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An evaluation of equity diversified mutual funds: the case of the Indian market

Abstract

The mutual funds industry grew successfully and brought about substantial returns to the investors and the public sector. The main aim of this paper is to evaluate the performance of Indian equity diversified mutual funds. A subsidiary aim is to analyse the relationship between risk and return of these funds based on total risk and systematic risk. Two different overlapping data sets have been used in this paper, from 2000 to 2009, covering seventeen mutual funds. The evaluation relies on three techniques, namely, the Treynor, the Sharp and the Jensen techniques, which have been applied in similar research by Noulas et al. (2005). Moreover, these techniques have been compared with the Indian market index (BSESENSEX) to evaluate the performance of each individual mutual fund.

The results indicate a positive relation between risk and return of these mutual funds. Also, beta's values are less than one in the selected sample. Furthermore, there is evidence of higher actual returns compared with expected returns over the selected period(s). With the imminent liberalisation of the financial market in developing countries, especially the Indian market, the findings of this paper could encourage investors to invest in international mutual funds. They could expand their financial operations in the Indian market, which could offer advantages of diversification and professionalism to the investors.

Keywords: mutual funds, performance evaluation techniques, Indian market.
JEL Classification: G11, G15, G20.

Introduction

One of the main advantages of investing in mutual funds is risk diversification. Thus, fund managers have different risk levels to achieve financial schemes objectives. Over the last 25 years, mutual funds grew successfully by giving considerable returns to the investors. In 1963, the mutual fund industry was introduced in India. The UTI (Unit Trust of India) was the only player and early growth was very slow. Since 1964, India has one of the fastest growing economies with rapid progression in the mutual fund industry. This growth increased especially when non-UTI players, such as public sector banks and financial institutions entered the market in 1987. The mutual fund industry comprised 46 asset management companies with more than 414,500 schemes managing assets over Rs. 760497 Crores by December 2009. Thus, the number of investors has increased all over the country. Furthermore, the industry is emerged to be a dominant financial intermediary service in the Indian capital market (Appuonline.com, 2010; Moneycontrol.com, 2010).

Sify Finance (2009) states that the mutual fund industry will grow from 30% to 35% in the next 3 to 5 years and reach up to $300 billion by 2015. Statistically, if 80% of India's population can save more than 35% of GDP, it could be used as a potential investment in such an industry. Therefore, the investment options could be increased with reasonable growth in the tier 2 and tier 3 cities within the Indian market. Indian mutual funds have different types of mutual fund schemes such as open-ended, close-ended, interval (based on structure), growth, income, balanced and money market schemes (based on investment objectives). Also, there are other schemes such as tax saving schemes, special schemes that provide the needs of the financial position, risk tolerance and return expectations.

This paper evaluates the performance of equity-diversified mutual funds in the Indian market for the last ten years. Two different overlapped period samples from 2000 to 2009 and from 2005 to 2009, respectively are used in this study. Furthermore, the mutual funds utilised in this study were ranked based on their performance in the last ten years. There are huge debates on mutual funds ability to outperform the market performance. Sharpe (1966) who developed the 'Sharpe ratio' (measuring fund performance) ranked mutual funds based on the Sharpe ratio over two periods from 1944 to 1953 and from 1954 to 1963. Jensen (1968) used Jensen's alpha to measure the adjusted risk and the abnormal returns for the funds. The study analysed the mutual funds performance during the period from 1945 to 1964. Elton et al. (1993) argued that, when evaluating performance of an equity mutual fund, the small-firm returns are considered to be important and the effect of these small firm returns are dominated in the 1970s and early of 1980s.

Bauman and Miller (1994), who studied the behavior of actively managed mutual funds form 1972 to 1992, ranked mutual funds according to their total returns in one period while considering the perform-

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ance over the subsequent years. The research observed that top performing funds were not completely homogenous. Therefore, the mutual funds were ranked according to the volatility of annual returns to provide a higher average return. Jaydev (1996) examined the performance of two schemes from June 1992 to March 1994 based on returns/benchmark comparison, diversification, selectivity and market timing skills. The study results showed that the schemes failed to perform better than market portfolio and there has been unsatisfactory diversification. Rao (2000) utilised relative performance index, risk-return analysis, Sharpe's ratio, Treynor's ratio, Jensen's and Fama's measure, to evaluate the performance of Indian mutual funds.

Gupta (2002) evaluated the investment performance of mutual funds from 1994 to 1999 considering the evaluation of structural changes that took place in the Indian mutual funds industry from 1987 to 2001. Sondhi (2004) evaluated the performance of equity oriented mutual funds based on the mutual fund type, size and ownership. The absolute rate of return with benchmarks (BSE100), the return on 364 days T-bills, the risk adjusted performance measures (i.e. Sharpe, Treynor, Jensen's alpha and fama) have been used as techniques to evaluate the performance of the funds. Mishra (2007) stated that the Indian financial system is stable compared with other Asian countries. Furthermore, there is an important role of mutual funds as a financial service in the Indian financial market.

Various studies evaluated the performance of mutual funds globally, in general (Ippolito, 1992; Grinblatt and Titman, 1994; Vaid, 1994; Goetzman, 1997; Wermers, 1997; Blake and Morey, 1999; Nicolas and Busse, 2001; Levy and Post, 2005; Noulas et al. 2005) and for the Indian market, in particular (Shanker, 1996; Srinivasan, 1999; Shanmugham, 2000; Chakrabarti and Rungta, 2000; Zakri, 2005; Tripathi, 2007; Kurian, 2008; Pandit, 2009). From the review of relevant literature, and to the best of the researchers' knowledge, there is no study that has investigated the performance of *equity diversified* mutual funds in the Indian market. Therefore, this paper fills this gap by evaluating Indian equity diversified mutual funds.

The rest of this paper is organised as follows. Section 1 details the research methodology and data collection. Section 2 discusses the results. The final Section concludes the results and suggests areas for future research.

1. Research methodology

In this paper, a similar methodology to Noulas et al. (2005), who evaluated the performance of Greek mutual funds, has been applied into the Indian market. Different risk measurement techniques, namely, the Treynor technique, the Sharpe technique and the Jensen technique have been used in this paper (see, for example, Noulas et al., 2005). In this paper, standard deviation has been used to measure the depreciation around the mean; coefficient of variation was also utilised to measure the risk per return i.e. the deviation between standard deviation and mean return and beta has been utilised to measure the systematic risk of an investment.

1.1. Proposed statistical risk measures. *1.1.1. Return and total risk.* The standard deviation of investment portfolio measures the total risk of particular fund(s) for the evaluation period. By using mean return and standard deviation of portfolio, we can estimate the relationship between the total risk and return from the following equation, as explained by Noulas et al. (2005) and Anand & Murugaiah (2006):

$$R_p = \alpha + \delta\, \sigma_p + \varepsilon_p,$$

where R_p is the average monthly return of mutual fund p, σ_p is the standard deviation of mutual fund p, α, δ are parameters to be estimated, ε_p is an error term of mutual fund p.

Parameter δ estimates the relationship between return and total risk. Accordingly, if $\delta > 0$ there is positive relation between risk and return (the higher returns are associated with higher risk). By contrast, if $\delta < 0$ it indicates a negative relationship between total risk and return (the higher risk involved with lower return).

1.1.2. Return and systematic risk. The value of beta examines the average sensitivity of an individual fund with the market return and also it measures the systemic risk of a portfolio. Mutual funds are a diversified portfolio, thus, the value of beta for a fund is not unreasonable summary of its risk properties with respect to the "systematic risk", which is a fluctuation in the market index. To estimate the systemic risk, we will use the following equation as follows:

$$R_p = \alpha + bR_m + \varepsilon_p,$$

where R_p is the average monthly return of the mutual fund p, R_m is the average monthly return of the market portfolio, α, b are parameters to be estimated, ε_p is the error term of mutual fund p (Anand & Murugaiah, 2006; Noulas et al., 2005).

Given that, a fund or a stock with high beta responds strongly to variations in the market. By contrast, a fund or a stock with low beta is relatively insensitive to variations in the market.

1.2. Proposed statistical evaluation techniques. Many researchers have used this technique in their investigations, such as Noulas et al. (2005), Jaydev (1996) and Agarwal (2007). Three different techniques have been used in this paper and details are as follows.

1.2.1. The Treynor technique. Jack Treynor developed this measure in 1965 and he argued that, by using a characteristic line, one can easily determine the relationship between funds and the market (Treynor, 1966). Therefore, the portfolio manager should be easily able to diversify and eliminate all unsystematic risk. Under a diversified portfolio, the measure of risk is systematic, which is measured through beta. The Treynor equation can be expressed as follows (Agarwal, 2007; Anand & Murugaiah, 2006; Noulas et al., 2005):

$$T_p = \frac{R_p - R_f}{\beta_p},$$

where T_P is the Treynor's portfolio performance measure for fund p over the evaluation period, R_p is the average rate of return for fund p over the evaluation period, R_f is the average risk free return over the evaluation period, β_p is the beta of the fund over the evaluation period.

Given that the measure of this technique is the ratio of excess return (risk premium) divided by the systematic risk, a larger T_p value indicates a larger slope with better portfolio for all investors regardless of their risk preferences. The numerator represents the risk premium while the denominator represents the risk of the portfolio. T_p is the value that all risk adverse investors are willing to maximise it. It also represents the portfolio return per unit of the systematic risk. There is a possibility of getting negative T_p value if the investor performs very poorly or performs very well with lower risk. Based on T_p value the portfolios can be ranked and they can be compared to a similar measure for the *market* portfolio which is given by the following equation:

$$T_m = \frac{R_m - R_f}{\beta_m},$$

where T_m is the Treynor market performance measure for the market over the evaluation period, R_m is the average rate of return for the market over the period, β_m is the beta for the market portfolio over the period.

By comparing T_p (fund performance) with T_m (market performance), it can be indicated whether the fund performs well or worse than the market portfolio for a particular evaluation period.

1.2.2. The Sharpe technique. The Sharpe technique was developed in 1966 and it is fairly similar to the Treynor technique, but the Sharpe technique uses the total risk of the portfolio rather than systematic risk. This technique calculates the risk premium earned per unit of the total risk. The Sharpe value can be calculated as follows (Anand et al., 2006; Dabbeeru, 2006; Noulas et al., 2005):

$$S_p = \frac{R_p - R_f}{\sigma_p},$$

where S_p is the Sharpe's portfolio performance measure for fund p over the evaluation period, R_p is the average rate of return for fund p over the evaluation period, R_f is the average risk free return over the evaluation period, σ_p is the standard deviation of the fund p over the evaluation period.

The Sharpe ratio (S_p) evaluates the performance of its level of total risk and the higher value of this ratio indicates that fund delivers a higher performance by using standard deviation (σ_p). The value of S_p can be compared with a similar measure of benchmark index, as follows:

$$S_m = \frac{R_m - R_f}{\sigma_m},$$

where S_m is the Sharpe's performance measure for market index over the evaluation period, R_m is the average rate of return for the market over the period, σ_m is standard deviation of the market over the period.

Comparing S_p (fund performance) with S_m (market performance), it can be indicated whether the fund portfolio is better or worse than the market portfolio. Therefore, the difference between these two techniques is that systematic risk is used by Treynor's ratio while total risk is alternatively used by Sharpe ratio. Thus, the two measures should give similar ranking, the portfolio is well diversified and vice-versa.

1.2.3. The Jensen technique. The Jensen technique, first proposed in 1969, is based on the Capital Asset Pricing Model (CAPM) and considered as an empirical version of open-period security market line. It expresses the return of an individual investor's expectation; in terms of a risk free rate and the relative risk of a fund or portfolio. The CAPM model can be represented as follows:

$$E(R_p) = R_f + \beta_p [E(R_m) - R_f],$$

where $E(R_p)$ is the expected return on fund or portfolio p, β_p is the systematic risk of fund p, $E(R_m)$ is the expected return on market index, R_f is the risk-free rate (see, for example, Dabbeeru, 2006; Noulas et al., 2005).

Jensen introduced the additional term α_p to represent a constant periodic return (i.e. either positive or negative) that an investor can earn in addition to the return of unmanaged fund with identified market risk. Hence, this can be represented as follows:

$$R_p - R_f = \alpha_p + \beta_p (R_m - R_f) + e_p,$$

where $R_p - R_f$ is the risk premium earned on portfolio p, E_p is the random error term.

Jensen technique uses α_p to indicate the performance of a portfolio. This technique uses regression procedures to estimate alpha, i.e. if α is positive and significantly higher than zero, then the portfolio can be outperformed and vice versa.

1.3. Data description. In this paper monthly returns time series data of Indian equity diversified growth plan mutual funds for the overlapped period of 2000-2009 and 2005-2009 are used. This includes 11 equity diversified mutual funds for the period of 2000-2009 and 17 equity-diversified mutual funds for the period of 2005-2009. Only 17[1] equity diversified mutual funds have been investigated due to data availability and their inception dates and amounts. The benchmark index used in this paper is BSE SENSEX as a measurement of the market performance in India. The risk free rate used here is the average rate of 91-day treasury bills.

2. Results

2.1. Return and total risk. In this Section the average returns and standard deviations for each individual equity diversified mutual funds are calculated based on the average of the three monthly returns for the periods between 2000 and 2009 and also the period from 2005 to 2009. The values of the parameter δ for both periods are calculated in Table 1. It should be emphasises that the standard deviation has been calculated based on a three period average.

Table 1 shows that all the δ values for the 10-year period, are negative. However, the JM basic fund, which is highly associated with risk and lower returns, is positive. For the 5-year period, it can be concluded that all δ values for all funds are positive and statistically significant at 90%. Thus, the funds are associated with higher returns and higher risk.

Table 1. Return and total risk for the 5 and the 10 year periods, respectively

Mutual fund	5 years δ	10 years δ
HDFC Equity Fund	0.444	-0.49
UTI Master Value Fund	0.381	-0.919
Franklin India Prima Fund	0.382	-0.292
Tata Pure Equity Fund	0.466	-0.323
Reliance Growth Fund	0.469	-0.191
Birla Sun Life Equity Fund	0.423	-0.371
Kotak 30	0.478	-0.54
ICICI Pure Growth Plan	0.466	-0.472
SBI Magnum Contra Fund	0.419	-0.561
Sundaram Growth Fund	0.362	-0.466
JM Basic Fund	0.228	0.136
HSBC Equity Fund	0.512	-
DBS Chola Opportunities Fund	0.314	-
Sahara Growth Fund	0.492	-
Canara Robeco Equity d	0.459	-
DSP-BR Opportunities	0.433	-
Principal Resurgent IEF	0.395	-

2.2. Return and systematic risk. As stated previously, a fund with a higher beta responds strongly to any variations in the market and vice versa. Consequently, Table 2 shows, for 10 years of funds, that the Birla Sun Life Equity Fund has the highest beta value of 1.019, followed by the Franklin India Prima Fund, with a beta of 0.964, and the Sundaram BNP Paribas Growth Fund with a beta of 0.929. This means that the beta responded strongly to the market variations. In contrast, the JM Basic Fund has a beta of 0.242, which is the lowest beta between all different funds. This means that the beta was relatively insensitive to the market variations.

Table 2. Return and systematic risk for the 5 and the 10 year periods, respectively

Mutual fund	5 years' beta	10 years' beta
HDFC Equity Fund	0.917	0.917
UTI Master Value Unit Plan	0.961	0.884
Franklin India Prima Fund	0.923	0.964
Tata Pure Equity Fund	0.866	0.884
Reliance Growth Fund	0.919	0.924
Birla Sun Life Equity Fund	0.943	1.019
Kotak 30	0.857	0.905
ICICI Prudential Growth Plan	0.816	0.898
SBI Magnum Sector Funds Umbrella - Contra Fund	0.91	0.9
Sundaram BNP Paribas Growth Fund - Regular	0.979	0.929
JM Basic Fund	0.387	0.242
DSP BlackRock Opportunities Fund	0.878	-
DBS Chola Opportunities Fund	1.08	-
HSBC Equity Fund	0.8	-
Sahara Growth Fund	0.805	-
Canara Robeco Equity Diversified	0.225	-
Principal Resurgent India Equity Fund	0.85	-

As shown in Table 2 the beta values are changed for each fund when the evaluation period is shortened from 10 years to 5 years. However, for the 5-year period, the DBS Chola Opportunity Fund has the highest beta of 1.08, and then followed by Sundaram BNP Paribas Growth Fund, with a beta of 0.979. It indicates

[1] Under each management company, the chosen funds were the best performed ones for the evaluation period as provided by the money control site.

a strong respond to the market variations. However, the lowest value of 0.225 is for Canara Robeco Equity Diversified. This shows that it is relatively insensitive to variations in the market from 2005 to 2009.

2.3. Statistical evaluation of the techniques. *2.3.1. The Treynor technique.* Under the Treynor technique, the larger the T_p value the larger slope with better portfolio for all investors regardless of their risk preferences and vice versa. Comparing T_p (fund performance) with T_m (market performance), it can be indicated whether the fund is better or worse the market portfolio.

Table 3. The Treynor technique for the 5 year and the 10 year periods, respectively

Mutual fund	5 year period			10 year period		
	R_p	Beta	T_p	R_p	Beta	T_p
HDFC Equity Fund	2.19	0.917	1.8311	1.8142	0.917	1.4116
UTI Master Value Unit Plan	1.5567	0.961	1.0882	1.3892	0.884	0.9835
Franklin India Prima Fund	1.5033	0.923	1.0752	1.6042	0.964	1.1249
Tata Pure Equity Fund	1.85	0.866	1.5463	1.3483	0.884	0.9373
Reliance Growth Fund	2.255	0.919	1.8978	1.9058	0.924	1.5001
Birla Sun Life Equity Fund	2.0117	0.943	1.5915	1.5683	1.019	1.029
Kotak 30	1.93	0.857	1.6559	1.256	0.905	0.8136
ICICI Prudential Growth Plan	1.617	0.816	1.3555	0.8777	0.898	0.3986
SBI Magnum Sector Funds Umbrella – Contra Fund	2.1434	0.91	1.7939	1.7412	0.9	1.3572
Sundaram BNP Paribas Growth Fund – Regular	1.7217	0.979	1.2368	1.4525	0.929	1.004
JM Basic Fund	1.4631	0.387	2.4606	1.7684	0.242	5.1595
DSP BlackRock Opportunities Fund	1.9867	0.878	1.51	-	-	-
DBS Chola Opportunities Fund	1.9867	1.08	1.3665	-	-	-
HSBC Equity Fund	1.6133	0.8	1.3781	-	-	-
Sahara Growth Fund	1.91	0.805	1.738	-	-	-
Canara Robeco Equity Diversified	2.1517	0.225	7.2924	-	-	-
Principal Resurgent India Equity Fund	1.3217	0.85	0.9539	-	-	-

Notes: The average risk free return over the evaluation periods for 5 and 10 years are 0.5109 and 0.5197, respectively. The Treynor performance measure for market over the evaluation periods for 5 and 10 years are 0.7167 and 0.1974, respectively.

Table 3 shows the average returns, beta values, and the average risk-free return for the 10-year period (this includes 11 Indian equity-diversified mutual funds under growth plan) and the 5-year period (this includes 17 Indian equity diversified mutual funds under growth plan). Also the Treynor performance measure is calculated for each individual fund. As shown in Table 3, the JM Basic Fund has the largest T_p value of 5.1595, for the 10-year period. Similarly, Canara Robeco Equity Diversified has the highest T_p value of 7.2924, for the 5-year period. This implies that they indicate a larger slope with better portfolio for all the investors regardless of their risk preferences.

On the other hand, for the 10-year period, ICICI Prudential Growth Plan has the lowest T_p value of 0.3986; and for the 5-year period, the Principal Resurgent India Equity Fund has the lowest T_p value of 0.9535. This implies that they perform poor portfolio for the investors compared to the top funds. Comparing top funds with the market, it can be concluded that top funds, namely, the JM Basic Fund (T_p = 5.16) and Canara Robeco Equity Diversified (T_p = 7.29) under 5 and 10 year periods, respectively, are performing much better than the market performance (T_m = 0.1974 and T_m = 0.7167 for 10 year and 5 year periods, respectively).

2.3.2. The Sharpe technique. As explained earlier when the value of the Sharpe ratio (S_p) becomes higher, it indicates that the fund delivers a higher performance for its level of total risk measured by standard deviation (σ_p). Comparing S_p (fund performance) with S_m (market performance) determines whether the portfolio is better or worse than the market portfolio.

As shown in Table 4, HDFC Equity Fund has the highest S_P value of 0.1604, followed by the Reliance Growth Fund with S_p value of 0.1601, for the 10-year period. On the other hand, the Reliance Growth Fund and the SBI Magnum Sector Umbrella have the highest *Sp* values of 0.1943 and 0.1860, respectively, for the 5-year period. This indicates higher performance for the level of total risk. Comparing all the funds with the market performance for both periods (0.0243, 0.0799 for 5 and 10 years, respectively) the funds performed either equally or better and none of them performed in an inferior way in the market.

Table 4. Sharpe technique for the 5 year and the 10 year periods, respectively

Mutual fund	5 years period			10 years period		
	R_p	σ_p	S_p	R_p	σ_p	S_p
HDFC Equity Fund	2.19	8.7403	0.1921	1.8142	8.0718	0.1604
UTI Master Value Unit Plan	1.5567	9.6931	0.1079	1.3892	8.4423	0.103
Franklin India Prima Fund	1.5033	9.4429	0.0799	1.6042	9.3417	0.1161
Tata Pure Equity Fund	1.85	8.2185	0.0799	1.3483	7.968	0.104
Reliance Growth Fund	2.255	8.9743	0.1943	1.9058	8.6574	0.1601
Birla Sun Life Equity Fund	2.0117	8.9826	0.1671	1.5683	9.1594	0.1145
Kotak 30	1.93	8.0614	0.176	1.256	7.8366	0.094
ICICI Prudential Growth Plan	1.617	7.7319	0.1431	0.8777	7.9247	0.0452
SBI Magnum Sector Funds Umbrella – Contra Fund	2.1434	8.7748	0.186	1.7412	8.2868	0.1474
Sundaram BNP Paribas Growth Fund – Regular	1.7217	9.3864	0.129	1.4525	8.2303	0.0243
JM Basic Fund	1.4631	13.2709	0.7167	1.7684	11.5918	0.1077
DSP BlackRock Opportunities Fund	1.9867	8.2598	0.1605	-	-	-
DBS Chola Opportunities Fund	1.9867	10.6707	0.1383	-	-	-
HSBC Equity Fund	1.6133	7.631	0.1445	-	-	-
Sahara Growth Fund	1.91	7.7914	0.1796	-	-	-
Canara Robeco Equity Diversified	2.1517	9.0596	0.1811	-	-	-
Principal Resurgent India Equity Fund	1.3217	8.0656	0.1005	-	-	-

Notes: The average R_f over the evaluation periods for 5 and 10 years period is 0.5109 and 0.5197, respectively. The average σ_p for the market over 5 and 10 years periods is 8.9655 and 8.1345, respectively. The S_m for the market over 5 and 10 years period are 0.0799 and 0.0243, respectively.

2.3.3. The Jensen technique. The estimation of this technique is based on alpha. If α is positive, and significantly higher than zero, the portfolio outperformed. However, if α is negative, and significantly lower than zero, then the portfolio or fund underperformed.

It can be concluded from Table 5 that for both periods all portfolios are outperformed and significantly higher than the market with positive value of α. The Reliance Growth Fund has the highest α value of 1.2037, followed by the JM Basic Fund with value of 1.2008, for the 10-year period. Furthermore, Reliance Growth Funds with value of 1.0855, and HDFC Equity Fund with value of 1.0219, are the highest α values for the 5 year period.

Table 5. The Jensen technique for the 5 year and the 10 year periods, respectively

Mutual fund	5 year period		10 year period	
	$R_p - R_f$	$E(R_p)$	$R_p - R_f$	$E(R_p)$
HDFC Equity Fund	1.6791	1.0219	1.2944	1.1134
UTI Master Value Unit Plan	1.0458	0.3571	0.8694	0.6949
Franklin India Prima Fund	0.9924	0.331	1.0844	0.8941
Tata Pure Equity Fund	1.3391	0.7185	0.8286	0.6541
Reliance Growth Fund	1.7441	1.0855	1.3861	1.2037
Birla Sun Life Equity Fund	1.5008	0.825	1.0486	0.8474
Kotak 30	1.4191	0.8049	0.7363	0.5576
ICICI Prudential Growth Plan	1.1061	0.5213	0.3579	0.1806
SBI Magnum Sector Funds Umbrella – Contra Fund	1.6325	0.9803	1.2215	1.0438
Sundaram BNP Paribas Growth Fund – Regular	1.2108	0.5092	0.9328	1.0438
JM Basic Fund	0.9522	0.6749	1.2486	1.2008
DSP BlackRock Opportunities Fund	1.3258	0.6966	-	-
DBS Chola Opportunities Fund	1.4758	0.7018	-	-
SBC Equity Fund	1.1024	0.5291	-	-
Sahara Growth Fund	1.3991	0.8222	-	-
Canara Robeco Equity Diversified	1.6408	0.7018	-	-
Principal Resurgent India Equity Fund	0.8108	0.2016	-	-

Note: Risk premium ($R_m - R_f$) earned on market is 0.7167 for 5-year period and 0.1974 for 10-year period.

2.4. Ranking of mutual funds. Table 6 shows the ranking of mutual funds according to Treynor, Sharpe and Jensen techniques for the 5 and 10-year periods. Firstly, for the 5-year period, based on the

Treynor technique the top five performing funds are the Canara Robeco Equity Diversified, JM Basic Fund, Reliance Growth Fund, HDFC Equity Fund and SBI Magnum Sector Funds Umbrella – Contra Fund. For the Sharpe technique the top five performers are as follows: the JM Basic Fund, Reliance Growth Fund, HDFC Growth Fund, SBI Magnum Sector Funds Umbrella – Contra Fund and Canara Robeco Equity Diversified. Moreover, for the Jensen technique the best five performers are Reliance Growth Fund, HDFC Equity Fund, SBI Magnum Sector Funds Umbrella – Contra Fund, Birla Sun Life Equity Fund and Sahara Growth Fund. Hence, the three measures give relatively similar rankings for the various portfolios so the portfolios are well diversified.

Table 6. Ranking of mutual funds using different measures

Mutual funds	5 year period			10 year period		
	Treynor	Sharpe	Jensen	Treynor	Sharpe	Jensen
HDFC Equity Fund	4	3	2	3	1	3
UTI Master Value Unit Plan	15	14	14	8	8	7
Franklin India Prima Fund	16	16	15	5	4	5
Tata Pure Equity Fund	9	17	7	9	7	8
Reliance Growth Fund	3	2	1	2	2	1
Birla Sun Life Equity Fund	8	8	4	6	5	6
Kotak 30	7	7	6	10	9	9
ICICI Prudential Growth Plan	13	11	12	11	10	10
SBI Magnum Sector Funds Umbrella - Contra Fund	5	4	3	4	3	4
Sundaram BNP Paribas Growth Fund - Regular	14	13	13	7	11	4
JM Basic Fund	2	1	10	1	6	2
DSP BlackRock Opportunities Fund	10	9	9	-	-	-
DBS Chola Opportunities Fund	12	12	8	-	-	-
HSBC Equity Fund	11	10	11	-	-	-
Sahara Growth Fund	6	6	5	-	-	-
Canara Robeco Equity Diversified	1	5	8	-	-	-
Principal Resurgent India Equity Fund	17	15	16	-	-	-

Secondly, for the 10-year period, based on the Treynor technique the best three performing funds are as follows: JM Basic Fund, Reliance Growth Fund and HDFC Equity Fund. For the Sharpe ratio, the best three performers are the HDFC Equity Fund, Reliance Growth Fund and the SBI Magnum Sector Fund Umbrella. Finally, for the Jensen technique the top three performers are Reliance Growth Fund, JM Basic Fund and HDFC Equity Fund. A similar conclusion can be stated here, as the three measures give a relatively similar ranking for the various portfolios so the portfolios are well diversified.

It can be concluded from the results that all the 17 mutual funds in India have outperformed the market in terms of their performance with higher returns for a given unit of risk. It should be emphasised that a fully diversified fund would give same ranking for both Sharpe and Treynor techniques. Our results show that 18% of the funds show the same ranking for the evaluation techniques over a 10-year period and 30% of the funds for 5-year period, as shown in Table 6. The majority of the other funds show near rankings for these techniques. But the lower end funds display large differences in the rankings between these two techniques. Top five funds had *almost* remained on top five for all the three techniques. Thus, it is advisable for the investors to invest in top reputed Asset Management Companies to grab maximum return.

Conclusion and areas for future research

The main purpose of this paper is to evaluate the performance of 17 equity diversified mutual funds in India for the past 10 years. Our results indicate that the 17 funds have outperformed the market in terms of their performance with higher returns for a given unit of risk. Furthermore, as to the ranking of different funds, both Treynor and Jensen techniques have a relatively have a relatively similar ranking over the study period. Consequently, 18% of the funds have the same ranking for these techniques over the 10 years, whith 30% of the funds for the 5 years. The majority of the other funds show relatively close rankings under these two techniques. The top five funds have almost kept their positions under these three techniques. Therefore, the best funds are well diversified and give greater returns for a given level of risk.

Further research could aim to extend the data set to include more equity diversified mutual funds, and also to enlarge the time scope to investigate whether the market has changed (improved) over time.

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