The Value of Roll-Return and Momentum Strategies in Commodity Futures

Dino Lüssi

Executive Summary

Until now, different strategies were developed due to the special characteristics of commodity futures. The special attributes of commodity futures are negative correlation to other common investment classes and a low cross-sectional correlation. Therefore, strategies benefit in any case from a diversification effect, which reduces a group of risky assets to a portfolio with much lower risk. Strategies could base on momentum effects and also on the term structure. These two strategies are examined in detail and combined in a further step. Two leading questions have to be answered. First, is their really an inherent value in commodity futures and are those strategies able to capture this value? Second, shows the risk premium, which is gathered through the strategies, robust signals during time or are they going to disappear?

The economical explanation for risk premium in the strategies is based on four main theories, namely the insurance role of commodity futures, the theory of storage, the net-hedging pressure hypothesis and the yield as a long-term return driver. The main objects which all have in common are clearly the term structure and inventory levels, whereas the inventory information is partially aggregated in the term structure. So the term structure provides one of the main signals and the preceding return the other. The preceding return or rather the momentum is based on the fact that inventory levels are sticky to some degree and therefore the return should carry some information about them as well.

To observe the value of the strategies, several portfolios are built and the performance figures with data from 32 commodities over thirty years calculated. It turned out that the momentum as well as the roll-return signal could be used to receive significant positive returns on average. The roll-return signal proved to be for itself quite more accurate than the momentum signal and in addition less volatile. Regarding the persistence of both signals, it could no significant drift in the means be detected, however an insignificant in the roll-return strategy. The combination of both signals showed even more significant positive results. The basic combination reached a continuously compounded, annualized return of 16.56% and a reward to risk ratio of 0.76. These results can be improved by several enhancements to the simple combined strategy. Those enhancements are a "second sort-out" of ambiguous signals, a "weighted re-sort", a "variable weighting" of the futures, a dynamic trailing stop and a diversification enlargement. However, it turned out that not every enhancement should be implemented but the best combination brought a return of 21.84% and a reward to risk ratio of 1.12. It was concluded, that the strategies provide substantial value whereas the roll-return carries more. A combination of the signals will be even more valuable and powerful at all. Due to the fact that commodities are able to reduce the systematic risk of a world stocks portfolio, an efficient combination provided additional value and consequently improved the reward to risk ratio of the active strategy by a further 10%.