

“Empirical Evaluation of Large Cap Mutual Fund Schemes Using Capital Asset Pricing Model (CAPM)”

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ABSTRACT: In Today's era, as earning money is important so as the Investments since just earning money is not enough. As we are working hard to earn the money, our money should also work hard for us, this is why we invest. Money lying idle in our bank account is an opportunity lost. We should invest that money smartly to get good returns out of it. For a novice Investors, it is being advised to adopt a particular investment strategy and diversify their portfolio, as through Diversification overall investment risk can be reduced.

Various investment options have been provided by Indian capital market to the investors, to help them to invest in various sectors and organizations and to ensure the profitable return. Varied financial products are available but Growth and developments of mutual funds products in the Indian capital market has proved to be one of the major drivers in generating momentous investment growth in the capital market. Many AMC's Floated lots of schemes for the investors to invest their surplus savings. In this context, close evaluation of mutual funds has become essential. Hence, picking out profitable mutual funds for investment is a very important issue. This study, basically, deals with the Large Cap Mutual fund schemes in India.

This study mainly focused on the performance of selected Large Cap equity mutual fund schemes in terms of risk- return relationship. The main objective of this research work is to analyze financial performance of selected Large Cap mutual fund schemes through the use of Financial & statistical parameters such as (Average annualised return, beta, Capital Asset Pricing Model). The findings of this research study will be help full to investors for their future investment decisions.

Keywords: Mutual funds, Large Cap mutual fund schemes, investors.

1. INTRODUCTION

Essentially, the money collected from large number of people (or investors) is what makes up a Mutual Fund. This aggregation of fund is managed by a professional person named fund manager.

It is a trust that accumulates money from a number of investors who allocate a familiar investment objective. Then, it invests the money in equities, bonds, money market instruments and/or other securities. Each investor owns units, which represent a portion of the holdings of the fund. The income/gains generated from this collective investment are distributed proportionately amongst the investors after deducting certain expenses, by calculating a scheme's "Net Asset Value or NAV. Simply put, a Mutual Fund is one of the most viable investment options for the common man as it offers an opportunity to invest in a diversified, professionally managed basket of securities at a relatively low cost.

Ample Mutual Funds are available where the investors can Park their wealth. But, before investing they want to be acquainted with which fund gives more return, which fund is performing well, which fund is more risky etc. All these can be found out using certain key ratios & statistics. With the help of these key ratios & statistics an investor can analyze different mutual funds and put his/her money in a fund which suits his/ her risk perception. Mutual fund returns can be evaluated using Arithmetic mean, Compounded Annual Growth Rate; etc, Whereas risk can be analyzed by finding out standard deviation, Beta.

The investment performance of mutual funds has been so far extensively examined in the developed capital markets. Several measures of performance of managed portfolio have been developed by taking risk and return characteristics into consideration. Taking this into account another approach to judge the performance of mutual fund schemes is Capital Asset Pricing Model (CAPM). It is a model that describes the relationship between risk and expected return and that is used in the pricing of risky securities.

The Capital Asset Pricing Model (CAPM) attempts to quantify the relationship between the beta of an asset and its corresponding expected return.

2. Large Cap Funds:-

Investments are always subject to each individual's investment goals, their risk profile and their investment horizon. Large Cap Mutual Funds are idyllic for investors who want to make returns without being exposed to market volatility. The relatively less insistent investor may avoid risky small-cap schemes and opt for Large Cap Mutual Funds.

Large Cap Mutual Funds are a viable option for a novice investor. The underlying companies have a history of many years of consistent performance during the highs and lows of the market. Investors must understand that these funds may not post very high returns even at the hour of favourable market conditions. But keep in mind that the returns from such funds will be less fickle.

3. Literature Review:-

Ashraf & Sharma (2014) studied the performance of mutual fund on the basis of sample consists of 10 growth oriented- open ended- equity mutual fund schemes. The analysis conducted through risk-return analysis, Coefficient of Variation, Treynor's ratio, Sharpe's ratio, Jensen's measure, Fama's measure and Regression analysis. They have taken monthly NAVs and benchmark market index for the period of April 2007 to March 2012. The analysis shows that Indian Asset Management Company has been able to beat their benchmarks during the study period.

Roy (2015) examined the stock selection and timing performance based on conditional as well as traditional performance (UTI). These were measure by Jensen and Treynor & Mazuy techniques to measure the performance of mutual fund 30 UTI securities to evaluate the market timing abilities of sample mutual fund schemes.

Shukla (2015) studied the 5 categories of mutual fund i.e. mid & small cap, large-cap, multi cap, infrastructure and hybrid. This study analysed the financial performance in terms of risk return relationship of selected mutual fund schemes (5 categories \times 3 mutual fund= 15 schemes) through the statistical parameters such as alpha, beta, standard deviation, r-squared, Sharpe ratio. Infrastructure and Mid & Small Cap funds have performed better than the benchmark, large cap and hybrid funds on return parameters. This can be attributed to change in business sentiments and focus on infrastructure which has led to increase in estimated growth prospects for the same.

Lemeshko & Rejnus (2015) focussed on growth of mutual fund (developing country) but the return is abnormal. It shows the less positive correlation between developed country and developing country. The research examined the valuation of emerging markets funds performance and research by modern portfolio theory and theory of capital markets equilibrium. It also revealed that on an average, local equity funds do not generate abnormal returns.

Dr. R. Perumal, (2016), Investment decision making towards mutual funds by using Statistical tools and ratio analysis of mutual fund schemes. The objective of this research work is to exploit the use of statistical tools and ratio analysis in terms of financial performance. The research findings are useful to the Mutual Fund Companies in terms of understand their performance among the mutual fund companies in the market.

Ayadi, Chaibi & Kryzanowski (2016) studied that Fund performance is positively related with the asset allocation to Canadian Equity and with whether the fund family's orientation is tilted more to equity or bond funds. Examination of funds in the tails of the performance distribution using the block-bootstrap method suggests that "good luck" explains the before and after costs outperformance of extreme right-tail funds and no fund possesses truly superior management skills.

The present study is different from earlier studies as performance evaluations of Large Cap Funds are the untouched area specifically in Indian context. It fills the gap in the existing literature as study used the net asset value to evaluate the performance of Selected Large Cap fund for the study period of 2013-14 to 2018-19.

4. Objectives:-

1. To assess the performance of Large Cap Mutual fund schemes in terms of their Annualised return.
2. To evaluate Large Cap Mutual Fund using Capital Asset Pricing Model and Enlighten investors about outperforming funds.
3. To gauge the risk carried out by Large Cap Mutual fund schemes.

5. Need of the Study:-

The literature review revealed that various performance measures of mutual funds include absolute rate of return, benchmark comparison, risk adjusted returns (Treynor and Sharpe's indices) 'Stock Selectivity' abilities and market timing skills of the fund managers have been taken into account for assessment.

Though many empirical studies measuring performance of mutual funds were conducted in USA and other developed countries, but till date, an empirical study in the context of Indian mutual funds on investigating Performance of mutual funds through the application of Capital Asset Pricing Model on Large Cap Mutual fund schemes are yet to be undertaken. Hence, the study is an attempt in this direction to unearth the nature of relationship that exists between the Investors expected returns and actual returns of these Mutual fund schemes.

6. Research Methodology:-

Data: - This study examines 28 open-ended Large Cap Mutual Fund schemes being launched by selected mutual funds namely LIC, HDFC, ICICI, Reliance and Birla Sun Life. These schemes have been selected on the basis of regular data availability during the period of January 2014 to December 2018. Annual Net Asset Value (NAV) data has been used and the period of the data considered is from the date 1st January 2014 of the scheme or from the date of availability till December 31, 2018.

The data of NAV's of Large Cap equity mutual funds are collected from Association of Mutual Funds in India website from the period 1st January 2014 to 31st December 2018. The data of BSE S&P Top 100 Index are collected from BSE India website.

Period of Study: - Growth oriented Large Cap schemes, which have been drifted by the selected funds during the time January 2014 to December 2018, have been considered for the purpose of the study. Annual Net Asset Value (NAV) as declared by the pertinent mutual funds from the January 1st 2014 of a fussy scheme to 31st December 2018 has been used.

Risk Free Rate: - Risk free rate of return refers to that minimum return on investment that has no risk of losing the investment over which it is earned. For the present study, it has been marked as 7% (0.07) per annum.

Tools and techniques For the purpose of Return evaluation, appropriate statistical and financial tools, i.e., Average Annualised Return, Standard Deviation, Beta, and Capital asset Pricing Model etc. have been applied.

7. Data Analysis & Interpretation:-

7.1 Return Measures

Investors have to look into the return part before investing in the Mutual funds. Returns are the key indicators of their investment performance and are calculated from the historical NAV's.

In Mutual funds, NAV is the basic element used in calculating the returns because it keeps varying from one point of time to other. Thus, the purchase and sale value of investment is derived by multiplying the units purchased with NAV for respective period i.e. purchase date and sale date. In simple words, Net Asset Value is the market value of the securities held by the scheme. Since market value of securities changes every day, NAV of a scheme also varies on day-to-day basis.

A) Annualized Return

Return is the gain or loss in the value of an asset in a particular period. It is usually quoted as a percentage. The general rule is that the more risk you take, the greater the potential for higher return.

Absolute return or Point to Point Returns: Absolute return is the increase or decrease that an investment achieves over a given period of time expressed in percentage terms. It's calculated as follows:

Absolute returns = $100 * (\text{Selling Price} - \text{Cost Price}) / (\text{Cost Price})$

This measurement of return is the simplest and it does not consider time period. Most times it produces a large number so people are impressed!

Simple Annualized Return: The increase in value of an investment, expressed as a percentage per year.

Simple Annualized Return = Absolute Returns/Time period.

Average Annual Return (AAR)

Average annual return (AAR) is the arithmetic mean of a series of rates of return. The formula for AAR is:

$AAR = (\text{Return in Period 1} + \text{Return in Period 2} + \text{Return in Period 3} + \dots + \text{Return in Period N}) / \text{Number of Periods or N.}$

B) Capital Asset Pricing Model (CAPM)

The **capital asset pricing model (CAPM)** is used to calculate the required rate of return for any risky asset. CAPM is most often used to determine what the fair price of an investment should be. When we calculate the risky asset's rate of return using CAPM, that rate can then be used to discount the investment's future cash flows to their present value and thus arrive at the investment's fair value.

By extension, once we've calculated the investment's fair value, we can then compare it to its market price. If our price estimate is higher than the market's, we could consider the stock a bargain. If our price estimate is lower, we could consider the stock to be overvalued.

The *CAPM formula* is:

$R_a = R_f + B_a (R_m - R_f)$

Where:

R_f = the rate of return for a risk-free security

R_m = the broad market's expected rate of return

B_a = beta of the asset

Table 1 Shows Average Annualised Return & Capital Asset Pricing Model (CAPM) of Selected Large Cap Mutual Fund Schemes:-

SN	Scheme Name	Average Annualised Return (Rp)	Expected Rate of Return (CAPM)	Rp-CAPM	Performance	Rank
1	ABSL Focused Equity fund	16.47	14.4580	2.0199	Over performed	09
2	ABSL Frontline Equity Fund	16.18	13.8257	2.3622	Over performed	07
3	Axis Blue chip Fund	16.10	14.3071	1.7988	Over performed	11
4	Baroda Pioneer Large Cap	14.50	14.2973	0.2026	Over performed	21
5	BNP Paribas Large Cap Fund	16.11	14.9908	1.1271	Over performed	15
6	Canara Robecco Blue chip Equity Fund	14.41	13.0788	1.3311	Over performed	13
7	DHFL Pramerica Large Cap Fund-RP	14.55	13.6685	0.8834	Over performed	17
8	DSP Top 100 Equity Fund - Regular	12.76	13.1461	-0.3821	Under performed	26
9	Edelweiss Large Cap-Regular Plan	14.86	13.5416	1.3183	Over performed	14
10	Essel Large Cap Equity	13.18	12.7506	0.4353	Over performed	18
11	Franklin India Blue chip	13.68	12.7266	0.9613	Over performed	16
12	HDFC Top 100 Fund	16.21	14.4818	1.7281	Over performed	12
13	HSBC Large Cap Equity Fund	13.45	13.2036	0.2483	Over performed	20
14	ICICI Prudential Blue chip Fund	16.11	13.6517	2.4642	Over performed	06
15	ICICI Prudential Nifty Next 50 Index	18.87	15.0458	3.8301	Over performed	02
16	IDBI India Top 100 Equity Fund	13.50	13.4838	0.0221	Over performed	25
17	IDFC Large Cap Fund	11.79	13.5867	-1.7947	Under performed	28
18	JM Core 11 Fund	19.61	15.8530	3.7569	Over performed	03
19	JM Large Cap Fund	13.54	13.2332	0.3067	Over performed	19
20	Kotak Blue chip Fund	15.25	13.4284	1.8275	Over performed	10
21	LIC MF Large Cap Fund	13.41	13.3373	0.0746	Over performed	24
22	Quant Focused Fund	23.04	15.0870	7.9589	Over performed	01
23	Reliance Large Cap Fund - RP	19.24	15.5847	3.6572	Over performed	04
24	SBI Blue Chip Fund	17.36	13.7241	3.6398	Over performed	05
25	Tata Large Cap Fund - Regular Plan	13.24	13.1433	0.0966	Over performed	23
26	Taurus Large cap Equity Fund	11.89	13.2185	-1.3285	Under performed	27
27	Sundaram select focus fund	13.90	13.7057	0.1942	Over performed	22
28	Motilal Oswal focused 25 Fund	16.18	13.8288	2.3591	Over performed	08

Source: - Own Calculation

Interpretation: - Table 1 depicts Performance in terms of Average Annualized returns of last 5 years i.e. from 2014 to 2018 of 28 Large Cap Mutual Fund schemes & Capital Asset Pricing Model (CAPM) along with their ranking.

On analyzing schemes, it has been found that except a few most of schemes generate positive average returns which is a good sign for the Industry as it increases investor's confidence in Mutual fund investment especially it boost the investment in Large Cap Mutual fund schemes.

In the above table, we calculate expected rate of return of Large Cap mutual fund schemes which is listed in the Fourth column of the table. The Third column of above table shows average annualised rate of return. We have calculated & consider the annual rate of growth of market index, which is S&P's BSE TOP 100 for the aforesaid period & it, is 12.9917 % while the risk free rate of return, here we taken on an average rate of Interest on Bank Fixed deposit i.e. 7.0%. Hence, excess of Market return over risk free rate of return i.e. risk premium of 5.9917 % (12.9917%-7.0%).

Now, using the formula in above mentioned equation, we compute the expected rate of return, the difference between the expected and actual rate of return (Rp-CAPM) would lead us to the conclusion. If the difference is positive ,the asset lies above

the Security market line. Consequently, we can say that the mutual fund scheme has over performed, and if the difference is negative, we can say that the mutual fund scheme has underperformed.

It has been observed that except a few, Most of schemes generate higher returns than the expected returns. Out of that, some schemes have enhanced values for example Quant Focused Fund, ICICI Prudential Nifty Next 50 Index; JM Core 11 Fund occupies top three positions respectively.

7.2. Risk Measures

Performance in terms of return bestow by a Mutual fund scheme should not be considered alone as the basis of assessment, it should also include the risk taken by the Fund Manager because different funds will have different levels of risk attached to them. Risk then, refers to the volatility - the up and down activity in the markets that occur constantly over a period of time. This volatility can be caused by a number of factors - interest rate changes, inflation or general economic conditions.

Measure of Risk Analysis:-

The risk is calculated on the basis of NAV. The following measures of risks associated with mutual funds have been for the study:

A) Beta (β): Beta is a fairly commonly used measure of risk. It basically indicates the level of volatility associated with the fund as compared to the benchmark. The success of beta is heavily dependent on the correlation between a fund and its benchmark. A beta that is greater than one means that fund is more volatile than the benchmark, while a beta of less than one means that the fund is less volatile than the index. A fund with a beta very close to 1 means the fund's performance closely matches the index or benchmark.

B) Standard Deviation (σ) *i.e.*, Variation in individual or portfolio return from its average return over a certain period of time has been measured by the Prominent Statistical tool called Standard Deviation.

In Mutual Funds, Standard deviation tells us how much the return on a fund is deviating from its average return based on its historical performance. In other words, its significance lays in the fact that sample is free from defects of sampling, it measures the absolute dispersion, the greater the SD; greater will be magnitude of the deviation of the values from their mean. Small SD means high degree of regularity & homogeneity of a series. The entire risk is measured in terms of standard deviation.

Table 2 bestow Standard Deviation & Beta of Selected Large Cap Mutual Fund Schemes:-

SN	Scheme Name	Standard Deviation	Beta
1	ABSL Focused Equity fund	20.26	0.94
2	ABSL Frontline Equity Fund	18.38	0.95
3	Axis Blue chip Fund	19.36	0.97
4	Baroda Pioneer Large Cap	20.95	0.89
5	BNP Paribas Large Cap Fund	21.89	0.94
6	Canara Robecco Blue chip Equity Fund	15.80	0.99
7	DHFL Pramerica Large Cap Fund-RP	18.14	0.94
8	DSP Top 100 Equity Fund - Regular	16.30	0.97
9	Edelweiss Large Cap-Regular Plan	17.08	0.98
10	Essel Large Cap Equity	15.69	0.94
11	Franklin India Blue chip	15.48	0.95
12	HDFC Top 100 Fund	19.91	0.96
13	HSBC Large Cap Equity Fund	16.27	0.98
14	ICICI Prudential Blue chip Fund	17.45	0.98
15	ICICI Prudential Nifty Next 50 Index	21.81	0.95
16	IDBI India Top 100 Equity Fund	17.72	0.94
17	IDFC Large Cap Fund	17.21	0.98
18	JM Core 11 Fund	23.31	0.97
19	JM Large Cap Fund	17.84	0.90
20	Kotak Blue chip Fund	17.42	0.95
21	LIC MF Large Cap Fund	16.83	0.97
22	Quant Focused Fund	24.90	0.83
23	Reliance Large Cap Fund - RP	22.88	0.96
24	SBI Blue Chip Fund	18.97	0.91
25	Tata Large Cap Fund - Regular Plan	16.24	0.97
26	Taurus Large cap Equity Fund	17.18	0.93
27	Sundaram select focus fund	17.36	0.99
28	Motilal Oswal focused 25 Fund	18.65	0.94

Source: - Own Calculation

Interpretation: - Table 2 shows the Standard Deviation & Systematic Risk (Beta) of selected 28 Large Cap Mutual Fund schemes. Higher the value of standard deviation of the fund returns, greater will be the total risk carried by the fund.

Analysis of table 2 clearly reveals that Quant Focused Fund has clearly outperformed all the schemes with 24.90 standard deviation followed by JM Core 11 Fund with 23.31 standard deviation and Reliance Large Cap Fund with 22.88 standard deviation It indicates the relatively high volatility of the scheme and the high return per unit of risk.

Whereas, Franklin India Blue chip has clearly under performed with 15.48 of Standard deviation. It indicates the fairly low volatility of the Scheme and the low Return per unit of risk.

Beta value of higher than unity implies higher portfolio risk than the market portfolio and vice versa. Schemes namely Canara Robeco Blue chip Equity Fund followed by Sundaram select focus fund were found to be risky as they have a beta closer to 1.0 that implies these funds have variations at par with market. The scheme with lowest beta is Quant Focused Fund having beta of 0.83 which means it has less variation as compared to market fluctuations.

8. Limitations of the Study:-

For the purpose of performance evaluation, those schemes have been selected which are in operation since last 5 years. Only open ended, growth oriented Large Cap Mutual Fund schemes have been considered for this purpose. The study has been conducted and analysed based on set of available information, which is governed by time factor.

9. Conclusion:-

After analyzing the data and evaluating the performance and risk of the Large Cap Mutual Fund, following conclusions can be drawn:

a) Schemes that generate comparatively higher returns are Quant Focused Fund, ICICI Prudential Nifty Next 50 Index; JM Core 11 Fund with an average annualised return of More than 12% whereas Scheme that is on lower ladder is IDFC Large Cap Fund having an average portfolio return of less than 12%.

b) It is also observed that the schemes that are found to be more risky and which carried maximum deviation in their returns are Quant Focused Fund, JM Core 11 Fund, Reliance Large Cap Fund – RP whereas Franklin India Blue chip seems to be least risky scheme with lowest standard deviation of 15.48.

c) It is evident from Table 1 that the Actual performance of the selected Large Cap Mutual Fund Schemes was quite higher than the Expected or required rate of return of Investors which we measured through Capital Asset Pricing Model. So schemes that generate high return and are on apex positions are Quant Focused Fund, ICICI Prudential Nifty Next 50 Index; JM Core 11 Fund .

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