

## Stock Market Perspective: Risk Allocation, a ‘Magic’ Bullet?

It is hardly a surprise that a considerable amount of investment research focuses on how to obtain “better” performance than just owning typical stock and bond funds. One, which I have discussed in a few previous editions, is enhanced index funds. Instead of using market capitalization to weight the holdings as the index does, they hope to improve by using an additional criterion such as dividends, earnings, or revenues.

Another approach, which has been around for about 20 years, is “risk allocation.” In a sense, it is an intellectual descendant of Modern Portfolio Theory (MPT), for which Harry Markowitz won a Nobel Prize in Economics. MPT considers the historical returns, volatilities, and correlations of two or more asset classes in order to formulate portfolios that either provide the highest expected returns for a given level of risk<sup>1</sup> or the lowest risk for a specified expected return. The curve connecting the best return/risk allocations is called the efficient frontier.

Since MPT came on the scene over sixty years ago, there have been numerous studies on how to implement it and better ways to make the risk-return trade-off. Risk allocation, as the name implies, attacks the question by focusing not on the expected returns first, but on the relative risk levels due to the asset classes.

For example, in a “standard” 60/40 stocks/bonds allocation, 80 to 90 percent of the risk is due to the stocks portion, which is not consistent with the 60/40 allocation. However, increasing the bond proportion of the portfolio,

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<sup>1</sup> In MPT, the measure of risk is the standard deviation. While it is not the best measure of risk, and I will present another one later, the important thing here is the relative risk of various portfolios. Any reasonable risk measure is likely to yield similar relationships.

while reducing the overall risk, will also lower the longer term expected returns. Risk allocation works around this drawback by using leverage to increase the influence of bonds. In the example, the degree of leverage employed would result in 60% of the risk from the stock holdings and 40% from the bond holdings. If the overall risk became too high, the stock holdings could be reduced with less leverage applied to the bond holdings. By adjusting the allocations, the expected return and/or the expected risk will be more favorable than holding 60% of assets in stocks and 40% in bonds.

Normally there are more than two asset classes in risk allocation portfolios as commodity related ones are usually included. The goal is to avoid major drawdowns and produce positive investment returns in most market environments.

At least one hedge fund has been employing the approach since the mid-1990s. More recently, there have been ordinary mutual funds practicing risk allocation. I will look at the oldest of these and compare it to traditional methods using some Vanguard funds. I want to see how buying and holding the fund compares to a typical investment method.

The fund is the Invesco Balanced-Risk Allocation Fund, ticker symbol ABRYX<sup>2</sup>. Its holdings are complex and not easy to understand as they consist of various futures, swaps, repurchase agreements, and “structured” derivatives. The most recent semi-annual report classifies the underlying assets into three broad classes: equities (both domestic and foreign),

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<sup>2</sup>The fund has seven (!) share classes. The best one for individual investors is the Y class, whose ticker is above, because it has no loads, initial or deferred, or 12b-1 fees.

fixed income (government and corporate, domestic and foreign), and commodities as follows:

<b>Risk Allocation</b>		
<i>By asset class</i>		
<b>Asset Class</b>	<b>Risk Contribution</b>	<b>% of Total Net Assets as of 04/30/13*</b>
Equities	47.2%	40.3%
Fixed Income	26.2	79.7
Commodities	26.6	27.4

\* Due to the use of leverage, the percentages may not equal 100%.

[Table from the semi-annual report]

The total holdings are 157.4% of net assets, so there is 57.4% leverage used. All of it and more is applied to the fixed income portion. The resulting portfolio has not quite half the risk in equities and a little over a quarter each in fixed income and commodities. I did not find anything in the semi-annual report about how risk is measured. Presumably, the annual report or prospectus has that information, which is not needed for what follows.

ABRYX started in early June 2009, so we have four full years of data. However, that period has been a strong bull market for stocks, and until recently, bonds, especially Treasuries, also moved up quite a bit. Consequently, the comparisons below likely are not representative of what will happen over a full market cycle.

I will use three Vanguard funds in the comparisons. They are the Index 500 (VFINX) that closely tracks the S&P 500, Long-Term Treasury (VUSTX), and Total Bond Market Index (VBMFX). First we will look at some of the four-year investment performance for the four funds. There is a risk measure in the table, the Ulcer Index (UI), that may be new to you. It takes into account both the depths and the durations of the drawdowns<sup>3</sup>. Like the standard deviation, lower values mean less risk. The Ulcer Performance Index (UPI) is computed the same way as the better known Sharpe Ratio except that the denominator is the UI rather

<sup>3</sup>It is the root-mean-square of the daily drawdown percentages.

than the standard deviation. UPI is an excellent risk adjusted return measure.

<b>PERFORMANCE OF FUNDS, JUNE 30, 2009 - JUNE 30, 2013</b>				
	ABRYX	VFINX	VUSTX	VBMFX
Return Rate	10.6%	17.3%	7.4%	4.7%
Maximum Drawdown	-8.8%	-18.7%	-14.8%	-4.5%
Ulcer Index	1.8%	5.4%	6.1%	1.0%
Ulcer Performance Index	5.75	3.20	1.21	4.51

Given the strong move up in stocks during the past four years, it is not surprising that VFINX shows the highest return. However, it has the largest maximum drawdown of the four funds. The T-Bond fund reflects the volatility in those issues as Treasuries climbed for the most part, but have fallen due to rising interest rates recently. ABRYX has done well over the four years with much lower risk levels and the stock index and treasury funds. The total bond fund has performed more in line with fixed income expectations: lower returns and lower risk.

Next we will look at the investment returns by year. Keep in mind that 2009 and 2013 are half year values.

<b>ANNUAL INVESTMENT RETURNS</b>				
	ABRYX	VFINX	VUSTX	VBMFX
2009, Q3-Q4	11.2%	22.6%	-1.0%	3.7%
2010	13.3%	14.9%	8.9%	6.4%
2011	10.5%	2.0%	29.3%	7.6%
2012	10.8%	15.8%	3.5%	4.0%
2013, Q1-Q2	-3.1%	13.7%	-7.9%	-2.7%

It is no surprise that any approach that does not buy and hold 100% in stocks, such as risk allocation, will underperform an index fund in strong periods for stocks. However, losing money in the first half of this year while stocks have been climbing has been somewhat unexpected. There have been several articles, such as one in the June 28 *Wall Street Journal*, noting the divergence and wondering if risk allocation has lost its luster. I think it is too soon to reach any conclusions, but neither I nor my clients have ever owned ABRYX.

How does ABRYX compare to a simple “traditional” allocation of 60% in stocks and 40% in bonds. We’ll look at two versions that incorporate VFINX and one of the two bond

funds. Here are the two tables above for ABRYX and the two 60/40 methods, which rebalance at the end of each month regardless of the relative percentages of stocks and bonds at the time.

**PERFORMANCE JUNE 30, 2009 - JUNE 30, 2013**

	60% VFINX, 40%:		
	ABRYX	VUSTX	VBMFX
Return Rate	10.6%	18.0%	11.5%
Maximum Drawdown	-8.8%	-18.8%	-10.8%
Ulcer Index	1.8%	5.1%	2.8%
Ulcer Performance Index	5.75	3.51	4.14

**ANNUAL INVESTMENT RETURNS**

	60% VFINX, 40%:		
	ABRYX	VUSTX	VBMFX
2009, Q3-Q4	11.2%	22.0%	15.2%
2010	13.3%	23.2%	14.5%
2011	10.5%	-0.5%	1.1%
2012	10.8%	14.7%	9.0%
2013, Q1-Q2	-3.1%	13.1%	6.2%

The risk allocation fund trailed the investment returns of both 60/40 portfolios over the four years, but had considerably lower risk that resulted in a higher UPI. As before, the performance so far this year has been sub-par. In contrast, 2011 shows how the approach can pay off in weak, but volatile years for stocks.

As noted above, the four year period has been bullish for stocks. There is a hedge fund, Bridgewater All Season, that started in 1996 that employs risk allocation. Over the entire period since then, it has performed well with regard to total return and, for the most part, lower risk. Since performance data on hedge funds is not readily available to other than those who own it, I can't provide tables like those above. However, a document on its site indicates that in the period including 2008, which was a very bad year for both stocks and bonds, the hedge fund lost about a third of its value. While that is considerably less than the S&P, which lost over half of its value, it shows that risk allocation probably is not a "magic bullet" that will produce profits or only small losses in any market environment with low risk.

It should be noted that there are many ways to implement risk allocation, none of which are fairly simple because leverage is involved. Thus, newer mutual funds and other hedge funds may perform quite differently than the ones mentioned above.

*Am I going to buy ABRYX or pursue a risk allocation strategy in client or personal accounts?* No. The problem I see with risk allocation is that it is always fully invested or even more so due to the leverage. As the 2008 Bridgewater drop shows, there are times when every asset class, stocks, bonds, etc. should not be owned. My tactical allocation approach (TAA) incorporates models that indicate when the risks of owning stocks or bonds are too high relative to the expected returns. When that happens, the asset class is not owned, and if both models are negative the portfolio is entirely in cash. The models I use were developed more than ten years ago, so their performance during the financial meltdown in 2008 is meaningful and not due to backtesting. The most aggressive approach shown in my TAA newsletter—target allocations of 75% in stocks (VFINX), 25% in bonds (VUSTX)—has had a maximum drawdown of 15% since the start of 2005, less than half the damage suffered by the Bridgewater hedge fund.

The standard disclaimer that past performance is not necessarily predictive of future returns certainly applies to the above discussion. Moreover, nothing here should be taken as a recommendation whether or not to own any of the securities discussed