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Impact of Macroeconomic Variables on the Performance of Select Indian Mutual Funds

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Abstract

Mutual fund is a trust that pools the money of the investors and invests it in the marketable securities. The capital appreciation, thus generated is distributed among the unit holders in proportion of the units held by them. Through mutual funds, investors get the benefit of diversification, professional management of their money, convenient administration, low cost and many more. Performance of the mutual fund is measured by the Net Asset Value. But the performance of equity mutual funds are influenced by external and internal characteristics .In this paper, researchers had made an attempt to find the level of dependency of macroeconomic factors on the performance of select mutual funds. The mutual fund schemes of the sample funds are open ended equity: UTI Master Share Fund, Franklin India Prima Fund, SBI Magnum Equity Fund, HDFC Top 200 Fund and Canara Robeco Equity Tax Saver Fund. These mutual fund schemes were listed in the stock market for the past 10 years i.e. from 2005 to 2014, were chosen for research using simple random sampling. Regression analysis is applied to find the dependency level. The macroeconomic variables selected for the research are inflation rates, interest rates, GDP annual growth rate, and the Government-10 year Bond interest rate. To sum up, the study has confirmed that there is a persistent relation between macroeconomic variables and the select mutual funds' performance. This study may be helpful to investor in taking investment decision in mutual funds macroeconomic variables like GDP growth rate and inflation had a minimum influence and interest rates and government 10 year bond interest rates had major influence on the performance of select mutual funds schemes in India.

Key words: Performance, Macroeconomic variables, Investment decision

Introduction

The Indian stock market in early nineties was a veritable wild west, with the stock prices controlled by cartels and fundamentals taking a back seat to manipulation. Yet some fund managers are able to build up a formidable track record for funds by sticking trustily to a bottom up, cash flow based approach that ignored market fads. NAV is the current market worth of a mutual fund scheme and therefore, NAV is considered as the most reliable indicator of the mutual fund performance. Also, the macroeconomic factors are the major determinants of growth of an economy. Thinkers of this field such as Campbell, French et al Fama and French, Balvers et al, Been, Glosten and Jaganthan have showed empirical evidence that macroeconomic variables can help in prediction of the market returns. Analysis of the economic factors gives an idea of the current economy position and helps in projection of future prospectus. The various macroeconomic factors responsible for mutual fund industry are population, movement in global markets, inflation affects returns. Macroeconomic factors can be measured by sensitivities of particular stocks for change in macro variables. In 1970s, when Stephen Ross published his arbitrage pricing theory, macroeconomic factors became one of the most popular variables in stock model. It influences both local and global markets in terms of return and risk of mutual fund schemes. The macro economic factors act as tradeoff between return and risk performance of unit trust with macroeconomics variables. The main objective of this research is to examine is to find the level of influence of macroeconomic variables on the performance of select mutual fund schemes in India. The period of the study is from 2005 to 2014. The coefficient of variation (standard deviation divided by the mean or expected return)explains the level of dependency of macroeconomic factors on the performance of equity mutual funds. Another solution came in 1960s, when researchers conducted their study based on the Capital Asset Pricing Model (CAPM) for assessing portfolio performance, three measures employed were the Sharpe Index (or ratio) developed by William F. Sharpe in 1966, Treynor Index (or ratio) developed by Jack Treynor in 1965, and Jensen's alpha developed by Michael C. Jensen in 1968. Therefore, it is evident from the above studies that macroeconomic variables have made a considerable impact on the performance of mutual funds.

Literature Review

Burmeister et al in 1986-88 used a set of multi index models based on a priori hypothesized set of macroeconomic variables. They found that five variables were sufficient to describe the return on securities. Along with the growth of GDP, if inflation also increases, then the real rate of growth of economy would be very little. The demand in the consumer product industry is significantly affected.

Marshall in 1992 also found that negative effect of inflation on stock return is generated by real economic fluctuations, by monetary fluctuations or changes in both real and monetary variables.

Dash and Dinesh Kumar in 2008 examined the impact of macroeconomic variables such as exchange rate, inflation rate, oil price, interest rate and market return by observing high volatility in Indian financial markets, the results indicated that return and variance of some of the funds return is affected by macroeconomic variables, and also

35.29% of the desired funds were not sensitive to any of the macroeconomic variables.

The macroeconomic factors like unemployment factor also considered for evaluating the performance of mutual funds. Singh et al. (2011) in their study found that the unemployment rate, inflation and money supply have a negative relationship with stock return for all six portfolios of large and medium companies, and on the other hand, GDP and exchange rate have a positive relationship with stock return. The macro economic variables impact on performance of mutual funds varies as per the investment objective of the schemes. An equity mutual fund scheme is more influenced by economic factors like inflation rate, GDP, and exchange rates. Whereas macroeconomic factors like interest rates and money supply influences the performance of the debt mutual funds schemes.

Therefore, it is clear that analyzing the macroeconomic factors is essential to forecast the behavior of the mutual fund unit prices. The economic variables like GDP, inflation, interest rates, and the Government 10-year Bond interest rates were chosen by the researchers for the study to identify the level of dependency of mutual fund returns due to the variation in the macroeconomic variables.

Need for the Study

Literature reviewed on the subject has shown that there is no harmony between the impact of performance related macroeconomic factors (hereafter referred as characteristics) and mutual funds' performance. Therefore, this study will help to bridge the gap found in the literature. Furthermore, understanding the relationship between macroeconomic characteristics and its performance can help investors to make informed mutual fund investment decisions. The understanding of this relationship will also be helpful for mutual fund companies in taking investment decisions. As no such studies have been conducted for exploring the performance of mutual funds and their macroeconomic characteristics in India, this study will be beneficial for the academicians as well as the practitioners.

Objectives of the study

On the basis of rationale of the study and literature review, objectives of the present study are:

1. To study about the macroeconomic factors influencing the movements of select equity mutual fund schemes in India.
2. To investigate the most influencing macroeconomic factors affecting the performance of select equity mutual funds in India.

On the basis of objectives of the study, the hypothesis is:

Ho: Performance of mutual funds is not affected by the macroeconomic variables.

Research Methodology

In India, there are 363 equity mutual funds as per SEBI bulletin of April 2014, which includes diversified, sectoral and thematic funds. Out of these funds, randomly five fund schemes were chosen randomly for research using simplified random sampling .The fund schemes of the sample funds are open ended equity: UTI Master Share Fund, Franklin India Prima Fund, SBI Magnum Equity Fund, HDFC Top 200 Fund and Canara Robeco Equity Tax Saver Fund. The mutual fund schemes listed for the past 10 years i.e. from 2005 to 2014 were chosen for research. Regression analysis is applied to predict the future prices using macroeconomic variables as independent factors. The macroeconomic variables selected for the research are inflation rates, interest rates, GDP annual growth rate, and the Government 10-year Bond interest rate. The annualized returns data of select mutual funds was collected from value research online website. The data relating to inflation rates, interest rates, GDP annual growth rate, and the Government-10 year Bond interest rates were collected from trading economics website.

Analysis and Discussion

Regression analysis as described, has been done with the help of MS Analysis Tool pack in excel. The results of this model have been summarized in Table 1:

Table 1: Regression results: 5 select mutual fund schemes
Dependent variables: Inflation, Interest rate, GDP annual growth rate & Govt. 10 year bond interest rate.
Time period: 2005 to 2014

Period:2005 to 2014	*Model*	Un-standardized coefficients	*t-stat*	*P-Value*	*Adjusted R-Square*
UTI Master share Fund	Intercept	-47.657	-0.605	0.572	0.611
	Inflation	-5.983	-1.521	0.189	
	Interest rates	-25.851	-3.316	0.021	
	GDP Annual Growth Rate	3.205	0.683	0.525	
	Govt. Bond 10 years	35.326	3.537	0.017	
Franklin India Prima Fund	Intercept	-31.456	-0.301	0.775	0.594
	Inflation	-8.536	-1.64	0.162	
	Interest rates	-35.408	-3.431	0.019	
	GDP Annual Growth Rate	1.517	0.244	0.817	
	Govt. Bond 10 years	47.103	3.563	0.016	
SBI Magnum Equity Fund	Intercept	-53.787	-0.677	0.529	0.711
	Inflation	-7.459	-1.881	0.119	
	Interest rates	-30.186	-3.84	0.012	
	GDP Annual Growth Rate	5.596	1.183	0.29	
	Govt. Bond 10 years	39.986	3.971	0.011	

HDFC Top 200 Fund	Intercept	0.017	0	1	0.7
	Inflation	-7.544	-1.954	0.108	
	Interest rates	-32.369	-4.23	0.008	
	GDP Annual Growth Rate	3.004	0.652	0.543	
	Govt. Bond 10 years	37.7	3.846	0.012	
Canara Robeco Equity Tax Saver Fund - Regular Plan	Intercept	-24.533	-0.329	0.755	0.701
	Inflation	-6.785	-1.824	0.128	
	Interest rates	-29.984	-4.066	0.01	
	GDP Annual Growth Rate	3.784	0.853	0.433	
	Govt. Bond 10 years	37.116	3.929	0.011	

UTI Master Share Fund

Regression analysis has resulted in negative intercept. The co-efficient of variable Govt. 10 year bond is positive with significant t-statistics (3.537) at one percent. This shows that, performance of mutual funds is less dependent on macroeconomic variables. High value of co-efficient (35.326) is indicating much stronger evidence of the dependency of performance on Govt. related debt instruments. The co-efficient of inflation and interest rate is negative and significant at five percent (-5.983) and (-25.851) respectively. This has shown that mutual fund performance is negatively related to interest and inflation rate. The co-efficient of variable GDP annual growth rate is positive and significant (0.683) at five percent level. It shows that, funds performance is directly related to GDP annual growth rate. Adjusted R^2 is 61% that is good enough to support the data analyzed.

Franklin India Prima Fund

Regression analysis has resulted in negative intercept. The co-efficient of variable Govt. 10 year bond is positive with significant t-statistics (3.563) at one percent. This shows that, performance of mutual funds is less dependent on macroeconomic variables. High value of co-efficient (47.103) is indicating much stronger evidence of the dependency of performance on Govt. related debt instruments. The co-efficient of inflation and interest rate is negative and significant at five percent (-8.536) and (-35.408) respectively. This has shown that mutual fund performance is negatively related to interest and inflation rate. The co-efficient of variable GDP annual growth rate is positive and significant (0.244) at five percent level. It shows that the funds' performance is directly related to GDP annual growth rate. Adjusted R^2 is 59% that is good enough to support the data analyzed.

SBI Magnum Equity Fund

Regression analysis has resulted in negative intercept. The co-efficient of variable Govt. 10 year bond is positive with significant t-statistics (3.971) at one percent. This shows that, performance of mutual funds is less dependent on macroeconomic variables. High value of co-efficient (39.986) is indicating much stronger evidence of the dependency of performance on Govt. related debt instruments. The co-efficient of inflation and interest rate is negative and significant at five percent (-7.459) and (-30.186) respectively. This has shown that mutual fund performance is negatively related to interest and inflation rate. The co-efficient of variable GDP annual growth rate is positive and significant (1.183) at five percent level. It shows that, funds performance is directly related to GDP annual growth rate. Adjusted R^2 is 71% that is good enough to support the data analyzed.

HDFC Top 200 Fund

Regression analysis has resulted in negative intercept. The co-efficient of variable Govt. 10 year bond is positive with significant t-statistics (3.846) at one percent. This shows that, performance of mutual funds is less dependent on macroeconomic variables. High value of co-efficient (37.700) is indicating much stronger evidence of the dependency of performance on Govt. related debt instruments. The co-efficient of inflation and interest rate is negative and significant at five percent (-7.544) and (-32.369) respectively. This has shown that mutual fund performance is negatively related to interest and inflation rate. The co-efficient of variable GDP annual growth rate is positive and significant (0.652) at five percent level. It shows that the funds' performance is directly related to GDP annual growth rate. Adjusted R^2 is 70% that is good enough to support the data analyzed.

Canara Robeco Equity Tax Saver Fund - Regular Plan

Regression analysis has resulted in negative intercept. The co-efficient of variable Govt. 10 year bond is positive with significant t-statistics (3.929) at one percent. This shows that, performance of mutual funds is less dependent on macroeconomic variables. High value of co-efficient (37.116) is indicating much stronger evidence of the dependency of performance on Govt. related debt instruments. The co-efficient of inflation and interest rate is negative and significant at five percent (-6.785) and (-29.984) respectively. This has shown that mutual fund performance is negatively related to interest and inflation rate. The co-efficient of variable GDP annual growth rate is positive and significant (0.853) at five percent level. It shows that the funds' performance is directly related to GDP annual growth rate. Adjusted R^2 is 70% that is good enough to support the data analyzed.

Findings of the Study

The interpretation of analysis has shown that the performance of mutual fund schemes is positively related to the macroeconomic variables. This has confirmed the performance persistence phenomenon in the mutual funds schemes. Among the select mutual funds schemes, the SBI Magnum equity fund had 71% level of dependency on the macroeconomic variables variation. The intercept of all select mutual fund schemes negatively intercept except for HDFC Top 200 Fund. The Franklin India Prima Plus Fund has a low co-efficient intercept as the foreign funds are relatively less influenced by the GDP annual growth in India. From the P values of select mutual funds it can be seen that predictor variables of interest rates (0.01) and the Government 10-year interest bonds are significant because of their P values are less than 0.05.It indicates that the null hypothesis can be rejected (Table 2).

Table 2: ANOVA Analysis

Name of the scheme	F-Value	Significance F	Accept/Reject(Ho)
UTI master share fund	4.53	0.06	Reject
Franklin india prima fund	4.2952	0.07	Reject
SBI Magnum equity fund	6.534	0.03	Reject
HDFC top 200 fund	6.237	0.03	Reject
Canara Robeco equity tax saver	6.271	0.03	Reject

Conclusions

This paper has investigated the performance of select mutual fund schemes on the basis of macroeconomic factors. Regression analysis has confirmed the persistence of macroeconomic variables relation to mutual funds' performance. This study may be helpful to investor in taking investment decision in mutual funds macroeconomic variables like GDP growth rate and inflation had a minimum influence and interest rates, and the Government 10-year bond has a major influence on the performance of mutual funds. Scope of further research is also there. First, a study can be done on some mutual fund schemes in India or outside India for different period with an increased sample size. The other macroeconomic variables like market return exchange rate, oil prices, unemployment factors, house hold savings etc., may be considered as independent factors to draw a regression line to predict future price.

Reference

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