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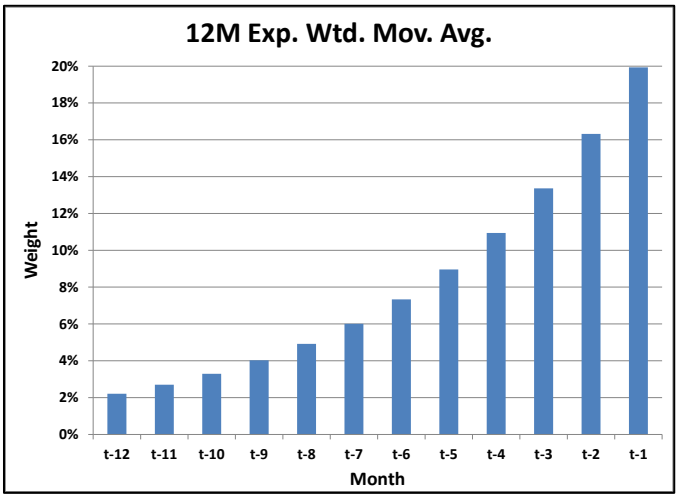
Wisely Managed Absolute Return Portfolios

Trend-Following with Sector and Industry ETFs

Factor Definition

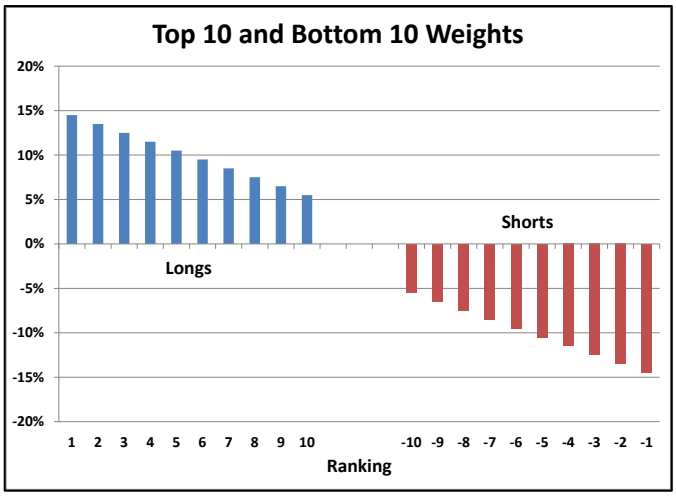
The purpose of this article is to present the results of a simple one factor trend-following return model—twelve month exponentially-weighted moving average return—as applied to a highly liquid universe of sector and industry ETFs. Although in practice I use a variety of momentum, value, fundamental, and economic factors in forecasting ETF returns, for purposes of this article the expected return for an ETF is simply the exponentially-weighted average return over the trailing twelve months (weights shown at right).



I published a more detailed description of the trend-following model methodology in an introductory article, "Trend-Following with ETFs". This article will focus on the application of that model to sector and industry ETFs. Two other articles in this series focus on its application to international ETFs and alternative ETFs.

Portfolio Construction Rules

Two methods of implementing the trend-following model are presented: long-only and long/short. Long positions are the same for the long side of the long/short portfolio and the long-only portfolio. The long-only portfolio simply omits the shorts. The long/short portfolio may have up to ten long positions and ten short positions. In most months, however, the number of either longs or shorts is likely to be reduced because of the trailing return of the U.S. stock market, which tends to affect all U.S. ETFs to some extent. That is, if the market has been up, the portfolio is likely to have fewer shorts (ETFs with a negative trend), and if it has been down, it is likely to have fewer longs (ETFs with a positive trend).



Portfolio weights are based upon expected return. The ETF with the highest expected return gets a long weight of 14.5%, the next highest a long weight of 13.5%, and so on down to a long weight of 5.5%, at which point 100% of capital has been invested long. Short weights are a mirror image of this methodology. The ETF with the lowest negative return gets a short weight of 14.5% and so on (as shown in the graph above).

In the trend-following model, all long positions must have a positive expected return and all short positions must have a negative expected return. Long positions may sum to less than 100% and short positions may sum to less than 100%.

Universe Definition

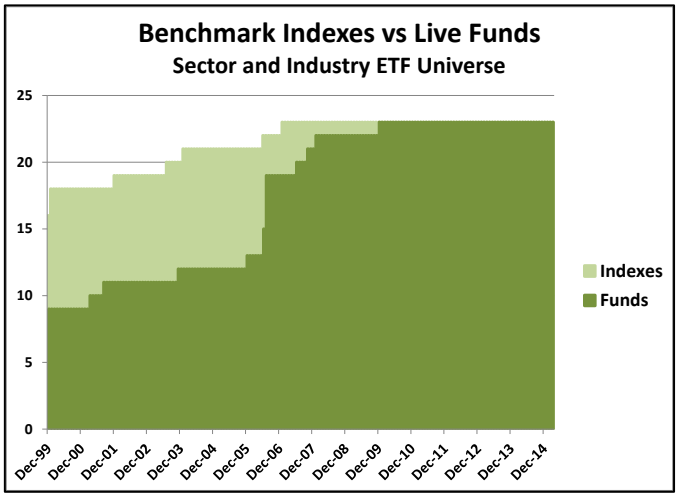
My full Sector and Industry ETF universe currently contains 76 ETFs. In practice, the various transaction cost and borrowing cost inputs into my portfolio construction process generally prevent me from using the most illiquid of these. My purpose here is to keep things simple, so have culled down my full universe into a highly liquid sector and industry ETF universe that currently contains only 23 constituents, each with more than $1 billion in current assets under management, as shown in the table below.

Sector and Industry ETF Universe Constituents

	Sector	Investment Focus	Index Name	Fund Name	Fund Ticker	Fund AUM ($M)
1	Consumer Discretionary	Cons Discr Sector	Cons Discret Select Sect	CONSUMER DISCRETIONARY SELT	XLY	10,801
2	Consumer Discretionary	Retail	S&P Retail Select Industry TR	SPDR S&P RETAIL ETF	XRT	1,067
3	Consumer Staples	Global Agribusiness	MV Glob. Agribusiness TR	MARKET VECTORS AGRIBUSINESS	MOO	1,364
4	Consumer Staples	Cons Stap AlphaDEX	STRATAQUANT CONS STAPLES	FIRST TRUST CONSUMER STAPLES	FXG	2,435
5	Consumer Staples	Cons Stap Sector	Cons Staples Select Sect	CONSUMER STAPLES SPDR	XLP	8,060
6	Energy	Energy Sector	Energy Select Sector	ENERGY SELECT SECTOR SPDR	XLE	14,367
7	Energy	Oil & Gas Expl & Prod	S&P Oil & Gas Exploration & Pr	SPDR S&P OIL & GAS EXP & PR	XOP	1,931
8	Financial	Banking	S&P Banks Select Indust	SPDR S&P BANK ETF	KBE	2,479
9	Financial	Financial Sector	Financial Select Sector	FINANCIAL SELECT SECTOR SPDR	XLF	17,440
10	Health Care	Health Care Sector	Health Care Select Sect	HEALTH CARE SELECT SECTOR	XLV	14,150
11	Health Care	NASDAQ Biotech	NASDAQ BIOTECH INDEX	ISHARES NASDAQ BIOTECHNOLOGY	IBB	8,214
12	Health Care	NYSE Biotech	NYSE Arca Biotechlgy Idx	FIRST TRUST NYSE ARCA BIOTEC	FBT	3,306
13	Health Care	Pharmaceuticals	DJ USSelPharmT	ISHARES US PHARMACEUTICALS E	IHE	1,224
14	Industrials	Global Infrastructure	S&P Glb Infr Net TR	ISHARES GLOBAL INFRASTRUCTUR	IGF	1,235
15	Industrials	Industrials Sector	Industrial Select Sector	INDUSTRIAL SELECT SECT SPDR	XLI	7,899
16	Industrials	Transportation	DJ TransAvgTR	ISHARES TRANSPORTATION AVERA	IYT	1,192
17	Materials	Global Gold Mining	NYSE Arca Gold Miners Ix	MARKET VECTORS GOLD MINERS	GDX	6,465
18	Materials	Global Jr Gold Mining	MV Jr Gold Miners TR Idx	MARKET VECTORS JR GOLD MINER	GDXJ	1,711
19	Materials	Materials Sector	Materials Select Sector	MATERIALS SELECT SECTOR SPDR	XLB	2,881
20	Technology	Internet	DJ INTERNET COMP INDEX	FIRST TRUST DJ INTERNET IND	FDN	2,661
21	Technology	Software	S&P N AM TECH SOFT INDEX	ISHARES NORTH AMERICAN TECH-	IGV	1,129
22	Technology	Technology Sector	Technology Select Sector	TECHNOLOGY SELECT SECT SPDR	XLK	12,598
23	Utilities	Utilities Sector	Utilities Select Sector	UTILITIES SELECT SECTOR SPDR	XLU	6,483

Limiting the universe to ETFs with more than $1 billion in assets under management helps ensure that the strategies could be readily implemented with low transaction costs and reasonable short borrowing costs for a long/short implementation.

My historical simulations all begin on December 31, 2002, which provides over twelve years of historical returns. Instead of requiring that all ETF constituents have live fund returns for that entire time period, where available I included pro-forma returns for earlier time periods based upon the fact that all of the ETFs are index funds tied to well-recognized benchmark indexes. Where live fund returns were available, I used them, but for prior periods I used the following formula to estimate pro-forma ETF performance:

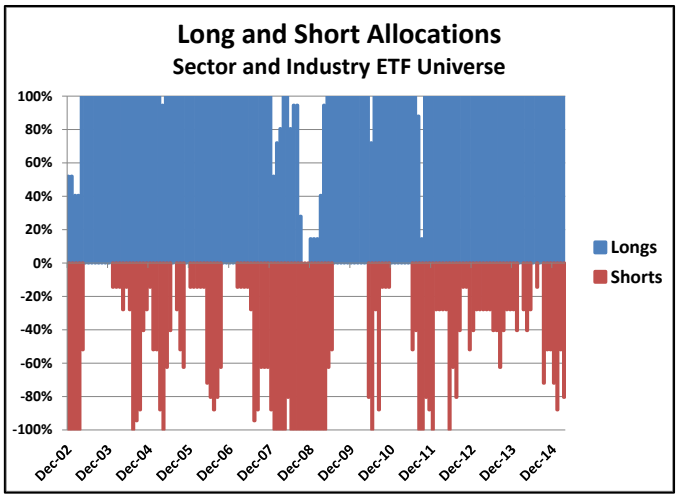


Benchmark index return – expense ratio = pro-forma fund return.

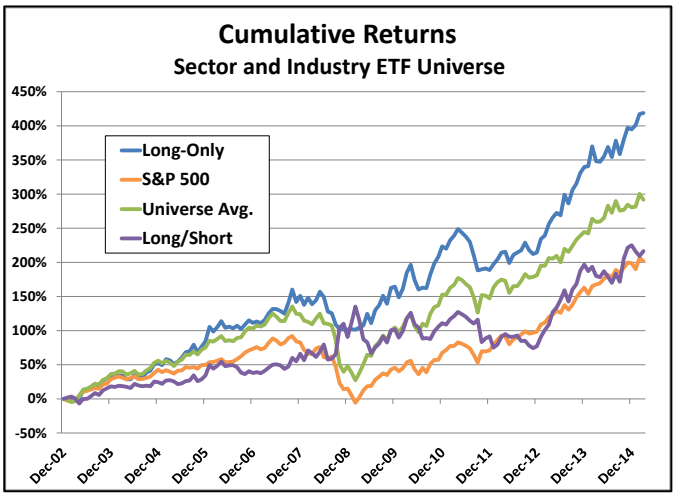
The graph above illustrates the number of "live" ETFs available (dark green) back to December 31, 1999, and also depicts the availability of "pro-forma" ETF returns (light green) using the above formula.

<u>Trend-Following Performance Results</u>

The long and short allocations at each month-end during the test period are shown in the graph at right. Note the preponderance of long positions (in blue) for the bulk of the test period, and the relatively scant short positions (in red). I find it interesting that even within this fairly small and homogeneous sector and industry ETF universe, there were only two months in which all of the constituents had a negative expected return causing long positions to drop to zero: October 31, 2008 and November 30, 2008.



Cumulative returns for the trend-following strategy were very impressive for both the long-only portfolio (blue line at right) and the long/short portfolio (purple line). The equal-weighted average of the 23 constituents in the universe (green line) outperformed the S&P 500 (orange line), probably due to a combination of the positive bias introduced by selecting only ETFs in excess of $1 billion in AUM and the fact that equal-weighting of the constituents of the universe takes advantage of their diversifying effects relative to each other, particularly since the universe average index rebalanced all constituents back to equal weights each month. (Although estimated transaction costs were subtracted for the long-only and long/short portfolios, no transaction costs were subtracted from the universe average portfolio. The long/short portfolio also had estimated borrowing costs subtracted.)

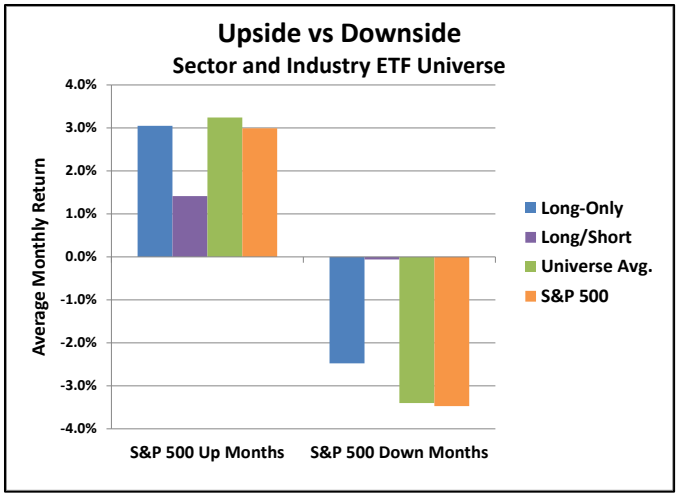


The table at right provides summary statistics on the long-only and long/short implementations of the trend-following strategy. The long-only portfolio was clearly quite attractive, with returns substantially above the S&P 500 with roughly equal risk. The long/short portfolio was not as compelling, at least on the surface. Although its returns modestly outpaced the S&P 500, its volatility was considerably higher. However, the long/short strategy did a terrific job of diversifying stock market risk, as indicated by the negative beta and correlation statistics (for the full time period studied). The return of the long/short portfolio was somewhat negatively related to S&P 500 return. Also, much of the volatility for both the long-only portfolio and the long/short portfolio appears to have been upside volatility rather than downside volatility, particularly in the last sub-period since December 31, 2012, as indicated below.

Sector and Industry ETF Universe

	Long-Only	Long/Short	Universe Average	S&P 500
12/31/2002 - 3/31/2015				
Annualized compound return	13.52%	9.44%	11.20%	9.05%
Annualized avg. monthly return	14.49%	11.06%	12.33%	10.03%
Annualized monthly std. dev.	14.03%	18.15%	14.99%	13.96%
Return/Risk	1.03	0.61	0.82	0.72
Risk Statistics Relative to S&P 500				
Beta	0.66	-0.18	1.01	1.00
Correlation	0.65	-0.14	0.94	1.00
R-Squared	0.43	0.02	0.89	1.00
Annualized avg. monthly return				
12/31/2002 - 12/31/2007	19.41%	10.98%	12.49%	16.76%
12/31/2007 - 12/31/2012	5.69%	3.83%	3.47%	6.56%
12/31/2012 - 3/31/2015	23.09%	27.31%	19.15%	15.34%

On average, the long-only portfolio (blue bar) captured all of the upside of the S&P 500 (orange bar) during up market months, but provided noticeable downside protection during down market months. The downside protection of the long/short portfolio (purple bar), was truly spectacular. Upside capture was nearly half of the S&P 500 during rising months, and downside exposure was nearly nonexistent. This is exactly the kind of performance profile most sought by investors in alternative assets.



Summary and Conclusions

A trend-following strategy using the twelve month exponentially-weighted moving average return to forecast next month's return was extremely effective when applied to a universe of highly liquid sector and industry ETFs during the time 12+ years from December 31, 2002 to March 31, 2015. The long-only portfolio handily outperformed the S&P 500, largely because of the downside protection it provided during down market months. The outperformance of the long-only portfolio was not limited to 2008 however. Indeed, its best relative performance occurred during the sub-periods before and after 2008-2012. A long/short implementation modestly outperformed the S&P 500 during the full test period, and its return was negatively correlated to the market. This performance characteristic would have offered excellent diversification benefits when combined with other investments with more market risk.

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SELECT ALTERNATIVE INVESTMENTS LLC

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