



*Portfolio Management in  
Increasingly Volatile Markets*

Geoff Considine, Ph.D.

Everyone is watching the increase in overall market volatility, and this trend has many investors very concerned—as well it should. The proportion of investors who have any idea as to how their portfolios will fare in a higher-volatility market environment is vanishingly small. This is in stark contrast to professional traders, who tend to be highly cognizant of how their portfolios will perform if volatility changes. Professional traders typically take a planned approach to volatility. A portfolio that is “short volatility” will tend to fare poorly if volatility rises. A portfolio that is “long volatility” tends to do well if volatility increases.

Jeremy Grantham has recently written that the “third great investing opportunity of his career” is to be “anti-risk” in the current market:

<http://news.morningstar.com/articlenet/article.aspx?id=201833>

In the parlance of finance, risk and volatility are synonymous. What does Grantham mean by “anti-risk”? When markets are running at high returns and low volatility, as we have seen over the past several years, this implies that investors are becoming complacent about the risks that they are taking on. As a whole, investors are simply buying and buying (driving prices up) but there is little concern about the risks associated with the assets—hence the low volatility. If investors simply shrug off risks or bad news, market volatility will be low, as we have seen. In this environment, the spread between the returns that investors require for taking on low-credit-quality assets (i.e. relatively high probability of default) vs. high-credit-quality assets shrinks. Basically, investors are busily snapping up assets with little regard for risk of default or other risks of poor performance. In this type of market, investors tend to show a relatively high preference for riskier assets because these assets deliver higher returns and investors are simply discounting the risks. These are the market conditions that we have seen for the last three years. Grantham believes that the markets are going to recognize this imbalance and investors will sell-off risky assets and seek higher-credit-quality assets. If this type of re-balancing occurs, market volatility will increase dramatically—and we seem to be seeing this. In this scenario, “blue chip” stocks and high-grade bonds will tend to be good investments. He is planning to sell off his holdings in emerging markets, consistent with this strategy. Grantham also feels that a bias towards large-cap stocks will be a good

idea. He does not like REIT's or junk bonds, which rely on easy credit. What Grantham is talking about is simply a "flight to quality"—and he is hardly alone in this. The prediction of a flight to quality due to rising volatility is not a terribly radical idea:

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

Merrill Lynch identified rising market volatility and the subsequent 'flight to quality' as their "major theme for 2007". Investing in higher quality assets is one way to protect your portfolio against rising market volatility.

There is a very standard strategy for going "long volatility" (i.e. benefiting from rising volatility) --- you buy options – both puts and calls. Long-dated options on the S&P500 or other indices can provide protection and profit in a rising volatility environment. Why don't people take advantage of this? They do. In fact, the options markets have been implying the types of increases in market volatility that we are experiencing today for quite some time. In February of 2007, options prices for the S&P500 (via SPY) and the EAFE index (via EFA) were both implying a doubling of market volatility in 2007-2008--and I wrote about this in February:

<http://etf.seekingalpha.com/article/27508>

For investors, that means that substantially higher volatility was already "priced in" at the prices at which options were trading. It would have taken a bit of sophistication to profit simply by going long volatility at those prices. While professionals can take advantage of options strategies to manage rising volatility, this approach is not a good idea for investors or advisors without sufficient expertise in derivatives. Options trading carries some substantial operational/execution risks (i.e. you have to know how to do it well), high transaction costs, and can create a substantial tax burden.

Aside from broad strategies to manage portfolio impacts from rising market volatility such as (1) 'flight to quality' and (2) buying options, what can investors do? One very basic and simple strategy is to buy assets that are not heavily impacted by rising volatility or that tend to do better (relatively) in rising volatility. How do you find such assets? A good place to start is by looking at how various assets are correlated to VIX, the volatility

index. You can learn about the basics of VIX in this article that I wrote back in May of 2006:

<http://etf.seekingalpha.com/article/11098>

The VIX index measures the volatility levels implied by the prices of options that will expire soon. VIX is therefore called “implied volatility” and represents the market’s near-term consensus view of volatility. VIX tracks recent volatility in the market quite closely. If you want to find investments that are not going to respond badly to increasing market volatility, you can start by looking at the correlations in returns on an investment with percentage changes in VIX. The table below lists the correlation between monthly percentage changes in VIX and monthly total returns on a series of ETF’s. The first thing to note is that the correlation between VIX and IVV, the iShares S&P500 ETF, is -67%. This means that VIX and IVV tend to move against one another—when VIX goes up, IVV tends to go down. This is precisely the situation that we have seen over the past three years. As you look down the list (from strongest negative correlation to weakest), there is quite a range of correlations. This list must be interpreted with some caution. First, a great deal of the negative correlation between an ETF and VIX may simply be explained by the positive correlation between that ETF and the S&P500—and the negative correlation between the S&P500 and VIX. The ETF’s with correlations to VIX that are substantially closer to zero than IVV are the ones that are less responsive to VIX.

Further, if we are going into a period of rising volatility across a range of markets—probably globally—the volatility in Brazil (EWZ), for example, may also rise fast—far beyond the S&P500. Thus, we cannot simply look at the VIX correlation in seeking safe-haven from a global increase in volatility, of which VIX is only a part. A big increase in volatility in Brazil may not be highly correlated to increases in volatility in the U.S. but may be substantial nonetheless. This could result, for example, from a credit crunch as described by Jeremy Grantham. Further, a number of the ETF’s with relatively lower correlation to VIX have been massively out-performing in recent years and I would not be looking to these assets as providing any kind of safe haven because they are already relatively over-valued. The correlation table provides a starting point in finding asset

classes that will not be hurt in a rising volatility market—but they cannot be looked at in isolation.

ETF	Ticker	Correlation to VIX
iShares S&P 500 Value Index	IVE	-67%
iShares S&P 500 Index	IVV	-67%
SPDR DJ Wilshire Large Cap Value	ELV	-63%
iShares Russell Midcap Value Index	IWS	-61%
iShares Russell Midcap Index	IWR	-61%
iShares MSCI Mexico Index	EWV	-61%
iShares S&P SmallCap 600 Value Index	IJS	-60%
iShares MSCI Singapore Index	EWS	-59%
MidCap SPDRs	MDY	-57%
iShares S&P Latin America 40 Index	ILF	-55%
Vanguard Financials ETF	VFH	-55%
iShares MSCI Hong Kong Index	EWH	-55%
iShares MSCI Sweden Index	EWD	-54%
BLDRS Emerging Markets 50 ADR Index	ADRE	-54%
iShares MSCI Emerging Markets Index	EEM	-52%
iShares Dow Jones US Financial Sector	IYF	-51%
iShares Dow Jones Select Dividend Index	DVY	-50%
iShares Dow Jones US Telecom	IYZ	-49%
iShares MSCI Brazil Index	EWZ	-47%
iShares MSCI Netherlands Index	EWN	-47%
iShares Dow Jones US Basic Materials	IYM	-46%
iShares Dow Jones US Real Estate	IYR	-45%
Materials Select Sector SPDR	XLB	-45%
iShares MSCI Austria Index	EWO	-43%
iShares MSCI Pacific ex-Japan	EPP	-43%
iShares MSCI EAFE Index	EFA	-43%
iShares MSCI Spain Index	EWP	-43%
iShares MSCI Germany Index	EWG	-42%
BLDRS Europe 100 ADR Index	ADRU	-42%
Telecom HOLDRs	TTH	-42%
iShares MSCI France Index	EWQ	-42%
DJ Wilshire REIT ETF	RWR	-41%
iShares MSCI Switzerland Index	EWL	-40%
iShares MSCI South Korea Index	EWY	-40%
iShares MSCI Italy Index	EWI	-40%
iShares Cohen & Steers Realty Majors	ICF	-40%
iShares MSCI South Africa Index	EZA	-38%
iShares MSCI Belgium Index	EWK	-37%
iShares MSCI United Kingdom Index	EWU	-35%
iShares Dow Jones Transportation Average	IYT	-35%
iShares Dow Jones US Energy	IYE	-35%
iShares MSCI Canada Index	EWC	-34%
iShares MSCI Australia Index	EWA	-33%
iShares S&P GSSI Natural Resources	IGE	-33%
BLDRS Asia 50 ADR Index	ADRA	-33%
iShares MSCI Malaysia Index	EWM	-32%
Energy Select Sector SPDR	XLE	-32%
Europe 2001 HOLDRs	EKH	-32%
iShares S&P Global Energy	IXC	-31%
iShares S&P Global Telecommunications	IXP	-27%
Oil Services HOLDRs	OIH	-26%
Internet Infrastructure HOLDRs	IIH	-19%
iShares S&P/TOPIX 150 Index	ITF	-18%
iShares Dow Jones US Utilities	IDU	-17%
iShares MSCI Japan Index	EWJ	-11%
Utilities Select Sector SPDR	XLU	-9%
Utilities HOLDRs	UTH	-2%

*Trailing three-year correlations between monthly ETF return and monthly percentage changes in VIX (through June 2007).*

If one is not confident in separating out the parts of this problem directly—and it is hard problem—there is a more general and encompassing approach. You can buy high-quality individual stocks that have low-Beta, low  $R^2$  (R-squared), and also have low correlation to VIX. Low-Beta / low  $R^2$  stocks do not track well with the S&P500---they tend to be driven by other factors. Should the U.S. market suffer a major decline, low-Beta / low- $R^2$  strategies provide some protection---including during major increases in VIX:

<http://seekingalpha.com/article/35363>

If we look at a list of low-Beta/low- $R^2$  stocks, some of these (taken from the article linked above) also exhibit low correlation to VIX:

Company Name	Ticker	Correlation to VIX
Constellation Brands	STZ	-29%
AFLAC	AFL	-22%
General Electric	GE	-19%
Anheuser Busch	BUD	-18%
Bank of America	BAC	-16%
Consolidated Edison	ED	-12%
Johnson and Johnson	JNJ	-9%
Hormel	HRL	-1%
Pepsico	PEP	-1%
Wyeth Labs	WYE	0%
ConAgra Foods	CAG	1%
Public Service Enterprise Group	PEG	7%

***Low-Beta / Low- $R^2$  Stocks Correlated to VIX (three years through June 2007)***

Note that a number of these correlations are far smaller in magnitude than all but a few of the ETF's listed above. I believe that it is easier to construct a portfolio of stocks that will not be negatively impacted by rising volatility if you are willing to purchase individual stocks, partly for this reason.

While these individual correlations can provide some guidance, the best way to test whether your portfolio will perform well in a higher-volatility environment is to stress

test the portfolio. When I analyzed Berkshire Hathaway's top equity holdings last year (September 2006), I found that the projected future performance of these holdings looked as good or better in a higher-volatility environment:

<http://financial.seekingalpha.com/article/17192>

In fact, a number of Berkshire Hathaway's top holdings are included in the list of low-Beta / low  $R^2$  stocks above. This is what investors need to think about with regard to their portfolios. It is actually quite straightforward to build a portfolio that is not highly sensitive to rising volatility. The best way to do this is to perform forward-looking portfolio analysis, in which the forward volatility of the broader markets is increased to historically normal levels. If a portfolio looks good in such an environment, this is a good test. This is precisely the kind of analysis that I used in analyzing Berkshire-Hathaway's holdings. When this kind of forward-looking analysis is also supported by history, a fairly compelling case can be made:

<http://seekingalpha.com/article/35363>

In this article, I showed a portfolio with solid projected performance in a higher volatility future, as well as showing that the portfolio in question performed well in high-volatility historical periods.

In summary, then, I have discussed some strategies for dealing with a future in which there is a reasonable expectation of substantially higher volatility in global capital markets than we have seen for a number of years. One strategy is the 'flight to quality,' in which it is assumed that the credit crunch associated with higher-risk assets will drive investors to sell riskier assets and buy safer 'blue chip' assets. A second strategy is to use options to manage risk, although this strategy is only suited to those with credible derivatives knowledge. The third strategy is essentially a hybrid of these. By combining low-Beta / low  $R^2$  high-quality stocks, it is possible to build a portfolio that is insulated from swings in market volatility. Designing this kind of portfolio requires the ability to model portfolio performance on a forward looking basis (such as by using Quantext Portfolio Planner). This type of portfolio will also benefit from the 'flight to quality' if / when it occurs.

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