

Research Paper Number 1

Enhancing Portfolio Performance Using Option Strategies: Why Beating the Market is Easy.

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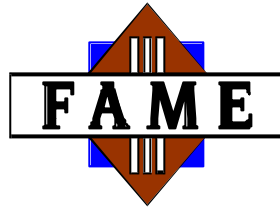
The theoretical part was published in "Derivatives in Portfolio Management", Derivatives Quarterly, Vol. 7 (2), pp. 37-46, 2000. The empirical part is published in: "On the Performance of Option Strategies in Switzerland", Finanzmarkt und Portfolio Management, n° 3, pp. 318-338, 1999

Abstract:

The rapid growth of the use of options in portfolio management has been accompanied by a variety of claims regarding the performance of options strategies. In particular, many investors believe that they can enhance the performance of their pure-stock portfolios using systematic covered-call writing or protective put buying. Surprisingly, the results between similar studies from many brokerage firms, large banks or even academics devoted to these strategies differ considerably, and there is no clear evidence on whether a specific options strategy is superior. In this paper, we will review the results from the major research studies on options strategies and we will empirically examine the outcomes of such strategies on the Swiss market using various performance measures. We will also theoretically explain why some strategies regularly appear to outperform on a "risk" adjusted basis. Finally, we will show that when correctly measuring performance, these strategies do not dominate anymore.

Executive Summary

The evaluation of investment performance has traditionally been based on returns alone. The realization that investors were risk-averse established the necessity of comparing risk-measures along with returns, yielding a trade-off dilemma that requires the knowledge of investor's preferences (i.e. attitude toward risk) to be resolved.



Fortunately, modern portfolio theory and the subsequent mean-variance composite measures such as the Sharpe index (excess return on total variability), the Treynor index (excess return on systematic risk) and the Jensen alpha (excess return according to the CAPM) solved this trade-off problem. These measures have long shaped the way academics and practitioners think about regarding performance evaluation of mutual funds and managed portfolios.

These measures are however not free of specific assumptions. Typically, they assume a buy and hold strategy with normally distributed returns over a specified time-horizon and compare the results obtained with those of an efficient market index.

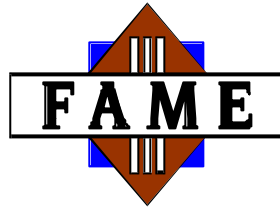
Since 1973 and the initial trading of standardized options on the Chicago Board of Options Exchange, options have become common investment vehicles. Many institutions have developed financial packages and structured products (such as GROIs, PIPs, SMILEs, etc.) in which options are used as basic building blocks. Hedge funds have proliferated. Dynamic trading strategies have also emerged as a way of synthetically creating non-traded options or contingent payoffs. Because of their asymmetric payoffs, options and dynamic strategies are used by investors to create return distributions that would be unattainable with traditional static positions.

For instance, let us consider two popular institutional strategies, namely, covered call writing and protective put buying. In the first case, one call option is sold on each share of stock in the portfolio. In the second case, one put option is purchased on each share of stock in the portfolio. What is the risk-adjusted return performance of these instruments ?

On the one hand, financial theory suggests that both strategies will partially hedge market risk; this should be at the expense of a reduced portfolio return, the reduction corresponding to the market price of the risk reduction. In fact, if market are efficient, the returns and risk reduction derived from the systematic sale or purchase of efficiently priced options, when combined with the risk and returns of a diversified market portfolio used as a collateral, will be offsetting and yield no excess risk-adjusted return.

But on the other hand, option strategies are often praised for their ability to outperform the market. For instance, many institutional investors view covered call writing as a mean of augmenting portfolio returns, and protective put buying as a solution to avoid downside risk. The former is a return enhancing strategy, while the latter is a risk-reduction strategy.

Aside from the specific characteristics inherent to option valuation, option management in a portfolio context has been examined by various authors. But neither the academic studies nor the nostrums for market success offered by practitioners help the potential investor in verifying this dominance. The general lack of agreement among the various statistical studies performed in the U.S. and the U.K. does not allow complete confidence in their results. The goal of this paper is to verify whether the mean-variance framework provides a meaningful approach when considering



options as investment alternatives. In addition to mean-variance measures, we investigate the use of stochastic dominance and alternative equilibrium approaches to appraise the performance of such strategies. Two specific option strategies, namely, covered call writing and protective put buying, are examined.

The research contains an empirical and a theoretical part. The empirical study is based on the Swiss market, using both theoretical and quoted American and European options prices on stocks and a stock index from 1975 to 1996. To our knowledge, it is the first time that a study on option strategies performance is conducted in Switzerland using such a large set of data. The theoretical study is based on the Black and Scholes (1973) standard framework.

What are the relevant conclusions?

First, mean-variance performance measures are inadequate to capture all the variations in return distributions created by the introduction of options. In particular, they do not account for the skewness of the distribution, that is the asymmetry towards higher returns (in the case of the protective put) or towards lower returns (in the case of the covered call). The risk reduction element is given an equal weight, whether it truncates the left side (low returns possibility) or the right side of the distribution (high returns possibility). As a consequence, covered-call writing (where we are rewarded for the « risk » reduction) will “mean-variance” dominate the stock, which itself will “mean-variance” dominate the protective put (where we pay for the risk reduction). An important consequence is that when the underlying asset for the options is the market portfolio (or an indexed fund), covered call writing will appear to beat the non-optioned portfolio, i.e. the market itself. Using options and mean-variance performance measures such as the Sharpe ratio, beating the market is easy ! This is in total contradiction with the efficient market hypothesis.