

Derivatives in Fund Management: From Static Hedging to Dynamic Asset Allocation

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Going back to the surge in portfolio insurance techniques in the eighties, the use of derivatives in fund management has become quite common. A simple way to benefit from derivatives is to employ stock index options to hedge a stock portfolio. Such protective derivatives strategies allow a fund to profit from the equity risk premium, and thus generate returns for investors, without being fully exposed to the downside risk associated with investing in the stock market. Using innovative investment strategies, futures and options can, in fact, offer a significantly higher performance contributions for funds using them.

Recently, a trend can be observed that shows fund managers making increasing use of derivative products. Academic studies find that roughly one third of retail investment funds make use of derivatives¹. In the European Union, the UCITS III reform has brought about important changes facilitating investment in exchange-traded and OTC derivatives. As a consequence of new regulation, it is expected that the use of derivatives will assume greater importance in the future. In addition, hedge funds, which make intensive use of derivative instruments, are continuing their strong growth in assets under management. As a consequence, a wide range of players in the asset management industry are asking if and how derivatives can be used for the benefit of investors.

Active Asset Allocation

Going beyond simple hedging approaches, derivatives may be used in active asset allocation. While most investors favour a static approach to asset allocation where the weights attributed to different asset classes stay constant over long periods, academic studies suggest that investors can reap significant benefits from dynamically rebalancing their holdings as market conditions change. In particular, such strategies allow the investor's views on future returns, as supported by econometric models, to be exploited. Shifting exposure to asset classes over short horizons is sometimes referred to as **Tactical Asset Allocation (TAA)**. Such dynamic asset allocation is typically considered for inclusion in the satellite portfolio by investors since the goal is to generate alpha. Derivatives have a range of different uses in such strategies.

Implementing Timing Strategies

Index derivatives are a natural way of gaining short-term exposure to an asset class. For example, if the manager predicts that equity returns will be high in the coming months, he may buy an index futures contract in order to increase his portfolio's exposure to equities. Rather than just using such simple market timing strategies, a manager may use futures on different segments of the stock (investment styles or industry sectors) or bond market (maturity segments or rating categories) in order to implement bets on the relative performance of such segments. The main advantage of using futures is low transaction costs in comparison to buying baskets of securities. Futures thus offer a

¹ for example Koski J., and J. Pontiff, 1999, How are Derivatives Used? Evidence from the Mutual Fund Industry, *Journal of Finance*, 54, 2, 791-816.

cost efficient tool for strategies that frequently change exposure. For example, Amenc, Malaise and Martellini 2005² present a timing strategy between maturity segments of the bond markets using the Eurex Euro-Bund and Eurex Euro-Schatz Futures. They emphasize that Eurex derivatives can be employed not only for generating and delivering abnormal performance (alpha benefits), but also for packaging such performance in a way that is consistent with the modern core-satellite approach to institutional portfolio management. In fact, the alpha generated from rotation strategies can be transported to a core portfolio invested in a broad-based index (possibly through a derivatives position) such as a medium-term bond index.

Neutralising Active Bets

Another use is to neutralise the bets that a manager takes unintentionally. One example is the case of long/short equity hedge fund managers. Since the majority of these managers favour a bottom-up process of pure stock picking, they do not generally actively manage their market exposure, and thus have a net long bias. This can be seen for example from the correlation of the HFR Equity Hedge index (a prominent index for long/short hedge fund managers) with the S&P 500, which turns out to be equal to 0.63 based on monthly data over the period 1990-2000. This long bias, which is not the result of an active bet on a bullish market but merely the result of a lack of perceived opportunities on the short selling side, has undoubtedly explained a large fraction of the performance of these managers in bull market periods. On the other hand, it has hurt their performance very significantly in periods of market downturns. Similarly, long/short managers, even those who target market neutrality, have unintended time-varying residual exposure to a variety of sectors or investment styles resulting from their stock picking decisions. Futures contracts can be used to correct for such unintended biases, and ensure that the portfolio's factor exposure is consistent with the manager's active views. In the case where the manager has no views on systematic risk factors, it is recommended that he/she use derivative products to neutralise the exposure of the portfolio with respect to such factors.

Complementing Timing Strategies

In addition to exposure to asset classes through futures, options may be used in the context of dynamic trading strategies. A possible use of options arises from the fact that TAA usually performs well in periods of high volatility and poorly in periods of low volatility. The value of an option, on the other hand, increases with volatility. This suggests that suitably designed option strategies would allow global portfolio risk to be reduced when they are added to a dynamic allocation strategy.

There are actually a number of reasons why trendless periods of the market cycle are typically difficult market environments for TAA strategies. Obviously, it is easier to predict significant market moves, as opposed to small changes in trends that can easily be confused with noise. Also, if the market experiences a series of short-term reversals within a given time frame, the model's prediction, based on the previous subperiod, will fail to forecast the right direction. Finally, even if the model yields correct predictions, they are of little use if the return spread between assets is small.

² Amenc, N., P. Malaise and L. Martellini, 2005, From Delivering to the Packaging of Alpha, Illustration from Active Bond Portfolio Management: Using Fixed-Income Derivatives to Design Hedge Fund Type Offerings that Better Fit Investors' Needs, Working Paper, Edhec Risk and Asset Management Research Centre. This research was sponsored by Eurex.

In order to have an options strategy that yields positive returns in calm markets, it has to involve short positions in options. Amenc, Sfeir, Malaise and Martellini 2004³ propose to construct a strategy that is suitable for addition to a European market timing strategy that has the Dow Jones EURO STOXX 50® Index as a benchmark. The Eurex options strategy they choose involves a “top strangle”, which allows an investor to take a short position on volatility. So as to control the risk of potential loss in the case of a large change in the underlying asset value, a “bottom strangle” position is added. By construction, the Eurex options strategy will perform well in periods of low volatility, and will perform poorly in periods of high volatility, while limiting losses. For the European market timing strategy, adding this Eurex options strategy leads to an increase in the Sharpe Ratio from 0.58 to 0.8 and allows the percentage of months with negative returns on the strategy to be reduced.

Conclusion

Derivatives have long been regarded as hedging instruments, in part because regulation limited their use to this. More recently, however, the value of derivatives as asset allocation tools has been noted. Cost efficient implementation of TAA strategies through futures and diversification of TAA strategies through short volatility options strategies are but two examples. The increasing range of new derivatives contracts such as credit derivatives, derivatives on volatility or futures on individual equities means that investors will have new tools to explore for use in their investment decisions. While these instruments are currently used mostly for hedging motives, the potential use in asset allocation will certainly raise new questions on investment practices and on the suitability of current regulations.

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³ Amenc, Noël, Daphné Sfeir, Philippe Malaise and Lionel Martellini, 2004, Portable Alpha and Portable Beta Strategies in the Euro Zone - Implementing Active Asset Allocation Decisions using Equity Index Options and Futures, Journal of Portfolio Management. This research was sponsored by Eurex.

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