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Selected Economic Variables Impact on Mutual Fund Subscription and Redemption – A Study

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ABSTRACT

The present study has been emphasized on mutual funds subscription and redemption amount. Various factors will influence the investor's decision making which in turn will have the impact on the funds inflow and out flow. In this study selected economic factors were considered and measured with the help of auto regressive distributed log methodology for short run and long run relationship. The Granger Causality test has been applied to know influence on the subscription and redemption amount by the economic factors. The vector auto regression model has been applied to predict the future movement of the mutual funds investments direction inform of subscription and redemption.

Keywords: Mutual Funds, subscription, redemption, Economic variables, Granger causality.

1. INTRODUCTION

Financial markets are the supporting of an Indian economic system and aids in the allocation of share capital across the productive sectors of the economy. The last fifteen years have proved to be a continuous high growth for the Indian mutual fund industry in terms of increase in assets under management (AUM) and also number of new schemes launched. It is well known that mutual funds offer their investors benefits difficult to obtain through other investment vehicles. Benefits such as diversification, affordability, access to equity and debt markets at reduce the transaction costs, tax benefits and liquidity. The present study has been emphasized on mutual funds subscription and redemption amount. Various factors will influence the investor's decision making which in turn will have the impact on the funds inflow and out flow.

2. REVIEW OF LITERATURE

Ananda, S (2005) in his study made an attempt to study the major factors influencing the investment performance of the schemes and suggested in the light of the findings, measures required to be taken by the industry. Government and Regulatory Authorities to improve the performance of the industry and educate the investors about the appraisal mechanism of the MF schemes

Mihir Dash, Dinesh Kumar G (2008) study investigates the effect of macroeconomic variables on mutual fund schemes, in terms of returns and volatility and in this study tested the Granger causality test to analyze these effects. The results of these causality tests has identified the specific macroeconomic factors which affect the returns and volatility of particular mutual fund schemes and on the other hand, would enable investors to understand the specific risk factors affecting their investments, so that they can take more informed investment decisions pertaining to mutual funds

Emily Chelangat Kariuki (2014): This study examined the effect of macroeconomic variables on financial performance of mutual funds industry in Kenya. The five independent variables that were studied (money supply, interest rate, inflation rate, GDP and exchange rates) explain a substantial 70.9% of fund performance among mutual funds operating in Kenya.

Jamil, Tabassum (2015) in his research titled "Impact of recession on mutual funds" found the impact of recession on performance of various categories of Mutual Funds in India and the behaviour of the investors of Mutual Fund under the impact of recession

Joity Tomer (2015) The study covers a period of forty seven years, from 1964-65 to 2010-11 and the comparative performance of public and private sector mutual fund schemes is studied for six financial years. The performance of mutual fund schemes is evaluated by using NAVs data of open-ended funds in order to study analyse the problems and prospects of mutual funds in India which are bound to the regulatory framework of mutual funds in India.

3. RESEARCH GAP

Indian mutual fund industry had crossed 53 years in this year but even today this area had remain unexplored by the Indian investment community because many of them saving the money in banks rather than other investment options such as mutual funds due to risk. Research scholars, academicians and many others have done extensive research but no research has been found how mutual fund investments got influenced by the economic factors. This study aim is to explore the fund flows movement (subscription & redemption) is getting influenced due to economic changes in the country.

4. OBJECTIVES OF THE STUDY

1. To measure the short-run and long-run relationship of select economic factors with mutual fund subscription and redemption amount.
2. To know the selected economic factors influence on the mutual fund subscription and redemption amount.
3. To predict the future growth movement of mutual funds subscription and redemption amount based on select economic factors.

5. HYPOTHESIS

Null Hypothesis – H0: There is no long run relationship of select economic factors with mutual fund subscription amount.

Null Hypothesis – H0: There is no long run relationship of select economic factors with mutual fund redemption amount.

Null Hypothesis – H0: There is no influence of select economic factors with mutual fund subscription amount.

6. SCOPE OF THE STUDY

The present study has considered the data from January, 2006 to December, 2016. The data has been considered from SEBI data base. The economic variables were considered from RBI data base. The following variables were considered.

- Repo rate, Reverse Repo rate, GDP: **RBI**
- Nifty: **NSE India**
- Mutual Fund Subscription amount: **SEBI**
- Mutual Fund Redemption amount: **SEBI**

7. RESEARCH METHODOLOGY

The present paper has been done based on secondary data. The following statistical tools were applied.

Auto Regressive Distributed Methodology: The ARDL methodology has been applied on the stationary data. The averaged data has been tested with Augmented Dicky Fuller test and made stationary. The ARDL result reflects the long run and short run relation between the selected economic variables with mutual funds subscription and redemption amount.

$$y_t = \alpha_0 + \alpha_1 x_t + \alpha_2 x_{t-1} + \alpha_3 y_{t-1} + u_t$$

Granger Causality Test: The GCT has been applied to know the influence direction between the analysed variables. This test has been applied on the Johensen Co-Integration tested variables.

VAR Model: The Vector Auto Regression model has been applied to know the future direction of the dependent variable based on the independent variables.

$$y_t = c + A_1 y_{t-1} + A_2 y_{t-2} + \ldots + A_p y_{t-p} + e_t,$$

8. DATA ANALYSIS

1. To measure the short-run and long-run relationship of select economic factors with mutual fund subscription and redemption amount: To ascertain this objective 10 years quarterly data of Macro-economic factors –Nifty, Repo rate, Reverse Repo rate, Gross domestic product (GDP), and Mutual fund subscription and Redemption values has been collected and made stationary with the help of ADF and then ARDL has been applied on stationary data to find short and long run relationship.

The data has been proved to be in stable and in series correlation as per the Cusum test and Walt test and hence the ARDL has been applied which gives the below output.

Table 1
ARDL

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
C	20.73764	11.28496	1.837636	0.14
D(NIFTY(–1))	1.023195	0.773183	1.323355	0.2563
D(NIFTY(–2))	1.085204	0.533363	2.034645	0.1116
D(NIFTY(–3))	0.965789	0.423014	2.283112	0.0845
D(NIFTY(–4))	0.182955	0.416471	0.439299	0.6831
D(SUBCRIP(–1))	–1.89802	4.791042	–0.39616	0.7122
D(SUBCRIP(–2))	–1.63809	3.396147	–0.48234	0.6548
D(SUBCRIP(–3))	0.75483	2.051725	0.3679	0.7316
D(SUBCRIP(–4))	1.419507	1.014579	1.399109	0.2343
D(REDEMP(–1))	2.114299	4.478251	0.472126	0.6614
D(REDEMP(–2))	1.998103	3.182376	0.627865	0.5642
D(REDEMP(–3))	–0.79492	1.907543	–0.41672	0.6983
D(REDEMP(–4))	–1.53393	0.936157	–1.63854	0.1767
D(REPO(–1))	–2.36477	2.567102	–0.92118	0.4091
D(REPO(–2))	–3.7744	2.165657	–1.74284	0.1563
D(REPO(–3))	–2.24753	1.800423	–1.24833	0.28
D(REPO(–4))	–0.93057	1.248463	–0.74537	0.4975
D(REVERS(–1))	2.019569	2.432599	0.83021	0.4531
D(REVERS(–2))	3.192938	2.153503	1.482672	0.2123
D(REVERS(–3))	2.770582	1.698727	1.630975	0.1782
D(REVERS(–4))	1.51828	0.946856	1.603497	0.1841
D(GDP(–1))	4.333261	3.384487	1.28033	0.2696
D(GDP(–2))	2.482471	2.69897	0.919785	0.4097
D(GDP(–3))	2.934345	2.074736	1.414322	0.2302
D(GDP(–4))	1.430758	1.389286	1.029851	0.3613
NIFTY(–1)	–1.83066	0.890711	–2.05528	0.109
SUBCRIP(–1)	1.432267	5.778122	0.247878	0.8164
REDEMP(–1)	–1.42477	5.333884	–0.26712	0.8026
REPO(–1)	1.628027	3.087768	0.52725	0.6259
REVERS(–1)	–1.06292	2.774759	–0.38307	0.7212
GDP(–1)	–5.76183	3.670465	–1.56978	0.1916

Source: Secondary data through SPSS.

Above table depicts the short and long run relationship of selected economic factors with Mutual fund redemption and subscription.

1. The ARDL coefficient values of the Mutual fund subscription for short run are in negative, hence short-run relationship is observed between the subscription and selected economic factors.

2. The ARDL coefficient values of the Mutual fund subscription for long run are in positive, hence there is no long-run relationship between the subscription and selected economic factors
3. The ARDL coefficient values of the Mutual fund redemption for short run are positive, hence there is no short-run relationship between the redemption and selected economic factors.
4. The ARDL coefficient values of the Mutual fund redemption for long run are in negative, hence long-run relationship is observed between the redemption and selected economic factors.

2. To know the selected economic factors influence on the mutual fund subscription and redemption amount: To ascertain this objective 10 years quarterly data of Macro-economic factors –Nifty, Repo rate, Reverse Repo Rate, Gross Domestic Product (GDP), and Mutual fund subscription and Redemption values has been collected and made stationary with the help of ADF and Johansen Co-integration Test has been applied and below is the summary.

Table 2
Johansen co-integration Test

Johansen Cointegration Test Summary

*Critical values based on MacKinnon-Haug-Michelis (1999)

Information Criteria by Rank and Model

Data Trend: Rank or No. of CEs	None No Intercept No Trend	None Intercept No Trend	Linear Intercept No Trend	Linear Intercept Trend	Quadratic Intercept Trend
	Log Likelihood by Rank (rows) and Model (columns)				
0	-632.8794	-632.8794	-632.7769	-632.7769	-632.4392
1	-609.7876	-603.7554	-603.7009	-599.6960	-599.3642
2	-598.5878	-585.6036	-585.5830	-581.5763	-581.3620
3	-589.7312	-576.4787	-576.4582	-571.9701	-571.7678
4	-584.2633	-568.1222	-568.1051	-562.8644	-562.6938
5	-580.8335	-564.2424	-564.2424	-558.7357	-558.7357
	Akaike Information Criteria by Rank (rows) and Model (columns)				
0	34.62523	34.62523	34.88299	34.88299	35.12838
1	33.93619	33.67134	33.87899	33.72084	33.91390
2	33.87304	33.29493*	33.45174	33.34612	33.49273
3	33.93322	33.39362	33.49780	33.41948	33.51409
4	34.17175	33.53275	33.58448	33.51918	33.56283
5	34.51755	33.90750	33.90750	33.88083	33.88083
	Schwarz Criteria by Rank (rows) and Model (columns)				
0	35.70259	35.70259	36.17583	36.17583	36.63668
1	35.44449	35.22273*	35.60277	35.48771	35.85315
2	35.81229	35.32036	35.60646	35.58703	35.86293
3	36.30341	35.89309	36.08346	36.13442	36.31523
4	36.97289	36.50626	36.60109	36.70816	36.79491
5	37.74963	37.35504	37.35504	37.54385	37.54385

Source: Secondary data through SPSS

The above analysis of Johansen Co-integration test has been applied between the selected economic factors to Mutual subscription and redemption, the log likelihood values are found to be in increasing mode in both non intercept, linear intercept and quadratic intercept trends hence the data is stated to be co-integrated between the selected variables on this data Granger Causality test has been applied.

Table 3
Pairwise Granger Causality Tests

Pairwise Granger Causality Tests			
Null Hypothesis:	Obs	F-Statistic	Prob.
SUBCRIP does not Granger Cause REVERSE REVERSE does not Granger Cause SUBCRIP	38	0.49269 6.20692	0.6154 0.0052
REDEMP does not Granger Cause REVERSE REVERSE does not Granger Cause REDEMP	38	0.09659 5.40703	0.9082 0.0093
GDP does not Granger Cause REVERSE REVERSE does not Granger Cause GDP	38	1.39314 1.03663	0.2625 0.3659
NIFTY does not Granger Cause REVERSE REVERSE does not Granger Cause NIFTY	38	1.02480 3.63997	0.3700 0.0373
REDEMP does not Granger Cause SUBCRIP SUBCRIP does not Granger Cause REDEMP	38	1.02827 1.49894	0.3688 0.2382
GDP does not Granger Cause SUBCRIP SUBCRIP does not Granger Cause GDP	38	1.21613 1.17039	0.3093 0.3228
NIFTY does not Granger Cause SUBCRIP SUBCRIP does not Granger Cause NIFTY	38	0.91139 1.47988	0.4118 0.2424
GDP does not Granger Cause REDEMP REDEMP does not Granger Cause GDP	38	1.32326 1.31819	0.2800 0.2813
NIFTY does not Granger Cause REDEMP REDEMP does not Granger Cause NIFTY	38	1.51021 1.06213	0.2357 0.3572
NIFTY does not Granger Cause GDP GDP does not Granger Cause NIFTY	38	2.24511 0.32284	0.1219 0.7264

Source: Secondary data through SPSS

- The above analysis of Granger causality null hypothesis test result reveals that reverse repo rate is not Granger causing the mutual fund subscription amount as the probability value is found to be <0.05, hence the null hypothesis has been accepted and alternate has been rejected.
- The above analysis of Granger causality null hypothesis test result reveals that reverse repo rate is not Granger causing the mutual fund redemption amount as the probability value is found to be <0.05, hence the null hypothesis has been accepted and alternate has been rejected.
- The above analysis of Granger causality null hypothesis test result reveals that GDP is Granger causing the mutual fund subscription amount as the probability value is found to be >0.05, hence the null hypothesis has been rejected and alternate has been accepted.
- The above analysis of Granger causality null hypothesis test result reveals that Nifty is Granger causing the mutual fund subscription amount as the probability value is found to be >0.05, hence the null hypothesis has been rejected and alternate has been accepted.
- The above analysis of Granger causality null hypothesis test result reveals that GDP is Granger causing the mutual fund redemption amount as the probability value is found to be >0.05, hence the null hypothesis has been rejected and alternate has been accepted.

- The above analysis of Granger causality null hypothesis test result reveals that Nifty is Granger causing the mutual fund redemption amount as the probability value is found to be >0.05, hence the null hypothesis has been rejected and alternate has been accepted.

3. To predict the future growth movement of mutual funds subscription and redemption amount based on select economic factors.

Table 4
Vector Auto regression

Vector Autoregression Estimates

Sample (adjusted): 3 40
Included observations: 38 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	GDP	REPO
REDEMP(-1)	0.319540 (0.22765) [1.40364]	-1.046774 (0.50978) [-2.05337]
REDEMP(-2)	0.133628 (0.24260) [0.55081]	-0.779549 (0.54327) [-1.43492]
SUBCRIP(-1)	-0.269277 (0.23193) [-1.16104]	1.117755 (0.51936) [2.15217]
SUBCRIP(-2)	-0.083182 (0.24530) [-0.33911]	0.768667 (0.54930) [1.39937]

Source: Secondary data through SPSS

- The VAR model indicates that the redemption of mutual fund is expected to go up because coefficient value of redemption based on GDP is observed to be in positive. Hence the growth of GDP will have the positive influence on Mutual fund redemption.
- It also indicates that the subscription of mutual fund is expected to go down because coefficient value of subscription based on GDP is observed to be in negative. Hence the growth of GDP will have the negative influence on mutual fund subscription.
- It also indicates that the redemption of mutual fund is expected to go down because coefficient values of subscription based on Repo rate is observed to be in negative. The VAR model states that the rise of repo rate will have the negative influence on mutual fund subscription.
- It also indicates that the subscription of mutual fund is expected to go up because coefficient values of subscription based on Repo rate is observed to be in positive. Hence the rise of repo rate will have the positive influence on mutual fund subscription.

9. FINDINGS OF THE STUDY

1. It is found that the ARDL short-run co-efficient values for mutual fund subscription are in negative (–1.89802, –1.63809), for long-run it is positive (0.75483, 1.419507), Hence there is

short-run relationship is existing but there is no long-run relationship has been found between the select economic factors with Mutual fund subscription in last 10 years.

2. It is found that the ARDL short-run co-efficient values for mutual fund redemption are in positive (2.114299, 1.998103), for long-run the same is negative (–0.79492, –1.53393), hence there is no short-run relationship and there is long-run relationship between the select economic factors and Mutual fund redemption in last 10 years.
3. The Granger Causality test reveals that reverse repo rate has no influence on the mutual fund subscription and redemption amount.
4. It is found that GDP had influenced the mutual fund subscription and redemption during the study period.
5. It is also found that the Nifty has the influence on the mutual fund subscription and redemption amount.
6. As per the VAR model, it is observed that the growth of GDP will have the positive influence on Mutual fund redemption and negative impact on the subscription.
7. It is found that the rise of repo rate will have the negative influence on mutual fund redemption and positive impact on subscription.

10. CONCLUSION OF THE STUDY

The study for the period of 10 years from January, 2006 to December, 2016. In this study Repo rate, Reverse Repo rate, GDP and Inflation has been considered to analyze the influence on the mutual funds subscription and redemption amount. Investors of mutual fund decision making may be influenced by the various news factors. The present project found that the mutual fund subscription amount found short run relation with the selected economic factors. Mutual fund redemption amount observed to be no relation with selected economic factors from the investor's perspective. Hence there is a need to do further research in this area by considering the investors behaviour and attitude towards mutual funds investments.

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