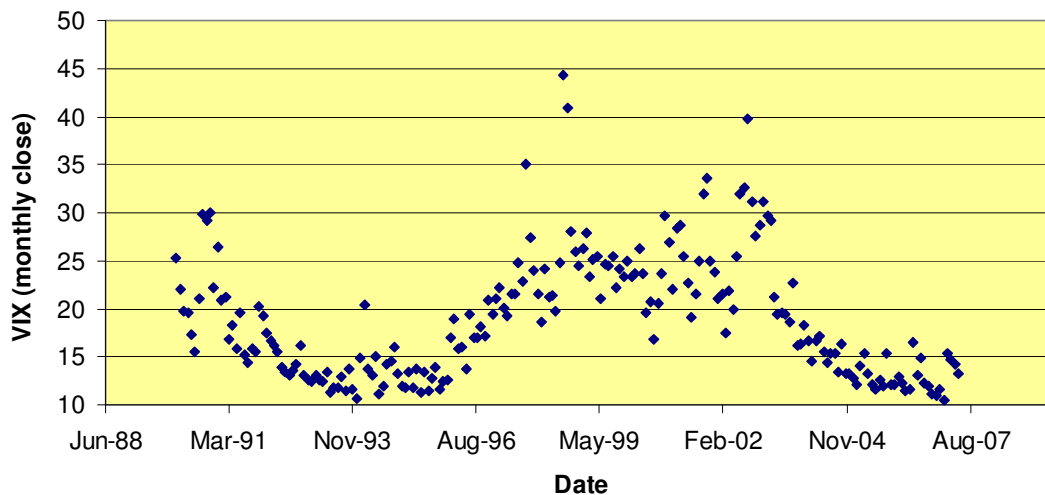


I will share a confession: I am not a brilliant market timer. I know that many investors are getting nervous after this long period of gains in the broader markets and with the various market indices high. I am as nervous as everyone else, but I simply don't trust my (or anyone else's) ability to call the top. Ultimately, I am more an odds player than a timer. If markets have been out-of-line with some of the key long-term statistics, I tend to bet 'reversion to the mean' as my strategy. The alternative is to bet that things will keep going how they've been going.

I think that market volatility will 'revert to the mean,' which implies some big increases in volatility. Volatility reflects uncertainty about future earnings. When people get jumpy, they tend to sell if they see the market in decline. When the S&P500 went from about 1450 to about 1370 in late February through early March, a lot of folks were spooked. Volatility has since settled back down, but the International Monetary Fund (IMF) thinks that this complacency is itself a risk. Merrill Lynch's chief domestic strategist has said that an increase in volatility is a major theme for 2007—and he anticipates a 'flight to quality' in which these spooked investors will sell off riskier assets and invest in high quality stocks (i.e. blue chips). I discussed these themes in a recent article (<http://www.quantext.com/VolatilityShock.pdf>). In that article, I show how a return to historical average volatility can make a portfolio of index funds turn dramatically more risky than investors have been experiencing in recent years. James Picerno published an article recently that shows how volatility is in cyclic downturn globally (http://www.capitalspectator.com/WM/2007/05/mr_market_speaks.html).

The most commonly used metric of market volatility is called VIX and it is tracked as an index of current volatility. The chart below shows VIX at monthly resolution (each point is the VIX at monthly close):



Trailing historical VIX levels

If you have a look at the chart above, where do you think VIX (market volatility) is heading next? Volatility can be high in either a bull or bear market—and the trend in volatility can be going up or down—as I will show. The main point, however, is that volatility is at historical lows—and it is hard to imagine volatility not trending upwards.

In my first article on the potential for a volatility shock (link above), I showed what would happen to a generic portfolio of funds in this situation. In this article, I want to show a concrete example of how investors can try to protect their portfolios from this kind of volatility shock through asset allocation.

High-Beta assets will tend to be the most sensitive to a market volatility shock because high Beta amplifies the swings in the market. High-Beta, high R^2 (read as R-squared) assets tend to be the worst. Beta measures the responsiveness of an asset to moves in the broader market. R^2 measures degree to which the market's movements account for the movement in an asset. I have discussed the logic of designing low-Beta / low- R^2 portfolios in an earlier article:

<http://www.quantext.com/NoDirection.pdf>

By definition, stocks with low Beta and low R^2 tend not to track the broader market. This is often the case because these companies produce products with 'inelastic demand'

which means that demand for their products does not vary much. People do not (in general) use fewer cotton swabs when they are cash-strapped or concerned about the economy. People will, however, defer discretionary purchases such as from retail stores when they are concerned about their finances---and we are seeing that now:

http://biz.yahoo.com/ap/070510/retail_sales.html?.v=12

When you select stocks which are not highly responsive to the broader market, as shown by both statistics (low Beta and R^2) and from a fundamental standpoint (i.e. non-cyclic, defensive), you also need to find stocks that work well together and that meet your performance criteria.

In earlier articles, I have discussed various low-Beta / low- R^2 portfolios and I will look at one in this article that is composed of some of those stock choices:

Company	Ticker	Percentage of Funds
Anheuser Busch	BUD	6%
Bank of America	BAC	6%
BCE, Inc.	BCE	6%
BB&T	BBT	6%
Washington Mutual	WM	7%
Consolidated Edison	ED	6%
Hormel	HRL	6%
Johnson & Johnson	JNJ	7%
Public Svc. Enterprise Grp.	PEG	6%
Wyeth Labs	WYE	6%
Valero	VLO	5%
AFLAC	AFL	5%
ConAgra	CAG	5%
Pepsico	PEP	6%
General Electric	GE	6%
Constellation Brands	STZ	5%
Procter & Gamble	PG	6%

Sample Low Beta / Low R^2 Portfolio

Many, if not all, of these stocks are household names and tend to exhibit inelastic demand—many fall into the category of ‘defensive’ stocks. JNJ, BUD, BAC, PEP, GE,

and others in this set of stocks are also very likely to benefit from a flight to quality if/when volatility returns to normal levels. Utilities (ED and PEG) tend to be classic defensive stocks because demand for electricity does not depend on the broader market much, if at all. Utilities have very little sensitivity to commodity prices, too, because they can pass on higher costs of fuel in the form of higher prices for electricity. Do you think people will eat less SPAM if the economy and broader markets tank? HRL (which makes SPAM) is a very durable firm.

Let's take a look at how this portfolio has performed and how we can expect it to perform in the future. Quantext Portfolio Planner (QPP) is a Monte Carlo portfolio planning tool that generates projections for portfolio performance. Many articles on how it works are available at Quantext's website, so I will not go into this here.

The table below shows a series of three year periods, the trailing average VIX index over each period, the average annual return on the S&P500 for each period (including reinvested dividends), the average annual return on the sample low-Beta / Low-R² portfolio for each period and, finally, the *predicted* annual return for that three year period generated from QPP. These predicted future performance values generated by QPP used only the historical performance for the previous three years as input. The predicted average annual return for the period from May 1995-April 1998 shown in this table were generated using historical data for the portfolio components from May 1992-April 1995, for example.

Period	Average Closing VIX	Average Annual Return on S&P500	Average Annual Return on Portfolio	Predicted Annual Return of Portfolio
May 2007-April 2010				16.3%
May 2004-April 2007	13	11.6%	13.5%	10.2%
May 2001-April 2004	24	-1.4%	8.2%	14.6%
May 1998-April 2001	25	7.8%	14.7%	17.1%
May 1995-April 1998	19	28.1%	34.6%	16.8%
May 1992-April 1995	13	10.4%	14.3%	

Historical average returns of S&P500 and for the sample portfolio

These results tell us a great deal about this portfolio and about the degree to which we can reliably build a low-Beta / low-R² portfolio using trailing information. Our historical period provides very nice examples of periods of high volatility (VIX in the mid 20's) and periods of low volatility (VIX around 13). The highest returns on the S&P500 and for our sample portfolio occurred during a period of increasing VIX. This may surprise investors who have seen VIX referred to as a 'fear index.' Volatility can be in an upswing during a major bull market. **Note that our portfolio markedly outperformed the S&P500 during the periods with high VIX.** In particular, during the bear market, when the S&P500 averaged -1.4% per year in total return, the model portfolio generated an average return of 8.2% per year.

As far as the predictions of future average returns (last column above), the projected average annual returns for the model portfolio are a far better prediction of future performance than using the trailing three years as your prediction. The QPP projections are particularly good as a directional guide relative to trailing performance.

The key to portfolio management is to pay attention to risk and return—not just return. This means that we need to analyze the standard deviation in portfolio returns. The chart below shows a mirror of the analysis of annual average returns, but for annualized standard deviation in return (SD).

Period	Average Closing VIX	Annualized SD of S&P500	Annualized SD of Portfolio	Predicted SD of Portfolio
May 2007-April 2010				11.6%
May 2004-April 2007	13	7.2%	5.0%	11.3%
May 2001-April 2004	24	16.8%	10.4%	15.6%
May 1998-April 2001	25	19.3%	18.8%	19.7%
May 1995-April 1998	19	11.9%	12.6%	19.2%
May 1992-April 1995	13	8.3%	8.9%	

Historical volatility in returns of S&P500 and for the sample portfolio

The first thing to note is that VIX (an index of volatility) and our calculation of trailing annualized standard deviation (SD) correspond very closely—as we would expect. Next,

notice that the standard deviation in annual return in the sample portfolio is considerably more stable than the standard deviation in annual return from the S&P500. In the bear market period (2001-2004), the model portfolio exhibited dramatically less volatility than the S&P500.

This portfolio has been less volatile than the S&P500 during the most recent periods, despite having generated a higher average return. This is not, of itself, significant. Many portfolios can be constructed that have outperformed over historical periods in terms of higher average return with lower volatility than the S&P500. What is notable in this case is that the *projected* future return is high compared to the *projected* future standard deviation—and this is worth paying attention to. This feature is shared with Warren Buffett's main equity holdings for Berkshire Hathaway:

<http://www.quantext.com/BuffettMC.pdf>

Let's sum this up in practical terms. All arrows point to an increase in market volatility. In a recent article, I showed that an increase in market volatility to historical levels can lead to major declines in a portfolio that is well-diversified according to conventional wisdom:

<http://etf.seekingalpha.com/article/34635>

Does this matter? If you have an infinite holding period, volatility does not matter in the slightest. If you anticipate needing to draw money out at some intervals, volatility can matter a lot. If you draw a specific amount of income after your portfolio declines, you are pulling out a larger fraction of your money. This factor can dramatically shorten the sustainable income potential from a portfolio. The solution depends on your outlook for the broader market. Many investors and economists are concerned about the overall health of the U.S. capital markets. After one of the longest sustained bull markets in a long time, this concern is not unwarranted. A portfolio of stocks like the sample shown here can allow investors to maintain equity exposure while reducing exposure to movements in the broad market indices. QPP's analysis suggests that this strategy is a good one on a forward-looking basis.

Disclosure: the author owns JNJ and BAC

Quantext Portfolio Planner is a Monte Carlo portfolio management tool. Extensive case studies, as well as access to a free extended trial, are available at <http://www.quantext.com/gpage3.html>