A Study of Risk and Return of Selected Mutual Fund in India

*Kanika Dhingra**

The study investigates the performance of open-ended, growth-oriented equity schemes for the period from April 2010 to March 2020 of transition economy. Daily closing NAV of different schemes have been used to calculate the returns from the fund schemes. BSE-Sensex has been used for market portfolio. The historical performance of the selected schemes was evaluated on the basis of Sharpe, Treynor, and Jensen's measure whose results will be useful for investors for taking better investment decisions.

The study revealed that 8 out of 10 mutual fund schemes had outperformed the benchmark return. The results also showed that some of the schemes had underperformed; these schemes were facing the diversification problem. In the study, the Sharpe ratio was positive for all schemes which showed that funds were providing returns greater than risk free rate. Results of Jensen measure revealed that 10 out of 10 schemes had shown positive alpha which indicated superior performance of the schemes.

Keywords: Jensen Measure, Mutual Funds, Performance Evaluation, Sharpe Measure, Treynor Measure.

Introduction

MUTUAL FUNDS have become a widely popular and effective way for investors to participate in financial markets in an easy, low-cost fashion, while muting risk characteristics by spreading the investment across different types of securities, also known as diversification. It can play a central role in an individual's investment strategy. They offer the potential for capital growth and income through investment performance, dividends and distributions under the guidance of a portfolio manager who makes investment decisions on behalf of mutual fund unit holders. Over the past decade, mutual funds have increasingly become the investor's vehicle of choice for long-term investment. It becomes pertinent to study the performance of the mutual fund. The relation between risk-return determines the performance of a mutual fund scheme. As risk is commensurate with return, therefore, providing maximum return on the investment made within the acceptable associated risk level helps in segregating the better performers from the laggards. Many asset management companies are working in India, so it is necessary to study the performance of its which may be useful for the investors to select the right mutual fund. A mutual fund is a common pool of money into which investors with common investment objectives place their contributions that are to be invested, in accordance with the stated objective of the scheme. The investment manager invests the money collected into assets that are defined by the stated objective of the scheme. For example, an Equity fund would invest in Equity and Equity-related instruments and a Debt fund would invest in Bonds, Debentures, and Gilts, etc. The most important variable that decides whether you will meet your target or not is the nature of the actual investments. The first step in getting this right is to decide what kind of asset class one needs to invest in. Asset class refers to debt or equity. This is the primary decision you will have to make.

Mutual fund is a mechanism for pooling the resources by issuing units to the investors and investing funds in securities in accordance with objectives as disclosed in offer document. Investments in securities are spread across a wide cross-section of industries and

* Assistant Professor, IILM and Research Scholar, IIFT, Delhi.

sectors and thus the risk is reduced. Diversification reduces the risk because all stocks may not move in the same direction in the same proportion at the same time. Mutual fund issues units to the investors in accordance with quantum of money invested by them. Investors of mutual funds are known as unit holders. The profits or losses are shared by the investors in proportion to their investments. The mutual funds normally come out with a number of schemes with different investment objectives which are launched from time to time. A mutual fund is required to be registered with Securities and Exchange Board of India (SEBI) which regulates securities markets before it can collect funds from the public.

Literature Review

Dr. Shri Prakash Soni, Dr. Deepali Bankapue, Dr. Mahesh Bhutada (2016) comparative analysis of mutual fund schemes available at Kotak Mutual Fund and HDFC mutual fund. The study conclude that Kotak Mutual Fund schemes are more destructive in Large Cap Equity schemes and HDFC Mutual Fund schemes are more destructive in Mid Cap Equity schemes whereas both the companies' schemes are very well managed in debt market. Kotak Select Focus is the best scheme in Large Cap Equity, HDFC Mid-Cap is the best scheme in Mid-Cap sector and HDFC Balanced Fund is the best scheme in Balanced Fund for investment.

Suchita Shukla (2015) analyzed the financial performance in terms of risk – return relationship of selected mutual fund schemes (5 categories × 3 mutual fund = 15 schemes). The study reveals that Overall, the mutual funds have given better returns than the benchmark in the above period subject to infrastructure fund in year 2013.

Dr. R. Karrupasamy, Mrs. V. Vanaja (2014) this study reveals that majority of the public sector schemes selected for the study outperformed the category average and also benchmark indices and majority of the diversified schemes performed well on the basis of performance index.

Tej Singh, Priyanka (2013) analyzed the private sector of mutual funds are gaining more in terms of scale of mobilization of funds compared to that of public sector mutual funds. The study reveals that the private sector mutual funds are gaining more in terms of scale of mobilization of funds compared to that of public sector. The gap is reaching up to 81 per cent in 2003-04 from 31 per cent in 1998-99 and finally settled at 54 per cent in 2009-10.

Kalpesh, P. Prajapati, Mahesh, K. Patel (2012) it evaluates the Indian mutual funds is carried out through relative performance index, risk-return analysis, Sharp's measure, Jensen's measure, and Fama's measure. All selected mutual fund companies have positive return during 2007 to 2011. HDFC and Reliance Mutual Fund have performed well as compared to the Sensex return. ICICI prudential and UTI Mutual Fund has lower level of risk compare to HDFC and Reliance Mutual Fund.

A Study of performance of mutual fund has become more controversial. Conversely Rajesh Kumar, Rituraj Chandrakar (2012) evaluates the performance of 29 open-ended, growth-oriented equity schemes for the period from April 2005 to March 2011 (six years) of transition economy. The study revealed that 14 out of 29 (48.28%) sample mutual fund schemes had outperformed the benchmark return. The results also showed that some of the schemes had underperformed; these schemes were facing the diversification problem.

Dr. Vikas Kumar (2011) analyzed of the open-ended schemes shows that out of twenty-five schemes namely Reliance Growth Fund, Reliance Vision Fund, ICICI Prudential Tax Plan, HDFC Top 200 and Birla Sun Life Equity Fund, performs better in comparison to benchmark index BSE-100 index in terms of monthly average return and risk involved in these schemes less then benchmark.

Sahil Jain (2011) evaluate the performance of equity based mutual funds. A total of 45 schemes offered by 2 private sector companies and 2 public sector companies, have been studied over the period April 1997 to April 2012 (15 years). The analysis has been made using the risk-return relationship and Capital Asset Pricing Model (CAPM). The overall analysis finds that HDFC and ICICI have been the best performers, UTI an average performer and LIC the worst performer which gave below - expected returns on the risk - return relationship.

Dr. S. Narayan Rao (2010) evaluate the performance evaluation of Indian mutual funds in a bear market is carried out through relative performance index. The results of performance measures suggest that most of the mutual fund schemes in the sample of 58 were able to satisfy investor ‘s expectations by giving excess returns over expected returns based on both low-grade for systematic risk and total risk.

Rao, D.N. (2009) studied the financial performance of select open-ended equity mutual fund schemes for the period 1 April 2005 - 31 March 2006 pertaining to the two dominant investment styles and tested the hypothesis whether the differences in performance are statistically significant. The analysis indicated that growth plans have generated higher returns than that of dividend plans but at a higher risk studied classified the 419 open-ended equity mutual fund schemes into six distinct investment styles.

Agrawal Deepak and Patidar Deepak (2009) studied the empirically testing on the basis of fund manager performance and analyzing data at the fund-manager and fund-investor levels. The study revealed that the performance is affected by the saving and investment habits of the people and at the second side the confidence and loyalty of the fund Manager and rewards - affects the performance of the MF industry in India.

Ali, Naseem and Rehman (2008) in their study examined the performance of 10 mutual funds in which 5 were conventional and 5 were Islamic for the period from 2006 to 2007 by using Sharpe ad Treynor measures. The results found that the funds of Pakistan were able to add more value either conventional or Islamic. The study also found that some of the funds were underperformed, so these funds were facing diversification problems during the study period.

Objectives of the Study

- To evaluate and compare the performance of equity diversified mutual fund schemes of selected companies.
- To compare the performance of equity diversified mutual fund schemes of selected companies *vis-à-vis* the market.
- To examine the performance of selected schemes by using the portfolio performance evaluation models namely Sharpe, Treynor and Jensen.
- To examine the performance of selected schemes on the basis of risk and return and compare the performance of selected schemes with benchmark index to see whether the scheme is outperforming or under-performing the benchmark.

Research Methodology

To examine the mutual fund schemes performance, 10 schemes were selected random basis. NAV of different schemes have been used in this study for the period of ten years i.e., April 2010 to March 2020. BSE-Sensex has been used for market portfolio. In the study the yield on India 10-year bond have been used as risk-free rate. The study was mainly secondary data based. Data regarding NAV were obtained from the website of www.mutualfundindia.com and www.amfiindia.com for the period of April 2010 to March 2020. Data for monthly closing price for the benchmark index (BSE-Sensex) were collected from website of Bombay Stock Exchange (www.bseindia.com). Equity Mutual Funds which are of from diversified equity funds, large cap funds, multi-cap funds, and small and medium cap funds are chosen for analysis. All funds are of high risk. The selected mutual funds are:

- Birla sun life equity fund-regular plan - growth.
- Reliance growth fund-regular plan - growth.
- ICICI prudential top 200 fund-regular plan - growth.
- Tata pure equity fund-regular plan - growth.
- SBI magnum equity fund-regular plan - growth.
- Canara Robeco equity diversified fund-regular plan - growth.
- HDFC top 200 fund-regular plan - growth.
- Franklin India prima fund-regular plan - growth.
- UTI equity fund-regular plan - growth.
- Sundaram growth fund-regular plan-growth.

Tools for Analysis

Standard Deviation

Standard Deviation is a statistical tool, which measures the variability of returns from the expected value, or volatility. It is denoted by sigma(σ). It is calculated using the formula mentioned below: $\sigma x = \sqrt{\Sigma(Rx\text{-}\overline{Rx})^2/N}$ Where, is the sample mean, xi's are the observations (returns), and N is the total number of observations or the sample size. Standard Deviation allows evaluating the volatility of the fund. Volatility is often a direct indicator of the risks taken by the fund.

Beta

Systematic risk is measured in terms of Beta, which represents fluctuations in the NAV of the fund *vis-à-vis* market. The more responsive the NAV of a Mutual Fund is to the changes in the market; higher will be its beta. Beta is calculated by relating the returns on a Mutual Fund with the returns in the market, Market will have beta 1.0 Mutual Fund is said to be volatile, more volatile or less volatile. If beta is greater than 1 the stock is said to be riskier than market. If beta is less than 1, the indication is that stock is less risky in comparison to market. If beta is zero, then the risk is the same as that of the market. Negative beta is rare. Beta is calculated as: β = Covariance (Rp, Rm) / Variance (Rm) where, Rp is the returns on the portfolio or stock (dependent variable). Rm is the market returns or index (independent variable). In order to calculate the beta of a portfolio, multiply the weightage of each stock in the portfolio with its beta value to arrive at the weighted average beta of the portfolio.

Beta = Covariance (ri, rm)/ Variance of Market.

Ratio Analysis Tool - Sharpe Ratio

In this model, performance of a fund is evaluated on the basis of Sharpe Ratio, which is a ratio of returns generated by the fund over and above risk-free rate of return and the total risk associated with it. Where, Sp=Sharpe's Ratio, Rp=portfolio return, Rf=risk free return, σP = standard deviation of portfolio returns. While a high and positive Sharpe Ratio shows a superior risk-adjusted performance of a fund, a low and negative Sharpe Ratio is an indication of unfavourable performance. If Sp of the mutual fund scheme is greater than that of the market portfolio, the fund has outperformed the market. He assumes that a small investor invests fully in the mutual fund and does not hold any portfolio to eliminate unsystematic risk and hence demands a premium for the total risk. A mutual fund scheme with large Treynor ratio and low Sharpe ratio can be concluded to have relatively larger unique risk. Thus, the two indices rank the schemes differently.

Sharp Ratio = (Portfolio Return – Risk-Free Rate) / Standard Deviation

Treynor's Ratio

Treynor's ratio is a measurement of the returns earned in excess of what could have been earned on a riskless investment. Higher the Treynor Ratio is meant the better portfolio. Where, Tp = Treynor's performance index, Rp = Portfolio's actual return during a specified time period, Rf = Risk-free rate of return during the same period, βp = beta coefficient of the portfolio. Whenever Rp> Rf and βp > 0 a larger T value means a better portfolio for all investors regardless of their individual risk preferences. In two cases we may have a negative T value: when Rp < Rf or when βp < 0. If T is negative because Rp < Rf, we judge the portfolio performance as very poor. However, if the negativity of T comes from a negative beta, fund's performance is superb. Finally, when Rp- Rf, and βp are both negative, 367 positive, but in order to qualify the fund's performance as good or bad we should see whether Rp is above or below the security market line pertaining to the analysis period.

Treynor's Ratio = (Portfolio Return – Risk-Free Rate) / Beta

Jensen Ratio

It measures the difference between market risk and actual performance of the fund. Positive Jensen Ratio shows Superior Michael C. Jensen (1968) has given different dimension and confined his attention to the problem of evaluating a fund manager's ability of providing higher returns to the investors. He measures the performance as the excess return provided by the portfolio over the expected (CAPM) returns. J = Portfolio. Return " CAPM. Return Where, α p= Jenson's measure for portfolio, Rp=portfolio return, Rf= risk free return, Rm= Market return, βP = beta coefficient of the portfolio. A positive value of JP would indicate that the scheme has provided a higher return over the CAPM return and lies above Security Market Line (SML) and a negative value would indicate it has provided a lower-than-expected return and lies below SML. Jensen uses αj as his performance measure. A superior portfolio manager would have a significant positive αj value because of the consistent positive residuals. Inferior managers, on the other hand, would have a significant negative αj.

Average portfolio managers having no forecasting ability but, still, cannot be considered inferior would earn as much as one could expect on the basis of the CAPM.

Jensen\'s Alpha = Portfolio Return – Benchmark Portfolio Return

Where: Benchmark Return (CAPM) = Risk-Free Rate of Return + Beta (Return of Market –Risk-Free Rate of Return).

1. **Birla Sun Life Equity Fund - Regular Plan – Growth**

TABLE 1

AVERAGE SHARE PRICE AND PERCENTAGE RETURNS OF THE FUND

FY	NAV(Avg)	RETURN(Ry)	Risk free Return (RF)	Excess (Ry-Rf)
2010-11	69.15	1.00	0.067	0.93342
2011-12	122.99	0.78	0.072	0.70671
2012-13	161.01	0.31	0.067	0.24195
2013-14	242.12	0.50	0.037	0.46705
2014-15	151.37	-0.37	0.062	-0.43699
2015-16	232.9	0.54	0.084	0.45455
2016-17	274.35	0.18	0.082	0.09602
2017-18	229.55	-0.16	0.088	-0.25171
2018-19	255.37	0.11	0.084	0.02835
2019-20	280.64	0.10	0.074	0.02535

BSE SENSEX FOR BENCHMARK

Year	Close	Return
2010-11	20286.99	1.000
2011-12	9647.31	-0.524
2012-13	17464.81	0.810
2013-14	20509.09	0.174
2014-15	15454.92	-0.246
2015-16	19426.71	0.257
2016-17	21170.68	0.090
2017-18	27499.42	0.299
2018-19	26117.54	-0.050
2019-20	26626.46	0.019

Sharp Ratio	**0.536103**
Treynor Ratio	**0.725494**
Jensen alpha Ratio	**0.1918**

Average of return (Ry-Rf)	**0.22647**
Standard deviation	**0.42244**
Beta	**0.312161**

2. Reliance Growth Fund - Regular Plan – Growth

TABLE 2

AVERAGE SHARE PRICE AND PERCENTAGE RETURNS OF THE FUND

FY	NAV(Avg)	RETURN(Ry)	Risk free Return (RF)	Excess (Ry- Rf)
2010-11	97.48	1.00	0.067	0.93342
2011-12	181.96	0.87	0.072	0.79475
2012-13	240.15	0.32	0.067	0.25262
2013-14	365.19	0.52	0.037	0.48396
2014-15	251.59	-0.31	0.062	-0.37325
2015-16	396.39	0.58	0.084	0.49148
2016-17	482.08	0.22	0.082	0.13423
2017-18	411.52	-0.15	0.088	-0.23478
2018-19	456.54	0.11	0.084	0.02527
2019-20	462.68	0.01	0.074	-0.06015

BSE SENSEX FOR BENCHMARK

Year	Close	Return
2010-11	20286.99	1.000
2011-12	9647.31	-0.524
2012-13	17464.81	0.810
2013-14	20509.09	0.174
2014-15	15454.92	-0.246
2015-16	19426.71	0.257
2016-17	21170.68	0.090
2017-18	27499.42	0.299
2018-19	26117.54	-0.050
2019-20	26626.46	0.019

Sharp Ratio	**0.569874**
Treynor Ratio	**0.887118**
Jensen alphaRatio	**0.214075**

Average	**0.24475**
Standarddeviation	**0.429489**
Beta	**0.275899**

3. ICICI Prudential Top 200 Fund - Regular Plan – Growth

TABLE 3

AVERAGE SHARE PRICE AND PERCENTAGE RETURNS OF THE FUND

FY	NAV(Avg)	RETURN(Ry)	Risk free Return (RF)	Excess (Ry- Rf)
2010-11	32.12	1.00	0.067	0.93342
2011-12	53.5	0.67	0.072	0.59374
2012-13	73.42	0.37	0.067	0.30516
2013-14	99.68	0.36	0.037	0.32096
2014-15	63.29	-0.37	0.062	-0.42725
2015-16	94.51	0.49	0.084	0.40922
2016-17	126.64	0.34	0.082	0.25801
2017-18	101.47	-0.20	0.088	-0.28716
2018-19	113.34	0.12	0.084	0.03285
2019-20	124.61	0.10	0.074	0.02584

BSE SENSEX FOR BENCHMARK

Year	Close	Return
2010-11	20286.99	1.000
2011-12	9647.31	-0.524
2012-13	17464.81	0.810
2013-14	20509.09	0.174
2014-15	15454.92	-0.246
2015-16	19426.71	0.257
2016-17	21170.68	0.090
2017-18	27499.42	0.299
2018-19	26117.54	-0.050
2019-20	26626.46	0.019

Sharp Ratio	**0.538939**
Treynor Ratio	**0.597556**
Jensen alpha Ratio	**0.176194**

Average	**0.21648**
Standard deviation	**0.401676**
Beta	**0.362274**

4. **Tata Pure Equity Fund - Regular Plan – Growth**

TABLE 4

AVERAGE SHARE PRICE AND PERCENTAGE RETURNS OF THE FUND

FY	NAV(Avg)	RETURN(Ry)	Risk free Return (RF)	Excess (Ry- Rf)
2010-11	26.49	1.00	0.067	0.93342
2011-12	42.9	0.62	0.072	0.54759
2012-13	56.12	0.31	0.067	0.24098
2013-14	80.32	0.43	0.037	0.39451
2014-15	56.33	-0.30	0.062	-0.36086
2015-16	83.58	0.48	0.084	0.39970
2016-17	101.84	0.22	0.082	0.13652
2017-18	91.45	-0.10	0.088	-0.19043
2018-19	102.86	0.12	0.084	0.04064
2019-20	112.77	0.10	0.074	0.02274

BSE SENSEX FOR BENCHMARK

Year	Close	Return
2010-11	20286.99	1.000
2011-12	9647.31	-0.524
2012-13	17464.81	0.810
2013-14	20509.09	0.174
2014-15	15454.92	-0.246
2015-16	19426.71	0.257
2016-17	21170.68	0.090
2017-18	27499.42	0.299
2018-19	26117.54	-0.050
2019-20	26626.46	0.019

Sharp Ratio	**0.577825**
Treynor Ratio	**0.612356**
Jensen alpha Ratio	**0.177169**

Average	**0.21648**
Standard deviation	**0.374647**
Beta	**0.353521**

5.SBI Magnum Equity Fund – Regular Plan – Growth

TABLE 5

AVERAGE SHARE PRICE AND PERCENTAGE RETURNS OF THE FUND

FY	NAV(Avg)	RETURN(Ry)	Risk free Return (RF)	Excess (Ry- Rf)
2010-11	11.24	1.00	0.067	0.93342
2011-12	18.01	0.60	0.072	0.53042
2012-13	24.83	0.38	0.067	0.31150
2013-14	36.75	0.48	0.037	0.44335
2014-15	23.85	-0.35	0.062	-0.41320
2015-16	36.59	0.53	0.084	0.45011
2016-17	44.48	0.22	0.082	0.13368
2017-18	40.67	-0.09	0.088	-0.17407
2018-19	45.63	0.12	0.084	0.03783
2019-20	49.31	0.08	0.074	0.00705

BSE SENSEX FOR BENCHMARK

Year	Close	Return
2010-11	20286.99	1.000
2011-12	9647.31	-0.524
2012-13	17464.81	0.810
2013-14	20509.09	0.174
2014-15	15454.92	-0.246
2015-16	19426.71	0.257
2016-17	21170.68	0.090
2017-18	27499.42	0.299
2018-19	26117.54	-0.050
2019-20	26626.46	0.019

Sharp Ratio	**0.581749**
Treynor Ratio	**0.563995**
Jensen alpha Ratio	**0.181449**

Average	**0.22601**
Standard deviation	**0.388501**
Beta	**0.40073**

6. Canara Robeco Equity Diversified Fund - Regular Plan – Growth

TABLE 6

AVERAGE SHARE PRICE AND PERCENTAGE RETURNS OF THE FUND

FY	NAV(Avg)	RETURN(Ry)	Risk free Return (RF)	Excess (Ry- Rf)
2010-11	15.15	1.00	0.067	0.93342
2011-12	23.5	0.55	0.072	0.47927
2012-13	27.65	0.18	0.067	0.10942
2013-14	40.18	0.45	0.037	0.41645
2014-15	27.41	-0.32	0.062	-0.38000
2015-16	44.74	0.63	0.084	0.54819
2016-17	55.81	0.25	0.082	0.16548
2017-18	52.76	-0.05	0.088	-0.14306
2018-19	59.71	0.13	0.084	0.04760
2019-20	64.11	0.07	0.074	0.00009

BSE SENSEX FOR BENCHMARK

Year	Close	Return
2010-11	20286.99	1.000
2011-12	9647.31	-0.524
2012-13	17464.81	0.810
2013-14	20509.09	0.174
2014-15	15454.92	-0.246
2015-16	19426.71	0.257
2016-17	21170.68	0.090
2017-18	27499.42	0.299
2018-19	26117.54	-0.050
2019-20	26626.46	0.019

Sharp Ratio	**0.571116**
Treynor Ratio	**0.625597**
Jensen alpha Ratio	**0.178992**

Average	**0.21769**
Standard deviation	**0.381158**
Beta	**0.347964**

7. HDFC Top 200 Fund - Regular Plan – Growth

TABLE 7

AVERAGE SHARE PRICE AND PERCENTAGE RETURNS OF THE FUND

FY	NAV(Avg)	RETURN(Ry)	Risk free Return (RF)	Excess (Ry- Rf)
2010-11	45.55	1.00	0.067	0.93342
2011-12	75.87	0.67	0.072	0.59375
2012-13	100.28	0.32	0.067	0.25455
2013-14	140.54	0.40	0.037	0.36477
2014-15	105.63	-0.25	0.062	-0.31058
2015-16	169.93	0.61	0.084	0.52467
2016-17	215.06	0.27	0.082	0.18363
2017-18	192.99	-0.10	0.088	-0.19103
2018-19	212.59	0.10	0.084	0.01743
2019-20	225.44	0.06	0.074	-0.01316

BSE SENSEX FOR BENCHMARK

Year	Close	Return
2010-11	20286.99	1.000
2011-12	9647.31	-0.524
2012-13	17464.81	0.810
2013-14	20509.09	0.174
2014-15	15454.92	-0.246
2015-16	19426.71	0.257
2016-17	21170.68	0.090
2017-18	27499.42	0.299
2018-19	26117.54	-0.050
2019-20	26626.46	0.019

Sharp Ratio	**0.618308**
Treynor Ratio	**0.698133**
Jensen alpha Ratio	**0.198196**

Average	**0.23575**
Standard deviation	**0.381275**
Beta	**0.33768**

8. **Franklin India Prima Fund - Regular Plan – Growth**

TABLE 8

AVERAGE SHARE PRICE AND PERCENTAGE RETURNS OF THE FUND

FY	NAV(Avg)	RETURN (Ry)	Risk free Return (RF)	Excess (Ry- Rf)
2010-11	94.65	1.00	0.067	0.93342
2011-12	163.11	0.72	0.072	0.65141
2012-13	186.76	0.14	0.067	0.07781
2013-14	249.34	0.34	0.037	0.29837
2014-15	139.81	-0.44	0.062	-0.50146
2015-16	224.36	0.60	0.084	0.52069
2016-17	281.63	0.26	0.082	0.17331
2017-18	255.9	-0.09	0.088	-0.17977
2018-19	298.8	0.17	0.084	0.08351
2019-20	341.11	0.14	0.074	0.06800

BSE SENSEX FOR BENCHMARK

Year	Close	Return
2010-11	20286.99	1.000
2011-12	9647.31	-0.524
2012-13	17464.81	0.810
2013-14	20509.09	0.174
2014-15	15454.92	-0.246
2015-16	19426.71	0.257
2016-17	21170.68	0.090
2017-18	27499.42	0.299
2018-19	26117.54	-0.050
2019-20	26626.46	0.019

Sharp Ratio	**0.514531**
Treynor Ratio	**0.743113**
Jensen alpha Ratio	**0.180727**

Average	**0.21253**
Standard deviation	**0.413055**
Beta	**0.285999**

9. UTI Equity Fund - Regular Plan – Growth

TABLE 9

AVERAGE SHARE PRICE AND PERCENTAGE RETURNS OF THE FUND

FY	NAV(Avg)	RETURN (Ry)	Risk free Return (RF)	Excess (Ry- Rf)
2010-11	18.29	1.00	0.067	0.93342
2011-12	25.77	0.41	0.072	0.33708
2012-13	30.15	0.17	0.067	0.10279
2013-14	40.26	0.34	0.037	0.29861
2014-15	29.84	-0.26	0.062	-0.32100
2015-16	44.5	0.49	0.084	0.40723
2016-17	55.41	0.25	0.082	0.16322
2017-18	51.96	-0.06	0.088	-0.15067
2018-19	59.05	0.14	0.084	0.05232
2019-20	65.23	0.10	0.074	0.03106

BSE SENSEX FOR BENCHMARK

Year	Close	Return
2010-11	20286.99	1.000
2011-12	9647.31	-0.524
2012-13	17464.81	0.810
2013-14	20509.09	0.174
2014-15	15454.92	-0.246
2015-16	19426.71	0.257
2016-17	21170.68	0.090
2017-18	27499.42	0.299
2018-19	26117.54	-0.050
2019-20	26626.46	0.019

Sharp Ratio	**0.53953182**
Treynor Ratio	**0.491119338**
Jensen alpha Ratio	**0.143425447**

Average	**0.18540**
Standard deviation	**0.343640136**
Beta	**0.377514738**

10. Sundaram Growth Fund - Regular Plan – Growth

TABLE 10

AVERAGE SHARE PRICE AND PERCENTAGE RETURNS OF THE FUND

FY	NAV(Avg)	RETURN (Ry)	Risk free Return (RF)	Excess (Ry- Rf)
2010-11	29.78	1.00	0.067	0.93342
2011-12	47.19	0.58	0.072	0.51273
2012-13	61.71	0.31	0.067	0.24051
2013-14	89.44	0.45	0.037	0.41265
2014-15	58.19	-0.35	0.062	-0.41158
2015-16	80.72	0.39	0.084	0.30312
2016-17	95.92	0.19	0.082	0.10636
2017-18	83.18	-0.13	0.088	-0.22123
2018-19	89.4	0.07	0.084	-0.00935
2019-20	93.04	0.04	0.074	-0.03288

BSE SENSEX FOR BENCHMARK

Year	Close	Return
2010-11	20286.99	1.000
2011-12	9647.31	-0.524
2012-13	17464.81	0.810
2013-14	20509.09	0.174
2014-15	15454.92	-0.246
2015-16	19426.71	0.257
2016-17	21170.68	0.090
2017-18	27499.42	0.299
2018-19	26117.54	-0.050
2019-20	26626.46	0.019

Sharp Ratio	**0.473694**
Treynor Ratio	**0.476023**
Jensen alpha Ratio	**0.140538**

Average	**0.18337**
Standard deviation	**0.387116**
Beta	**0.385222**

TABLE 11

COMPARISON OF MUTUAL FUNDS WITH RESPECT TO BETA, STANDARD DEVIATION

MUTUAL FUND SCHEME	BETA	STANDARD DEVIATION
Birla Sun Life Equity Fund - Regular Plan – Growth	0.312	0.422
Reliance Growth Fund - Regular Plan – Growth	0.276	0.429
ICICI Prudential Top 200 Fund - Regular Plan – Growth	0.362	0.402
Tata Pure Equity Fund – Regular Plan – Growth	0.354	0.375
SBI Magnum Equity Fund – Regular Plan – Growth	0.401	0.389
Canara Robeco Equity Diversified Fund - Regular Plan – Growth	0.348	0.381
HDFC Top 200 Fund - Regular Plan – Growth	0.338	0.381
Franklin India Prima Fund - Regular Plan – Growth	0.286	0.413
UTI Equity Fund - Regular Plan – Growth	0.378	0.344
Sundaram Growth Fund - Regular Plan – Growth	0.385	0.387

Risk in terms of Standard Deviation of Return of selected schemes of selected companies and it is found that on an average Reliance and Birla Schemes are riskier than the ICICI Prudential, UTI, and Tata during 2007 to 2016. The variation in return is observed to be higher during 2009 as compare to other years, in case of all selected schemes. Reliance growth fund Regular Savings Fund - Equity - Growth risk is high for all five years compare to the other schemes. This mean that if any investor wants to earn good return on scheme at low risk than, that person can invest in this Reliance scheme. All the funds are having beta less than one during the last one year, which shows they are less risky compared to their benchmark index during this period. Out of this four funds Reliance Growth Scheme comes out to be the least aggressive with having beta of 0.276 and SBI Magnum Equity Fund is the highest aggressive (beta of 0.401). (Table 11).

Table 12 represents the result of Sharpe measure and Treynor measure. It is observed from the Table 12 that higher positive value of Sharpe measure was found in HDFC Top 200 funds (0.618) which followed by SBI magnum equity fund (0.582) and Tata pure equity fund (0.578). In the study, the Sharpe ratio was positive for all schemes which showed that funds were providing returns greater than risk free rate. In the context of Treynor measure, it is revealed for the Table 12 Reliance growth fund is the top performer which followed by Franklin India prima fund. In the Jensen measures of the mutual fund schemes. Among the entire schemes higher alpha was found with Reliance Growth Companies Fund followed by HDFC Top 200 Fund.

As Sharpe Ratio represents mutual fund's excess return to its standard deviation high Sharpe Ratio indicates more attractive fund. All the Ratio for the schemes compares are low, they are relatively compared and ranked accordingly. HDFC offered HDFC Top 200 Fund has a higher Sharpe's Ratio and expected to perform well among the other Equity Schemes SBI Magnum Equity fund has a higher Sharpe's ratio and expected to perform well among the other Equity Diversified Schemes (Table 13).

As Treynor Ratio represents mutual fund's excess return to its standard deviation high Treynor ratio indicates more attractive fund. All the Ratio for the schemes compares are low, they are

TABLE 12

COMPARISON OF MUTUAL FUNDS WITH RESPECT TO SHARPE RATIO, TREYNOR RATIO AND JENSEN ALPHA RATIO

MUTUAL FUND SCHEME	SHARPE RATIO	TREYNOR RATIO	JENSEN ALPHA RATIO
Birla Sun Life Equity Fund - Regular Plan – Growth	0.536	0.725	0.192
Reliance Growth Fund - Regular Plan – Growth	0.570	0.887	0.214
ICICI Prudential Top 200 Fund - Regular Plan – Growth	0.539	0.598	0.176
Tata Pure Equity Fund – Regular Plan – Growth	0.578	0.612	0.177
SBI Magnum Equity Fund – Regular Plan – Growth	0.582	0.564	0.181
Canara Robeco Equity Diversified Fund - Regular Plan – Growth	0.571	0.626	0.179
HDFC Top 200 Fund - Regular Plan – Growth	0.618	0.698	0.198
Franklin India Prima Fund - Regular Plan – Growth	0.515	0.743	0.181
UTI Equity Fund - Regular Plan – Growth	0.540	0.491	0.143
Sundaram Growth Fund - Regular Plan – Growth	0.474	0.476	0.141

TABLE 13

RANKING OF MUTUAL FUNDS ON THE BASIS OF SHARPE RATIO

MUTUAL FUND SCHEME	SHARP RATIO	RANKING
Birla Sun Life Equity Fund - Regular Plan – Growth	0.536103	8
Reliance Growth Fund - Regular Plan – Growth	0.569874	5
ICICI Prudential Top 200 Fund - Regular Plan – Growth	0.538939	7
Tata Pure Equity Fund – Regular Plan – Growth	0.577825	3
SBI Magnum Equity Fund – Regular Plan – Growth	0.581749	2
Canara Robeco Equity Diversified Fund - Regular Plan – Growth	0.571116	4
HDFC Top 200 Fund - Regular Plan – Growth	0.618308	1
Franklin India Prima Fund - Regular Plan – Growth	0.514531	9
UTI Equity Fund - Regular Plan – Growth	0.53953182	6
Sundaram Growth Fund - Regular Plan – Growth	0.473694	10

relatively compared and ranked accordingly Reliance Growth Fund has a higher Treynor's ratio and expected to perform well among the other Equity Schemes Franklin India prima fund has a higher Treynor's ratio and expected to perform well among the other Equity Diversified Schemes (Table 14).

All the ratio in the compared schemes have positive alpha Reliance Growth Fund has the highest Alpha value of 0.214075 implies that the fund return has over performed the benchmark index. Sundram Growth Fund Equity Diversified has the positive Alpha value of 0.140538 implies that the fund return has underperformed the benchmark index over the last one year (Table 15).

TABLE 14

RANKING OF MUTUAL FUNDS ON THE BASIS OF TREYNOR RATIO

MUTUAL FUND SCHEME	TREYNOR RATIO	RANKING
Birla Sun Life Equity Fund - Regular Plan – Growth	0.725494	3
Reliance Growth Fund - Regular Plan – Growth	0.887118	1
ICICI Prudential Top 200 Fund - Regular Plan – Growth	0.597556	7
Tata Pure Equity Fund – Regular Plan – Growth	0.612356	6
SBI Magnum Equity Fund – Regular Plan – Growth	0.563995	8
Canara Robeco Equity Diversified Fund - Regular Plan – Growth	0.625597	5
HDFC Top 200 Fund - Regular Plan – Growth	0.698133	4
Franklin India Prima Fund - Regular Plan – Growth	0.743113	2
UTI Equity Fund - Regular Plan – Growth	0.491119338	9
Sundaram Growth Fund - Regular Plan – Growth	0.476023	10

TABLE 15

RANKING OF MUTUAL FUNDS ON THE BASIS OF JENSEN ALPHA RATIO

MUTUAL FUND SCHEME	JENSEN ALPHA RATIO	RANKING
Birla Sun Life Equity Fund - Regular Plan – Growth	0.1918	3
Reliance Growth Fund - Regular Plan – Growth	0.214075	1
ICICI Prudential Top 200 Fund - Regular Plan – Growth	0.176194	8
Tata Pure Equity Fund – Regular Plan – Growth	0.177169	7
SBI Magnum Equity Fund – Regular Plan – Growth	0.181449	4
Canara Robeco Equity Diversified Fund - Regular Plan – Growth	0.178992	6
HDFC Top 200 Fund - Regular Plan – Growth	0.198196	2
Franklin India Prima Fund - Regular Plan – Growth	0.180727	5
UTI Equity Fund - Regular Plan – Growth	0.143425447	9
Sundaram Growth Fund - Regular Plan – Growth	0.140538	10

As standard deviation represents risk involved in the mutual fund, fund with low standard deviation is preferred when the investor is more concern on their investment. UTI Equity Fund. Growth scheme has a lower Variance and Standard deviation and is expected to be less risky among the schemes. HDFC offered HDFC Equity Fund scheme has a lower Variance and Standard deviation and is expected to be less risky among the Equity diversified schemes (Table 16).

All the funds are having beta less than one during the last one year, which shows they are less risky compared to their benchmark index during this period. Out of this four funds Reliance Growth Scheme comes out to be the least aggressive with having beta of 0.276 and SBI Magnum Equity Fund is the highest aggressive (beta of 0.401) (Table 17).

Findings

Risk in terms of Standard Deviation of Return of selected schemes of selected companies and

TABLE 16

RANKING OF MUTUAL FUNDS ON THE BASIS OF STANDARD DEVIATION

MUTUAL FUND SCHEME	STANDARD DEVIATION	RANKING
Birla Sun Life Equity Fund - Regular Plan – Growth	0.422	2
Reliance Growth Fund - Regular Plan – Growth	0.429	1
ICICI Prudential Top 200 Fund - Regular Plan – Growth	0.402	4
Tata Pure Equity Fund – Regular Plan – Growth	0.375	9
SBI Magnum Equity Fund – Regular Plan – Growth	0.389	5
Canara Robeco Equity Diversified Fund - Regular Plan – Growth	0.381	8
HDFC Top 200 Fund - Regular Plan – Growth	0.381	7
Franklin India Prima Fund - Regular Plan – Growth	0.413	3
UTI Equity Fund - Regular Plan – Growth	0.344	10
Sundaram Growth Fund - Regular Plan – Growth	0.387	6

TABLE 17

RANKING OF MUTUAL FUNDS ON THE BASIS OF BETA

MUTUAL FUND SCHEME	BETA	RANKING
Birla Sun Life Equity Fund - Regular Plan – Growth	0.312	8
Reliance Growth Fund - Regular Plan – Growth	0.276	10
ICICI Prudential Top 200 Fund - Regular Plan – Growth	0.362	4
Tata Pure Equity Fund – Regular Plan – Growth	0.354	5
SBI Magnum Equity Fund – Regular Plan – Growth	0.401	1
Canara Robeco Equity Diversified Fund - Regular Plan – Growth	0.348	6
HDFC Top 200 Fund - Regular Plan – Growth	0.338	7
Franklin India Prima Fund - Regular Plan – Growth	0.286	9
UTI Equity Fund - Regular Plan – Growth	0.378	3
Sundaram Growth Fund - Regular Plan – Growth	0.385	2

it is found that on an average Reliance and Birla Schemes are riskier than the ICICI Prudential, UTI, and Tata during 2006 to 2016. Reliance growth fund Regular Savings Fund- Equity - Growth risk is high for all ten years compare to the other schemes. This mean that if any investor wants to earn good return on scheme at low risk than, that person can invest in this Reliance scheme. All the funds are having beta less than one during the last one year, which shows they are less risky compared to their benchmark index during this period. Out of this four funds Reliance Growth Scheme comes out to be the least aggressive with having beta of 0.276 and SBI Magnum Equity Fund is the highest aggressive (beta of 0.401).

In the study, the Sharpe Ratio was positive for all schemes which showed that funds were providing returns greater than risk free rate. As Sharpe Ratio represents mutual fund's excess return to its standard deviation high Sharpe Ratio indicates more attractive fund. All the Ratio for the schemes compares are low, they are relatively compared and ranked accordingly. HDFC offered HDFC Top 200 Fund has a higher Sharpe's Ratio and expected to perform well among the other Equity Schemes SBI Magnum Equity fund has a higher Sharpe's Ratio and expected to perform well among the other Equity Diversified Schemes. As Treynor Ratio represents mutual fund's excess return to its standard deviation high Treynor Ratio indicates more attractive fund. All the Ratio for the schemes compares are low, they are relatively compared and ranked accordingly Reliance Growth Fund has a higher Treynor's Ratio and expected to perform well among the other Equity Schemes Franklin India prima fund has a higher Treynor's Ratio and expected to perform well among the other Equity Diversified Schemes.

All the Ratio in the compared schemes have positive alpha Reliance Growth Fund has the highest Alpha value of 0.214075 implies that the fund return has over performed the benchmark index. Sundram Growth Fund Equity Diversified has the positive Alpha value of 0.140538 implies that the fund return has underperformed the benchmark index over the last one year. As standard deviation represents risk involved in the mutual fund, fund with low standard deviation is preferred when the investor is more concern on their investment. UTI Equity Fund - Growth scheme has a lower Variance and Standard deviation and is expected to be less risky among the schemes. HDFC offered HDFC Equity Fund scheme has a lower Variance and Standard deviation and is expected to be less risky among the Equity Diversified Schemes.

Conclusion

This study investigates the performance of 10 open-ended, growth-oriented equity schemes for the period from April 2007 to March 2016 (Ten years) of transition economy. Monthly NAV of different schemes have been used to calculate the returns from the fund schemes. BSE-Sensex has been used for market portfolio. The historical performance of the selected schemes was evaluated on the basis of Sharpe, Treynor, and Jensen's measure whose results will be useful for investors for taking better investment decisions. All the schemes have represented positive returns. From Sharpe Ratio, it found that Sharpe Ratio is 0.00163 as compared to market 0.00161 that shows better performance as compared to the market. From Treynor results, it found that 8 out of 10 schemes had outperformed the benchmark. The results also showed that some of the schemes had underperformed, these schemes were facing the diversification problem. In the study, the Sharpe Ratio was positive for all schemes which showed that funds were providing returns greater than risk free rate. Results of Jensen measure revealed that all schemes were showed positive alpha which indicated superior performance of the schemes.

Reliance growth fund Regular Savings Fund- Equity - Growth risk is high for all ten years compare to the other schemes. This mean that if any investor wants to earn good return on scheme at low risk than, that person can invest in this Reliance scheme. All the funds are having beta less than one during the last one year, which shows they are less risky compared to their benchmark index during this period. Out of this four funds Reliance Growth Scheme comes out to be the least aggressive with having beta of 0.276 and SBI Magnum Equity Fund is the highest aggressive (beta of 0.401).

As standard deviation represents risk involved in the mutual fund, fund with low standard deviation is preferred when the investor is more concern on their investment. UTI Equity Fund. Growth scheme has a lower Variance and Standard deviation and is expected to be less risky among the schemes. HDFC offered HDFC Equity Fund scheme has a lower Variance and Standard deviation and is expected to be less risky among the Equity diversified schemes.

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