Performance Evaluation of SBI Mutual Funds by using the Tracking Error Information

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Abstract

Mutual fund is an investment vehicle in which professionalized management of funds is carried out by offering different schemes (Funds). The bench mark portfolios were created to track the performance of the funds. The sole objective of the active manger is to make the superior performance of funds over its own benchmark. The major factor which depends on the success of an active manager is the *style* and *aggressiveness* in implementing stock selection decisions. When the active position of the fund becomes zero, it exactly matched with the index and there is no scope for excess return. This paper focuses on the impact of active management and its implication on the fund performance by using information on Indian Institutional Mutual Funds. This has been done by evaluating the performance of six schemes of SBI Mutual Fund by using the Ex-Post and ex-Ante Tracking Error data.

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Keywords: Active management, Institutional Mutual Funds, Fund performance, style characteristics, Tracking Error

1. Introduction

Mutual fund is an investment basket in which professionalized management of funds is carried out by offering different schemes. Each schemes aim to meet the requirements of investors by creating target portfolios. Usually the managers are eager to track the schemes return with the underlying benchmark. Generally, Active risk manger designs the port-folio's to outperform the underlying bench mark. Whereas, the manager expects the portfolio return to mirror its benchmark return, then the portfolio is a passively managed one. The ability of manager to outperform the benchmark was first questioned by the studies done by William Sharpe in 1966, Jensen in 1968 and the Treynor in 1965. Numerous studies have done to understand the active performance and generally they found that some of the managers underperform the benchmark (Jones and Wermers, 2011). The empirical evidence suggests the facts that a group underperform does not prevent the possibility that many managers may outperform their benchmarks in different time period. The issue to identify this outperforming manager was made easier by checking the consistency in funds performance by Goyal and Wahal in 2008.

Plenty of academic studies have made to understand all aspects of US Mutual Funds including returns, risk tolerance, fund flow and governance. This paper examines the active performance and its implication on Indian Mutual Funds. Cremers and Petajisto in 2009 and Petajisto in 2010 developed a measure for funds active position and they found that the managers having largest active position perform better than the closet bench marks. Similarly, Wermers (2012) found that the fund having largest style drift in their portfolio enjoyed the excess return than others.

When the Fund with the closet bench-marks will have zero active position and it exactly matched with the index and there is no scope for excess return. The divergence in the performance brings the scope for active return because of the style character of the manager.

2. Background

History of Indian Mutual Fund began in the year 1963 by formation of Unit Trust of India (UTI) under the administrative and regulatory powers of Govt. of

India and Reserve Bank of India. In 1978 IDBI took over the administrative and regulatory powers from RBI. First scheme launched by the UTI in 1964 was Unit Scheme. During the end of first phase (in 1988) the UTI had Asset under Management (AUM) worth Rs. 6700 crores. Second phase had witnessed the entry of non UTI, Public Sector Mutual Funds set up by Public Sector Banks, Life Insurance Corporation of India (LIC) and General Insurance Corporation (GIC). In 1987, SBI started the first non UTI Mutual Fund followed by Canbank Mutual Fund in December 1987, Punjab National Bank Mutual Fund in August 1989, Indian Bank Mutual Fund in November 1989. At the end of 1993, industry had overall AUM worth Rs. 47004 crores. During the third phase of reforms (in 1993), the doors of the industry was opened to the private houses, this had resulted the new era of investment. SEBI (Mutual Fund) Regulation 1996 came to govern the Mutual Fund Industry in India. In the year 2003, there were 33 mutual funds with total assets of Rs. 1, 21,805 crores. There were several mergers and acquisitions were taken place among the asset management companies. The present phase of mutual fund investments (in 2003) came with the bifurcation of UTI into two separate entities i.e. specific undertaking of UTI with the selected schemes having assured return and the second UTI Mutual Funds under the auspicious of SBI,LIC and GIC. The former undertaking was regulated by direct control of government and the later by the Mutual Funds regulations by SEBI. This would bring the resent development and the consolidation in the Indian Mutual Fund industry. In India 43 Asset Management Companies are undertaking the fund management.

The present study itself limited to the selected schemes of SBI Mutual Fund one of the primary non UTI, public sector MF in India. There is no guarantee that any particular active decision will leads to a positive return. This is because of the risk associated with the selection of active managers. This risk is measured by taking standard deviation of the excess returns (otherwise known as the Tracking Error).

3. Data and the Methodology

3.1 The Data
Tracking error calculated from actual active

return observed for a portfolio is called as backward-looking tracking error or ex-post tracking error or actual tracking error. Ex-post tracking error does not reflect the effect of current decisions made by the managers for future returns and risk. Backward looking tracking error has little predictive value and can mislead investors in their risk perspective. In that case, portfolio managers require a forward looking tracking error. Using multifactor risk models and market index as the benchmark, forward looking tracking error can be estimated and also the portfolios exposure to the various risk factors can be computed and compared to the benchmark's exposure to the same factors. Using the differential factor exposures and the risks of the factors, a forward looking tracking error can be computed. Forward looking tracking error is also referred to as ex-ante or predicted tracking error. Higher the forward looking tracking error, greater active management strategy pursued i.e. wide difference in the risk profiles of the portfolio and its benchmark.

The present study has been done with the selected six schemes of SBI Mutual Fund (SBI MF), one of the leading fund managers in India. Most of the data pertaining to the ex-ante and ex-post Tracking Error were obtained from the Bloomberg and BarraOne (both are premium data packages used in Indian Mutual Funds). The study itself limited to two years data (about the prices and the Net Asset Value of both benchmark indices and the respective MF schemes) from February 2012 to the January 2014. Bloomberg uses Asian Equity Model and BarraOne uses Barra Integrated Model for finding the Tracking Error data. It is inevitable to study the performance of Mutual Funds with comparing tracking error data computed using Asian Equity Model (AEM) and the Barra Integrated Model(BIM). Following schemes with the respective benchmark indices were selected for the analysis.

Schemes under consideration	Benchmark
SBI Magnum Equity Fund	CNX NIFTY
SBI Contra Fund	BSE100
SBI Magnum Multiplier Plus Fund	BSE200
SBI Blue chip Fund	BSE 100
SBI Magnum Tax Gain Scheme	BSE 100
SBI Magnum Multi Cap Fund	BSE 500

3.2 Methodology
Annualized value of *ex-post* Tracking Error has been calculated by using the formula

$$\sigma_{te} = \sqrt{\frac{\sum_{i=1}^{n}(r_{ix} - \overline{r_{ix}})^2}{n-1}} * \sqrt{250} \quad \text{----------}(1.1)$$

σ_{te} - Indicates the tracking error

r_{ix} - Stands for difference in the returns

BarraOne (Barra Integrated Model)

Barra Integrated Model is a multi-asset class model for forecasting the asset and portfolio level risk of global equities, bonds and currencies. BIM builds factor models of all the local equity and bond markets. These models attribute the explainable portion of an asset's return to the local factors at work in each market. These factors include styles and industries for equities and term structure movements and credit spreads for bonds. They may differ significantly from market to market.

Structured local models- Each local model decomposes an asset's local excess return into a part due to local factors and a part that is unique to the underlying asset, the specific return.

$$r = Xf + \mu \quad \text{--------------------}(1.2)$$

Where r – A vector of excess return

X – A matrix of asset exposures to common factors

f – Factor return's vector

μ – A vector of specific return

Bloomberg

Bloomberg uses its various factor models to calculate

tracking error. The Asian model of Bloomberg are used for the following countries Hong Kong group, India group, Korea, Taiwan, Singapore, Malaysia, Indonesia, Thailand, China, Philippines and Vietnam/South East Asia. To calculate tracking error (ex-ante), Bloomberg takes the square root of the product of volatility, weight and correlation.

Modern portfolio theory shows that the security return can be decomposed into two parts- systematic return (industry, country, value, growth, curve etc risk factors) and idiosyncratic returns (since it accounts only to the individual asset, it can be diversified). In linear factor model, each asset's systematic return is modeled as the product of usually a small set of factor returns and the asset's exposure to those factors.

Consider *N*-securities, *T*-time period and –*k* factors.

$$r = fB' + \in \quad \text{-------------} (1.3)$$

Where, *r* - *T* x *N* security return

f - *T* x *k* common factor returns

B- *N* x *k* factor exposures

$\in$ - *T* x *N* idiosyncratic return.

There are three types of factor models that explain whether the exposure and/or the factor returns are pre-specified or estimated.

4. **Result and Discussion**

Study has been done by comparing calculated annualized ex-post tracking error with the ex-post tracking error using Multi Factor Risk Models.

4.1 Magnum Equity Fund (MEF)

MEF is a diversified equity fund, which invest in equities of high growth companies and the balance in debt and money market instruments. MEF targets **CNX NIFTY**. Fig.**4.1.a** shows the comparison between manually calculated annualized *ex-post* TE (2013) and the *ex-post* TE extracted from Bloomberg and BarraOne/Crisil. It is very clear that calculated

value is near-to BIM even though the data collected from Bloomberg's AEM . In fig **4.1.b**, *ex-ante* tracking error of Bloomberg and BarraOne do differ. But, *ex-ante* TE of BarraOne/Crisil closes its *ex-post* TE by the end of given time compared to Bloomberg *ex-ante* TE closing its *ex-post* TE.
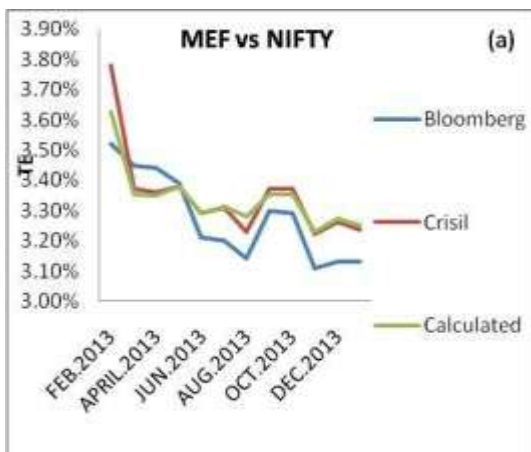

Fig. 4.1 shows Tracking Error comparison of MEF and NIFTY

4.2 SBI CONTRA:

SBI Contra is a diversified fund which invests in stocks of growth oriented sectors i.e. investing in undervalued shares which may be presently out of favor but are likely to show constructive growth in the long run. Contra Fund track with **BSE100.** Fig **4.2.a** shows the comparison of manually calculated back-ward looking tracking error with the TE extracted from Bloomberg and Crisil i.e. BIM. The predicted TE of CONTRA fund varies slightly from August to October between calculated and Bloomberg. But for the overall time period, it doesn't differ much between the three calculators.
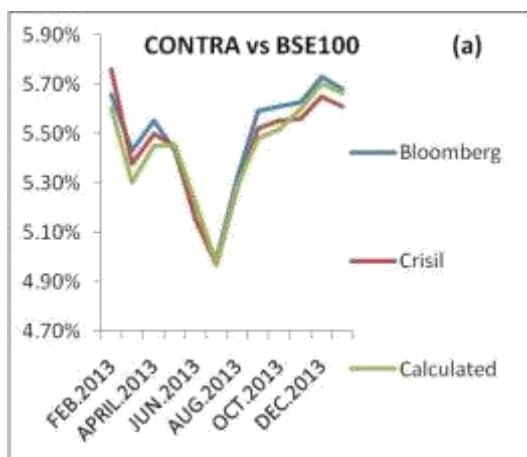

Fig 4.2.a depicts the tracking error between Contra Fund and BSE100

4.3 Magnum Multiplier Plus Fund (MMPS):

This fund invests in equities along with debt and money market instruments. Its objective is to provide investors long term capital appreciation or dividends. MMPS benchmark is **BSE200**.
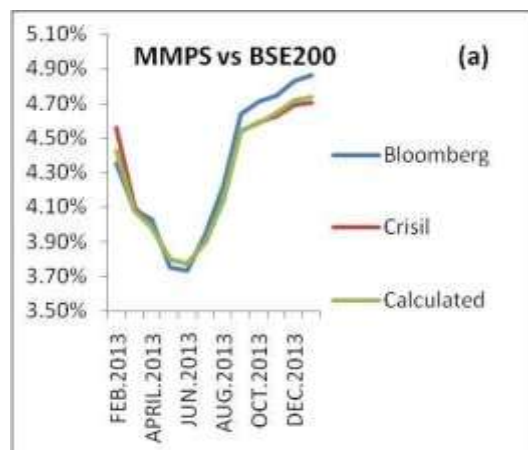

Fig. 4.3.a shows tracking error comparison between Magnum fund and BSE 200

In the fig **4.3.a** clearly shows calculated *ex-post* tracking error overlaps Crisil's *ex-post* tracking error. But for overall period the tracking error doesn't differ more.

4.4 BLUECHIP FUND

Blue-Chip Fund is a diversified large cap fund. Its objective is to provide investors with opportunities for long term growth in capital while investing in stocks whose market capitalization is at least equal to its benchmark index, **BSE100.**
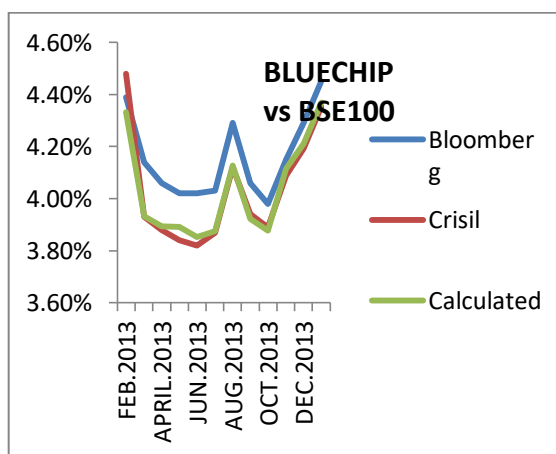

Fig 4.4

There is major difference between Bloomberg and calculated *ex-post* Tracking error and the overlaps of

Crisil and calculated values.

4.5 Tax Gain Fund (MTGS-93)

MTGS is an equity-linked savings scheme (ELSS) fund. ELSS has tax benefit attached to it and is suitable for investors with high risk profile as there are no fixed returns in ELSS. The portfolio consists of equity, cumulative convertible preference shares and FCD's, bonds and money market instruments. MTGS-93 tracks **BSE100.**
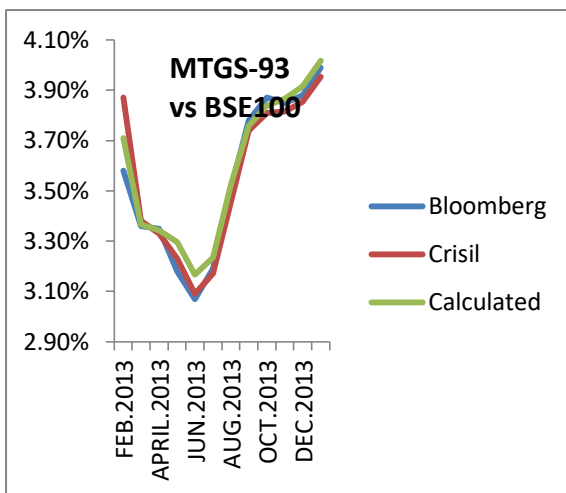

Figure 4.5.a shows *Ex post* Tracking Error of Tax Gain Fund

The graph is a typical from the rest, where the calculated values differed from the Bloomberg &Crisil. And also, Crisil and Bloomberg value overlap from April to July.

4.6 Magnum Multi-Cap Fund (MMULTI)

Multi-Cap is a diversified multi cap fund investing in equity stocks across the entire market capitalization band and in debt and money market instruments. Its benchmark is **BSE500.**
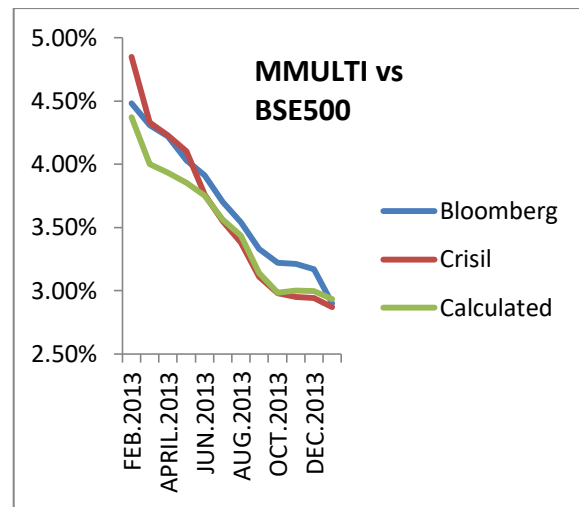

Figure 4.6.a shows *Ex post* Tracking Error of Tax Gain Fund

Only after June does the calculated TE overlaps Crisil TE. There is an apparent difference between the calculated TE and the TE calculated with AEM of Bloomberg.

5. Conclusion

Bloomberg and BarraOne use similar multi factor/asset class models but the output differs significantly due to the unexplainable reasons. We can make guess that each model considers different factors and weight. Most of the funds (MEF, CONTRA, MMPS etc.,); calculated *ex-post* tracking is close to Crisil *ex-post* tracking error, even though the collected data is from Bloomberg. In any case, *ex-post* tracking error has little predictive power and can deceive risk perspective of investors. Another point to be observed in funds is that *ex-ante* TE and *ex-post* TE of Bloomberg start off nearing each other and after a point (usually August) drift apart leaving a huge gap between them. Whereas BarraOne *ex-ante* TE and Crisil *ex-post* TE start off with a gap and then near each other by the end of the period.

The reasons for the above observations cannot be explained further without any additional information

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