Diversification Comes To Those Who Wait

Anyone who lived through the debacle of 2008 or for that matter anyone who owned any financial asset anywhere during the liftoff rallies of 2003 and 2009 can be excused for thinking diversification lives in financial textbooks and nowhere else. Not only have asset returns converged during financial crises since reliable records have been kept, the mechanics of high-frequency trading, algorithmic trading and exchange-traded funds all have combined to push instruments up and down in rhythmic lockstep.

Or have they? The answer, like so many other aspects of market analysis requires a time horizon. As an aside, the author always has considered the never-ending debate between technical and fundamental analysis to be pointless without a time horizon: The longer the timeframe involved, the more a market is likely to be driven by its fundamentals; the shorter the timeframe involved, the more a trader has to rely on the regular patterns and formations of technical analysis.

Just as there is no one as bearish as a sold-out bull or convinced a move higher is a bubble than someone not invested therein, there is no one who complains about a lack of diversification as much as someone who has underperformed their benchmark. Incredibly, the combined tyrannies of the index management and performance analysis drive some portfolio managers to trade variance swaps not for reasons of return but rather to maintain their volatility of return within a stipulated band relative to their benchmark's volatility.

A man from Mars might consider this last action prima facie evidence of insanity.

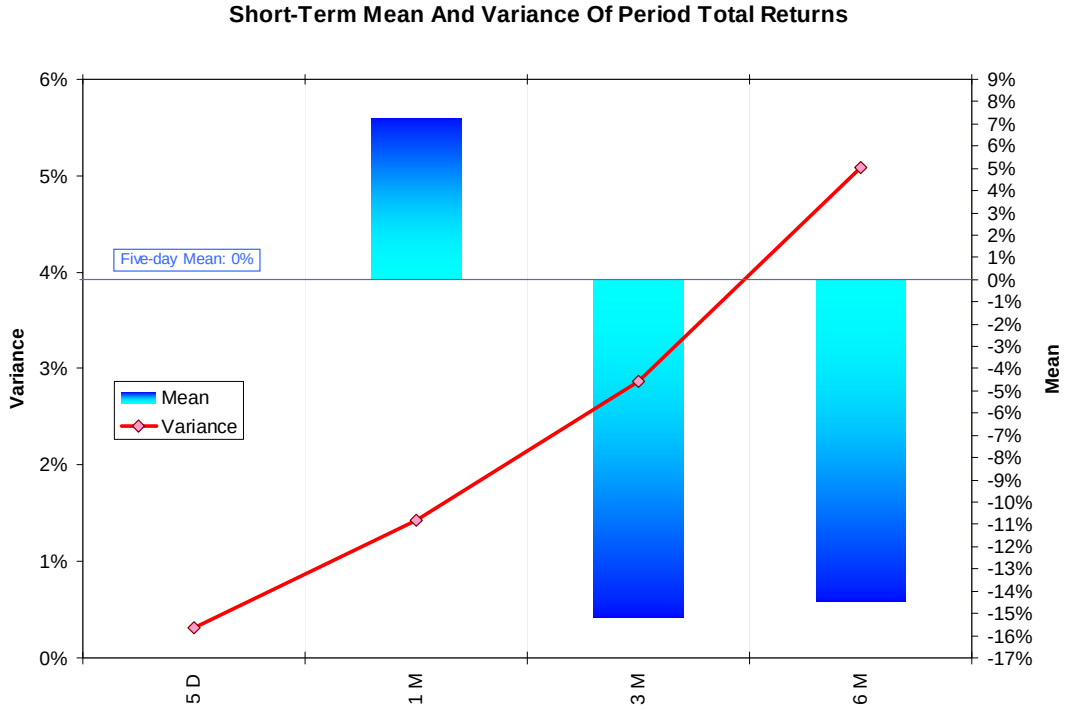
Diversification Of Returns Over Time

One way to look at diversification is through the lens of mean-variance analysis. If the variance of returns increases over time independently of any changes in the trend in the mean of those returns, we can be comfortable short-term convergence will devolve into long-term divergence of returns.

Those who need to demonstrate issue selection matters as much as does index timing need to compare the distribution of returns for that index' members over a range of holding periods. Ideally, these returns would be traced forward across successively longer holding periods, out to ten years or more. While this is possible for individual issues, the very nature of equities works against us: Each year hundreds of issues in the broad Russell 3000 index disappear for reasons such as merger or bankruptcy. Commodity traders do not have to deal with corn going bankrupt or heating oil and natural gas merging into one giant energy commodity.

To address this issue simply, the period total returns for all members of the Russell 3000 index just for periods of one and five days, one, three and six months are examined for the chart below. As a statistical aside, the distributions of returns across five-day and one-month time periods are different from that of the three-month distribution of returns at near-100 percent confidence.

The progression of return mean and variance from five days to six months for the Russell 3000 does in fact show an expected expansion of variance unrelated to mean. Even if intra-index variance is low for the first week a portfolio is held, it should expand and provide diversification over time.



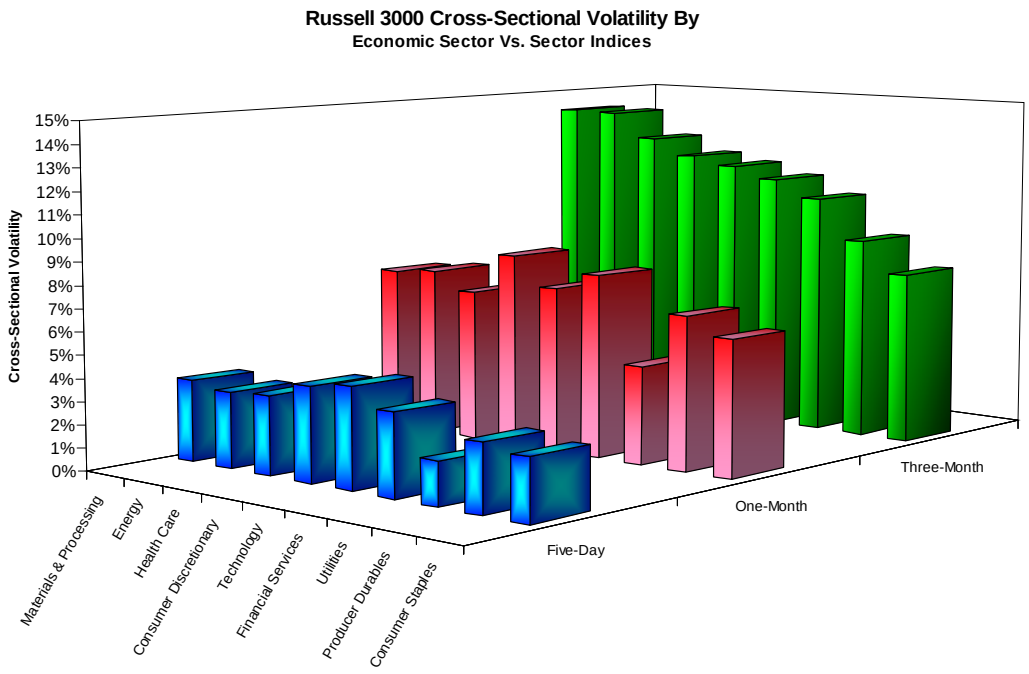
Cross-Sectional Volatility

An alternative way of reaching the same conclusion, that issue selection matters increasingly over time, is to calculate the cross-sectional volatility of issues against their benchmark index using the following equation:

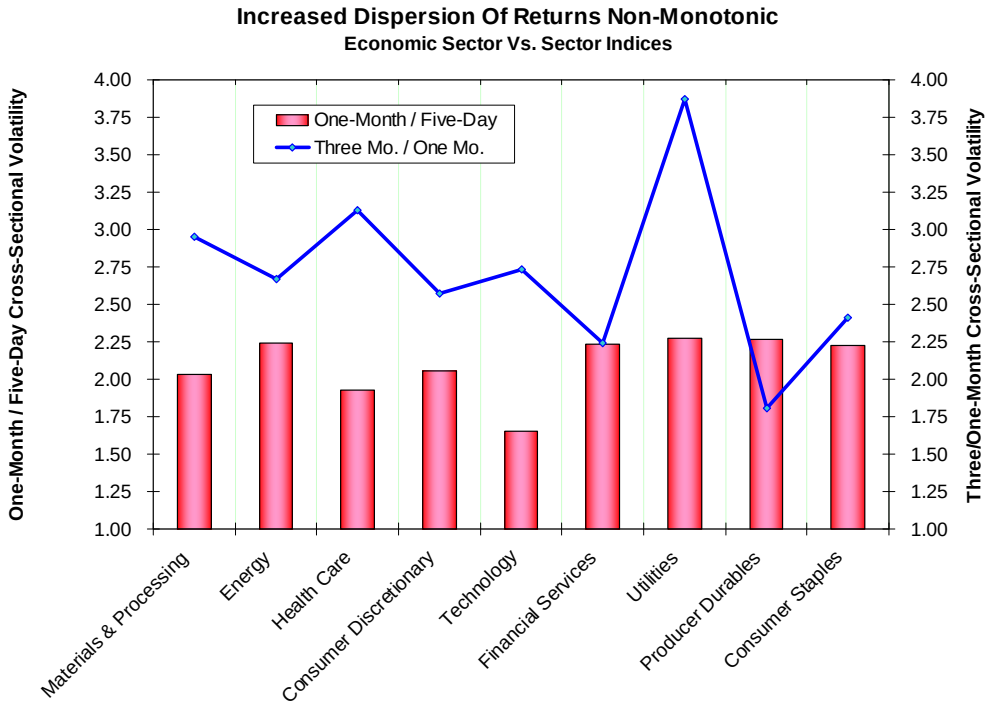
$$\sigma_x = \sqrt{\sum_{i=1}^{N} w_i (r_i - R)^2}$$

Where 'w' is the index weight, 'r' is the issue return over a specified period and 'R' is the index return over that same period. This measure can be interpreted as the capitalization-weighted dispersion of returns in an index. Unlike the mean-variance method above, cross-sectional volatility weights returns by capitalization and normalizes them to the return of a benchmark index. The calculation is independent of the market benchmark selected.

If we map the cross-sectional volatilities for each of the nine economic sectors in the Russell 3000 for five days and for both one and three months, we see a large variation in cross-sectional volatility. The results, sorted along the three-month column, display a wide variation in cross-sectional volatility both at the same time dimension and across time dimension.



Now let's map the ratios of cross-sectional volatility from one time period to the next. Here we see how much the dispersion of returns expands over time: The ratios from one month to five days are quite different from those between one and three months. Once again, the expansion of cross-sectional volatility confirms what we saw in the expansion of return variance within the index: Diversification arrives with time. Whether this message is acceptable in a world of instant-messaging and Twittering reflects the patience level of the investor or the investor's agent; it is, however, quite intrinsic to the nature of investing itself.



Implications

We must ask what these patterns mean for investors. Some of the implications are quite counterintuitive, and that is a good thing as the obvious tends to be worth little or nothing in this business. The habitually low cross-sectional volatility for the utility sector argues you might as well buy an exchange traded fund such as the Select Sector SPDR (XLU) instead of individual issues. The top five holdings of this ETF are Southern, Dominion Resources, Exelon, Duke Energy and NextEra Energy; together they account for more than 28 percent of the index.

The volatile basic materials sector has a high cross-sectional volatility over most periods. The top five holdings in this sector ETF (XLB) are DuPont, Monsanto, Freeport-McMoRan, Praxair and Newmont Mining. Their high cross-sectional volatility says you can expect diversification within this sector.

As for our initial topic, diversification, let's return to something in vogue during the easy-money days of the 1990s, and that is the concept of long-term investing. As the long 1982-2000 bull market ground on, everyone could fancy themselves a long-term investor as the market bailed you out of any bad decisions. While an examination of return variance and cross-sectional volatility cannot give you those returns, it can give you one reward for being an actual long-term investor: Diversification.