A Study of Systematic Risk and Expected Return of Hedge Fund in India

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Abstract

Hedge funds are a private investment vehicle that takes a long and short position in various markets with different investment strategies. Accredited investors or managers privately manage hedge funds. These funds have increased significantly and popularity by certified investors or managers through different investment strategies. Large amounts of wealth are introduced in this industry by their approach. The study aims to examine hedge fund strategies, systematic risk, and expected return and performance of hedge fund in India. Despite the indication of high risk and uncertainty, the Indian capital market is considered the most attractive investment region in terms of growth opportunities. The event-driven strategy shows the maximum systematic risk and expected return in India. This study also shows the performance of hedge funds in India through various hedge fund strategies. The research shows that the five strategies, namely, Arbitrage, Managed future, Event-Driven, long and short position, and fixed income of hedge fund. The managed futures strategy is the strategy that gives the maximum performance of a hedge fund in India.

Kewwords: Hedge funds, certified investors, Expected return, Event- driven, Managed future, Arbitrage.

1. Introduction

Hedge funds are a private investment vehicle that can take long and short positions in various markets, using different investment strategies. Once familiar to a very limited number of sophisticated investors only, hedge funds have gradually become part of many institutional portfolios. A hedge fund portfolio consists of different assets classes like equities, derivatives, bonds, currencies and convertible securities. So, they are also called as alternative investments. A collection of different assets that strives to 'hedge' risks to investor's money against market ups and downs, investors need aggressive management. Investors hold both long and short positions, including positions in listed and unlisted derivatives. Hedge funds are privately managed by experts. Only wealthy investors can invest in hedge fund. So, the expert buys and sells assets at a dizzying speed to keep up with the market movements. In the Indian context, the hedge fund is an alternative investment fund, which employs diverse or complex trading strategies and invests and trades in securities having diverse risks or complex products including listed and unlisted derivatives (SEBI,

2012). Alternative investment funds are classified into three broad categories, such as Category I, II and III. Category I of the alternative investment fund includes angel, venture capital, social and infrastructure funds. Category II of the alternative investment fund includes private equity, real estate, distressed and private investment in public equity (PIPE) funds. Category III of the alternative investment fund includes the Hedge funds, as classified by SEBI. There were 268 Alternative investment funds registered with SEBI as on 15 November 2016. These 268 funds comprise of 85 funds under Category-I, 147 funds under Category –II, and 36 funds under Category –III.

The total hedge fund in India has been found to be 1.4 billion USD against the total alternative assets fund of 43 billion USD. This is against the total alternative assets fund of 2759 billion USD in the USA, 495 billion USD in UK, 265 billion USD in China, 138 billion USD in France, 118 billion USD in Canada, 108 billion USD in Hong Kong, 61 billion USD in Australia and New Zealand, 59 billion USD in South Korea, 58 billion USD in Sweden, and 57 billion USD in Singapore.

Table 1 contains the number of hedge funds along with the corresponding regulatory authority in the USA, South Korea, UK, Hong Kong, Singapore, Canada, Australia, France and China.

Table 1: Number of hedge funds along with the corresponding regulatory authority in select countries

Country	Number of hedge funds	Regulatory Authority
USA	2564	The Commodity Futures Trading Commission (CFTC)
South Korea	1358	The Financial Service Commission (FSC)
UK	365	Financial Conduct Authority(FCA)
Hong Kong	209	The Securities and Futures Commission (SFC)
Singapore	81	The Securities and Futures Act (SFA)
Canada	80	Alternative Investment Management Association (AIMA)
Australia	55	The Australian Securities and Investment Commission (ASIC)
France	50	French Monetary and Financial Code (CMF) and Financial Market Authority (FMA)
China	40	The china securities regulatory commission
India	36	Security Exchange Board of India (SEBI)

It is observed from Table 1 that in the USA a total of 2,564 hedge funds are operating as on July 2017. This is followed by 1358 in South Korea, 365 in the UK, 209 in Hong Kong, 81 in Singapore, 80 in Canada, 55 in Australia, 50 in France, 40 in China, and 36 in India. This indicates that the number of hedge funds operating in India is far less than the number of

hedge funds operating in the USA, South Korea, UK, Hong Kong, Singapore, Canada, Australia, France and even China.

2. Review of literature

Amanda Kolobaric, Jens Forssbaeck, and Parisa Khatabakhsh (2012) in their study 'Performance of Hedge Funds in the European Market' concluded that dynamic risk exposures of the hedge fund can be measured through the multi- factor model. Angelo Ranaldo, and Laurent Favre (2005) have conducted a study on 'How to Price Hedge Funds: From Two- to Four-Moment CAPM'. The finding of the study is the two moment market model to a higher-moment model to accommodate co-skewness and co-kurtosis. The higher-moment approach is more appropriate for capturing the non-linear relation between hedge fund and market returns and accounting for the specific risk-return payoffs of each hedge fund investment strategy. Frida Pacho (2014) has conducted a study on 'Capital Asset Pricing Model (CAPM) Testability and its Validity in Stock Market: Evidence from Previous Literatures'. The finding of the study is the CAPM remains a very useful item in the investment management toolkit. And investors trust it to evaluate the profitability of projects. Antonio Diez de los Rios and René Garcia (2011) have conducted a study on 'The option CAPM and the performance of hedge funds'. The aim of the study is to evaluating the investment performance of hedge funds using an asset pricing model that is characterized by a piecewise-linear stochastic discount factor, and which we estimate using the generalized method of moments by minimizing the Hansen–Jagannathan distance. Jakub W. Jurek and Erik Stafford (2015) have conducted a study on 'The Cost of Capital for Alternative Investments'. The finding of the study that the high excess returns of hedge funds and put-writing are consistent with an equilibrium small subset of investors specialize in bearing downside market risks. Agarwal Vikas, and Narayan Y. Naik, (2004) have conducted a study on 'Risks and portfolio decisions involving hedge funds'. The aim of the study is the systematic risk exposures of hedge funds using buy- and- hold and options- based strategies. Connor, Gregory, and Woo, Mason (2004) have conducted a study on 'An Introduction to hedge funds'. The study gives a broad introduction to the hedge fund industry, the historical background to the evolution of hedge funds, the fund of funds industry and provides an explanation of some of the terminology used within hedge fund area.

3. Objectives of the study

Following are the objectives of the study:
- To examine various hedge fund strategies perform in India.
- To examine systematic risk and expected return of hedge fund strategies in India
- To determine the performance of hedge fund strategies.

4. Limitation of the study

The study has intense only on Indian capital market and given to attempt systematic risk and expected return and the performance of hedge fund strategies in India. There are a small number of studies on different hedge fund strategies perform in the area of capital markets. Hence, there is an evident knowledge gap. Additionally, due to the large amounts of assets that hedge fund managers are handling in these area and systematic risk and expected return and the performance are interesting to analyse.

5. Scope of the study

This study provide to scope for the analysis of hedge fund strategies in Indian capital market and action plan of various strategies of hedge fund and to find out the evidence of their investment hedge fund strategies used by accredited investors or managers.

6. Hedge fund strategies

The investment strategies are established by various hedge fund accredited investors or manager to know the systematic risk and expected return and the performance of hedge fund in India Hence, it show the manger will use investment techniques to make the desired returns. Hedge fund strategies used by the accredited investors or manger in India are Arbitrage strategy, Managed future strategy, Event Driven strategy, long and short position strategy, and fixed income strategy. (Eurekahedge, 2018)

7. Research methodology

In order to evaluate systematic risk and expected return of hedge fund strategies, the paper uses Capital Assets Pricing Model (CAPM) and descriptive statistics. Hedge fund returns are collected as secondary data and statistically analyzed. The selected time interval is January 2008 to December 2017, which propose huge sample of returns over period of time.

8. Sample selection and data selection

The objective of this Paper is to examine systematic risk and return hedge funds that operate in Indian capital markets. All hedge fund data is collected from the Eurekahedge database, which contains a large sample. To be considered of Indian capital market of hedge fund under an emerging market fund; at least 90% of the funds' assets must be allocated in an emerging market fund region. In this research, hedge fund in India is defined in accordance with Eurekahedge as an emerging market of Asia region. (Eurekahedge, 2018).

The hedge fund data regarding hedge fund in India coming under emerging market on Eurekahegde consists of 3,949 equally weighted funds categorized into different strategies.

This study includes five strategies i.e. Arbitrage strategy, Managed future strategy, Event Driven strategy, long and short position strategy, and fixed income strategy.

All fund results integrated in this study are accumulated monthly by Eurekahedge and measured in terms of profit or loss of the whole portfolio worth and are net of fees. There are no "twin" funds in the benchmark index, e.g. no onshore and offshore type of the same fund. New funds, with at least a three-month history, are rebalanced into the index while closed funds historical performance remains permanently.

9. Variables

This study consists of five different hedge fund strategies to stand for the strategy variable. The five strategies; arbitrage strategy, managed futures strategy, event driven strategy, long/short strategy and fixed income strategy are selected for their deviation in terms of investment characteristics. Some of which are based on reducing risk and others enhance return by taking higher risks. Arbitrage strategy, long/short strategy and fixed income strategy are categorized as risk-reducing strategies while managed futures strategy and event driven strategy enhance risk more frequently (Connor & Woo, 2004). Further, long/short have a style of taking different positions in the market whereas fixed income locates their investments into various asset classes, such as currencies and equity (Fung & Hsieh, 1997). The event driven strategy is based on the managers' speculation of events that will affect the market.

10. Analysis of data

The systematic risk and expected return presented Table 2 represent four moment returns, Risk –free return, BETA, and Capital Assets Pricing Model (CAPM) of the distribution for the five strategies i.e. Arbitrage strategy, Managed future strategy, Event driven strategy, Long/ short strategy and Fixed income.

Table 2: Systematic Risk and Expected Return of Hedge Fund Strategies

Strategies	Return	Risk- free return	BETA	CAPM
Arbitrage strategy	0.55	0.54	0.6425	0.5464
Managed future strategy	1.4	0.54	-9.4164	-7.5581
Event driven strategy	0.57	0.54	1.3288	0.5798
Long /short strategy	0.45	0.54	1.5302	0.4022
Fixed income strategy	0.49	0.54	0.8337	0.4983

Note: All statistics are analyzed as monthly returns. CAPM for each strategy calculated as average values from January 2008 to December 2017.

It is observed from Table 2 that the Expected return of event driven strategy is found to be the highest out of the other hedge fund strategies with a CAPM of 0.5798. This implies that event driven strategy gives the highest expected return over the period of 10 years ranging from

2008 to 2017. This is followed by Arbitrage strategy, Fixed income, long/ short strategy and managed future with the values of 0.5464, 0.4983, 0.4022 and -7.5581 respectively. It is found that CAPM in event driven strategy gives higher value per unit of return, which implies that investors should favour to invest in event driven strategy. Further, the arbitrage strategy is more volatile and risky compared to other strategies during the period of 2008 to 2017. But investors cannot get highest return per unit. If investor does not expect this to continue in the future, they should change their strategy.

10.1: Relationship between GHF index and Hedge Fund Strategies

The correlation presented Table 3 represent relationship between GHF index and five hedge funds strategies i.e. arbitrage strategy, event driven strategy, long/ short strategy, fixed income strategy and managed future strategy.

Table 3: Correlation between the GHF index and hedge fund strategies

Strategies	Arbitrage	Managed future	Event driven	Long /short	Fixed income	GHF Index
Arbitrage	1	0.1969	0.6909	0.7082	0.5893	**0.6495**
Managed future	0.1969	1	-0.2623	-0.2329	-0.0066	**-0.1187**
Event driven	0.6909	-0.2623	1	0.9932	0.8915	**0.9258**
Long short	0.7082	-0.2329	0.9932	1	0.8816	**0.9275**
Fixed income	0.5893	-0.0066	0.8915	0.8816	1	**0.8380**
GHF Index	0.6495	-0.1187	0.9258	0.9275	0.8380	**1**

Note: Table 3 illustrate the correlation co-efficient between the GHF index and hedge fund strategies measured from January 2008 to December 2017. Correlation co-efficient values fall between -1 to 1. Positive correlation coefficient represent that securities move in same directions and negative correlation coefficient represent that securities move in opposite direction.

It is observed from the Table 3 that the variability between the different strategies is high, ranging from the 0.9932 to -0.0066. The GHF index has a high correlation between the strategies with four out of five strategies. The GHF index and long / short strategies have high correlation coefficient with the value of 0.9275. It is followed by Event driven strategy, Fixed income strategy, Arbitrage strategy, and Managed future strategy with the value of 0.9258, 0.8380, 0.6495, and -0.1187 respectively. The GHF index has correlated most of the hedge fund strategies with the positive correlation coefficient value. This is representing securities move in the same directions.

10.2: Performance of Hedge Fund Strategy
The descriptive statistics presented Table 4 represent four moments the mean, standard deviation, Skewness and Kurtosis of the distribution for the five strategies i.e. Arbitrage strategy, Event driven strategy, long/ short strategy, Fixed income strategy and managed

future strategy. The table also contains information on the minimum and maximum values of each variable.

Table 4: Descriptive statistics of hedge fund strategies

Strategies	Mean	Standard deviation	skewness	kurtosis	minimum	maximum
Arbitrage	0.5468	0.9713	2.7263	-0.6485	-3.3985	2.9501
Managed future	1.3984	3.2235	7.8391	2.0112	-5.8272	16.9820
Event driven	0.5726	2.8312	3.2710	-1.1550	-11.4713	7.4143
Long/ short	0.4483	3.2348	2.0067	-0.4601	-10.8540	10.8693
Fixed income	0.4855	1.7053	9.0622	-1.8594	-9.3199	4.5919

Note: All statistics are analyzed as monthly returns. Descriptive statistics for each strategy is calculated as average values from January 2008 to December 2017. The four moments mean, standard deviation, Skewness, and Kurtosis together with minimum and maximum values are also presented.

It is observed from the Table 4 that managed future is the strategy that gives the highest returns (1.3984%) as well as the highest maximum value (16.982%). Further, managed future is the strategy that takes the most risk and is the most volatile among the different strategies. This is followed by Event driven strategy, Arbitrage strategy, fixed income strategy, and long/ short strategy with the mean value percentage of 0.5725, 0.5468, 0.4854, and 0.4483 respectively. All the strategies provide positive mean percentage. It is also observed from the Table 4 that most of the hedge fund strategies give negative Skewness value. But managed future strategy gives positive Skewness which implies that periodic minor negative returns, where extreme negative return is rare. Furthermore, it is found that kurtosis in most of the strategies gives leptokurtic distribution.

The managed futures strategy is the only strategy with positive Skewness which implies that it is desirable amongst investors. However, the distribution is also leptokurtic, which should make investors think twice about investing in the managed futures strategy funds.

11. Conclusion

Hedge funds play an important role to growth of securities market of a country, with India not being an exception. The current study while proving the trend also indicates a significant progress through the wealthy investors and institutions. In this study found that the hedge fund strategies, such as, Arbitrage strategy, event driven strategy, fixed income strategy, long/ short strategy, and managed future strategy perform considerably in Indian capital market. the systematic risk and expected return and performance of the hedge fund in Indian securities market were developed. It is also found that the relationship between hedge fund strategies, such as, Arbitrage strategy, event driven strategy, fixed income strategy, long/

short strategy, and managed future strategy correlated in most of the strategies with the positive coefficient value.

References

- *Agarwal, Vikas, and Narayan Y. Naik, (2004), 'Risks and portfolio decisions involving hedge funds', Review of Financial Studies, vol. 17, pp. 63–98*

- *Amanda, K. Jens, F. and Parisa, K. (2012). Performance of Hedge Funds in the European Market, Lund university, school of economics and management.*

- *Angelo, R. and Laurent, F. (2005). 'How to Price Hedge Funds: From Two- to Four-Moment CAPM'.*

- *Antonio, D. and René, G. (2011). 'The option CAPM and the performance of hedge funds'. Review of Derivatives Research, Volume 14, Issue 2, pp 137–167.*

- *Connor, Gregory, and Woo, Mason (2004).* An Introduction to hedge funds. *Financial Markets Group, London, School of Economics and Political Science, London, UK.*

- *Frida Pacho (2014). .Capital Asset Pricing Model (CAPM) Testability and its Validity in Stock Market: Evidence from Previous Literatures', Research Journal of Finance and Accounting, Vol.5, No.21, www.iiste.org ISSN 2222-1697 (Paper) ISSN 2222-2847 (Online).*

- *Jakub, W. J. and Erik S. (2015). 'The Cost of Capital for Alternative Investments', The Journal Of Finance, Vol. Lxx, No. 5.*

- *William, Fung. and David, A Hsieh. (1997). Empirical Characteristics of Dynamic Trading Strategies: The Case of Hedge Funds. Review of Financial Studies, vol. 10, issue 2, pp. 275-302.*

- *www.hedgefundresearch.com*

- *www.eurekahedge.com*