

A defensive investment strategy for portfolio alpha return and market risk reduction

Università LUISS Guido Carli
Dottorato di Ricerca in Metodi Matematici
per l'Economia, l'Azienda, la Finanza e le Assicurazioni
XXII Ciclo

Tesi di Dottorato
Marcello Mezzedimi

Abstract

November 1, 2011

Financial markets have become increasingly complex and volatile during the past years. In particular with the recent and still on-going financial crisis, many investors, both professional and retail, have experienced great difficulties in facing such violent changes. Moreover, most asset classes have been highly correlated one to another in periods of market downfalls.

This situation has increased the request for risk reduction, particularly for a wide class of investors characterized by strong risk-aversion. This thesis addresses such need and presents an investment strategy which focuses on the reduction of the market risk in a portfolio while pursuing a medium term positive return.

In particular, we consider a portfolio comprised of a core-asset and a hedging tool, together with a certain quantity of available cash. The core-asset, typically a mutual fund for which price statistics is available, is selected in function of the correlation to a certain benchmark index and in consideration of the track record pertaining the capacity of outperforming this same benchmark, both of which we require to be as high as possible. In other words, we are only interested in the performance characteristics relative to the benchmark index and not in its absolute performance. When existing, this premium return is often referred to as *alpha*, and depends on the fund manager's ability to beat the market. An accurate fund-picking activity is necessary, which can be performed on wide available databases of funds' performance.

The correlation characteristics is analyzed in depth in order to decompose the asset return process into two components, the first given by the market and the second independent to it and originated by the same alpha. This is considered both for daily returns and longer period ones.

Once the core-asset has been selected, its return decomposed and the investment undertaken, we consider two different financial securities which can be traded as hedging tools, in order to eliminate from the portfolio the first component of the return, determined by the benchmark index. To this scope, we consider in the first place a relatively new type of financial security, the Exchange Traded Funds, which are engineered in order to reproduce the performance of an index with a certain proportionality factor. We consider a subclass of these funds, namely the Short ETFs, characterized by a negative factor, so that the security return is inverse to that of the index. There are however a number of difficulties in adopting these funds for hedging purposes, such as the constraint of having to trade them on a daily basis and the significant tracking errors by which they are affected.

As an alternative, we also consider short positions on Futures contracts linked to the benchmark index, which perform much better as hedging tools. When adopting these, a minor quantity of cash needs to be kept available and the overall portfolio benefits from an increase in its return. Moreover, these securities may also be traded on a non-daily basis, to the extreme even only once during their life, as long as we are able to evaluate with sufficient accuracy the future correlation between the core-asset and the index.

The result of having implemented a correct hedge is that the market risk from the portfolio is reduced or even cancelled and that the return is directly linked to the alpha return of the core-asset. For this reason, we consider in detail the growth characteristics of such process. Moreover, this strategy allows also for an enhancement of a number of risk-profile indicators.