

ALPHASECTOR™ ROTATION STRATEGIES: DEFENSIVE ALLOCATION IN PRACTICE

Addendum to: *WINNING BY NOT LOSING – THE HIDDEN POWER OF “DEFENSIVE ALLOCATION”*

There is an old adage that states when it comes to gambling, the house never loses. Casinos, the “house” referenced here, design “games of chance” to have a statistical bias in their favor, and therefore play with the odds formally tilted in their favor. Over time, casinos very rarely lose.

The White Paper Winning by Not Losing – The Hidden Power of “Defensive Allocation” details a statistical bias in the stock market that is under-appreciated, and certainly under-utilized as a basis for investing. That is unfortunate, because this bias – the negative tail of stock market returns hurts long-term performance more than the positive tail of returns helps – has the potential of creating an “odds in your favor” basis for investing.

Defensive Allocation is an investment philosophy that is designed to exploit this market imbalance, or asymmetry, by making investment decisions to avoid the worst days of the market. Not only does this approach provide the potential to outperform the market, but the very effort of trying to avoid the worst periods of market return has a brilliant side effect – it can also significantly reduce volatility, also known as portfolio risk.

Fortunately, there is a live track record dating back to 2001 that embodies the core principles of *Defensive Allocation* and demonstrates the power of this approach. The track record belongs to a public index, AlphaSector Rotation Index (ticker symbol ASRX), that is owned by F-Squared Investments, Inc. and published daily by NASDAQ OMX.

Tools of the Trade – Implementing Defensive Allocation through Sectors of the S&P 500

Data from the White Paper Winning by Not Losing showed that the market asymmetry is even more pronounced when evaluated at the sector level of the S&P 500¹. Sectors are therefore the levers that ASRX employs to create its investment value. It invests exclusively through nine exchange traded funds (ETFs) that track the sectors of the S&P 500, plus one ETF tracking short-term Treasuries. It does not short securities, use leverage or employ derivatives².

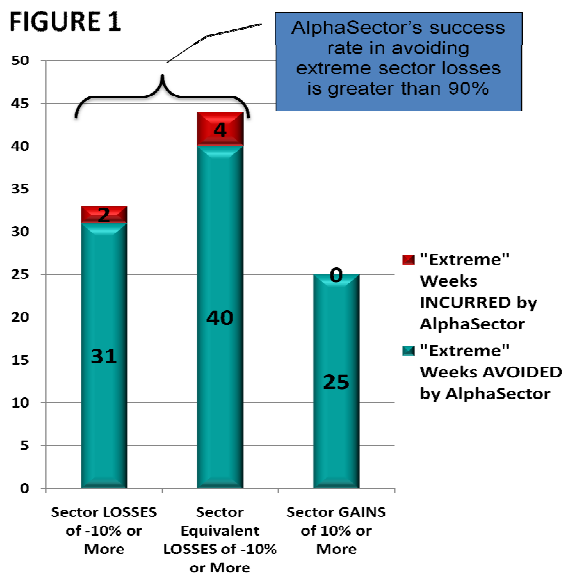
Its investment approach embraces the view that there is power in simplicity, as ASRX focuses on one primary activity to drive its investment value add: identify when a given sector is positioned to underperform cash, and then eliminate that sector from the portfolio. An analytical model built over the past 8 years is used to evaluate each sector on a monthly basis to determine if the sector is likely to provide negative returns. If so, it is removed from the Index. ASRX does not underweight sectors, it eliminates them entirely.

If a sector remains in the Index, it is equal-weighted with a maximum cap of 25% per sector. If there are three or fewer sectors remaining, then the remainder of the Index is invested in the ETF tracking short-term Treasuries. The Index can be 100% invested in Treasuries if all nine sectors are forecasted to underperform cash, as happened in July, 2002 and again in October, 2008.

AlphaSector Rotation Index - Defensive Allocation in Practice

SECTOR-LEVEL RESULTS³. From the inception of the Index in April, 2001 through March, 2009, there were a total of 3,753 weekly returns for the nine sectors. Of those weeks, there were 25 weeks where a sector returned at least 10% (“extreme gains”), and 44 weeks where a sector incurred an Equivalent Loss⁴ of -10% or worse (“extreme losses”). These extreme weeks represented only 1.8% of the total weekly returns, but had a disproportionate impact on overall returns. In fact, the cumulative value of the extreme gains totaled 354%, while the cumulative value of the extreme losses totaled twice as much, or -703%.

ASRX proved its mettle by more than meeting its goal of avoiding the majority of the sectors’ worst down weeks.



Source: Morningstar, F-Squared Investments, NASDAQ OMX

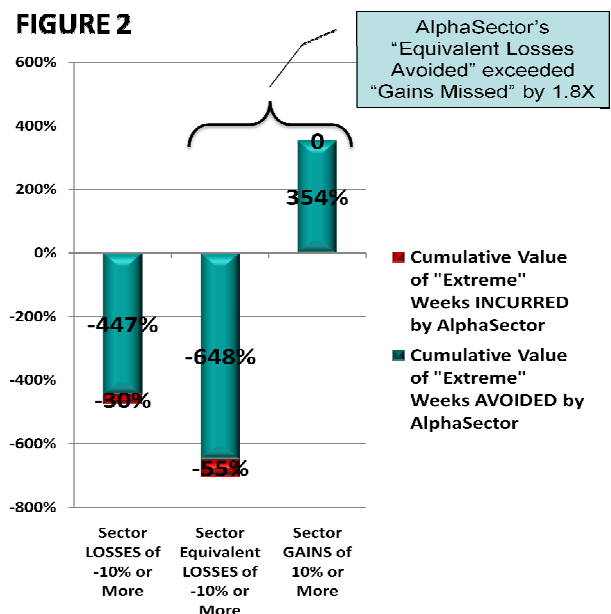
As can be seen in Figure 1, of the 44 weeks with Equivalent Losses of at least -10%, ASRX avoided 40 of the 44. *To put it differently, there were 44 “toxic” weekly returns spread over 3,753 data points, covering 9 sectors, 8 years, two bear markets and a four-year bull market, and ASRX delivered a 91% success rate in avoiding them.* This statistical level of accuracy goes well beyond the definition of luck, and lands firmly in the category of skill.

There is a cost to any investment strategy, and Defensive Allocation as used by ASRX has one as well. The effort of avoiding the extreme sector losses also resulted in missing all of the 25 best sector returns (Figure 1). However, this is where the statistical asymmetry of the market creates the value for investors. As can be seen in Figure 2 below, ASRX’s 91% success rate in avoiding extreme losses translated to saving investors -648% of cumulative losses. This compares to the 354% of foregone gains.

Defensive Allocation, as implemented by ASRX, therefore captured a performance advantage of 294% (648% of “avoided losses” vs 354% of “foregone gains”).

TRANSLATING SECTOR RESULTS TO THE S&P 500³. When ASRX’s success at the sector level is translated back to the S&P 500, the results continue to be very compelling. The worst 5% of weekly market losses for the S&P 500 over this eight year period (21 total weeks) generated a cumulative Equivalent Loss of -153% (Figure 3, blue bars on the right-hand side).

We then compared the market cap weighted exposure of ASRX to the S&P 500 for those 21 weeks. *Market cap weighted exposure* is calculated by taking the sectors that ASRX was invested in during that week, and adding up those sectors’ market cap within the S&P 500 at the time. This result is shown on the left-hand side of Figure 3, where 100% reflects ASRX investing in all nine sectors, and 0% reflecting a week where ASRX had none of the sector ETFs invested, and instead was 100% in Treasuries.



As can be seen, for the worst 5% of weekly losses of the S&P 500, ASRX was able to limit its market cap weighted exposure to 15% of the total, or an 85% success rate.

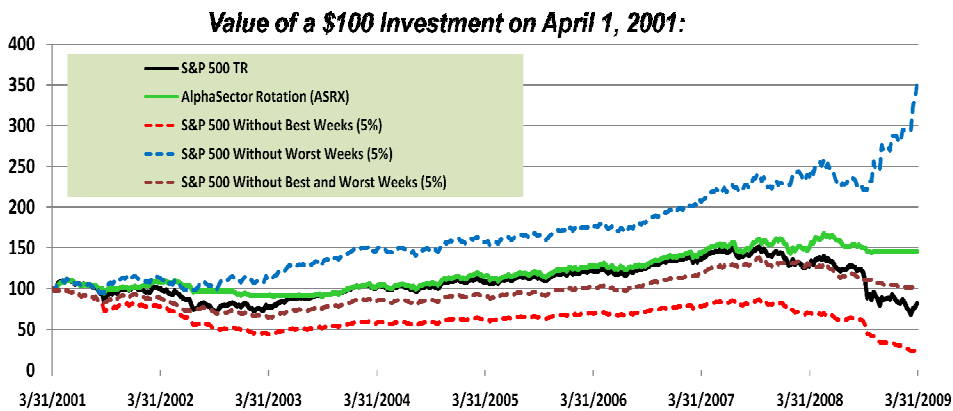
Amazingly, for the 10 worst weeks, the success rate was 97%.

AlphaSector Rotation Index versus the Market³

The Winning by Not Losing paper compared the S&P 500 to the returns investors could have obtained by 1) missing the best 5% of weekly returns, 2) missing the worst 5% of weekly returns, and 3) missing

the best and worst 5% of weekly returns. Figure 4 below shows the comparison of ASRX versus these other return streams, based on an initial \$100 investment on April 1, 2001. As can be seen, ASRX consistently outperformed the S&P 500 over the eight year period, and ended up outperforming the S&P 500 by an average of 7.3% per year.

FIGURE 4



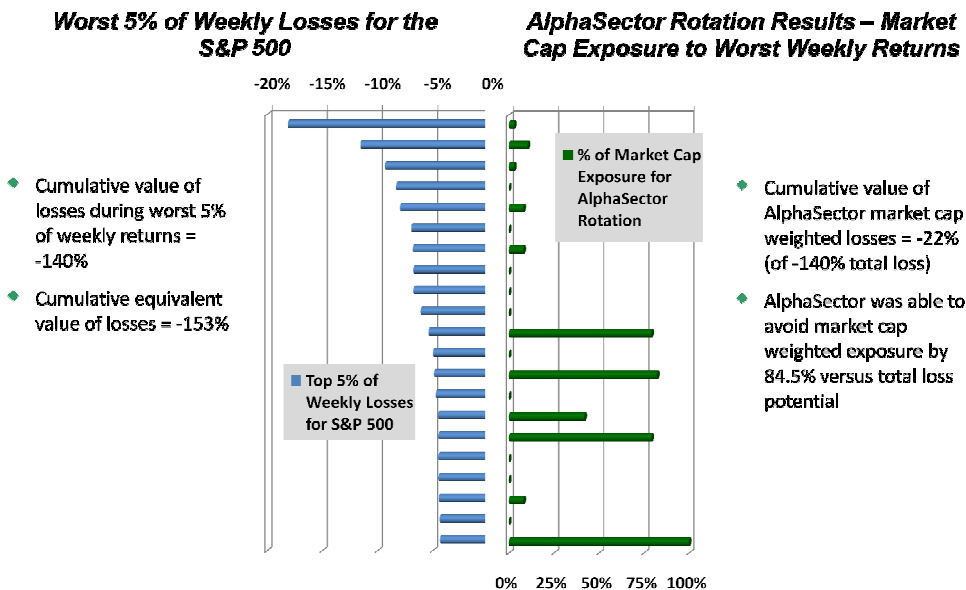
Source: Morningstar, F-Squared Investments, NASDAQ OMX

of the extreme gains. This is because most of the largest weekly gains are recovery periods closely following significant market losses. But by definition, missing the majority of the extreme swings in the market will reduce a significant amount of the overall volatility.

Volatility is usually measured by standard deviation, and the weekly standard deviation (annualized) of ASRX and that of the S&P 500 can be seen in Figure 5. Over this period, the S&P 500 had a 19.6% annualized standard deviation while ASRX's was only 11.5%. This means that in addition to targeting outperformance, Defensive Allocation as applied by ASRX had the wonderful side benefit of reducing overall risk by more than 40%.

Investment strategies tracking ASRX are available as Separately Managed Accounts (SMAs), mutual fund wraps, and soon to be announced as mutual funds. For more information, Advisors can contact F-Squared at 617-620-3715 and Institutional Investors at 781-235-9055 x213, or visit our website at www.f-squaredinvestments.com.

FIGURE 3



Source: Morningstar, F-Squared Investments, NASDAQ OMX

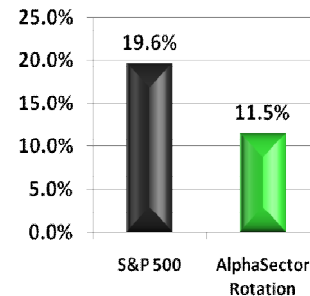
AlphaSector Rotation Results – Market Cap Exposure to Worst Weekly Returns

- ◆ Cumulative value of losses during worst 5% of weekly returns = -140%
- ◆ Cumulative equivalent value of losses = -153%
- ◆ Cumulative value of AlphaSector market cap weighted losses = -22% (of -140% total loss)
- ◆ AlphaSector was able to avoid market cap weighted exposure by 84.5% versus total loss potential

What is also critical to understanding the value of this strategy is the impact on volatility, better known as portfolio risk.

As has been discussed, one of the implications of avoiding extreme losses is an expectation that you will also miss some, if not most,

FIGURE 5



Source: Morningstar, NASDAQ OMX

¹S&P 500 is a registered mark of Standard and Poors, Inc.

²Although ASRX does not short securities nor utilize leverage or derivatives, the ETFs that ASRX tracks may make use of such financial instruments or strategies

³Morningstar Direct, NASDAQ OMX, F-Squared Investments, Inc.

⁴Equivalent Loss is defined as the amount of subsequent gain that would be required to completely recover from a given market loss. A loss of 20% would have an Equivalent Loss of 25%. Equivalent Losses are used to allow an equal comparison to gains.

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Some of the returns presented reflect hypothetical performance an investor would have obtained had it invested in the manner shown and does not represent returns that an investor actually attained. Hypothetical backtested performance has many inherent limitations. The hypothetical performance is adjusted to reflect the reinvestment of dividends. The fee schedule and anticipated expenses are included in the client agreement. F-Squared's fees are available upon request and also may be found in Part II of its Form ADV. Past performance is no guarantee of future results.

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