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Currency hedging strategies in strategic benchmarks and the global and Euro sovereign financial crises



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ABSTRACT

This paper investigates dynamic currency hedging benefits, with a further focus on the impact of currency hedging before and during the recent financial crises originated from the subprime and the Euro sovereign bonds. We take the point of view of a Euro-based institutional investor who considers passive investment strategies in portfolios holding Euro-denominated and non-Euro (foreign) assets. We analyze the impact of the model specification to improve the risk-return trade-off when currency risk is hedged. Hedging strategies of currency risk, using exchange rate futures and driven by several multivariate GARCH models, depend on the portfolio composition and period analyzed. Dynamic covariance models provide limited evidences of a decrease in hedging ratios compared to naïve hedging strategies based on linear regressions or variance smoothing. Nevertheless, those results are coupled with better performances of dynamic covariance models in terms of hedging effectiveness and improved Sharpe ratios.

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1. Introduction

The identification of the optimal strategic asset allocation has a central role for portfolio management. This is the case of both mutual funds with investment horizons ranging from few months (for instance for monetary funds) to some years (e.g. for equity funds), as well as for pension funds, whose investment horizon can be of some decades. The strategic asset allocation is generally associated with the definition of the benchmark, representing the reference or target portfolio when dealing with active allocation strategies. Differently, within passive management, the strategic allocation represents the 'true' portfolio which is going to be created.

Strategic benchmarks are exposed to the specific risks of the asset classes they contain, such as equities and/or bonds. Moreover, they might be also exposed to currency risks when the underlying asset classes are denominated in more than one currency. Therefore, when defining strategic benchmarks, several risk exposures have to be considered, one of those being currency risk. In this work we aim at contributing to the finance literature on currency risk hedging taking the point of view of a Euro-based asset management company (or an institutional investor) which is building a strategic benchmark. The investor has to make a number of decisions related to currency risks, and those can be represented by few relevant (in our case) questions: should foreign (non-Euro) asset classes have to be included in the benchmark? If the answer is positive, do we have to hedge the currency risk? How much currency risk should we hedge? Do we have to implement a naïve full hedge or to estimate the optimal hedging ratio? Furthermore, across the different models we can adopt to determine the optimal hedging ratio, which one has the best performance? Is the answer to the previous questions influenced during market turmoil such as the global financial crisis (GFC) and the Euro sovereign crisis (ESC)? In this paper we provide our answer to those questions.

From Euro-based investor's point of view, the investment in international (non-Euro) traded stocks and bonds became in the last years especially attractive for two reasons. On the one hand, international diversification resulted in lower risk than purely domestic diversification. On the other hand, there were more possibilities in taking advantage of countries with different levels of growth, and consequently, with different opportunities for successful investment. However, international investment leads to the inclusion of currency risk in the portfolio. Therefore, investors faced the trade-off between the exposure to currency fluctuations and the potential improvement in the performance of their (globally) diversified portfolio. These issues have already received some attention in the financial economic literature.

De Roon et al. (2011) point out that risk hedging is just one of the two motivations for internationally diversifying portfolios. They show the manner in which speculative benefits can be achieved for both bond and equity portfolios when currency positions are included as a further asset class. Overall, they also provide supporting evidence to show that currency hedging reduces risk in multi-currency portfolios. Moreover, portfolio performance improves with hedging when the comparison is made in-sample, while out-of-sample results show evidence of benefits for bond portfolios, but not for equity portfolios. Campbell et al. (2010) show further evidence of hedging benefits for bond portfolios and the potential positive impact of currency investing (as opposite to hedging) in equity portfolios. Schmittmann (2010) analyses four different strategies: no hedging, half hedging, full hedging of currency risk, and the minimum-variance hedging ratio. These strategies are applied to different investment horizons ranging from one-quarter to five years. The results show significant risk reduction for the hedged portfolios but no statistically significant differences in returns.

In the present paper, we focus on hedging decisions with respect to currency risk. Thus, we do not consider the issue of direct investment in currencies. A relatively inexpensive and reliable strategy for hedging foreign exchange risk involves the use of currency futures markets. Hedging with futures contracts is perhaps the simplest method of managing the risk arising from movements in foreign exchange markets. Hedgers usually short an amount of futures contracts if they hold a long position in international portfolios. In that case, optimal hedging ratios (OHR), namely, how many futures contracts should be held for each unit of the underlying portfolio, can be determined by minimizing the variance of the hedged portfolio returns. Key inputs to obtain hedging ratios are the time series of portfolio and currency futures returns from which conditional and unconditional covariance matrices can be estimated with different approaches. In static or unconditional hedging, hedge ratios are

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