Getting Over the Hedge

March 2017

We often marvel at the surprises that the market seems to present unsuspecting investors, and there were plenty in 2016. Our interest lies not so much with the news headlines or economic revelations but with the market's reaction to these events. In June of 2016, the market collapsed for a few days after Great Britain voted to leave the EU, only to resurrect itself and surge onward to new highs weeks later. Then, of course, there was the election that seemed like a foregone conclusion. Shock number one was the victory by Donald Trump, and shock number two was the overnight selloff in the stock markets followed by an immediate rebound and positive return on the first day after the election. Since then, stocks have been on a rocket-like trajectory upwards, causing many investors to wonder whether prices are in unrealistic territory at these levels. Surprise or not, it is common after a large run up to want to either protect the portfolio at its current levels or at least minimize the chance that the portfolio could be impacted by the "inevitable" correction. There are two commonly discussed methods for easing this anticipated pain. First, we could simply go to cash, wait until the bottom drops out, and then reinvest at lower levels. Second, we could hedge our bets utilizing the options market and initiate a trade that would allow us to profit, and thus offset the losses, if the market heads lower. While both are enticing, especially in times of perceived economic uncertainty, both have their challenges. We will explore them each here and offer a third, more compelling solution for investors.

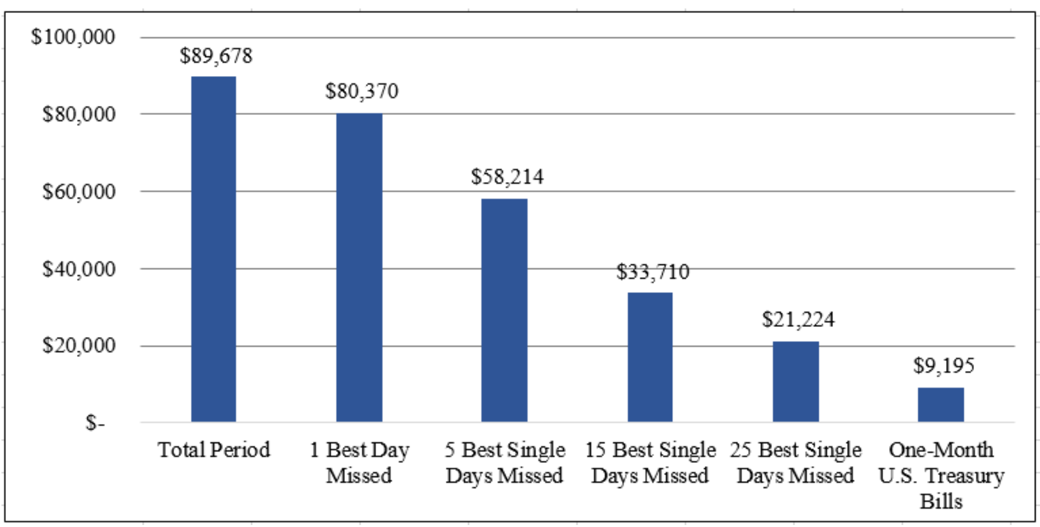
Going to Cash

Since most investors do not have much experience in the options market, the idea of taking the risk off the table and holding a large chunk of the portfolio in cash is an easy and popular way to manage through a seemingly overinflated market. The idea here is that we would simply sell positions in the portfolio and generate enough cash, which would earn nothing but also lose nothing, to minimize the impact of a falling market. The logic for this can be convincing, and here are the basic premises of the argument:

- The market has increased in value substantially, and we know that markets can't go up forever
- We want to be among the first to sell so that we are getting out at the best price
- When the market starts to drop, we will monitor it closely, and when it has dropped significantly, we will begin to invest again at lower levels – sell high, buy low
- We will then steadily buy into the market, and when the market cycle is complete we will have enhanced our wealth compared to doing nothing and going through the pain of another downturn

There is one point that we can all certainly agree on there, going through a downturn is painful. Most human beings are *loss averse* which means that we will do whatever it takes to avoid a loss. We simply can't stand losses. Believe it or not, we hate them so much that studies in the field of behavioral finance have demonstrated that a loss produces about twice as much pain as the happiness that we derive from an equal sized gain[1]! The problem is that this behavioral bias can lead to critical mistakes when managing money. There are many ways the liquidation strategy can backfire. Most notably: (1) the market could continue higher for an unspecified period of time, (2) we may not be able to figure out where the bottom is and buy back at the wrong time, (3) by the time the market has sold off substantially, we may no longer be willing to get back in, (4) the market may go down for a while and then recover and we are left waiting for the "real" downturn. This is not even to mention the potentially damaging tax implications of realizing capital gains when selling in a taxable account. Loss aversion causes us to be so focused on missing the bad days, that we lose sight of the fact that participating in the up days is what's really important. Chart 1 below illustrates this point in striking detail:

Chart 1: S&P 500 Performance, 1970-2015
Growth of $1,000 (Annualized Compound Return)



Source: Dimensional Fund Advisors, "Investor Discipline," 2016.

[1] Tversky, A. Kahneman, D. (1992). Advances in prospect theory: Cumulative representation of uncertainty. Journal of RIsk and Uncertainty

An investment of $1,000 in the S&P 500 at the beginning of 1970 would have grown to $89,678 by the end of 2015. By contrast, missing the best 5 days in the market would have meant only having $58,214 by the end of 2015. In percent terms, this equates to an annual return differential of only about 1.00%, but stretched over 45 years, it would have had a substantial impact in dollar terms. Unless a particular investor is extraordinarily good at figuring out which way the market is headed on a day to day basis, we would not recommend this strategy as a tool for building wealth over the long term. In fact, we would caution investors that it can be quite detrimental to the achievement of their goals.

Hedging the Portfolio

Another often utilized strategy in times of uncertainty is to use the options market to protect the portfolio against losses while remaining invested in the market. An investor might apply "portfolio insurance" by purchasing a put option, an instrument that will gain in value if the price of an underlying market instrument (e.g. the S&P 500 Index) loses value over time. The gain in value may offset some of the losses in the portfolio and limit the downside. This approach has a certain appeal to the analytical investor as it is a bit more complex than the first method and requires the consideration of several mathematical outcomes. However, this approach has its own set of variables that must be taken into account:

- How long should you maintain the hedge?
- What is the cost of purchasing the put option to protect the portfolio?
- What is the impact of getting the timing incorrect?

To get a better understanding of this, we created some simple market studies. For the period from 2007 to 2016, we took a look back at the performance of a hypothetical portfolio that contained one holding, the S&P 500 index, and a put option on the S&P 500. In all cases, the put option was intended to hedge the entire S&P 500 position. We divided the whole time period up into a series of three-year holding periods and observed the performance of the S&P 500, the put option itself, and the combined portfolio over those periods. For this analysis, we used put options with three years until expiration so that the portfolio would be hedged for the entire timeframe. We see this as an alternative to short term market timing as in the case above where the investor goes to cash with the entire portfolio and then reinvests at the appropriate time. Here we are just attempting to add downside protection to the portfolio for a longer period of time, because we don't have any idea when the downturn is coming. It is important to note that in the case of a hedge, the upside in the portfolio is reduced by the cost of the put, bearing in mind that in times of market stress, the cost of a put option to protect the portfolio can increase significantly.

The data in Table 1 shows the results of our study:

Table 1: Hedging Strategy Performance[2]

Holding	Return 2007-2009	Return 2008-2010	Return 2009-2011	Return 2010-2012	Return 2011-2013	Return 2012-2014	Return 2013-2015	Return 2014-2016
S&P 500 Index	-17.0%	-9.2%	43.5%	35.5%	52.7%	73.8%	49.2%	29.6%
Combined Portfolio	-3.1%	-8.9%	15.5%	17.1%	32.4%	45.7%	27.9%	13.8%
Difference	14.0%	0.3%	-28.0%	-18.4%	-20.3%	-28.1%	-21.3%	-15.8%

Source: Morningstar Direct, Chicago Board Options Exchange

Recall that the peak of the market prior to the Credit Crisis was approximately October of 2007, and the bottom of the market was reached in February of 2009[3]. Many investors would be interested in avoiding this sort of downturn in their portfolios again if possible, but as the results show, success can be tricky here as well. In the first timeframe studied, 2007-2009, the combined portfolio outperformed the S&P 500 Index alone over the three-year period by a substantial margin of 14%. However, in order to take advantage of this, the investor would have had to initiate the portfolio insurance at the beginning of 2007 when the market did not seem to be under much stress at all. Chart 2 below shows the profile of the S&P 500 and the combined portfolio for the three-year period 2007-2009. Notice that the S&P 500 and the combined portfolio showed about the same performance all the way until May of 2008 when the crisis finally got into full swing. If the combined portfolio was held for three years, the investor would have been very happy with the result, but the 2008-2010 period illustrates the importance of timing. In this period, even though the downturn happened right in the middle of the period, unless the hedge was removed by early 2009, the strategies performed about the same. If the hedge was initiated in late 2008, after the Lehman bankruptcy and during the full financial meltdown, the strategy was a loser from the start in part because of the cost of the put at that time, which would have been more than 20% of the value of the S&P 500 holding. To initiate the strategy any time after 2008 meant not fully capturing the strong positive returns of the S&P 500 in the post-crisis expansion years.

[2] S&P 500 Index = SPDR S&P 500 ETF (SPY), Calendar years. 100 Shares SPY and 1 Put Option
[3]. Morningstar Direct

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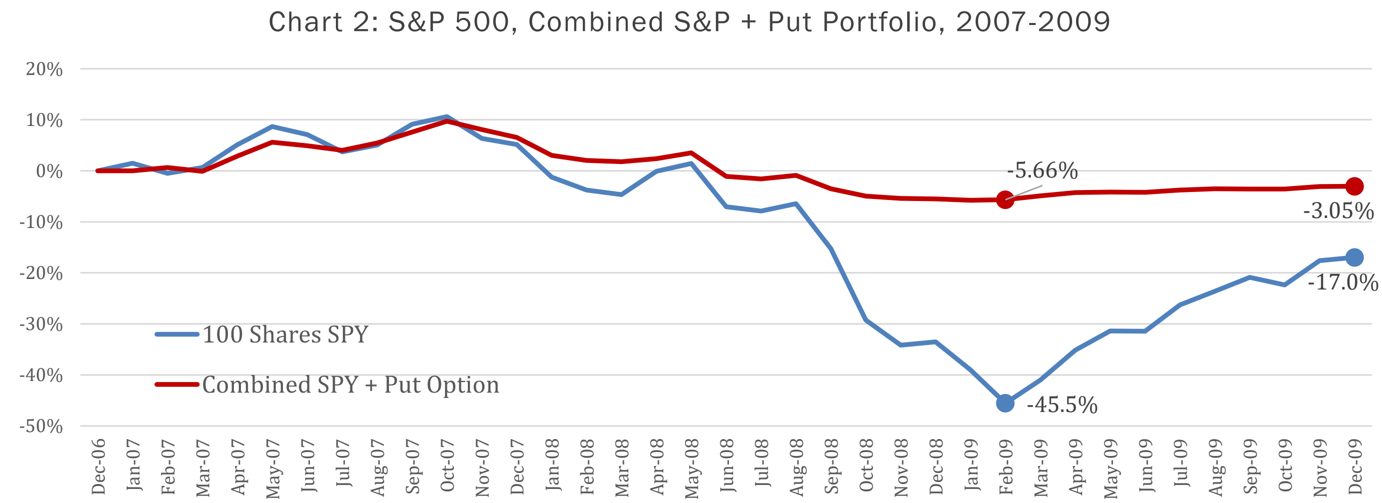

Source: Morningstar Direct, Chicago Board Options Exchange

The time period from 2014-2016 is an interesting one to look at because it also contained a sizeable downturn in the S&P 500 in the third year of the study. In this case, the S&P 500 dropped nearly 15% between the summer of 2015 and the spring of 2016, and yet, the combined portfolio still underperformed by a wide margin. In general, we conclude that in order for the hedging strategy to be effective, and in the absence of short term market timing prowess, the investor would have to initiate the hedge in advance of the downturn, be committed to a long term holding period, and be lucky enough for a significant downturn to last until the end of the period. Tricky indeed.

Another "Option"

Given the riskiness of the two strategies presented here, we are strongly in favor of a third option for those investors who are risk averse and want to minimize some of the volatility associated with a downturn, should it arise. Rather than trying to guess where the market will go next or where it will be three years from now, the investor can benefit greatly by diversifying the portfolio away from 100% stocks. When adding bonds and other assets that are not highly correlated with equity market returns, the overall risk can be reduced and the worry about when to buy and sell can be virtually eliminated. In the 2007-2009 period, a basic portfolio consisting of 60% global stocks and 40% bonds would have resulted in positive returns of 1.80%[4], beating both the S&P 500 alone and the hedged

[4] Morningstar Direct: 36% SPDR S&P 500 ETF, 17% iShares MSCI EAFE ETF, 7% iShares MSCI Emerging Mkts ETF, 40% iShares Core US Agg Bond ETF

strategy. When we have a diversified mix of assets, we can also rebalance the portfolio after a positive run in the stock market. To do this, we would simply reduce some exposure to the stocks in the portfolio and purchase those securities that have not performed as well until we return the portfolio to its prescribed allocation target. No matter what strategy is ultimately employed, remember that risk is an unavoidable and necessary part of achieving acceptable returns. Once we know that we can manage through any market turbulence that comes our way, we can put that loss aversion bias in the back seat, and the surprises that used to be seen as threats can now be viewed as attractive long term opportunities.