
An Unexploited Opportunity in an Efficient Market?

When the equity market goes down, protecting yourself against credit risk becomes more expensive. By using unique data that is not observable to just anyone, we prove that there is a way to make profit from this relationship and also explain why such an opportunity can exist in an efficient market.

To be able to make a profit from this relationship, we need two derivatives to represent the equity market and the credit market; a European equity index future and a credit default swap index. Before describing how to profit from the relationship, let's describe the two derivatives briefly. A futures contract is an agreement between two parties, where one sells and the other buys an asset, at a certain time in the future, for a certain price. A credit default swap, CDS, is a way to transfer the credit risk from one party to another. To put it short, the protection buyer pays the protection seller a periodic premium to cover the losses that arise in the case of a credit event for the underlying asset. A credit event might be a missed payment that would cause losses in the underlying asset.

CDS are traded over the counter, OTC, meaning that only the two counterparties are aware of the trade. Normally, the observable spread for the CDS index is just a daily estimation. In this study, the spreads used are the actual spreads offered from investment banks to our commissioning body on the buy-side. Apart from not being an estimation, the spreads are also quoted with a much higher frequency.

One way of quantifying the relationship between the two is to find a so called cointegrating relationship. The definition of cointegration is that if any linear combination of the two series, X_t and Y_t , is a stationary process, the two are cointegrated. In other terms, if the residual term, u_t , in a regression of the form

$$X_t = \beta_0 + \beta Y_t + u_t$$

is stationary, the series are cointegrated, and β is the cointegrating coefficient. The beauty of cointegration is that it is mean reverting, meaning that the residual term moves around 0.

To make a profit from this relationship, a pairs trading strategy is constructed. By buying 1 unit of X_t and β units of Y_t when the residual is too low and selling when it is back to normal, profit can be made. When it is too high the opposite trade is made. A strategy of this nature is market neutral, since the market correlation of the two assets cancel each other out in theory.

So the strategy seems simple enough, should this opportunity not have been discovered already, and thus disappeared since the market is somewhat efficient? There are a few reasons to believe that is not the case. First and foremost, since CDS are traded OTC, the number of market players that can observe the prices is very limited. Secondly, most of these players do not have the mandate to trade across assets (equity and credit) and since a lot of them benchmark against the market, this market neutral strategy could result in underperforming the benchmark. This study will hopefully be able to give our commissioning body the mandate to trade on the two derivatives.

The strategy was first, for practical reasons, tested on a manipulated form of the data sets. Also, mid-prices were used, so no transactions cost had been taken into account yet. When suitable settings for the strategy had been found, the next step was to test whether the strategy worked on the original data sets. Still without transaction costs. Records of when every position was opened and closed is logged in a trading book. The same trades are then made using prices from the observations with the closest time stamps in the original data. The strategy still proves to be profitable, the ultimate test is to do the same with the bid-offer prices from the original series.

After rigorous testing on the original data with transaction costs, the cointegration based trading strategy turns out to still be profitable.

Alavei, D. and Olsson, T.

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