How Efficient are Indian Mutual Fund Managers in Selecting Stock and Timing the Market ?

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Abstract

This study utilizes few selected performance evaluation techniques on a sample of 36 Indian mutual fund schemes over the period of January 2001 to December 2013. The broad based S&P CNX NIFTY is used in the study as a benchmark. The study measures the performance on the parameters of 'Stock Selection' and 'Market-Timing' ability of mutual fund managers using Jensen's Alpha and, Treynor-Mazuy mode. A look at mutual fund performance during the sample time period suggests that professional portfolio managers cannot consistently beat the market. While some managers do occasionally outperform the market, our evidence suggests that during this period it doesn't happen on a consistent basis over the long run. Given the significant management fees funds are charging, this finding is relevant to all the investors. It is especially true, however, for institutional investors who are searching for returns in different markets and asking themselves whether aggressive management is the answer.
The period of the study is the most recent one examined by any Indian mutual fund study.

Keywords: Mutual funds, Jensen's Alpha, Treynor-Mazuy Model, Stock-Selection Ability, Timing Ability

Introduction

During the past one and a half decade, the Indian mutual fund industry has witnessed a major structural transformation and growth as a result of policy initiatives taken by the Government of India to break the monolithic structure of the industry. In 1987, the Government of India permitted public sector banks, Life Insurance Corporation of India (LIC) and General Insurance Corporation (GIC) to enter the mutual fund industry. Later, in 1993, the Government also permitted the private sector to enter the mutual fund business. Further, as a result of organizational restructuring of Unit Trust of India (UTI) in February 2003, the industry also witnessed another major development in the form of new UTI Mutual Fund confronting the SEBI regulations. In addition, some schemes of the UTI were transferred to the new entity called the Specified Undertaking of UTI. However, the large private players like Reliance Asset Management Company, Franklin Templeton Asset Management Company, Birla Asset Management Company, Tata Asset Management Company etc. are also playing a very significant role in driving the mutual fund industry in India. Thus, at present the industry has four type of players' viz., (a) UTI, (b) Public Sector Banks, (c) Insurance Corporation and (d) the Private Sector. During this period, the industry has also grown several fold in terms of size, operations, investor base, and the availability of schemes to the investors.

The performance evaluation of mutual funds is an important area for financial economists. The assessment of fund managers' performance influences the investors to allocate their money into different mutual funds. It may directly or indirectly influence the compensation of the fund managers. Apart from these two direct utilities, the performance evaluation of mutual funds also helps in finding the evidence regarding the validity of efficient market hypothesis. This has made it an interesting topic in finance. Over the last forty years, a number of techniques have been proposed to measure fund performance.

Mutual funds are primarily vehicles for channelizing savings of small investors into financial markets. Given the vast size of the industry and its implications for financial markets, it is important to comprehensively evaluate the schemes offered by these mutual funds. The performance evaluation will bring to light whether some mutual fund managers possess better security selection skills and positive market timing skills. From an academic perspective, the existence (and persistence) of mutual fund managerial ability will imply a rejection of the efficient market hypothesis. The measurement of fund performance has been the topic of increased interest in both the academic and practitioner communities for the last four decades. It is more so because of the growing scale of the mutual fund industry and also because of its implication for efficient market theory.

The study contributes to the literature by providing evidence on stock selection ability and market timing ability in mutual funds performance for India, an emerging market setting.

The out of sample test enriches the literature as most of the previous work relates to mature markets.

Literature Review

The evaluations of fund manager's performance is likely to influence the manner in which investors allocate their wealth across various funds directly or indirectly. This activity influences the compensation of fund managers. Therefore, accurate measurement of fund manager's performance is an essential topic in literature of finance.

The literature on mutual fund performance evaluation primarily advocates the usage of some asset pricing model because of a benchmark with two dimensions – return and risk. The basic notion underlying the methods of fund performance evaluation is that returns from a fund can be judged relative to those of naively selected portfolios, indicated in the asset pricing models, with similar levels of risk. Various risk-return models are proposed in the literature to obtain the naively selected portfolio or benchmark portfolio.

Since the traditional measures of performance – Jensen (1968), Sharpe (1966) and Treynor (1965) – numerous new performance measures have been proposed. There is not one single approach that dominates all others in terms of reliability. Grinblatt and Titman (1989) state: "One of the widely held 'folk theorems' in finance is that informed investors can achieve a better risk-return trade-off than uninformed investors." For this reason, there is a great deal of criticism against Jensen (1968), Sharpe (1966), and Treynor (1965). Numerous empirical studies are made in using these models and most of them conclude fund managers as below average performer. Empirical studies in the context of Indian fund managers are no exception – Jayadev(1998), Gupta (2000) and Irrisapane *et al*. (2000). However, this kind of result is due to the fact of overestimating systematic risk because of market-timing ability and failure of informed investor to earn positive risk-adjusted returns because of increasing risk aversion.

The objective of performance evaluation is to measure the value of services, if any, provided by the mutual fund manager. Chen and Knez (1996) assert: "It is to investigate whether a fund manager helps enlarge the investment opportunity set faced by the investing public and, if so, to what extent the manager enlarges it." So, the fund strategy, which replicates using readily available public information, should not be judged as having superior performance.

The literature further goes into the finer breakdowns of fund manager's performance. Several studies attempted to measure two components of performance – selection and timing skill. The former indicates the ability to pick the best securities of a given level of risk. The contribution due to manager's predictions of general market trend is called timing skill. The literature presents different methods for distinguishing these two components of performance as a whole.

A number of techniques have been proposed to measure portfolio performance and to distinguish between performance due to forecasting security specific returns and performance due to forecasting market-wide events.

Treynor and Mazuy (1966) proposed an approach where an investor tries continually to outguess the market by oscillating between two characteristics line, one of which has a high volatility and the other, a low volatility. Whenever the fund manager anticipates a rise in market, he shifts to high volatility line. On the contrary, he shifts to low volatility line anticipating a fall in the market. So, the characteristic line is no longer straight. To identify timing activities, the excess return of the fund has to be a convex function with respect to excess returns of the market portfolio. Treynor and Mazuy (1966) examined the timing ability of 57 fund managers during the period 1953-1962 using annual rate of return. No evidence of curvature of the characteristic lines is found for any of the funds.

Objective of the Study

This study attempts to evaluate the 'market timing' and the 'stock selection' ability of the Indian mutual fund managers which constitute the major components of active management skills of the fund managers. These active management skills enable the fund managers to generate returns superior to the general market.

The following section of this study describes the data and their sources, the methodology used in the study, and the empirical results and their interpretation. The final section concludes the paper.

Data and their Sources

The following section describes the sample, fund returns, period of study, the market proxy, and the risk-free proxy.

The Sample

A sample of 36 diversified equity funds have been used to study their investment performance. The choice of the sample is largely based upon the availability of the necessary data. Monthly returns based on net asset values (NAVs) have been used for evaluation. This set of 36 diversified equity funds has been used for performance measurement.

Data is collected from moneycontrol.com, bluechip.com and AMFI website. To check the authenticity of the data collected from various sites, the particular period NAVs of particular schemes have been cross checked and confirmed on all the sites. Table-1 contains the names of the mutual fund schemes along with summary statistics for the test period.

Table 1
Summary Statistics of Funds Return

Sl. No.	Fund Name	Type	Max	Min	Mean	Median	Std. Dev.
1.	Birla Sun Life Advantage Fund	Diversified equity scheme	0.340336	-0.2738	0.014088	0.030887	0.090513
2.	Birla Sun Life MNC	Diversified equity scheme	0.178591	-0.24935	0.014723	0.02665	0.07104
3.	DSPBR Opportunities	Diversified equity scheme	0.393601	-0.28966	0.019596	0.027743	0.100881
4.	Franklin India Blue Chip Fund	Diversified equity scheme	0.231602	-0.25601	0.01906	0.029215	0.08332
5.	Franklin India Prima	Diversified equity scheme	0.637067	-0.31183	0.021927	0.032533	0.111671
6.	Franklin India Prima Plus	Diversified equity scheme	0.263116	-0.25831	0.020046	0.034849	0.081713
7.	HDFC Growth	Diversified equity scheme	0.262904	-0.26611	0.018247	0.025668	0.080707
8.	ICICI Prudential Growth	Diversified equity scheme	0.20397	-0.2612	0.015942	0.028868	0.081532
9.	ICICI Prudential Power	Diversified equity scheme	0.367211	-0.29122	0.018374	0.033815	0.093778
10.	ING Core Equity	Diversified equity scheme	0.267085	-0.50602	0.008016	0.026923	0.115999
11.	JM Equity	Diversified equity scheme	0.328374	-0.35029	0.01224	0.032254	0.10157
12.	Kotak 30	Diversified equity scheme	0.234586	-0.27836	0.016612	0.032681	0.082915
13.	Kotak MNC	Diversified equity scheme	0.252109	-0.22078	0.009247	0.014706	0.082901
14.	LICMF Equity	Diversified equity scheme	0.292475	-0.31268	0.010286	0.02424	0.09614
15.	LICMF Growth	Diversified equity scheme	0.319966	-0.31328	0.01242	0.029436	0.093473
16.	SBI Magnum Contra	Diversified equity scheme	0.291703	-0.30743	0.016886	0.035355	0.097461
17.	SBI Magnum Equity	Diversified equity scheme	0.285495	-0.35329	0.01404	0.031165	0.09507
18.	SBI Magnum Global	Diversified equity scheme	0.618041	-0.37269	0.013939	0.034352	0.119011
19.	SBI Magnum Multiplier Plus	Diversified equity scheme	0.272311	-0.29906	0.014208	0.036786	0.099334
20.	Morgan Stanley Growth	Diversified equity scheme	0.270717	-0.28925	0.012096	0.024009	0.088249
21.	Reliance Growth-Retail	Diversified equity scheme	0.311017	-0.26066	0.026027	0.043027	0.091004
22.	Reliance Vision	Diversified equity scheme	0.287458	-0.24404	0.023702	0.036719	0.087816
23.	Sundaram BNP Paribas Growth	Diversified equity scheme	0.281597	-0.27364	0.017244	0.035064	0.092125
24.	Tata Growth	Diversified equity scheme	0.348831	-0.31346	0.015494	0.020875	0.088085
25.	Tata Pure Equity	Diversified equity scheme	0.283279	-0.26304	0.017952	0.02948	0.087206
26.	Taurus Bonanza	Diversified equity scheme	0.366218	-0.42937	0.012454	0.025999	0.109774
27.	Taurus Discovery	Diversified equity scheme	0.400945	-0.4454	0.005984	0.013096	0.118363
28.	Taurus Starshare	Diversified equity scheme	0.42665	-0.37733	0.015996	0.023318	0.112516
29.	Templeton India Growth	Diversified equity scheme	0.263361	-0.24748	0.019032	0.023988	0.083603
30.	UTI Equity	Diversified equity scheme	0.208705	-0.24387	0.012691	0.020783	0.08626
31.	UTI Master Plus	Diversified equity scheme	0.248173	-0.24915	0.011926	0.019276	0.083767
32.	UTI Master Value	Diversified equity scheme	0.319959	-0.38966	0.008293	0.018308	0.100573
33.	UTI Master Share	Diversified equity scheme	0.205889	-0.21747	0.0098	0.016716	0.080302
34.	UTI MNC	Diversified equity scheme	1.004811	-0.86042	0.012109	0.022931	0.146019
35.	UTI Services Industries	Diversified equity scheme	0.311497	-0.70448	0.008586	0.023224	0.115026
36.	UTI Top 100	Diversified equity scheme	0.261336	-0.25667	0.015753	0.023331	0.085123

Fund Returns

With an implicit assumption of one month being the horizon for investment in mutual funds, our study includes monthly adjusted NAV of 36 diversified equity Indian mutual fund schemes. The continuously compounded returns $R_{p,t}$ are calculated as follows:

$$R_{p,t} = \ln\left[\frac{NAV_{p,t}}{NAV_{p,t-1}}\right]$$

Where $NAV_{p,t}$, is the month-end reported net asset value (NAV) of the mutual fund schemes.

Period of Study

The study period covers the recent twelve year period from January 1, 2001 to December 1, 2013. It is during this period that the Indian markets have seen phases of recession, boom and again recession. The period is long enough to draw meaningful inferences.

The Market Proxy

For evaluating the investment performance, it is necessary to choose a benchmark against which the performance of the sample schemes is compared. S&P CNX Nifty Index has been used as benchmark in this study as it is the widely used index by both practitioners and researchers.

The month end values of the index are used to arrive at the market return as follows:

$$E(r_p) - r_f = \hat{\alpha}_p + \hat{\beta}_{0,p} [E(r_m) - r_f] + \hat{\beta}_{1,p} [E(r_m) - r_f]^2 + \varepsilon_p$$

Where,

$E(r_p)$ = Expected rate of return on portfolio

r_f = Risk free rate of return

$E(r_m)$ = Expected rate of return on market portfolio

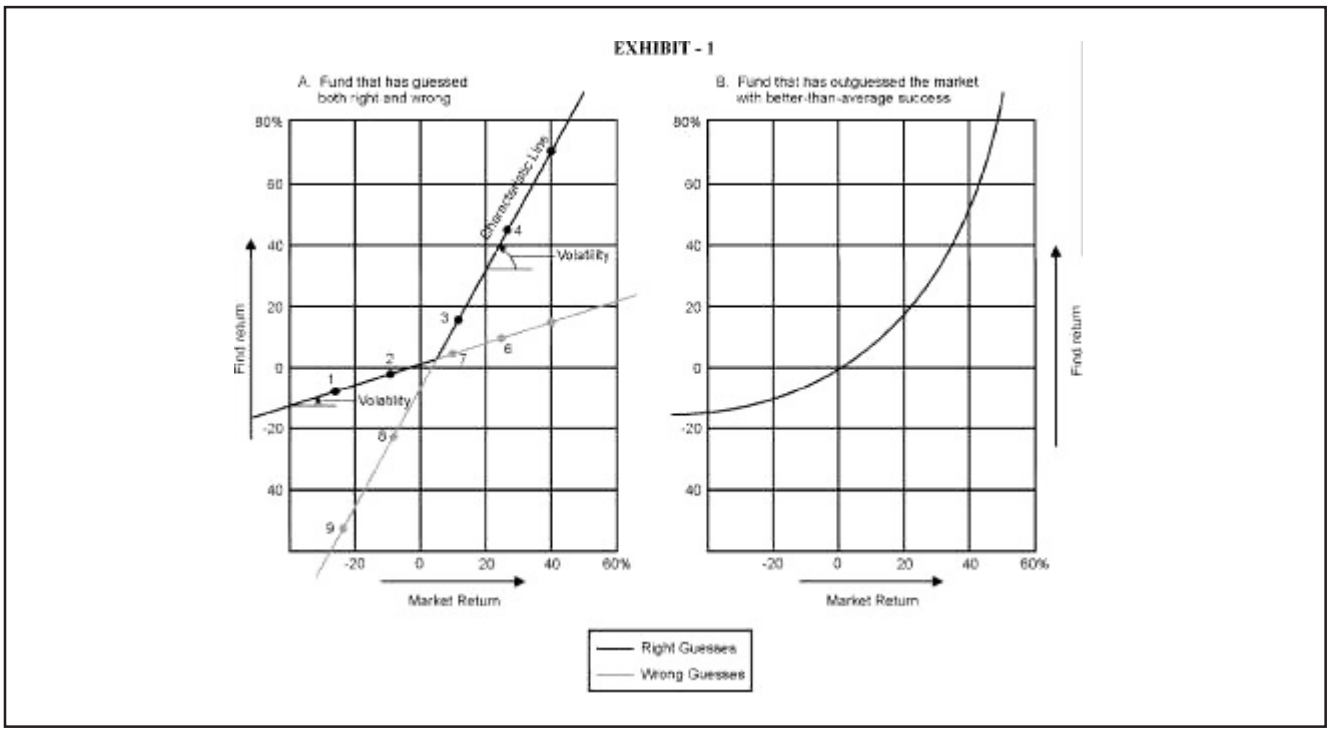
$\hat{\alpha}_p$, $\hat{\beta}_{0,p}$, $\hat{\beta}_{1,p}$ are parameters of regression equation

ε_p = Error term

The standard regression used to estimate Jensen index is extended with the squared excess return of the benchmarked portfolio.

A significant positive value of $\hat{a}_{1,p}$ indicates superior timing skill of the fund manager. On the contrary, a significant negative value of $\hat{a}_{1,p}$ indicates perverse timing skill of the fund manager. α_p in the regression equation is an estimate of selectivity component of the fund manager's performance.

Figure 3
Treynor-Mazuy model



Source: Treynor & Mazuy (1966)

Methodology

The basic models have been used as follows for evaluating performance of the sample funds:

The statistical significance of the slopes (alpha of the regression equations) of all the model has been used to measure the performance of the mutual fund schemes with special reference to stock selection ability of the fund managers.

To measure the timing ability of the fund managers, the statistical significance of the intercepts (beta of the regression equations) have been used while evaluating performance.

Empirical Results

Mutual funds performance is evaluated by both stock selection ability and timing ability of the fund managers. The details are as below:

Stock Selection Ability of the Fund Managers

Stock selection ability of the fund managers of the selected funds is evaluated using Jensen model and Treynor-Mazuy model. The results are as under.

Jensen Model Results

While estimating the selection ability of fund managers using Jensen alpha, we observe that only 7 schemes have positive alpha values which are statistically significant indicating superior performance. Accordingly, approximately 19% of the sample schemes have shown better performance than that of the benchmark.

The scheme-wise details of the schemes are furnished in Annexure 1.

When the same model is applied to the equally weighted portfolio, there is no statistically significant evidence

which shows good stock selection skills of the fund managers.

Treynor-Mazuy Model Results

As per Treynor-Mazuy model, it has been observed that 10 schemes (app. 28%) have positive alpha values which are statistically significant indicating better performance than the benchmark.

The scheme wise details of the schemes are furnished in Annexure 1.

In case of equally weighted portfolio, this model also concludes that there is no statistically significant evidence which shows good stock selection skills of the fund managers.

Table 3
Stock-Selection Ability Results of Various Models Used

Models used / Result	Jensen model	Treynor-Mazuy model
Number of positive alphas which are statistically significant*	7	10
Number of negative alphas which are statistically significant*	0	0

**At 5% level of significance*

However, it is interesting to note that none of the funds has shown statistically significant negative alphas, while using any of the models.

Market Timing Ability of the Fund Managers

Out of the total Indian funds under consideration, we find only one fund is able to time the market perfectly with the positive beta value which is statistically significant according to Treynor-Mazuy model. The study finds four schemes to have shown statistically significant perverse timing with market movements.

The scheme wise details of the schemes are furnished in Annexure 2.

When the same model is applied to equally weighted portfolio, there is no statistically significant evidence of perfect market timing.

Table 4
Market Timing Ability Results of Various Models Used

Models → / Result ↓	Treynor-Mazuy model
Perfect market timing*	1
Perverse market timing*	4

*At 5% level of significance

Conclusion

The study's evidences suggest that Indian mutual funds, in general, have not demonstrated any stock-picking or market-timing abilities during the study period. The funds earned an average return of 0.015% per month against the average market return of 0.013%. The average risk-free rate of return per month was 0.005% per month indicating that the sample funds have earned only marginally above the risk free rate of return during the study period. In terms of Jensen alpha, only seven funds out of thirty six outperformed the relevant benchmark while ten funds in case of Treynor-Mazuy alphas outperformed the relevant benchmark. Though few funds showed some net selectivity skills when seen in conjunction, it appears that the Indian fund managers do not appear to possess stock selection skills.

The timing ability of the Indian fund managers is even worse with only one fund manager showing perfect market timing according to Treynor-Mazuy model. But it is very important to note that fund managers following perverse market timing are four according to Treynor-Mazuy model.

Thus, on the whole, it can be concluded that there is no conclusive evidence which suggests that performance of mutual funds is superior to the market during the study period. However, there is some evidence that some of the funds are performing better than the market. Overall, the results reported here are similar to the ones reported earlier for the Indian market.

APPENDIX 1
Stock Selection Ability Statistics (Jensen Model)

Sl. No	Scheme Name	Jensen Alpha model		Treynor-Mazuy Model	
		Alpha	t- statistics	Alpha	t- statistics
1	Birla Sun Life Advantage Fund	0.001381683	0.467718583	-5.8555E-05	-0.017057576
2	Birla Sun Life MNC^	0.003909962	1.220176356	0.008247755	2.267634689
3	DSPBR Opportunities	0.007156614	1.291757407	0.008148661	1.261986329
4	Franklin India Blue Chip Fund*^	0.007056006	3.016180837	0.008055737	2.960988956
5	Franklin India Prima	0.008474901	1.346779056	0.007230655	0.986002656
6	Franklin India Prima Plus*^	0.008124885	3.160619189	0.009204727	3.078650587
7	HDFC Growth*^	0.006569536	2.281505143	0.006838542	2.037043281
8	ICICI Prudential Growth*^	0.003918833	2.02287245	0.006181325	2.791456209
9	ICICI Prudential Power	0.006512203	1.2411772	0.011800621	1.95753864
10	ING Core Equity	-0.005765601	-0.943440591	-0.001839522	-0.25968661
11	JM Equity	-0.000772653	-0.156866059	0.001048388	0.182899654
12	Kotak 30^	0.004826951	1.620718796	0.007086065	2.057497284
13	Kotak MNC	-0.001461618	-0.285323453	2.66533E-05	0.004467603
14	LICMF Equity	-0.00273446	-0.860983164	-0.002727712	-0.736575763
15	LICMF Growth	-0.000120808	-0.033295195	0.001169992	0.277045163
16	SBI Magnum Contra	0.00478652	0.886238628	0.00657028	1.04493429
17	SBI Magnum Equity	0.001697692	0.37351065	-0.001419245	-0.269611247
18	SBI Magnum Global	-0.000150588	-0.023639082	-0.00762208	-1.046952699
19	SBI Magnum Multiplier Plus	0.001330705	0.29400489	0.001457878	0.276244985
20	Morgan Stanley Growth^	0.000461832	0.099306589	0.010530463	2.086885242
21	Reliance Growth-Retail*^	0.013710794	3.391664603	0.013596648	2.884581571
22	Reliance Vision*^	0.011794642	3.171209418	0.013310336	3.07651449
23	Sundaram BNP Paribas Growth	0.004428843	1.511071939	0.004973845	1.456121964
24	Tata Growth	0.004933133	0.993737376	0.007165553	1.241521014
25	Tata Pure Equity	0.006106497	1.622269059	0.005441032	1.240229372
26	Taurus Bonanza	-0.000842612	-0.149517805	0.002373128	0.362839105
27	Taurus Discovery	-0.008163147	-1.302035362	-0.007184086	-0.9830689
28	Taurus Starshare	0.002815524	0.455476131	0.001574858	0.218622047
29	Templeton India Growth*^	0.007167443	2.715986617	0.006452182	2.099048612
30	UTI Equity	0.001123427	0.23751837	0.000417344	0.075697359
31	UTI Master Plus	-0.000140666	-0.065251969	-0.000988101	-0.393971438
32	UTI Master Value	-0.003901912	-0.575192926	-0.003235986	-0.409164906
33	UTI Master Share	-8.09784E-05	-0.014053211	0.000621123	0.092463892
34	UTI MNC	0.000267314	0.021557337	-0.007539768	-0.524448888
35	UTI Services Industries	-0.005168043	-0.792128327	0.009379468	1.331235633
36	UTI Top 100	0.003004808	1.376254261	0.002645582	1.039601912

*Significant t-statistics for Jensen's Alpha model

^ Significant t-statistics for Treynor-Mazuy model

APPENDIX 2

Market Timing Ability Statistics (Treynor-Mazuy Model)

Sl.No	Scheme Name	Alpha	t- statistics
1	Birla Sun Life Advantage Fund	0.181434222	0.827392153
2	Birla Sun Life MNC*	-0.546454155	-2.351959756
3	DSPBR Opportunities	-0.12497334	-0.302987402
4	Franklin India Blue Chip Fund	-0.125941218	-0.724666541
5	Franklin India Prima	0.156744082	0.334603468
6	Franklin India Prima Plus	-0.136033215	-0.712251336
7	HDFC Growth	-0.033888099	-0.158023901
8	ICICI Prudential Growth*	-0.28501773	-2.014929806
9	ICICI Prudential Power	-0.666209193	-1.73003513
10	ING Core Equity	-0.494588402	-1.093018014
11	JM Equity	-0.229405976	-0.626519082
12	Kotak 30	-0.284592213	-1.293588035
13	Kotak MNC	-0.187485213	-0.491960289
14	LICMF Equity	-0.000850042	-0.003593337
15	LICMF Growth	-0.162608772	-0.602768398
16	SBI Magnum Contra	-0.224709377	-0.559454976
17	SBI Magnum Equity	0.392656541	1.167702993
18	SBI Magnum Global*	0.941222407	2.023879265
19	SBI Magnum Multiplier Plus	-0.016020556	-0.047521458
20	Morgan Stanley Growth*	-1.268397248	-3.935004395
21	Reliance Growth-Retail	0.014379656	0.047757139
22	Reliance Vision	-0.190939828	-0.690884243
23	Sundaram BNP Paribas Growth	-0.068656735	-0.314649812
24	Tata Growth	-0.28122945	-0.762788249
25	Tata Pure Equity	0.083832018	0.299136516
26	Taurus Bonanza	-0.405103391	-0.969611074
27	Taurus Discovery	-0.123337374	-0.264207978
28	Taurus Starshare	0.156293076	0.339649522
29	Templeton India Growth	0.090105152	0.458885482
30	UTI Equity	0.088948885	0.252560845
31	UTI Master Plus	0.106755826	0.666336629
32	UTI Master Value	-0.083890065	-0.166050829
33	UTI Master Share	-0.088447352	-0.206119024
34	UTI MNC	0.983498291	1.07092149
35	UTI Services Industries*	-1.832624846	-4.071825252
36	UTI Top 100	0.045253606	0.278379911

*Significant t-statistics

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