0.964740	0.035406	27.247906	0.000742	0.002526	0.293715	0.865179
47	0.616419	0.054778	11.253000	-0.010157	0.003907	**-2.599342***	0.542480
48	0.925669	0.032437	28.537291	-0.005187	0.002314	**-2.241768***	0.877446
49	0.906666	0.062893	14.415930	-0.006152	0.004486	-1.371403	0.647383
50	0.293484	0.553363	0.530366	-0.025189	0.039472	-0.638158	0.006282
51	1.197703	0.101304	11.822815	0.002953	0.007226	0.408687	0.546670
52	1.033458	0.052293	19.762725	-0.001336	0.003730	-0.358200	0.772139
53	1.071977	0.041027	26.128682	-0.001152	0.002927	-0.393793	0.855502
54	0.963225	0.035834	26.880140	-0.003264	0.002556	-1.276774	0.863084
55	0.962874	0.052425	18.366817	-0.003811	0.003740	-1.019238	0.746732
56	1.061275	0.034570	30.699277	0.001075	0.002466	0.436043	0.890629
57	0.986699	0.003955	249.474230	-0.000022	0.000282	-0.079370	0.998147
58	0.913790	0.074851	12.208083	0.002205	0.005339	0.412893	0.562522
59	0.971696	0.051130	19.004348	0.001593	0.003647	0.436852	0.757178
60	0.921852	0.045333	20.335272	-0.000617	0.003234	-0.190674	0.781806
61	0.922496	0.076923	11.992485	-0.000741	0.005487	-0.135111	0.554864
62	1.074234	0.066137	16.242597	-0.000999	0.004718	-0.211860	0.695788

Sr. No.	Beta	Standard Error Beta	t-beta	Gamma	Standard Error Gamma	t-Gamma	R^2
63	0.577944	0.063169	9.149111	-0.008359	0.004506	-1.854997	0.435785
64	1.130376	0.067074	16.852651	0.004363	0.004784	0.912002	0.710021
65	1.044706	0.090356	11.562064	-0.002272	0.006445	-0.352560	0.537533
66	1.092367	0.059818	18.261489	-0.000714	0.004267	-0.167391	0.742894
67	0.786073	0.069857	11.252667	-0.001744	0.004983	-0.349929	0.524051
68	1.023790	0.039349	26.018173	0.003735	0.002807	1.330649	0.853725
69	0.897772	0.055931	16.051495	0.002813	0.003990	0.704956	0.689620
70	0.865303	0.045105	19.184337	0.002118	0.003217	0.658233	0.760490
71	0.929066	0.058914	15.769955	0.001515	0.004202	0.360393	0.682256
72	0.978154	0.033538	29.165893	0.000498	0.002392	0.208003	0.880316
73	1.088496	0.057165	19.041202	-0.002987	0.004078	-0.732470	0.759456
74	1.005380	0.056350	17.841585	0.000569	0.004020	0.141580	0.733490
75	1.121204	0.072367	15.493252	0.005602	0.005162	1.085129	0.674209
76	1.139769	0.064182	17.758509	0.005933	0.004578	1.295844	0.731110
77	0.876879	0.071417	12.278306	-0.000832	0.005094	-0.163330	0.566541
78	0.887240	0.032290	27.476913	0.002072	0.002303	0.899742	0.866916
Income							
79	0.001620	0.001098	1.475394	0.000077	0.000078	0.986530	0.025055
80	-0.000299	0.000757	-0.395430	0.000102	0.000054	1.891411	0.032053
81	0.039485	0.020859	1.892925	-0.000942	0.001488	-0.632815	0.034524
82	0.047826	0.025363	1.885608	0.000038	0.001809	0.020834	0.029815
83	0.005019	0.015537	0.323009	0.002120	0.001108	1.912549	0.030909
84	0.026808	0.014334	1.870235	-0.000996	0.001022	-0.974600	0.038873
85	0.022901	0.025754	0.889239	-0.000839	0.001837	-0.456552	0.009001
86	0.029019	0.012030	2.412119	-0.000771	0.000858	-0.898067	0.056297
87	0.042718	0.017177	2.486975	-0.000778	0.001225	-0.635077	0.055454
88	-0.000259	0.000953	-0.271834	0.000115	0.000068	1.695316	0.025347
89	0.002673	0.002751	0.971765	-0.000152	0.000196	-0.774167	0.013968
90	0.033939	0.037411	0.907175	-0.001483	0.002669	-0.555656	0.010229
91	-0.020415	0.048655	-0.419576	0.001343	0.003471	0.387074	0.002985
92	0.051014	0.023975	2.127843	-0.000071	0.001710	-0.041297	0.037806
93	0.029989	0.027993	1.071332	-0.000781	0.001997	-0.391166	0.011571
94	0.030238	0.024239	1.247506	-0.002311	0.001729	-1.336783	0.029806
95	-0.071193	0.089127	-0.798773	0.009734	0.006358	1.531041	0.026403
96	0.073125	0.022839	3.201757	-0.002082	0.001629	-1.277805	0.096848
97	0.028529	0.015801	1.805484	-0.000815	0.001127	-0.723224	0.033010
98	0.022289	0.025954	0.858798	0.004644	0.001851	**2.508619***	0.055295
99	0.008799	0.038295	0.229757	0.000560	0.002732	0.204955	0.000769

Sr. No.	Beta	Standard Error Beta	t-beta	Gamma	Standard Error Gamma	t-Gamma	R^2
100	0.007511	0.011454	0.655739	0.000739	0.000817	0.904664	0.010065
101	0.035675	0.020386	1.749962	0.000126	0.001454	0.086970	0.025724
102	0.044117	0.025805	1.709587	0.003182	0.001841	1.728509	0.045782
103	-0.000329	0.001327	-0.247722	0.000159	0.000095	1.675938	0.024660
104	-0.004103	0.017840	-0.229993	0.000368	0.001273	0.288838	0.001249
105	0.027714	0.009992	2.773576	-0.000835	0.000713	-1.171920	0.075738
106	0.061318	0.041165	1.489584	0.000072	0.002936	0.024590	0.018807
107	0.002524	0.003634	0.694368	-0.000278	0.000259	-1.072394	0.014704
108	0.016284	0.012557	1.296842	-0.001238	0.000896	-1.382275	0.031957
109	0.024089	0.018109	1.330207	0.000754	0.001292	0.583477	0.017128
110	0.148710	0.014934	9.958050	-0.000590	0.001065	-0.553759	0.464300
111	0.237429	0.106249	2.234654	0.000040	0.007579	0.005235	0.041414
112	0.034134	0.021079	1.619344	0.000754	0.001504	0.501325	0.023435
113	0.012498	0.028695	0.435548	0.001512	0.002047	0.738804	0.005984
114	0.048998	0.023637	2.072977	0.000010	0.001686	0.005796	0.035843
115	0.035093	0.014170	2.476603	-0.000965	0.001011	-0.954503	0.059708
116	0.007091	0.015783	0.449266	0.000514	0.001126	0.456880	0.003322
117	-0.000169	0.007825	-0.021627	0.000070	0.000558	0.126198	0.000145
118	0.032633	0.012436	2.624113	-0.000789	0.000887	-0.889569	0.064497
119	0.043042	0.023247	1.851503	0.000368	0.001658	0.222039	0.028798
120	0.058313	0.024543	2.375947	0.000269	0.001751	0.153729	0.046407
121	0.013573	0.015387	0.882120	-0.000561	0.001098	-0.511018	0.009388
122	0.028267	0.019333	1.462119	-0.001969	0.001379	-1.427937	0.036967
123	0.084567	0.040514	2.087339	-0.001003	0.002890	-0.347153	0.038023
124	0.022446	0.018264	1.229002	0.000402	0.001303	0.308468	0.013309
125	-0.042160	0.072640	-0.580403	-0.002289	0.005182	-0.441839	0.004311
Tax-Planning							
126	1.041407	0.060264	17.280770	-0.000078	0.004299	-0.018172	0.721031
127	1.035212	0.070723	14.637450	0.002842	0.005045	0.563424	0.648882
128	0.865181	0.077024	11.232665	0.001855	0.005494	0.337545	0.521258
129	0.966740	0.061526	15.712822	-0.000757	0.004389	-0.172381	0.681504
130	1.028505	0.057131	18.002498	-0.001980	0.004075	-0.485834	0.737951
131	0.974763	0.053370	18.264110	0.002367	0.003807	0.621744	0.742130
132	0.992303	0.078867	12.581973	-0.008078	0.005626	-1.435917	0.584579
133	0.985126	0.051079	19.286221	-0.005612	0.003644	-1.540363	0.765880
134	1.044822	0.082986	12.590272	-0.001882	0.005920	-0.318014	0.579293
135	1.052861	0.104102	10.113722	0.005586	0.007426	0.752309	0.468629
136	0.996647	0.055625	17.917107	-0.004083	0.003968	-1.028998	0.737330

Sr. No.	Beta	Standard Error Beta	t-beta	Gamma	Standard Error Gamma	t-Gamma	R^2
137	1.087422	0.084480	12.871938	0.003874	0.006026	0.642928	0.588230
Note: The Serial Number represents the name of the schemes, which are in the same order as given in Appendix-I. * Significant at 5% level							

While, in terms of Treynor and Mazuy model, the results reported here support the hypothesis that Indian mutual fund managers do not display distinct market timing abilities. However, there is evidence that some of the funds are timing the market in the wrong direction.

6.1.1.2 RESULTS OF HENRIKSSON AND MERTON MEASURE (1981) ACROSS BOTH THE BENCHMARK CRITERIA

Table 6.4 and Table 6.5 reveal the empirical results for the Henriksson and Merton model across both the benchmark proxies viz., BSE 30 and Nifty 50 respectively.

An examination of Table 6.4 indicates that, when BSE30 was used as a benchmark proxy for the market, out of 137 mutual fund schemes, only one schemes viz., Birla Sun Life Cash Plus-Ret (G) found to be successful market timers. This is clear from the observed t-values for their gamma coefficients, which is found to be significant and positive at five percent level. Birla Sun Life Cash Plus-Ret (G) is an **open-ended income scheme** and from the **Private sector**. While there are sixteen other schemes for which the t-values are significant but are negative. These schemes are Kotak Mahindra Balance (G), ICICI Prudential Balanced Fund (G), Tata Tax Saving Fund (G), LIC Mf Balance Fund (G), Kotak Mahindra 30 Unit Scheme (G), ICICI Prudential Growth Plan (G), Principal Tax Savings Fund (G), LIC Mf Balance Fund (D), Principal Personal Tax Saver Fund (G), DSP Blackrock Balanced Fund (G), LIC M F Growth Fund (G), Birla Sun Life M N C Fund (G), Franklin India Prima Fund (G), JM Equity Fund (G), JM Balanced Fund (D) and Franklin India Prima Plus (G). Out of these sixteen wrong market timers, seven are **growth schemes**, six are **balanced schemes** and three are **tax-planning schemes.** Fund managers for these schemes appear to undertake timing activities but were, indeed, unsuccessful, as they were timing in the wrong direction. Out of sixteen schemes, thirteen are from **Private sector** and three are from **Institutions (LIC).**

Table 6.4 : Results of Henriksson and Merton Model : BSE 30							
Sr. No.	Beta	Standard Error Beta	t-beta	Gamma	Standard Error Gamma	t-Gamma	R^2
Balanced							
1	0.673829	0.070936	9.499059	-0.149597	0.120441	-1.242079	0.781348
2	0.651028	0.085704	7.596233	-0.196135	0.145514	-1.347872	0.710870
3	0.605960	0.045595	13.289975	-0.177987	0.077415	**-2.299128***	0.881994
4	0.315939	0.026673	11.844890	-0.070520	0.045287	-1.557176	0.847621
5	0.419147	0.060181	6.964812	0.098290	0.102179	0.961940	0.548057
6	0.634970	0.103945	6.108680	-0.136040	0.176486	-0.770828	0.594669
7	0.651168	0.062870	10.357382	-0.108436	0.106745	-1.015845	0.801256
8	0.536740	0.059172	9.070796	-0.303311	0.100467	**-3.019012***	0.815210
9	0.512308	0.140435	3.648000	-0.310027	0.238441	-1.300225	0.424481
10	0.628021	0.077094	8.146120	-0.278398	0.130896	**-2.126854***	0.762358
11	0.387929	0.075314	5.150849	-0.479950	0.127873	**-3.753340***	0.701613
12	0.515956	0.078934	6.536536	-0.325243	0.134020	**-2.426826***	0.707377
13	0.513319	0.067061	7.654467	-0.300960	0.113862	**-2.643213***	0.761746
14	0.393468	0.103563	3.799325	-0.291870	0.175836	-1.659900	0.471684
15	0.797978	0.289898	2.752615	0.397835	0.492210	0.808264	0.123864
16	1.182633	0.285670	4.139862	0.826663	0.485030	1.704353	0.203167
17	0.753605	0.135531	5.560401	-0.129293	0.230114	-0.561867	0.538648
18	0.651410	0.068209	9.550169	-0.196516	0.115810	-1.696872	0.795401
19	0.468490	0.094434	4.961034	-0.224723	0.160337	-1.401572	0.551113
20	0.569966	0.065548	8.695401	-0.110496	0.111292	-0.992844	0.744651
21	0.348933	0.064464	5.412843	-0.010198	0.109451	-0.093173	0.490610
Growth							
22	0.965818	0.078954	12.232657	-0.127803	0.134054	-0.953373	0.844776
23	0.998890	0.081141	12.310515	-0.105786	0.137767	-0.767860	0.843077
24	0.935118	0.091930	10.172046	-0.261854	0.156086	-1.677629	0.812170
25	0.836000	0.182463	4.581736	-0.490862	0.309799	-1.584452	0.534087
26	0.820499	0.129716	6.325371	-0.419651	0.220240	-1.905423	0.672204
27	0.571446	0.078378	7.290905	-0.293287	0.133076	**-2.203913***	0.731805
28	0.642640	0.113977	5.638315	-0.180326	0.193519	-0.931826	0.570671
29	1.009838	0.187614	5.382519	0.080960	0.318545	0.254157	0.460140
30	0.464709	0.085990	5.404243	-0.166846	0.145999	-1.142785	0.567281
31	0.876578	0.049287	17.785342	-0.151088	0.083682	-1.805501	0.922804
32	0.964846	0.118763	8.124113	0.037661	0.201645	0.186767	0.669463
33	0.801121	0.116125	6.898778	-0.424147	0.197165	**-2.151222***	0.712370
34	0.854879	0.135841	6.293235	-0.290107	0.230640	-1.257835	0.635924
35	0.830064	0.060322	13.760616	-0.206682	0.102418	**-2.018011***	0.884923

Sr. No.	Beta	Standard Error Beta	t-beta	Gamma	Standard Error Gamma	t-Gamma	R^2
36	0.845972	0.114935	7.360446	-0.112852	0.195145	-0.578300	0.663573
37	0.739588	0.181818	4.067728	-0.434910	0.308704	-1.408826	0.474848
38	0.657138	0.169439	3.878326	-0.551086	0.287685	-1.915589	0.500650
39	0.436845	0.109934	3.973718	-0.318520	0.186653	-1.706483	0.491606
40	0.955876	0.059624	16.031750	-0.027067	0.101234	-0.267368	0.894081
41	0.721242	0.132028	5.462804	-0.214708	0.224166	-0.957807	0.558967
42	0.724527	0.084428	8.581559	-0.260831	0.143348	-1.819563	0.767900
43	0.891645	0.063604	14.018599	-0.149313	0.107992	-1.382629	0.880841
44	0.693620	0.124119	5.588338	-0.341297	0.210738	-1.619531	0.611564
45	0.906781	0.114242	7.937364	-0.120847	0.193968	-0.623024	0.696366
46	0.906266	0.068857	13.161527	-0.133326	0.116911	-1.140410	0.864689
47	0.443243	0.108404	4.088812	-0.365854	0.184056	-1.987732	0.524538
48	0.795298	0.064673	12.297144	-0.278629	0.109807	**-2.537443***	0.870722
49	0.761172	0.124501	6.113773	-0.298193	0.211387	-1.410652	0.633333
50	-0.451492	1.072522	-0.420963	-1.565804	1.821003	-0.859858	0.009425
51	1.112304	0.197269	5.638522	-0.182727	0.334937	-0.545557	0.543853
52	0.863129	0.104262	8.278494	-0.336124	0.177023	-1.898761	0.759642
53	0.945259	0.077441	12.206238	-0.280109	0.131484	**-2.130361***	0.863386
54	0.832649	0.066453	12.529957	-0.293152	0.112828	**-2.598222***	0.875056
55	0.785426	0.100521	7.813545	-0.377242	0.170672	**-2.210337***	0.752911
56	0.985087	0.069638	14.145862	-0.160052	0.118236	-1.353667	0.882232
57	0.968703	0.026020	37.229449	-0.037305	0.044178	-0.844423	0.978717
58	0.835591	0.147703	5.657241	-0.146024	0.250781	-0.582279	0.547969
59	0.908742	0.099656	9.118777	-0.139176	0.169203	-0.822540	0.755222
60	0.827398	0.087763	9.427624	-0.205679	0.149011	-1.380301	0.782992
61	0.835199	0.149637	5.581512	-0.187925	0.254064	-0.739678	0.553018
62	0.932874	0.126995	7.345762	-0.307812	0.215621	-1.427559	0.702359
63	0.434531	0.120988	3.591504	-0.338114	0.205423	-1.645943	0.450775
64	1.121576	0.128265	8.744204	-0.050731	0.217778	-0.232947	0.718612
65	0.854258	0.172480	4.952799	-0.420026	0.292848	-1.434278	0.552832
66	0.987007	0.115640	8.535147	-0.232579	0.196342	-1.184560	0.745026
67	0.704928	0.137649	5.121189	-0.156950	0.233711	-0.671557	0.509629
68	1.006297	0.075190	13.383415	-0.057898	0.127663	-0.453521	0.858273
69	0.863866	0.112013	7.712172	-0.056754	0.190184	-0.298416	0.669658
70	0.834024	0.089164	9.353779	-0.067295	0.151390	-0.444517	0.751632
71	0.845135	0.115921	7.290595	-0.169635	0.196819	-0.861880	0.673560
72	0.908519	0.065826	13.801792	-0.153212	0.111764	-1.370846	0.877651
73	0.916114	0.112959	8.110170	-0.349604	0.191789	-1.822856	0.750770

Sr. No.	Beta	Standard Error Beta	t-beta	Gamma	Standard Error Gamma	t-Gamma	R^2
74	0.929063	0.109902	8.453552	-0.166174	0.186600	-0.890536	0.730993
75	1.149905	0.143337	8.022392	0.060101	0.243368	0.246956	0.660842
76	1.121018	0.126393	8.869276	-0.044854	0.214600	-0.209012	0.723284
77	0.793664	0.138610	5.725872	-0.182443	0.235342	-0.775223	0.566721
78	0.877162	0.062025	14.142069	-0.038962	0.105310	-0.369977	0.869700
Income							
79	0.002417	0.002141	1.128992	0.001982	0.003636	0.545207	0.016332
80	0.002041	0.001463	1.394696	0.005189	0.002484	**2.088942***	0.040744
81	0.035520	0.040591	0.875083	-0.008480	0.068918	-0.123039	0.029883
82	0.052684	0.049311	1.068404	0.013885	0.083723	0.165845	0.026909
83	0.025276	0.030549	0.827383	0.037937	0.051868	0.731414	0.005886
84	0.016167	0.027914	0.579173	-0.023226	0.047395	-0.490046	0.032749
85	0.037437	0.049999	0.748746	0.024018	0.084893	0.282919	0.008819
86	0.019065	0.023339	0.816864	-0.024489	0.039627	-0.618004	0.057523
87	0.041121	0.033414	1.230671	-0.004847	0.056732	-0.085438	0.051521
88	0.001792	0.001855	0.965986	0.004507	0.003150	1.431080	0.019376
89	-0.000543	0.005334	-0.101860	-0.007288	0.009057	-0.804773	0.016267
90	-0.003807	0.072557	-0.052475	-0.081700	0.123193	-0.663192	0.012083
91	0.006467	0.094449	0.068469	0.058930	0.160362	0.367484	0.003079
92	0.071057	0.046595	1.524989	0.045610	0.079112	0.576530	0.035580
93	0.008857	0.054400	0.162819	-0.036985	0.092363	-0.400434	0.009432
94	-0.029834	0.047004	-0.634720	-0.119893	0.079807	-1.502293	0.031847
95	0.153522	0.172847	0.888195	0.468375	0.293472	1.595977	0.028346
96	0.032375	0.044433	0.728620	-0.085100	0.075442	-1.128011	0.092891
97	0.027943	0.030765	0.908285	-0.001789	0.052235	-0.034244	0.027305
98	0.104877	0.050902	2.060372	0.162849	0.086425	1.884281	0.035760
99	0.003790	0.074341	0.050976	-0.013625	0.126222	-0.107945	0.000755
100	0.019345	0.022274	0.868519	0.025220	0.037818	0.666879	0.006639
101	0.053020	0.039535	1.341097	0.034126	0.067126	0.508395	0.027687
102	0.114667	0.050144	2.286761	0.152296	0.085138	1.788822	0.043930
103	0.002211	0.002585	0.855316	0.005968	0.004388	1.359940	0.018592
104	-0.001637	0.034648	-0.047237	0.003233	0.058828	0.054957	0.000309
105	0.009203	0.019443	0.473336	-0.037247	0.033011	-1.128304	0.071433
106	0.030005	0.080057	0.374794	-0.047305	0.135926	-0.348018	0.015231
107	-0.000213	0.007064	-0.030155	-0.007763	0.011994	-0.647233	0.012187
108	0.009258	0.024564	0.376897	-0.016127	0.041707	-0.386678	0.016966
109	0.062787	0.034960	1.795960	0.080942	0.059358	1.363621	0.027934
110	0.134356	0.029551	4.546651	-0.025917	0.050173	-0.516551	0.443385

Sr. No.	Beta	Standard Error Beta	t-beta	Gamma	Standard Error Gamma	t-Gamma	R^2
111	0.270801	0.206256	1.312939	0.062816	0.350195	0.179374	0.041422
112	0.062328	0.040832	1.526472	0.055045	0.069327	0.793990	0.027613
113	0.061959	0.055571	1.114949	0.096194	0.094352	1.019521	0.010743
114	0.056568	0.045897	1.232492	0.015178	0.077928	0.194766	0.035317
115	0.026916	0.027559	0.976676	-0.020279	0.046791	-0.433400	0.056194
116	0.012319	0.030653	0.401879	0.008249	0.052044	0.158496	0.002477
117	0.003324	0.015181	0.218957	0.009668	0.025775	0.375095	0.001540
118	0.026403	0.024230	1.089668	-0.013656	0.041139	-0.331957	0.057632
119	0.055128	0.045096	1.222469	0.022095	0.076567	0.288573	0.030184
120	0.070029	0.047770	1.465968	0.030355	0.081107	0.374261	0.041364
121	0.015691	0.029907	0.524679	0.003509	0.050778	0.069108	0.006915
122	0.007038	0.037794	0.186212	-0.044991	0.064169	-0.701133	0.023364
123	0.058985	0.078998	0.746657	-0.034428	0.134129	-0.256679	0.029461
124	0.040337	0.035397	1.139588	0.033219	0.060099	0.552739	0.016572
125	-0.118980	0.140885	-0.844518	-0.172806	0.239205	-0.722416	0.006111
Tax-Planning							
126	0.921237	0.117863	7.816160	-0.249517	0.200116	-1.246860	0.716842
127	1.004704	0.134668	7.460602	-0.099546	0.228649	-0.435366	0.662181
128	0.815942	0.146699	5.562020	-0.141300	0.249076	-0.567297	0.539173
129	0.873381	0.120525	7.246445	-0.195570	0.204637	-0.955694	0.675674
130	0.919165	0.108801	8.448124	-0.251554	0.184730	-1.361740	0.747807
131	0.931603	0.106678	8.732838	-0.082341	0.181126	-0.454606	0.726611
132	0.706508	0.150854	4.683389	-0.603513	0.256131	**-2.356269***	0.596687
133	0.793899	0.098095	8.093187	-0.408088	0.166552	**-2.450211***	0.770875
134	0.886830	0.159650	5.554854	-0.343468	0.271064	-1.267110	0.586826
135	1.122463	0.201198	5.578897	0.110341	0.341608	0.323004	0.473308
136	0.766669	0.105761	7.249039	-0.481901	0.179569	**-2.683649***	0.748029
137	1.032363	0.165605	6.233899	-0.112384	0.281175	-0.399695	0.580122

Note: The Serial Number represents the name of the schemes, which are in the same order as given in Appendix-I.
* Significant at 5% level

An examination of Table 6.5 indicates that, when Nifty 50 was used out of 137 mutual fund schemes, only two schemes viz., Birla Sun Life Cash Plus-Ret (G) and ICICI Prudential Gilt Fund (Investment Plan) (G) found to be successful market timers. This is evident from the observed t-values for their gamma coefficients, which is found to be significant and positive at five percent level. Birla Sun Life Cash Plus-

Ret (G) and ICICI Prudential Gilt Fund (Investment Plan) (G) are an **open-ended income scheme** and from the **Private sector**.

Table 6.5 : Results of Henriksson and Merton Model : Nifty 50							
Sr. No.	Beta	Standard Error Beta	t-beta	Gamma	Standard Error Gamma	t-Gamma	R^2
Balanced							
1	0.706402	0.070782	9.979944	-0.067706	0.118328	-0.572188	0.778807
2	0.683309	0.085518	7.990248	-0.113836	0.142962	-0.796274	0.707509
3	0.624218	0.045032	13.861663	-0.127669	0.075281	-1.695902	0.883046
4	0.322171	0.027699	11.631343	-0.044753	0.046304	-0.966513	0.833045
5	0.403143	0.060666	6.645232	0.082127	0.101417	0.809796	0.533367
6	0.653497	0.104134	6.275521	-0.075430	0.174083	-0.433299	0.586673
7	0.654297	0.064620	10.125290	-0.074182	0.108026	-0.686702	0.786670
8	0.569669	0.057587	9.892289	-0.230225	0.096269	**-2.391471***	0.822172
9	0.503282	0.139778	3.600571	-0.302864	0.233670	-1.296119	0.420712
10	0.603259	0.077262	7.807962	-0.299552	0.129160	**-2.319232***	0.757497
11	0.404490	0.077030	5.251077	-0.416452	0.128772	**-3.234024***	0.682854
12	0.526272	0.076846	6.848352	-0.297606	0.128465	**-2.316625***	0.718204
13	0.526203	0.064994	8.096148	-0.268417	0.108652	**-2.470433***	0.772620
14	0.388468	0.102131	3.803611	-0.292062	0.170735	-1.710617	0.477948
15	0.761671	0.287799	2.646540	0.332114	0.481118	0.690297	0.122663
16	1.161739	0.282720	4.109150	0.764358	0.472627	1.617252	0.207024
17	0.796199	0.132356	6.015602	-0.049429	0.221261	-0.223395	0.552957
18	0.700264	0.065417	10.704682	-0.097905	0.109358	-0.895275	0.808795
19	0.516795	0.092304	5.598827	-0.132989	0.154306	-0.861854	0.564257
20	0.608772	0.063268	9.622127	-0.032516	0.105766	-0.307437	0.758292
21	0.345870	0.063853	5.416695	-0.009795	0.106743	-0.091761	0.492212
Growth							
22	1.002037	0.078625	12.744524	-0.033499	0.131438	-0.254866	0.843599
23	1.034174	0.081683	12.660783	-0.008603	0.136551	-0.063000	0.838424
24	0.994011	0.090619	10.969091	-0.127741	0.151489	-0.843230	0.814563
25	0.875586	0.181524	4.823539	-0.384940	0.303456	-1.268521	0.531481
26	0.870653	0.129952	6.699783	-0.291250	0.217243	-1.340663	0.665731
27	0.591141	0.076235	7.754245	-0.247781	0.127442	-1.944261	0.742204
28	0.706408	0.110527	6.391244	-0.064638	0.184770	-0.349827	0.589796
29	1.039993	0.185179	5.616141	0.149067	0.309567	0.481533	0.465630
30	0.467048	0.084617	5.519587	-0.155167	0.141455	-1.096939	0.574273
31	0.895161	0.051303	17.448384	-0.086166	0.085765	-1.004683	0.915016
32	0.944037	0.121757	7.753445	0.046996	0.203543	0.230891	0.647019

Sr. No.	Beta	Standard Error Beta	t-beta	Gamma	Standard Error Gamma	t-Gamma	R^2
33	0.830154	0.116658	7.116158	-0.334767	0.195018	-1.716591	0.705072
34	0.884652	0.136600	6.476232	-0.195072	0.228356	-0.854248	0.625943
35	0.854516	0.061033	14.000878	-0.133721	0.102030	-1.310612	0.880304
36	0.877378	0.114773	7.644438	-0.026256	0.191868	-0.136844	0.659139
37	0.769561	0.183862	4.185545	-0.316258	0.307364	-1.028936	0.454369
38	0.711523	0.171046	4.159840	-0.396776	0.285940	-1.387620	0.482975
39	0.443178	0.108285	4.092689	-0.298441	0.181022	-1.648644	0.498830
40	0.991481	0.061048	16.241085	0.070745	0.102054	0.693210	0.887182
41	0.724823	0.131940	5.493602	-0.178999	0.220565	-0.811547	0.552495
42	0.732428	0.084236	8.694920	-0.222213	0.140819	-1.578006	0.765251
43	0.919301	0.065208	14.097916	-0.065807	0.109010	-0.603676	0.872748
44	0.734149	0.122943	5.971480	-0.245786	0.205525	-1.195897	0.612784
45	0.894088	0.116226	7.692694	-0.102741	0.194296	-0.528786	0.680692
46	0.939322	0.068160	13.781074	-0.048425	0.113945	-0.424989	0.865289
47	0.451865	0.106881	4.227753	-0.338903	0.178674	-1.896768	0.530396
48	0.821873	0.062716	13.104568	-0.211700	0.104844	**-2.019185***	0.876478
49	0.766888	0.121083	6.333591	-0.283673	0.202416	-1.401439	0.647632
50	-0.453051	1.064318	-0.425673	-1.502030	1.779235	-0.844200	0.008882
51	1.124314	0.195090	5.763064	-0.138437	0.326134	-0.424478	0.546722
52	0.917096	0.099956	9.175038	-0.229720	0.167097	-1.374771	0.775544
53	0.978163	0.078393	12.477704	-0.185335	0.131050	-1.414225	0.857761
54	0.875160	0.068791	12.721961	-0.177682	0.114999	-1.545070	0.863960
55	0.795579	0.099709	7.978989	-0.333483	0.166685	**-2.000672***	0.752988
56	1.024538	0.066519	15.402180	-0.069984	0.111201	-0.629345	0.890822
57	0.991686	0.007598	130.516163	0.009710	0.012702	0.764485	0.998156
58	0.860902	0.144155	5.972074	-0.099635	0.240985	-0.413448	0.562523
59	0.942766	0.098506	9.570598	-0.053843	0.164675	-0.326964	0.757003
60	0.840739	0.086868	9.678333	-0.159599	0.145219	-1.099023	0.783987
61	0.836136	0.147855	5.655118	-0.170065	0.247171	-0.688045	0.556603
62	0.974576	0.126928	7.678154	-0.196500	0.212188	-0.926065	0.697903
63	0.402081	0.121837	3.300161	-0.357954	0.203677	-1.757462	0.434116
64	1.157645	0.129595	8.932761	0.060714	0.216647	0.280243	0.708140
65	0.916616	0.173536	5.282004	-0.254235	0.290102	-0.876365	0.540083
66	1.010120	0.114865	8.793983	-0.161980	0.192021	-0.843554	0.744400
67	0.711620	0.134354	5.296610	-0.148494	0.224601	-0.661143	0.525338
68	1.062111	0.076224	13.934000	0.081250	0.127425	0.637631	0.852011
69	0.926093	0.107895	8.583279	0.060136	0.180370	0.333404	0.688588
70	0.866232	0.087028	9.953496	0.005414	0.145486	0.037214	0.759598

Sr. No.	Beta	Standard Error Beta	t-beta	Gamma	Standard Error Gamma	t-Gamma	R^2
71	0.894326	0.113467	7.881854	-0.065333	0.189684	-0.344430	0.682225
72	0.950140	0.064532	14.723502	-0.053914	0.107879	-0.499760	0.880529
73	0.981215	0.109701	8.944411	-0.214773	0.183390	-1.171132	0.761167
74	0.936804	0.108282	8.651536	-0.133079	0.181016	-0.735175	0.734680
75	1.205437	0.139742	8.626143	0.174163	0.233609	0.745530	0.672471
76	1.151161	0.124485	9.247403	0.032346	0.208103	0.155430	0.727274
77	0.824687	0.137437	6.000482	-0.103434	0.229755	-0.450192	0.567197
78	0.927441	0.062237	14.901664	0.082100	0.104043	0.789093	0.866703
				Income			
79	0.002880	0.002119	1.359161	0.002593	0.003542	0.732198	0.021398
80	0.002142	0.001455	1.472881	0.004947	0.002432	**2.034184***	0.036569
81	0.043341	0.040241	1.077051	0.005938	0.067271	0.088271	0.031257
82	0.066189	0.048806	1.356156	0.035959	0.081590	0.440725	0.031433
83	0.028915	0.030262	0.955479	0.050310	0.050590	0.994471	0.008801
84	0.020721	0.027708	0.747851	-0.013589	0.046320	-0.293383	0.031721
85	0.023494	0.049643	0.473256	-0.000266	0.082990	-0.003204	0.007220
86	0.025946	0.023246	1.116145	-0.007315	0.038861	-0.188247	0.050025
87	0.040543	0.033136	1.223524	-0.005573	0.055394	-0.100604	0.052253
88	0.001856	0.001842	1.007900	0.004330	0.003079	1.406484	0.017946
89	-0.000541	0.005299	-0.102060	-0.006541	0.008859	-0.738318	0.013509
90	-0.005647	0.072009	-0.078418	-0.079896	0.120379	-0.663703	0.011349
91	0.012959	0.093690	0.138316	0.067517	0.156623	0.431076	0.003294
92	0.070141	0.046126	1.520633	0.037267	0.077110	0.483300	0.039726
93	0.021167	0.053936	0.392454	-0.018571	0.090166	-0.205961	0.010629
94	-0.017084	0.046733	-0.365562	-0.096425	0.078124	-1.234247	0.027629
95	0.146937	0.171621	0.856169	0.442907	0.286901	1.543763	0.026725
96	0.040265	0.044134	0.912338	-0.067767	0.073779	-0.918520	0.090748
97	0.029525	0.030500	0.968026	0.000562	0.050987	0.011020	0.028651
98	0.114349	0.050251	2.275551	0.187837	0.084006	**2.236000***	0.045197
99	0.004626	0.073764	0.062714	-0.007205	0.123313	-0.058429	0.000437
100	0.023600	0.022062	1.069728	0.032705	0.036881	0.886775	0.009793
101	0.057126	0.039193	1.457548	0.042144	0.065520	0.643228	0.029124
102	0.115635	0.049684	2.327400	0.145200	0.083058	1.748182	0.046330
103	0.003424	0.002552	1.341676	0.007605	0.004266	1.782585	0.027678
104	-0.002138	0.034369	-0.062209	0.004465	0.057456	0.077717	0.000583
105	0.016348	0.019313	0.846482	-0.023636	0.032286	-0.732093	0.069097
106	0.050123	0.079269	0.632316	-0.021760	0.132516	-0.164206	0.019030

Sr. No.	Beta	Standard Error Beta	t-beta	Gamma	Standard Error Gamma	t-Gamma	R^2
107	-0.000491	0.007025	-0.069870	-0.006364	0.011744	-0.541938	0.007449
108	0.007044	0.024356	0.289213	-0.020165	0.040716	-0.495258	0.018088
109	0.063765	0.034651	1.840201	0.078836	0.057927	1.360950	0.029736
110	0.135088	0.028758	4.697491	-0.027628	0.048074	-0.574688	0.464409
111	0.272102	0.204588	1.330001	0.067843	0.342013	0.198363	0.041738
112	0.063261	0.040510	1.561605	0.058215	0.067721	0.859626	0.027514
113	0.056668	0.055172	1.027111	0.088907	0.092232	0.963949	0.009243
114	0.061842	0.045500	1.359156	0.025122	0.076063	0.330273	0.036748
115	0.029752	0.027388	1.086326	-0.012078	0.045785	-0.263790	0.052891
116	0.019147	0.030394	0.629969	0.024440	0.050810	0.481008	0.003516
117	0.001610	0.015071	0.106844	0.003598	0.025194	0.142810	0.000183
118	0.031608	0.024031	1.315315	-0.003344	0.040173	-0.083234	0.058171
119	0.065420	0.044712	1.463132	0.044368	0.074746	0.593587	0.031327
120	0.079676	0.047213	1.687569	0.042216	0.078927	0.534868	0.048559
121	0.018910	0.029662	0.637536	0.009480	0.049586	0.191192	0.007471
122	0.013695	0.037517	0.365031	-0.031828	0.062717	-0.507488	0.022210
123	0.056419	0.078003	0.723289	-0.056726	0.130399	-0.435017	0.038592
124	0.047982	0.035076	1.367923	0.050596	0.058638	0.862861	0.018797
125	-0.169611	0.139307	-1.217541	-0.253016	0.232881	-1.086460	0.012682
Tax-Planning							
126	0.970571	0.115806	8.381008	-0.138594	0.193595	-0.715899	0.722257
127	1.022127	0.136387	7.494326	-0.020749	0.228000	-0.091005	0.647947
128	0.901067	0.148356	6.073692	0.073296	0.248008	0.295540	0.521149
129	0.898686	0.118271	7.598506	-0.134310	0.197716	-0.679310	0.682685
130	0.955163	0.109838	8.696081	-0.146725	0.183618	-0.799079	0.738855
131	0.978150	0.102955	9.500774	0.010640	0.172111	0.061821	0.741279
132	0.747224	0.150769	4.956091	-0.492773	0.252043	-1.955120	0.590683
133	0.864660	0.098438	8.783830	-0.245006	0.164560	-1.488856	0.765571
134	0.906316	0.159167	5.694139	-0.273932	0.266081	-1.029507	0.582738
135	1.125768	0.200800	5.606412	0.151999	0.335680	0.452810	0.466978
136	0.816438	0.105751	7.720391	-0.359188	0.176785	**-2.031776***	0.744041
137	1.085688	0.162989	6.661130	0.003190	0.272470	0.011706	0.586764

Note: The Serial Number represents the name of the schemes, which are in the same order as given in Appendix-I.
* Significant at 5% level

While there are eight other schemes for which the t-values are significant but are negative. These schemes are LIC M F Growth Fund (G), ICICI Prudential Growth Plan (G), Tata Tax Saving Fund (G), LIC MF Balance Fund (D), JM Balanced Fund

(D), ICICI Prudential Balanced Fund (G), LIC MF Balance Fund (G) and Kotak Mahindra Balance (G). Out of these eight wrong market timers, two are **growth schemes**, five are **balanced schemes** and one is **tax-planning scheme.** Fund managers for these schemes appear to undertake timing activities but were, indeed, unsuccessful, as they were timing in the wrong direction. All these five schemes are from **Private sector** and three schemes are from **Institution (LIC).**

Thus, in terms of Henriksson and Merton model, the results reported here support the hypothesis that Indian mutual fund managers do not display distinct market timing abilities, however, there is evidence that some of the funds are timing the market in the wrong direction.

Based on the above empirical results of Treynor & Mazuy and Henriksson & Merton, it is also found that ICICI Prudential Gilt Fund (Investment Plan) (G) scheme is correct market timer according to both the measures. While other seven schemes viz. Birla Sun Life MNC Fund (G), Franklin FMCG Fund (G), Franklin Pharma Fund (G), ICICI Prudential Balanced Fund (G), ICICI Prudential FMCG Fund (G), ICICI Prudential Growth Plan (G), Kotak Mahindra 30 Unit Scheme (G), Kotak Mahindra Balance (G), LIC Mf Balance Fund (G) and Principal Tax Savings Fund (G) are wrong market timer based on both the market timing measures. Hence it can be concluded that whether one use Treynor and Mazuy measure or Henriksson and Merton measure, some of the results (fifty percent) are common for both the measures.

These results are similar to those reported by other researcher and academicians utilizing data from Indian mutual funds *viz.* Amitabh Gupta (2000)[3], Bijan Roy and Saikat Sovan Deb (2003)[4], Ramesh chander (2006)[5], Nalini Parva Tripathy(2006)[6], Soumya Guha Deb,-Ashok Banerjee and B B Chakrabarti (2007)[7], B. Phaniswara Raju and K Mallikarjuna Rao (2009)[8] *etc.*

6.1.2 MARKET TIMING AND FUND OBJECTIVE

It has been hypothesized that the market timing abilities of Fund Managers of growth schemes do not differ from those of other schemes. The growth schemes under investment objective are those which aim to achieve capital appreciation by investing in stocks. Such schemes focus on those companies that are experiencing significant earnings or revenue growth. Such Schemes invest majority of funds in equities

(shares). They promise attractive return on investments and are exposed to high risks depending upon the equity market situations, which are influenced by external factors like economic, social and political aspects of the economy. The balanced funds are having combine features of growth funds and income funds. These funds invest in companies having potential for capital appreciation and those known for issuing high dividends. The level of risks involved in these funds is lower than growth funds and higher than income funds. Funds that invest in medium to long-term debt instruments issued by private companies, banks, financial institutions, governments and other entities belonging to various sectors (like infrastructure companies etc.) are known as Income Funds. Income funds are low risk profile funds that seek to generate fixed current income (and not capital appreciation) to investors. In order to ensure regular income to investors, income funds distribute large fraction of their surplus to investors. Income funds are generally less risky than equities. To minimize the risk of default, income funds usually invest in securities from issuers who are rated by credit rating agencies. Tax-planning schemes are schemes that offer tax rebates to the investors under specific provisions of the Income Tax Act, 1961 as the Government offers tax incentives for investment in specified avenues - e.g. Equity Linked Savings Schemes (ELSS). Pension schemes launched by the mutual funds also offer tax benefits. These schemes are growth-oriented and invest pre-dominantly in equities. Their growth opportunities and risks associated are like any equity-oriented scheme. Thus, one would expect growth funds to show market timing more than funds with other objectives.

Table 6.6 and Table 6.7 reveals the results pertaining to market timing and fund objectives in respect of Treynor & Mazuy model and Henriksson & Merton model for both the benchmark proxies.

Table 6.6 : Summary Results Treynor and Mazuy Model : Market Timing and Fund Objectives

Objectives	Sample Schemes	Market Timers		Wrong Timers	
		BSE 30	Nifty 50	BSE 30	Nifty 50
Balanced	21	-	-	3	2
Growth	57	-	-	6	3
Income	47	1	1	-	-
Tax-Planning	12	-	-	1	-
Total	**137**	**1**	**1**	**10**	**5**

Table 6.6 indicate that in respect of Treynor & Mazuy model there was only one scheme where some market timing was reflected in terms of BSE 30 benchmark proxy and in terms of Nifty 50 also there was only one scheme where some market timing was reflected.

However, there was some evidence that fund managers were wrongly timing the market in respect of both the benchmark proxy. In terms of BSE30, 10 fund managers were found to be wrong market timers. Out of 10 schemes 6 were Growth Fund Schemes, 3 Balanced Fund Schemes and 1 was Tax-Planning Scheme. While, in terms of Nifty 50, 5 fund managers were found to be wrong market timers. Out of these five schemes, 3 were from growth schemes and 2 were from balanced schemes. Thus, it could be concluded that majority of the wrong market timers were fund managers of growth schemes.

Table 6.7 : Summary Results Henriksson and Merton Model : Market Timing and Fund Objectives

Objectives	Sample Schemes	Market Timers		Wrong Timers	
		BSE 30	Nifty 50	BSE 30	Nifty 50
Balanced	21	-	-	6	5
Growth	57	-	-	7	2
Income	47	1	2	-	-
Tax-Planning	12	-	-	3	1
Total	**137**	**1**	**2**	**16**	**8**

Table 6.7 indicate that in respect of Henriksson and Merton model there was only one scheme where some market timing was reflected in terms of BSE 30 benchmark proxy while in terms of Nifty 50 also there were only two schemes where some market timing was reflected, as the t-values for gamma coefficient were positive and significant at five percent level. However, there was some evidence that fund managers were wrongly timing the market in respect of both the benchmark proxy. In terms of BSE30, 16 fund managers were found to be wrong market timers. Out of these 16 schemes, 7 were Growth Fund Schemes, 6 were Balanced Fund Schemes and 3 were Tax-Planning Schemes. While, in terms of Nifty 50, 8 fund managers were found to be wrong market timers. Out of these eight schemes, 2 were from Growth Schemes, 5 were from Balanced Schemes and 1 was from Tax-Planning Scheme.

However results are somewhat different in terms of both the models. As per the wrong market timers are concerned with respect to BSE 30 , 6 (60 per cent) schemes out of 10 (100 per cent) schemes were from growth schemes with respect to Treynor

and Mazuy model and 7 (44 per cent) schemes out of 16 (100 per cent) schemes were from growth schemes with respect to Henriksson and Merton model. And with respect to Nifty 50, 3 (60 per cent) schemes out of 5 (100 per cent) schemes were from growth schemes with respect to Treynor and Mazuy model and 2 (25 per cent) schemes out of 8 (100 per cent) schemes were from growth schemes with respect to Henriksson and Merton model.

Therefore, overall results support the hypothesis that market timing abilities of Fund Managers of growth schemes do not differ from those of other schemes. There is no scheme found to be correct market timer with respect to both the models except income schemes. And evidence is found that fund manager of balanced schemes, growth schemes and tax-planning schemes are the wrong timers of the market.

6.1.3 › MARKET TIMING AND SPONSORSHIP

It has been hypothesized that the market timing abilities of Fund managers of the bank sponsored mutual fund schemes do not differ from those of private sector sponsored mutual funds and Institution sponsored mutual fund schemes. Table 6.8 and Table 6.9 reveals the results pertaining to market timing and sponsorship in respect of Treynor & Mazuy model and Henriksson & Merton model for both the benchmark proxies.

Table 6.8 : Summary Results Treynor and Mazuy Model : Market Timing and Fund Sponsorship

Sponsorship	Sample Schemes	Market Timers		Wrong Timers	
		BSE 30	Nifty 50	BSE 30	Nifty 50
BS:JV-PF	2	-	-	-	-
BS:JV-PI	14	-	-	-	-
BS:O	8	-	-	-	-
INST.	12	-	-	1	-
PS:F	17	-	-	2	1
PS:I	33	-	-	2	1
PS:JV-PF	7	-	-	1	-
PS:JV-PI	44	1	1	4	3
Total	**137**	**1**	**1**	**10**	**5**

Table 6.8 indicate that in respect of Treynor & Mazuy model there was only one scheme where some market timing was reflected in terms of BSE 30 benchmark proxy and in terms of Nifty 50 also there was only one scheme where some market timing was reflected. Both the schemes were sponsored by the private sector mutual

fund. However, there was some evidence that fund managers were wrongly timing the market in respect of both the benchmark proxy. In terms of BSE30, 10 fund managers were found to be wrong market timers. Out of 10 schemes, 1 was from Institutions sponsored and 9 were from Private Sector sponsored mutual fund. While, in terms of Nifty 50, 5 fund managers were found to be wrong market timers. All these 5 were sponsored by the private sector mutual fund.

Table 6.9 : Summary Results Henriksson and Merton Model : Market Timing and Fund Sponsorship

Sponsorship	Sample Schemes	Market Timers		Wrong Timers	
		BSE 30	Nifty 50	BSE 30	Nifty 50
BS:JV-PF	2	-	-	-	-
BS:JV-PI	14	-	-	-	-
BS:O	8	-	-	-	-
INST.	12	-	-	3	3
PS:F	17	-	-	2	-
PS:I	33	-	-	5	3
PS:JV-PF	7	-	-	2	-
PS:JV-PI	44	1	2	4	2
Total	**137**	**1**	**2**	**16**	**8**

Table 6.9 indicate that in respect of Henriksson and Merton model there was only one scheme where some market timing was reflected in terms of BSE 30 benchmark proxy while in terms of Nifty 50 also there were 2 schemes where some market timing reflected, as the t-values for gamma coefficient were positive and significant at five percent level. These schemes were sponsored by the private sector mutual fund only. However, there was some evidence that fund managers were wrongly timing the market in respect of both the benchmark proxy. In terms of BSE30, 16 schemes were found to be wrong market timers. Out of 16 schemes only 3 were sponsored by the institutions while remaining 13 schemes were sponsored by the private sector. While, in terms of Nifty 50, 8 fund managers were found to be wrong market timers. Out of these 8 schemes, 3 were sponsored by the institutions while remaining 5 schemes were sponsored by the private sector.

Hence, as per Treynor & Mazuy model and Henriksson & Merton model results do not support the hypothesis that the market timing abilities of Fund managers of the bank sponsored mutual fund schemes do not differ from those of private sector and

Institution sponsored mutual fund schemes. And there is no scheme found to be correct market timer with respect to both the models except PS-JV-PI schemes. But it is found that majority of the wrong market timers were sponsored by the private sector mutual funds. There are no bank sponsored mutual funds schemes which found to be wrong market timers.

6.2 SUMMARY AND CONCLUSIONS

This chapter has revealed the empirical results with respect to the market timing abilities of Indian mutual fund managers in terms of two models, Treynor & Mazuy model and Henriksson & Merton model using the same data set as was used for performance evaluation.

H_{01} : Mutual fund managers do not display distinct market timing abilities.

The empirical results reported here support the hypothesis that Indian mutual fund managers do not display distinct market timing abilities in terms of both the models. There is only one scheme which found correct market timer and t-value for gamma coefficient was positive and statistically significant at 5 % level *viz.*, ICICI Prudential Gilt Fund (Investment Plan) (G) with respect to both the models. Some evidence is found that managers were timing the market in the wrong direction. There were total 7 schemes where fund managers reflected such behavior in terms of both the models. These schemes were: Birla Sun Life MNC Fund (G), ICICI Prudential Balanced Fund (G), ICICI Prudential Growth Plan (G),Kotak Mahindra 30 Unit Scheme (G),Kotak Mahindra Balance (G), LIC MF Balance Fund (G), and Principal Tax Savings Fund (G).

H_{020}: The Market timing abilities of Fund Managers of Growth schemes do not differ from those of other schemes.

The results reported in Table 6.6 and Table 6.7 support the hypothesis that market timing abilities of fund managers of growth schemes do not differ from those of other schemes. There is no scheme found to be correct market timer with respect to both the models except income schemes. And evidence is found that fund manager of balanced schemes, growth schemes and tax-planning schemes are the wrong timers of the market.

H_{021}: The Market timing abilities of Fund Managers of the bank sponsored mutual fund schemes do not differ from those of Private sector sponsored mutual funds and Institution sponsored mutual fund schemes.

The results reported in Table 6.8 and Table 6.9 do not support the hypothesis that market timing abilities of the bank sponsored mutual fund schemes do not differ from those of private sector and Institution sponsored mutual fund schemes. There is no scheme found to be correct market timer with respect to both the models except PS-JV-PI schemes. But it is found that majority of the wrong market timers were sponsored by the private sector mutual funds. And there are no bank sponsored mutual funds schemes which found to be wrong market timers.

The results are somewhat similar whether one uses the BSE30 or Nifty50 benchmark proxies for the sample mutual fund schemes.

Based on the results found, it may be concluded that Indian fund managers are not seriously engaged in correct market timing activities at all and are relying on stock selection skills. Therefore, whatever superior performance is reflected in the results pertaining to performance evaluation seems to have been largely due to their stock selection abilities rather than due to their market timing abilities. And these results are in tune with those reported by earlier researchers for the Indian mutual funds *viz.* Amitabh Gupta (2000)[3], Bijan Roy and Saikat Sovan Deb (2003)[4], Ramesh chander (2006)[5], Nalini Parva Tripathy(2006)[6], Soumya Guha Deb, Ashok Banerjee and B B Chakrabarti (2007)[7], B. Phaniswara Raju and K Mallikarjuna Rao (2009)[8] *etc.*

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REFERENCES

1. Treynor, Jack L, and Kay K Mazuy (1966); "Can Mutual Funds outguess the Markets?"; *Harvard Business Review*; Vol.44; PP.131-136.
2. Henriksson, Roy D. and Merton, Robert C. (1981); "On Market Timing and Investment Performance. II. Statistical Procedures for Evaluating Forecasting Skills"; *The Journal of Business*; Vol. 54, No. 4. ; PP. 513-533.
3. Gupta, Amitabh (2000); "Market Timing Abilities of Indian Mutual Fund Managers: An Empirical Study"; *The ICFAI Journal of Applied Finance*, Vol 6, No.2; PP.1243-50.

4. Roy, Bijan and Deb, Saikat Sovan (2003), "The Conditional Performance of Indian Mutual Funds: An Empirical Study". SSRN: http://ssrn.com/abstract=593723.
5. Chander, Ramesh (2006); "Investment Managers' Market Timing Abilities: Empirical Evidence from the Indian Capital Market"; *IIMB Management Review*; PP.315-326.
6. Tripathy, Nalini Prava (2006); "Market Timing Abilities and Mutual Fund Performance – An Empirical Investigation into Equity Linked Saving Schemes"; *Vilakshan, XIMB Journal of Management*; PP.127-138.
7. Deb, Soumya Guha;Banerjee Ashok and Chakrabarti B B(2007); "Market Timing and Stock Selection Ability of Mutual Funds in India: An Empirical Investigation"; *Vikalpa*; Vol 32, No.2;PP.39-51.
8. Raju, B Phaniswara and Rao, K Mallikarjuna (2009); "Market Timing Ability of Selected Mutual Funds in India: A Comparative Study"; *The ICFAI Journal of Applied Finance*; Vol.15, No.3; PP. 31-46.