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A NEWSLETTER OF THE FINANCE LAB

March 2020, Volume 5, Issue 4



Which Indian Mutual Funds Employ Options in their Portfolios?

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The use of derivatives by mutual funds is closely monitored by regulators across markets. Indian market regulator, Securities and Exchange Board of India (SEBI) has recently taken measures to allow Indian mutual funds to underwrite call option contracts under certain strict conditions²⁸. In general, call options refer to an agreement between two parties where the buyer gets the right to buy an underlying asset in the future at a predetermined price whereas the seller has the obligation to sell the underlying. Till recently, mutual funds were allowed only to take positions in derivative contracts but can now write option contracts. However, this is allowed under covered call strategy and also restricted to index constituents of NIFTY 50, and SENSEX. This implies that they cannot write options without being long on the underlying.

Derivative contracts, especially option contracts are a very useful tool available to mutual funds in several ways. It is a fact that mutual funds herd and Indian mutual funds are no exception. However, we don't have concrete information on how different mutual funds employ different types of derivatives and to what extent they use them to enhance their portfolio performance. It has been discussed in the popular press that mutual funds using options have several advantages and these funds are seen as better investment funds. These funds have superior risk management ability; demonstrate superior performance. Other important arguments put forward by popular academic research which supports the above are; informed investors with their superior information find it attractive to trade in the options markets. Hence, mutual funds which use options integral to their trading strategies are informed investors that best use their superior information to attain stock specific exposure with a fraction of a cost that they have to otherwise pay for directly taking exposure in the stocks. Also, using options efficiently requires in-depth knowledge of option pricing and working of options markets. These qualities are generally beyond the orthodox skills of mutual fund managers and hence suggest that funds which use options effectively are sophisticated funds. Information on these aspects will throw light on the advantages and

²⁸ Retrieved from <https://www.businesstoday.in/current/economy-politics/sebi-issues-norms-for-mutual-funds-investments-in-derivatives/story/310750.html>

disadvantages of derivatives use by mutual funds and help regulators to take appropriate measures to improve the overall health of the mutual fund industry. The heterogeneous use of derivative instruments by different mutual funds impact their portfolio return and risk characteristics. In this context, I analyze some of the major Indian mutual funds in terms of assets under management to understand their use of options contracts in their portfolio strategy and their performance.

I analyze the data of 200 open-ended mutual fund schemes for a period of five years from 2015-2020 to understand their options use.²⁹

Table 1: Statistics on Option Positions³⁰

Option Type	Equity Options	Index Options	Equity and Index
Call	4945	530	5475
Put	2904	648	3552
Total	7849	1177	9026

Table 1 above reports the some statistics on the option positions held by our sample mutual funds. Out of the 9026 total reported option positions, 7849 positions are of equity options and the remaining 1177 relate to index positions. The call option positions represent the majority positions in equity option category whereas, put option positions are higher in the index category. The call option positions also include the written call positions as well as long call positions. The written call option positions allowed with restrictions by SEBI are mainly used by the fund houses for income generation. Long put positions are lesser than long positions and this suggests that mutual funds use them mainly for insuring their portfolios.

I examine the sample mutual funds to understand the motives behind their option positions; more specifically to see if there is information content about the future performance of the underlying stocks. For this, portfolios replicating the underlying option positions are constructed for each period separately for calls and puts and then held for a period of one to twelve months. These portfolios are rebalanced at the end of each of the holding period and their returns are benchmarked against the standard market benchmark portfolios. Table 2 reports the risk-adjusted returns of the above options portfolios.

Table 2: Performance of Equity Portfolios Mimicking Option Portfolios

Option Portfolios	Risk Adjusted Returns (%)			
	1-month	3-month	6-month	12-month

²⁹ I use ACE mutual funds database to analyze the data. Funds with non-missing data is considered and please note that the ACE mutual funds data has some errors which could not be rectified.

³⁰ Author's own computations.

Calls	-0.180 (-1.21)	-0.08 (-0.98)	1.151 (1.46)	-0.752 (-1.31)
Puts	-0.233 (-0.45)	-0.825 (-0.75)	-0.842 (-1.58)	-0.636 (-0.11)
Difference	0.053 (0.87)	0.745 (1.32)	1.993 (0.98)	-0.116 (-1.49)

It can be seen from the table above that all the risk-adjusted returns are insignificant. Hence, there is no evidence to support that there is a significant variation in the future prices of the underlying equities over the different buy-and-hold periods. The above results should be read with caution as the portfolios are constructed without knowing the exact date when the mutual funds bought the underlying, took long/short position in options and also we do not have reliable disclosed information.

To understand which type of mutual funds use options in their portfolios, I perform univariate analysis for the sample funds after reclassifying the sample funds into growth, income, large-cap, mid-cap, small-cap, and other types of funds. Table 3 reports the frequency of option users versus nonusers. In the options user category, growth funds with a 39% are the highest users of options followed by large-cap and mid-cap funds. The remaining funds have underrepresentation in the sample. If we look at the fund characteristics of option users versus nonusers it is seen that option users are not consistent in using the options and similarly nonusers too use them in the times of volatility to protect their portfolios.

Table 3: Mutual Fund Characteristics of Option Users and Nonusers

Users	Growth	Income	Large-cap	Mid-cap	Small-cap	Others
Percentage of funds	39.2	10.8	15.4	14.3	8.8	11.5
Number of funds	27	8	11	10	6	8
Nonusers	Growth	Income	Large-cap	Mid-cap	Small-cap	Others
Percentage of funds	37.8	9.11	17.83	16.11	6.06	13.09
Number of funds	49	12	23	21	8	17

It is also observed that most of the option users are from small fund houses with lesser assets under management. On an average, the size of option users is approximately 40% less than nonusers. One more interesting observation is that options user mutual funds charge a higher fees and their expense ratios are higher. The portfolio turnover of options users is higher compared to nonusers. Finally, option users generate lesser overall returns because of their high risk exposure than the nonusers.