

1. Introduction

The idea behind a simple and robust trading strategy is to generate trades with as few as possible decisions and with the lowest acceptable risk (drawdown). The goal is to find a market trend filter, with an automated procedure, that decides to go long or short. Using index based ETFs is logical because the market trend filter will analyze the behavior of a (large) group of stocks. The construction of the market trend filter is the hardest part.

This market trend filter has to be flexible to follow the large market movements without being deceived by small pullbacks or breakouts that don't last long. I started with analyzing the market trend filters that I learned in my so far modest trading experience: VSTpro by Jose Silva and 20DMF by Pascal Willain. I decided to analyze and back test only from August 1, 2007 because the 20DMF has only historical data starting in July 2007. I also decided to compare the strategies with the most common index ETFs that track the S&P 500, the Russell 2000 and the Nasdaq-100. In my back tests I used the open quote of the day following a trigger as start or end of a trade. There is no stop-loss strategy used in this back tests.

2. VSTpro

Visual Strategy Trader is a MetaStock add-on developed by Jose Silva. More details can be found at <http://www.metastocktools.com/vst>.

It is a binary market trend filter based on the S&P500 index. Due to the copyright on the VSTpro code I can not disclose the exact calculation. Plainly expressed, it handles crossing of the index with a moving average. It is a binary filter because it has only two states: long or short. Because the decision to go long or short is based entirely on daily data of the S&P 500 index, the VSTpro market trend filter can be calculated for as long as data is available.

The results over a period of 4½ years (from August 1, 2007 until March 1, 2012) for the single ETFs are:

	VSTpro					
	Compound	Max trade	Min Trade	Winners	Losers	Max DD
SPY	206.64%	22.88%	-5.82%	28	27	15.01%
IWM	363.74%	32.63%	-7.73%	27	28	18.98%
QQQQ	433.78%	29.24%	-7.25%	29	26	16.29%

The results with double ETFs are:

	VSTpro					
	Compound	Max trade	Min Trade	Winners	Losers	Max DD
SSO	780.98%	50.60%	-12.20%	28	27	31.93%
UWM	1370.67%	68.11%	-16.47%	26	29	44.28%
QLD	2084.30%	64.60%	-13.89%	28	27	35.63%

It is as expected that double ETFs results in a much higher compound result with double or higher drawdowns. Although this market trend filter is based on the S&P 500, the performance using Nasdaq ETFs is more than double the equivalent S&P 500 ETFs with approximately the same drawdown. The Nasdaq-100 ETFs are also much better than the Russell 2000 ETFs with less drawdown. It is however unlikely that a drawdown of 35-40% is psychological acceptable using the double ETFs. Using the single Nasdaq ETF QQQQ with a starting equity of \$ 10,000.00 can result in \$ 53,377,51 in a period of 4½ years.

3. 20DMF

The 20DMF is a market trend filter invented by Pascal Willain. It is based on the theory that through analyzing the minute by minute volume data, it is possible to measure the volume generated by large players. In his book "Value in Time" Pascal describes in an extensive and thoroughly manner the effect of buying and selling by the large players in the stock market. Pascal states that the volume of buying and/or selling by the large players, which he calls "effective volume", is largely responsible for the price movement of a stock. The 20DMF is a representation of the money flow generated by the large players. It is determined by calculating the effective volume in 96 different sectors that are followed with more than 1000 stocks. More details can be found at <http://www.effectivevolume.com>. The 20DMF market trend filter has 3 states: long, short or cash.

The results of this strategy over period of 4½ years (from August 1, 2007 until March 1, 2012) for the single ETFs are:

	20DMF					
	Compound	Max trade	Min Trade	Winners	Losers	Max DD
SPY	290.34%	34.81%	-4.53%	29	25	9.54%
IWM	394.58%	45.41%	-6.69%	27	27	15.61%
QQQQ	388.92%	36.93%	-4.89%	32	22	18.28%

The results for the double ETFs are:

	20DMF					
	Compound	Max trade	Min Trade	Winners	Losers	Max DD
SSO	1168.34%	77.27%	-9.20%	31	23	21.78%
UWM	1477.64%	98.63%	-13.69%	29	25	35.93%
QLD	1891.06%	82.12%	-9.48%	31	23	41.34%

Comparing the 20DMF with the VSTpro market trend filter I find that the results for the S&P 500 ETFs are better for the 20DMF strategy. Overall this strategy has a little bit more trades although on average 1 trade per month is not much. The trades are sooner abandoned which leads to smaller negative results per trade. If I must choose a strategy and an ETF only between these results I would choose the 20DMF with SSO as vehicle. A starting equity of \$ 10,000.00 can become \$ 126,833.89 in a period of 4½ years.

4. Combo-MF

In studying in detail every trade generated by the above strategies I discovered that both strategy's were right most of the time but went wrong in a few trades that mess up the results for a longer period of time due to a large temporary drawdown. Then I thought of a way to make both strategies be more willing to compromise. I decided to create a new market trend filter called Combo-MF that is a compromise of both strategies. If the VSTpro was saying LONG and the 20DMF was also saying LONG I decided that the Combo-MF must be LONG. If the VSTpro was saying SHORT and this was confirmed by the 20DMF, the Combo-MF would clearly state SHORT. If the VSTpro was LONG or SHORT and the 20DMF was in CASH, then the Combo-MF would follow the VSTpro. If both disagree (in opposite opinion) then the Combo-MF would go in CASH.

Using this logic I did the same back tests as above. The results for the single ETFs are:

	Combo					
	Compound	Max trade	Min Trade	Winners	Losers	Max DD
SPY	275.94%	23.51%	-5.82%	33	30	12.24%

IWM	449.67%	32.29%	-7.73%	32	31	14.01%
QQQQ	497.64%	30.16%	-6.06%	34	29	9.96%

The results with the double ETFs are:

Combo						
	Compound	Max trade	Min Trade	Winners	Losers	Max DD
SSO	1086.46%	53.20%	-12.20%	34	29	27.26%
UWM	1735.99%	73.55%	-16.47%	32	31	33.64%
QLD	2656.49%	68.05%	-12.39%	34	29	21.24%

This compromising strategy leads not only to significant better results but more important the drawdowns are much more acceptable. Using the single Nasdaq ETF a starting equity of \$ 10,000.00 can become \$ 59,764.28 in a period of 4½ years with less than 10% drawdown. Even a maximum 21.24% drawdown is acceptable if the result is generating \$275,649.20 starting from \$ 10,000.00 in 4½ years using the double Nasdaq ETF.

The results of this strategy are also fairly stable over time (robustness). Analyzing year per year tells us that both 2008 and 2011 were not so good as the bull trending years 2009/2010 although the compound results of 2008 or 2011 are not bad at all. It is very clear that the Combo-MF strategy works much better with the Nasdaq ETFs and that the performance of this strategy with the Small-Cap ETFs is poor.

Combo – SPY						
	Compound	Max trade	Min Trade	Winners	Losers	Max DD
2008	39.63%	22.33%	-5.82%	8	11	12.11%
2009	53.05%	20.51%	-6.99%	6	5	7.64%
2010	28.85%	17.78%	-1.66%	6	4	2.88%
2011	22.43%	6.33%	-4.53%	11	6	7.50%

Combo - SSO						
	Compound	Max trade	Min Trade	Winners	Losers	Max DD
2008	93.75%	41.30%	-12.20%	10	9	21.05%
2009	118.70%	42.52%	-13.78%	6	5	16.30%
2010	67.93%	39.86%	-2.66%	6	4	4.74%
2011	47.06%	12.85%	-9.20%	11	6	16.06%

Combo - IWM						
	Compound	Max trade	Min Trade	Winners	Losers	Max DD
2008	57.30%	25.00%	-7.73%	9	10	14.01%
2009	69.93%	28.40%	-8.91%	6	5	9.78%
2010	61.01%	28.23%	-2.69%	7	3	2.76%
2011	15.85%	7.95%	-6.69%	8	9	13.60%

Combo - UWM						
	Compound	Max trade	Min Trade	Winners	Losers	Max DD

2008	121.86%	45.96%	-16.47%	9	10	32.97%
2009	155.65%	56.73%	-17.46%	6	5	21.15%
2010	154.94%	64.35%	-5.36%	7	3	5.66%
2011	28.21%	17.58%	-13.68%	8	9	30.91%

Combo - QQQQ						
	Compound	Max trade	Min Trade	Winners	Losers	Max DD
2008	52.64%	20.20%	-6.06%	9	10	9.96%
2009	58.68%	24.37%	-4.10%	6	5	4.27%
2010	48.32%	24.46%	-2.12%	7	3	2.16%
2011	32.77%	8.08%	-4.48%	11	6	6.63%

Combo - QLD						
	Compound	Max trade	Min Trade	Winners	Losers	Max DD
2008	116.61%	38.83%	-12.39%	9	10	21.24%
2009	137.35%	51.18%	-8.60%	6	5	9.41%
2010	117.71%	54.54%	-4.29%	7	3	4.48%
2011	70.72%	15.83%	-9.13%	11	6	14.26%

Using triple ETFs further enhances the compound results to astronomical numbers keeping in mind that 3x ETFs for instance the Nasdaq Index (TQQQ – SQQQ) are only available since February 2010.

The results for a smaller period (2 years February 10, 2010 until March 1,2012) than above are:

Combo						
	Compound	Max trade	Min Trade	Winners	Losers	Max DD
UPRO	384.30%	87.87%	-14.10%	15	10	26.05%
TNA	566.48%	121.90%	-21.15%	14	11	52.86%
TQQQ	928.11%	114.78%	-13.87%	17	8	22.81%

Maybe I can live with a possible temporary drawdown of 22.81% if my initial equity of \$ 10,000 turns in \$ 102,811.10 in only 2 years time...

Conclusion

The Combo-MF is a simple and robust market trend filter that serves as a very simple indicator for going long, short or staying in cash. To determine and handle the necessary trades takes less than 5 minutes of work each day.

I did also back test this strategy with an additional stop-loss policy. This led to yet smaller drawdowns but also a limited less compound result.

Combining the Combo-MF with a strategy of buying/selling an ETF in gold or silver can result in even less drawdowns due to the correlation between general index ETFs and Precious Metals ETFs. I have back tested an idea to combine the Combo-MF trading using 2/3 of the available equity and the other 1/3 using buying/selling Gold Miners ETFs. The determination of going long or short for the Precious Metals ETFs was entirely made by the state of the Precious Metals MF that is calculated by Pascal Willain on the Effective Volume website. This combined strategy using TQQQ/SQQQ ETFs for the Combo-MF and NUGT/DUST ETFs for the Precious Metals delivered in 2010 & 2011 respectively 140 and 110% annual compound result with less than 25% maximum drawdown.

The reason I did these back test and write this paper was not to invent and take credit of yet a new and revolutionary trading system but to find a simple and robust trading strategy for myself. I am sharing this idea with the people that I know in different forums to obtain feedback. As I consider myself still a novice trader I am humble and accept that maybe I did overlook an important detail or have cut a corner to short...

Annex

As a reference I include the detailed trade track of the Combo-MF strategy using SSO as trading instrument.

<u>Start</u>	<u>End</u>	<u>Type</u>	<u>Begin</u>	<u>End</u>	<u>Trade%</u>	<u>Compound</u>	<u>Max DD</u>
2/08/2007	10/08/2007	LONG	95.50	92.23	-3.42%	-3.42%	3.55%
16/08/2007	21/08/2007	SHORT	86.41	89.13	-3.15%	-6.46%	6.91%
23/08/2007	29/08/2007	LONG	94.00	91.05	-3.14%	-9.40%	10.37%
12/09/2007	31/10/2007	LONG	97.65	119.80	22.68%	11.15%	0.00%
1/11/2007	2/11/2007	LONG	121.00	119.63	-1.13%	9.89%	1.15%
8/11/2007	29/11/2007	SHORT	115.30	105.00	8.93%	19.71%	0.00%
30/11/2007	18/12/2007	LONG	110.85	100.54	-9.30%	8.58%	10.25%
26/12/2007	28/12/2007	LONG	102.93	102.28	-0.63%	7.89%	10.96%
31/12/2007	23/01/2008	SHORT	100.01	67.68	32.33%	42.77%	0.00%
14/02/2008	20/02/2008	LONG	74.64	69.45	-6.95%	32.84%	7.47%
26/02/2008	20/03/2008	LONG	70.59	66.04	-6.45%	24.28%	14.88%
17/04/2008	1/05/2008	LONG	75.21	80.94	7.62%	33.75%	6.75%
7/05/2008	8/05/2008	LONG	86.93	84.42	-2.89%	29.88%	9.92%
14/05/2008	22/05/2008	LONG	88.45	84.38	-4.60%	23.91%	15.22%
9/06/2008	18/07/2008	SHORT	86.92	72.73	16.33%	44.14%	0.00%
22/07/2008	23/07/2008	SHORT	69.14	71.67	-3.66%	38.86%	3.80%
31/07/2008	3/09/2008	LONG	72.42	72.93	0.70%	39.84%	3.07%
3/09/2008	22/09/2008	SHORT	72.93	63.85	12.45%	57.25%	0.00%
22/09/2008	23/09/2008	LONG	63.85	59.47	-6.86%	46.46%	7.37%
23/09/2008	13/10/2008	SHORT	59.47	36.38	38.83%	103.33%	0.00%
17/10/2008	20/10/2008	SHORT	33.00	35.48	-7.52%	88.05%	8.13%
22/10/2008	29/10/2008	SHORT	32.20	32.93	-2.27%	83.77%	10.64%
30/10/2008	4/11/2008	LONG	34.51	36.21	4.93%	92.83%	5.45%

4/11/2008	24/11/2008	SHORT	36.21	23.18	35.98%	162.21%	0.00%
28/11/2008	2/12/2008	LONG	26.31	23.05	-12.39%	129.72%	14.14%
2/12/2008	4/12/2008	SHORT	23.05	24.40	-5.86%	116.27%	21.24%
4/12/2008	15/01/2009	LONG	24.40	24.75	1.43%	119.37%	19.53%
27/01/2009	30/01/2009	LONG	25.58	26.73	4.50%	129.23%	14.39%
30/01/2009	4/02/2009	SHORT	26.73	26.90	-0.64%	127.77%	15.12%
4/02/2009	5/02/2009	LONG	26.90	26.05	-3.16%	120.58%	18.88%
5/02/2009	9/03/2009	SHORT	26.05	20.13	22.73%	170.71%	0.00%
13/03/2009	17/06/2009	LONG	24.25	36.66	51.18%	309.24%	0.00%
26/06/2009	6/07/2009	LONG	37.59	36.08	-4.02%	292.80%	4.19%
15/07/2009	28/10/2009	LONG	37.91	50.70	33.74%	425.32%	0.00%
4/11/2009	7/12/2009	LONG	48.94	55.04	12.46%	490.80%	0.00%
9/12/2009	11/12/2009	SHORT	53.85	56.15	-4.27%	465.57%	4.46%
28/12/2009	22/01/2010	LONG	60.26	58.22	-3.39%	446.42%	8.12%
28/01/2010	3/05/2010	LONG	55.76	68.66	23.13%	572.83%	0.00%
11/05/2010	14/05/2010	LONG	62.55	63.00	0.72%	577.67%	0.00%
19/05/2010	24/05/2010	SHORT	59.72	55.93	6.35%	620.68%	0.00%
1/06/2010	4/06/2010	SHORT	57.45	58.03	-1.01%	613.40%	1.02%
7/06/2010	11/06/2010	SHORT	57.02	55.19	3.21%	636.30%	0.00%
14/06/2010	24/06/2010	LONG	58.40	58.38	-0.03%	636.05%	0.03%
24/06/2010	8/07/2010	SHORT	58.38	54.32	6.95%	687.24%	0.00%
9/07/2010	20/08/2010	LONG	54.04	55.21	2.17%	704.28%	0.00%
30/08/2010	8/03/2011	LONG	52.93	88.95	68.05%	1251.61%	0.00%
8/03/2011	22/03/2011	SHORT	88.95	84.30	5.23%	1322.27%	0.00%
24/03/2011	12/04/2011	LONG	85.95	87.10	1.34%	1341.30%	0.00%
21/04/2011	6/05/2011	LONG	93.12	94.37	1.34%	1360.65%	0.00%
23/05/2011	1/06/2011	SHORT	88.34	92.09	-4.24%	1298.64%	4.43%
1/06/2011	2/06/2011	LONG	92.09	88.82	-3.55%	1248.98%	8.28%
2/06/2011	10/06/2011	SHORT	88.82	82.78	6.80%	1340.71%	1.38%
16/06/2011	17/06/2011	SHORT	80.04	80.74	-0.87%	1328.11%	2.28%
22/06/2011	23/06/2011	LONG	82.32	80.09	-2.71%	1289.42%	5.13%
28/06/2011	27/07/2011	LONG	83.41	95.15	14.08%	1484.99%	0.00%
3/08/2011	16/08/2011	SHORT	86.03	77.35	10.09%	1644.90%	0.00%
25/08/2011	26/08/2011	LONG	73.67	70.95	-3.69%	1580.48%	3.83%
6/09/2011	8/09/2011	SHORT	71.77	78.32	-9.13%	1427.11%	14.26%
8/09/2011	21/09/2011	LONG	78.32	85.14	8.71%	1560.09%	5.11%
21/09/2011	5/10/2011	SHORT	85.14	71.66	15.83%	1822.93%	0.00%
7/10/2011	18/11/2011	LONG	78.16	81.61	4.41%	1907.81%	0.00%
25/11/2011	16/12/2011	LONG	73.57	78.82	7.14%	2051.09%	0.00%
5/01/2012	1/03/2012	LONG	84.92	108.82	28.14%	2656.49%	0.00%