

## WINNING BY NOT LOSING – THE HIDDEN POWER OF “DEFENSIVE ALLOCATION”

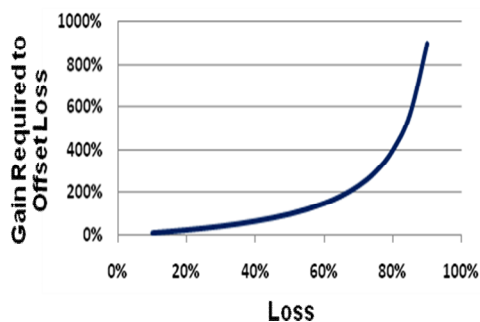
For the past many decades, *Conventional Wisdom* has held that successful equity investing required investors to stay fully invested at all times. This mantra was based on data that showed that if you missed the handful of the best up market days for the year, your long-term returns are greatly reduced. Investors violated this rule at their own peril.

But as is often the case, *Conventional Wisdom* was only looking at part of the story.

What was conveniently left out of the discussion is the fact that there is a caustic side effect of staying fully invested – an investor is then committed to suffering through all the worst days the market has to offer. In fact, when it comes to long-term absolute and risk adjusted returns, a more complete review of the data shows that avoiding the worst down days is meaningfully more beneficial than the penalty that comes from missing the best up days. In other words, investors are better served to go to high ground when flood waters are causing the river to rise, even if it means missing out on a few sunny days at the beach along the way.

### ***“Equivalent Losses”—Adding Insult in Investment Injury***

It is always painful to experience investment losses – a fact that was pointed out with a fury to investors in 2008. But the sad truth of the matter is that every 10% loss is more expensive, from an investment perspective, than a 10% gain is beneficial. The statistical nature of investment math stipulates that the gain required to fully recover



from a given loss needs to be *greater* than the original loss.

For example, if you have an investment worth \$100 and it loses 50%, it is now worth \$50. If that same investment then gains 50%, it is worth only \$75, *or still 25% below its original value*. In fact, to fully recover from a 50% loss, an investment needs to gain 100%. A 20% loss requires a 25% gain for full recovery, and a 10% loss requires an 11.1% gain to recover. This relationship between losses and gains can be seen in the chart to the left. (Incidentally, this math works both directions, as a 100% gain is

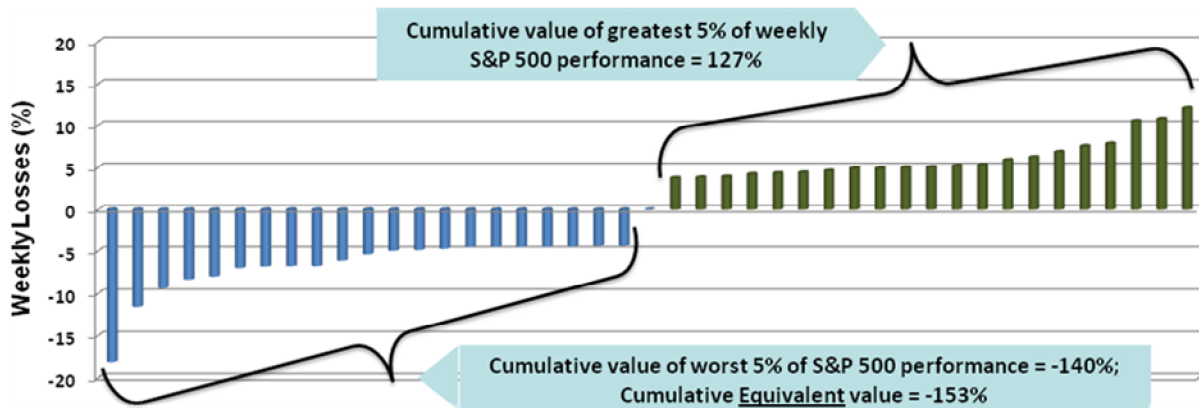
completely wiped out if it is followed by a 50% loss.)

Since an 11.1% gain is equivalent to a 10% loss, in order to compare gains and losses on an equal footing throughout this paper, we will use “*Equivalent Losses*”. An Equivalent Loss restates the actual loss to allow it to be fairly compared with a gain. For a 20% actual loss, the Equivalent Loss is 25%.

### ***The Penalty of the Negative Returns – The Asymmetrical Nature of Market Returns***

Although rarely discussed, a review of the positive and negative extremes of market returns (i.e. the “tails”) shows that the negative tail is more severe than the positive tail. We evaluated weekly returns of the S&P500 for the past 8 years (4/2001 – 3/2009), and defined the tails as the worst 5% and the best 5% of weekly returns. The past 8 years has 417 weekly returns, and covers a 4 year stretch of quality returns (1/2004 – 1/2007) bracketed by two bear markets. The tails are thus the best and worst 21 weeks over that span. The results are shown in Figure 1.

**FIGURE 1**

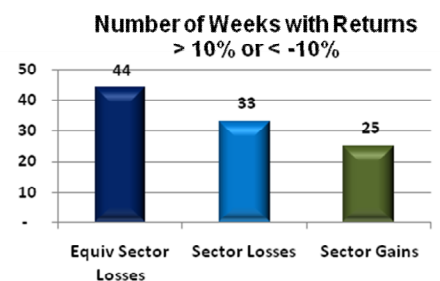


Source: Morningstar, F-Squared Investments

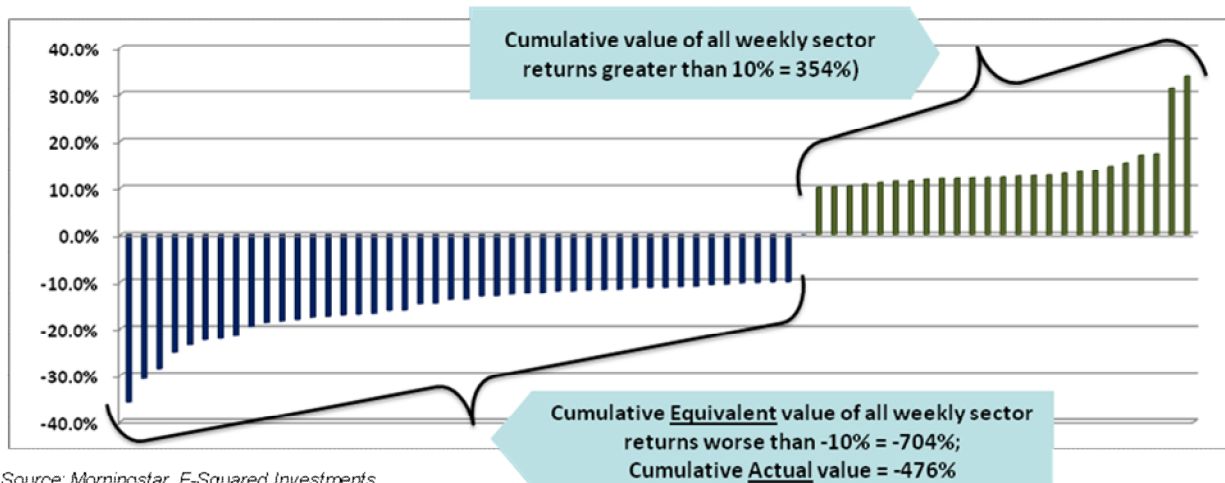
As shown, the cumulative value of the best weekly returns is 127%, and the cumulative value of the worst weekly returns is -140%. But to create an apples-to-apples comparison, the cumulative value of the Equivalent Losses needs to be used, and that value is -153%, or in this case 1.2X worse than the gains. The disparity extends to more than simply cumulative value. For example:

- Maximum Equivalent Loss was -22.2%; maximum gain was 12.1%
- Median Equivalent Loss was -5.7%; median gain was 5.0%

The asymmetrical nature of the market is even more pronounced when viewing the S&P 500 by its underlying sectors. We used the 9 Select Sector SPDR ETFs (exchange traded funds) to measure performance of the S&P 500 sectors. We evaluated them over the same 8 year period ending 3/31/2009 (3,762 data points). In this case we defined the tail as all weeks where a given sector had returns greater than 10% or worse than -10%. As can be seen in the chart to the right, there were 44 weeks with an Equivalent Loss worse than -10% and only 25 weeks with returns greater than 10%. Not only are there more weeks in the negative portion of the tail, but the cumulative impact of the losses are dramatically greater than the value of the weekly gains in the positive tail (Figure 2). In fact, the cumulative value of the Equivalent Losses are twice that of the gains, -704% versus 354%.



**FIGURE 2**



Source: Morningstar, F-Squared Investments

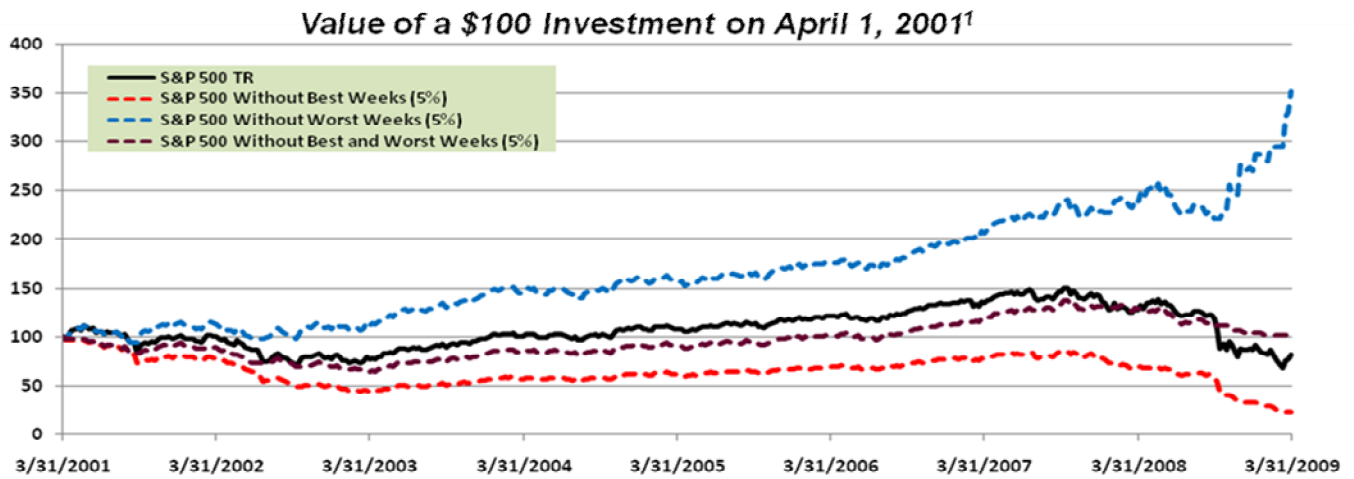
***The Hidden Power of Defensive Allocation – A Mechanism to Improve Returns and Reduce Risk***

There are a lot of terms in the investment world to describe investment approaches. A partial list would include Strategic Allocation, Buy and Hold, Sector Rotation, Passive Investing (indexing), Tactical Allocation, and even Market Timing. Defensive Allocation is none of the above.

Defensive Allocation represents a new philosophical category in much the same manner that Indexing represented a fresh way of thinking about investing apart from the traditional active management model. Defensive Allocation is built on the recognition of the asymmetrical nature of the market (shown above), and generates its returns by systematically managing the portfolio to avoid the extreme negative market tails. The expected benefits include increased relative return, meaningfully reduced volatility and downside volatility, and therefore increased risk-adjusted returns.

Figure 3 and Table 1 below provide much of the key summary data necessary to evaluate Defensive Allocation. The Buy and Hold disciples will point to the red line which shows the performance impairment from missing the best 5% of weekly returns for the past 8 years<sup>1</sup>. When compared to the total return of the S&P 500 (black line), missing the best weeks “costs” the investor 13.9% per year, on average. There is some corresponding reduction in standard deviation, so the risk adjusted return is not quite as significant, but clearly there is a meaningful cost.

**FIGURE 3**



**TABLE 1**

	S&P 500	S&P w/o Best Weeks (5%)	S&P w/o Worst Weeks (5%)	S&P w/o Best and Worst Weeks (5%)
<b>Excess Return</b>	N/A	-13.9%	19.5%	2.9%
<b>Standard Dev</b>	19.6%	16.4%	15.4%	11.5%

<sup>1</sup>4/1/2001 – 3/31/2009

Source: Morningstar, F-Squared Investments

Defensive Allocation, in contrast, looks to the blue and purple lines. The blue line details the superior improvement in return obtained by avoiding the 5% of the worst weekly returns. As can be seen, an investor would add 19.5% per year to their returns on average (versus the -13.9% cost from missing the gains), and see a more than 20% reduction in risk, as defined by standard deviation (standard deviation is calculated as an annualized value of weekly standard deviation).

But crystal balls that can anticipate the down weeks and still capture the up weeks unfortunately do not exist. The truth of the matter is that the biggest up weeks tend to be intermingled with the worst down weeks, typically representing short term recoveries during bear markets. For Defensive Allocation to have any practical application you would need to assume that investment decisions designed to reduce exposure to down market moves would also reduce exposure to the corresponding up moves.

The purple line in Figure 3 shows just that result. This return stream assumes avoiding all of the worst weekly returns as well as missing out on all of the best weekly returns. The results are compelling. This model increases returns versus the S&P 500 by 2.9% a year on average, while simultaneously reducing overall volatility by more than 40% (Table 1).

A 40% reduction in volatility is similar in scale to what would occur by adding a 40% allocation of bonds to the portfolio (typical 60/40 balanced portfolio). And yet the overall returns outperform the full market returns of the S&P 500.

An active strategy that can improve the ratio of avoided losses versus captured gains stands to begin adding meaningfully to overall returns. But the reduction in volatility and downside volatility is a benefit that pays dividends to an increasingly large investment population.

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