

## **Trading with Low-Volatility ETF's: The Irish-Cream-Strategy**

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Here's to a long life and a merry one  
A quick death and an easy one  
A pretty girl and an honest one  
A cold beer and another one!

### **Irish Toast**

#### **Abstract:**

Low-Volatility ETF's are a recent addition to the ETF-universe. This working-paper combines the Low-Volatility ETF with the base-ETF and its inverse to improve the overall performance.

#### **Introduction:**

PowerShares introduced at 2012.05.05 the SPLV ETF. The SPLV tracks the S&P Low-Volatility Index ([1]). The ETF was an immediate success. At this writing Net Assets are over 2 Billion \$. There is a need for relative save investments. The Low-Volatility Index construction is rather simple. One sorts the S&P-500 stocks by the realized volatility (standard-deviation of the returns) of the last year. The lowest 100 form the Low-Volatility index. The index is recalculated semi-annually. For the S&P-500 the weights are determined by market-capitalization. For the Low-Vol S&P the weights are the inverse volatility. This favors rather old-fashioned stocks like Wal-Mart or Procter&Gamble. But the index selection does not care about sector, company size or any other fundamental criterion. The volatility tells it all.

There are similar indexes for the Russel-1000 (SVOL), Russel-2000 (SLVY). But these ETF's have a low volume. Another interesting member is the iShares MSCI Emerging Markets Minimum Volatility ETF EEMV. The calculation is based on a proprietary model of MSCI. It is a portfolio calculation. Hence the name "Minimum" and not "low" volatility. The EEMV was introduced at 2011.10.20. It's net asset value is currently 193 Million \$.

The SPLY has won since it's introduction till 2012.08.02 16.06%. The performance of the SPY was 4.96%. The SPLY did much better in the August-2011 crash and it outperforms the SPY also in the sideways market of the last months. The SPY was better in the strong rally at the beginning of this year.

Nevertheless the SPLV is far from being a non-risky assets. It has just less risk and in some circumstances more fun than the SPY.

The idea behind the Irish-Cream-Strategy is to hedge in times of troubles the SPLV with the SPY and to select in rising markets the better of the two. The resulting position should have at least the performance of the SPLV, but with reduced downside risk.



Graphic-1: Performance of SPLV till 2012.08.02



Graphic-2: Comparison of SPLY (orange) with SPY (yellow).

In an ideal world, it should almost behave like Bernie Madoff's funds (without cheating).

### The Implied Volatility Term Structure:

S&P defined in [2] the Dynamic VIX Futures Index. The index is a weighted mean of the VXX and the VXZ.

The weights depend on the implied volatility term structure (IVTS). VXV is the implied volatility of S&P-options with 3 month maturity. Besides the different maturity the calculation is the same than for the VIX. IVTS is defined as.

$$IVTS(t) = VIX(t) / VXV(t) .$$

The Mojito- and Daiquiri strategies defined in [3] and [4] are based on the same concept. They improve the S&P-methodology by using more appropriate thresholds and weights. The IVTS is according the results in these working-papers an efficient trading signal. It is additionally quite simple to compute. In fact there is a lot of mathematical modeling behind. But if one considers the VIX and VXV as a black box, it's perfect KISS. VIX-Futures are usually in contango. Hence the IVTS is usually – considerable – below 1. A low IVTS is an indicator of a bull-market. A high IVTS for bears.

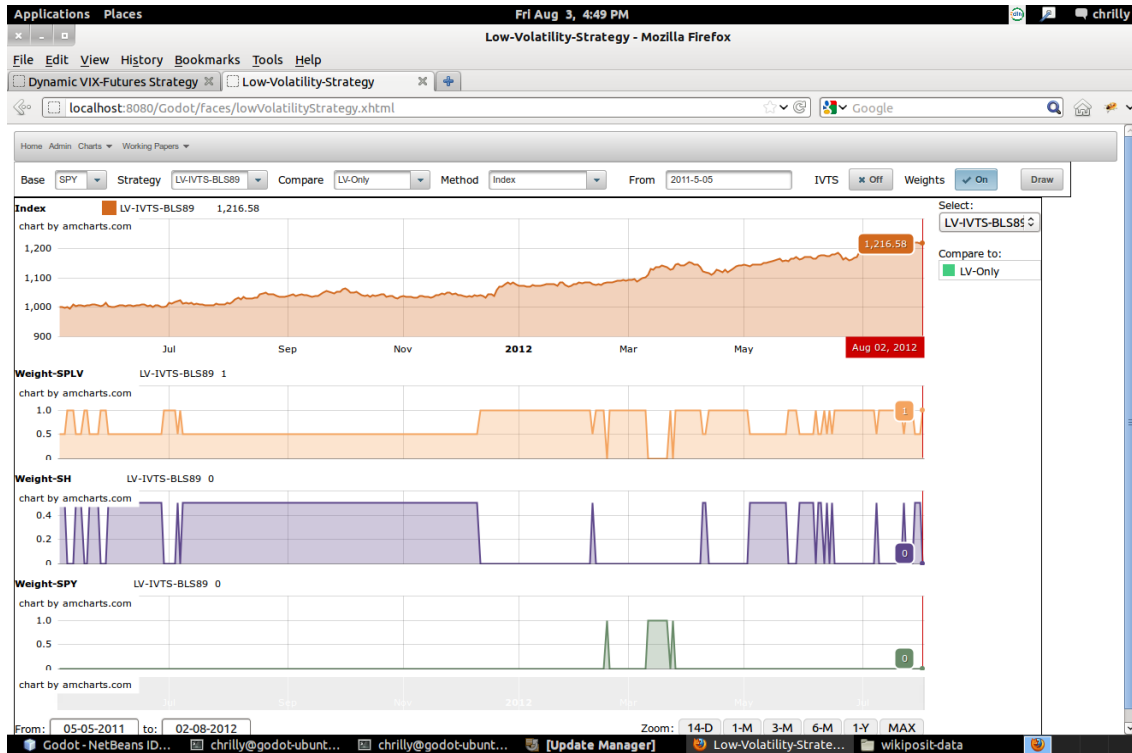
IVTS	SPLV	SPY	SH
<=0.80	0%	100%	0%
<=0.89	100%	0%	0%
>0.89	50%	0%	50%

Table-1: Thresholds and Weights for SP-Irish-Cream

Table-1 shows the weights for the SP-based Irish-Cream Strategy. An IVTS below 0.80 corresponds to a strong rally. Under this market-conditions the SPY performs best. In a moderate upwards or sideways market (IVTS till 0.89) one selects the SPLV. If the IVTS moves above 0.89 one hedges the SPLV with the SH (inverse SPY). Theoretically one can go also the SPY short. But going the SH long is from the trading point of view preferable. The SH performs in the long run somewhat worse the -1\*SPY. But the drag is less than the costs of shorting the SPY. Besides, one can always buy the SH and is never called. But the drag eats up some of the performance gap between SPLV and the SPY in bad market-conditions. Another alternative is hedging with S&P-Futures.

Graphic-3 and 4 show the performance and weights of the SP-Irish-Cream. Graphic-3 displays also the weights for SPLV, SH and SPY. Graphic-4 is the direct comparison of the Cream with the SPLV. The Cream is well hedged in the August-2011. But it loses somewhat in the following recovery phase. IVTS is in this phase still relative high and the hedging-costs drag the Cream down. But it is considerable better in the following phase in 2012. The SPY is only selected in a short phase in Feb. and March 2012. But

this boosted the Cream considerable. Over the whole range, the Cream won 21.6%, the SPLV 16.06% and the SPY 4.96%. Overall it looks more comfortable then the SPLV alone. On the downside, one never knows if the thresholds work also as fine in the future.



Graphic-3: SP-Irish-Cream 2011.05.05-2012.08.02 with weight-Panels



Graphic-4: SP-Irish-Cream (brown) in comparison with SPLV

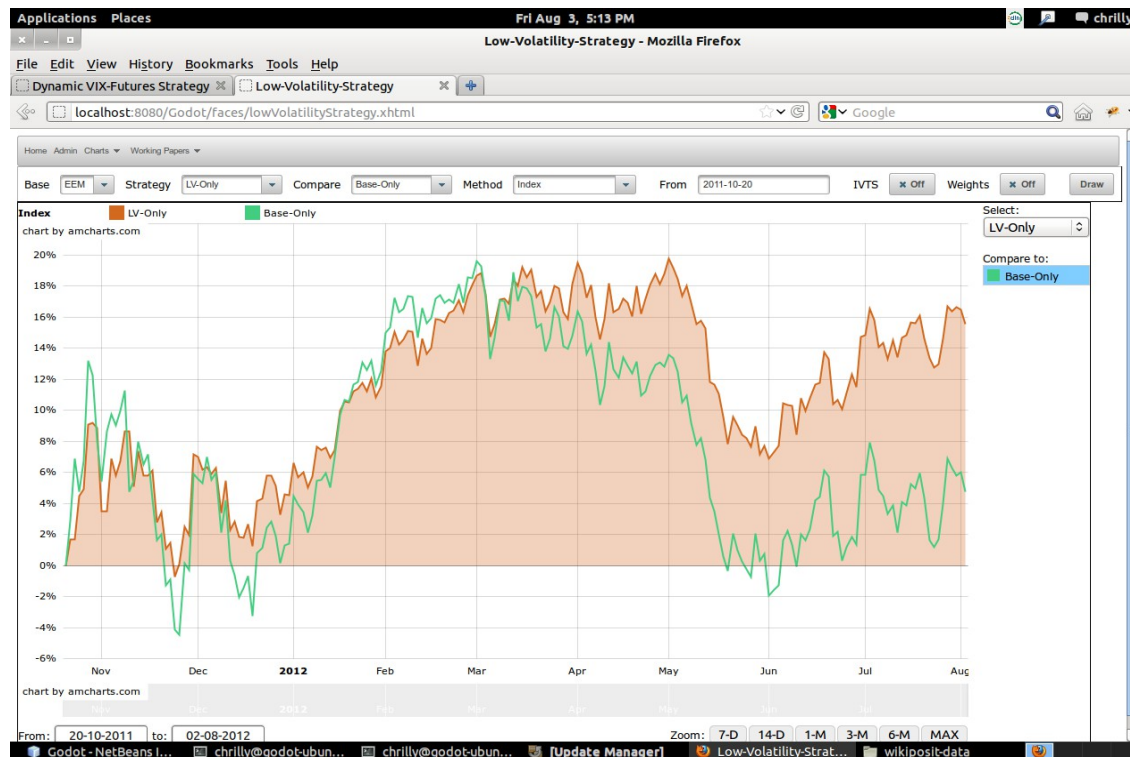
**The EE-Cream:**

The same strategy can be implemented for the emerging-markets ETFs EEMV (Low-Vol), EEM (base) and EUM (inverse EEM).

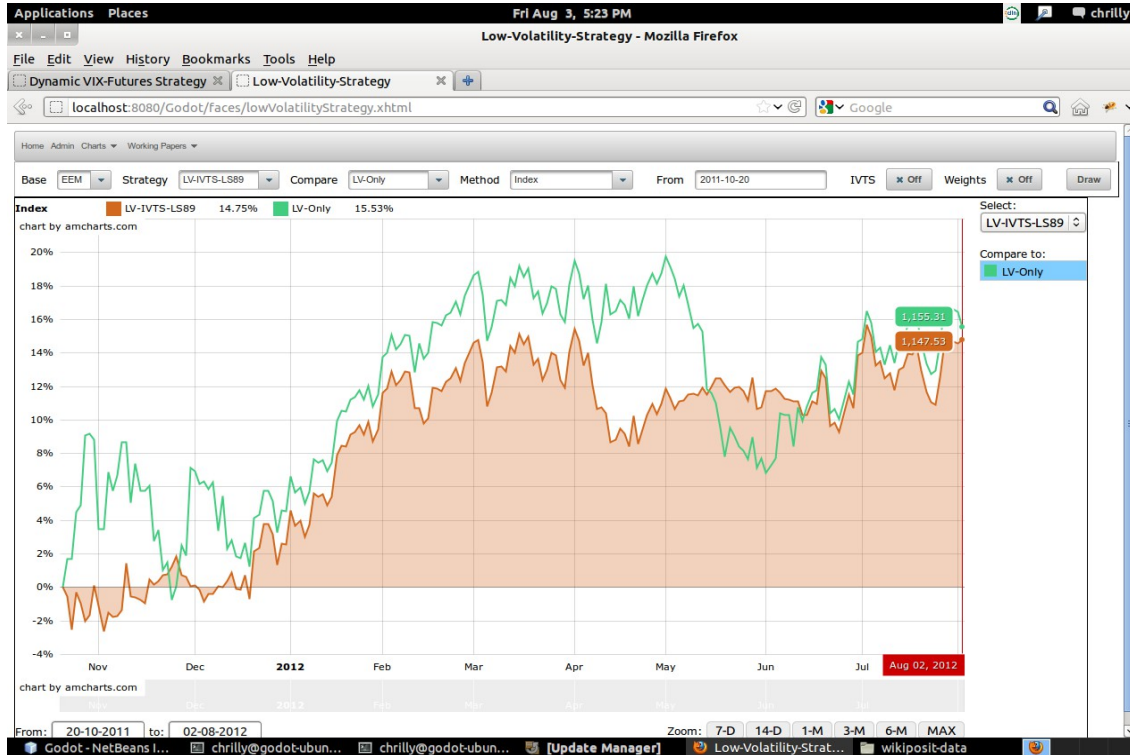
The thresholds were set the same. But the EEM is never selected. The EEM performs in for short phases better. But this does not match with the IVTS level. Generally the EEMV is quite superior and hence it makes not much sense to try to identify phases for switching from the EEMV to the EEM. It's difficult to beat the sophisticated MSCI methodology. The IVTS has also less predictive power for the emerging-market than for the S&P. I know no direct volatility-measure. One could construct them on one's own from EEM options with different maturity. But this would be everything else then KISS.

IVTS	EEMV	EEM	EUM
$\leq 0.80$	100%	0%	0%
$\leq 0.89$	100%	0%	0%
$> 0.89$	50%	0%	50%

Table-2: Thresholds and Weights for EE-Irish-Cream



Graphic-5: Comparison EEMV (brown) to EEM from 2011.10.20 to 2012.08.02



Graphic-6: Comparison of EE-Cream (brown) to EEMV from 2011.10.20 to 2012.08.02

The EE-Cream has from the introduction of the EEMV on 2011.10.20 a win of 14.7%. The EEMV is slightly better with 15.5%. Overall the performance of the EE-Cream looks still more cosy. But it is also far away from a Bernie Madoff strategy. The SP-Cream is much closer to this ideal. As noted above the IVTS signal has certainly more predictive power for the SP than for the emerging-market.

It would be interesting to try the strategy for other indexes like the Russel-2000. But the SLVY is so far not liquid enough. The SLVY is against the spirit of the Russel-2000. If one wants a conservative investment, one should choose SPLV.

One could modify the SP-Cream and replace in a strong rally the SPY by the IWM. But this did not improve the performance.

## Conclusion:

The SP-Irish-Cream-Strategy seems to be an attractive alternative to the SPLV. It is easy to implement. Readjustments are also rather infrequent. If the SPLV is hedged by the SH the weights diffuse due to the different price movements away. But this process is not very dramatic. With an adjustment-bound of 5% the overall performance is not considerable altered. This coincidences with the results in [3] and [4].

## References:

- [1] S&P: S&P Low Volatility Index Methodology, May 2012
- [2] S&P: S&P 500 Dynamic VIX Futures Index Methodology, Aug. 2011

[3] Ch. Donninger: Improving the S&P Dynamic VIX-Futures-Strategy: The Mojito Strategy, July-2012

[4] Ch. Donninger: Improving the S&P Vector-Index. The Daiquiri Strategy, July-2012.