J. Finan. Intermediation 26 (2016) 142–168

Contents lists available at ScienceDirect

J. Finan. Intermediation

journal homepage: www.elsevier.com/locate/jfi

The benefits of option use by mutual funds

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ARTICLE INFO

Article history:
Received 23 September 2015
Available online 17 February 2016

Keywords:
Mutual funds
Performance
Options
Hedging

ABSTRACT

Based on comprehensive regulatory data on equity mutual fund option use from the SEC's N-SAR filings, we are the first to present consistent evidence that equity funds' option use generates higher risk-adjusted performance. We further show that this is a direct effect of option use and not an indirect effect of other fund characteristics. Option use also directly results in lower systematic risk, as funds show significantly lower market betas during periods of options usage. Finally, mutual funds use options mainly for hedging as they primarily use protective puts and covered calls. These results are independent of known phenomena, such as the low beta anomaly, and robust to tests for endogeneity and a novel 5-factor model including an investable option strategy factor (IOS). Overall, our findings show that mutual fund option use is beneficial to investors and does not pose risk to the financial system as feared by the SEC. Our results are thus important for investors as well as regulators.

1. Introduction and literature overview

This is the first paper to present consistent evidence on whether the use of options by mutual funds is beneficial. A SEC concept paper in 2011, requesting comments on this matter, documents the vital importance of this question.[1] Moreover, the SEC's agenda for 2015 includes preparation of stricter regulation of mutual fund derivative use to limit potential risks posed to the financial system

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[1] U.S. Securities and Exchange Commision (2011), http://www.sec.gov/rules/concept/2011/ic-29776.pdf (accessed: 12/09/2015).

http://dx.doi.org/10.1016/j.jfi.2016.01.002
1042-9573/

and the broader economy.[2,3] However, the three key findings of our analysis reveal (i) that option use creates higher risk-adjusted performance. (ii) Option users have significantly lower systematic risk during times of actual option use but not during times when they do not use options. (iii) Finally, mutual funds employ options for hedging rather than speculation purposes. Thus, mutual fund option use is beneficial to investors as it enhances performance. Moreover, contrary to the SEC's concerns, it reduces systematic risk. We base our results on a large and comprehensive set of regulatory information from the SEC's N-SAR filings on US domestic equity mutual funds from 1998 to 2013. The results withstand tests for endogeneity in the relationship between performance and option use, e.g., due to tournament behavior (e.g., Schwarz, 2011). Moreover, they are robust to a wide range of robustness checks, including a novel 5-factor investable option strategy (IOS) model that controls for the specific option exposures of mutual funds.

Previous research on mutual fund option use has not offered such clear and concise evidence. Lynch-Koski and Pontiff (1999), who are the first to examine mutual fund derivative use, find no significant differences in performance and risk characteristics of users and nonusers. However, their study is based on a telephone survey of a small sample of funds for the short period from 1992 to 1994.[4] Since then, however, capital markets have experienced dramatic growth and seen major booms and crises. Additionally, new regulations, such as the repeal of the short-short rule in 1997, which has facilitated the trading of derivatives, have been implemented. All of these developments necessitate a reassessment of the topic. Cao et al. (2011) find significantly higher raw returns of heavy derivative users during the Russian crisis of August 1998. However, they do not consider risk-adjusted returns and do not assess whether funds use derivatives for speculation or hedging purposes. Furthermore, the Russian crisis is limited to only one month.[5] In the international context, Johnson and Yu (2004) investigate derivative use by Canadian mutual funds finding no clear and economically relevant differences between users and nonusers. Chen (2011) and Aragon and Martin (2012) find superior performance of option using hedge funds, which are better at exploiting the potentially more efficient information pricing on options markets to generate higher performance at lower risk (e.g., Black, 1975; Cao et al., 2005; Pan and Poteshman, 2006). However, as hedge funds are not subject to SEC regulation and thus less restricted in their use of options, these findings cannot be transferred to mutual funds.

In the study most closely related to our own, Cici and Palacios (2015) find no significant differences between option users and nonusers, except in the case of mutual funds that excessively write puts. However, written puts are the least important option type in their dataset, as they account for only 10% of all identified option positions. For 90% of option positions, they find no significant effects. Moreover, their results potentially suffer from the limitations of using only information on funds' holdings of exchange-traded options from 2003 to 2010, which they obtain from Morningstar. Thus, they may underestimate option usage due to (i) window dressing in holding reports to make portfolios appear less risky (Musto, 1997, 1999; Morey and O'Neal, 2006; Agarwal et al., 2014), (ii) neglect of the important market of OTC-traded options,[6] and (iii) reliance on string searching algorithms to identify option positions from holdings' names. As a consequence, Cici and Palacios (2015) identify only 250 funds (10% of their sample funds) as option users, whereas the information contained in the SEC's mandatory N-SAR filings allows us to identify 612 (24% of our sample) mutual funds as users of options.[7]

[2] Ackerman (2014), http://www.wsj.com/articles/sec-preps-mutual-fund-rules-1410137113 (accessed: 12/09/2015).

[3] Similar to our analysis of options, we also conducted analyses on mutual fund futures use. However, futures do not exhibit any significant influence on fund performance or risk. Therefore, we do not consider them in this paper.

[4] In the paper, Lynch-Koski and Pontiff (1999) admit that managers' answers to the survey proved unreliable.

[5] Cao et al. (2011) also use N-SAR filings but only for a small number of funds over a very short time period, June 1996 to January 1998, which does not even cover the Russian crisis in August 1998.

[6] In 2014, the dollar volume of options traded on the Chicago Board Options Exchange (CBOE) exceeded $579 billion, while more than $5445 billion in options were traded over-the-counter (OTC) (see Chicago Board Options Exchange, 2014, Annual Market Statistics and Bank for International Settlements, 2014).

[7] We also match our N-SAR/CRSP sample to Morningstar portfolio holdings. On the matched sample, we use a string-searching algorithm, as described in Cici and Palacios (2015). In their sample period, from 2003 to 2010, the holdings identify 199 funds (10.0%) as option users, while N-SAR identifies 400 funds (20.1%). In our own (much longer) sample period, from 1998 to 2013, the holdings identify 279 funds (13.5%) as option users, while N-SAR identifies 505 funds (24.5%) for this matched