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# Factor Diversification: Sometimes More Really *Is* More

**Wilmer Henao**
Quantitative Analyst

Just as stock diversification reduces volatility of returns, quantitative investing relies on factor diversification in the creation of portfolios. Even the best factors do not work 100% of the time and it is important to look for uncorrelated factors to address this problem.

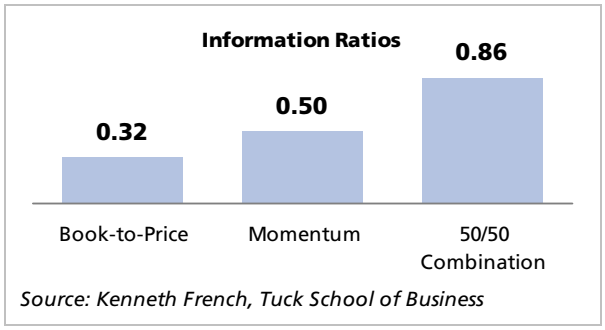
A quintessential investment strategy known to many is "buy low, sell high" – buy securities while "cheap" and sell them when "expensive." This idea appears to be quite simple and in theory one would expect to make money most of the time. This is commonly known as value investing. In a nutshell, this theory of investing would dictate that you act as a contrarian – when the market is selling off, it's time to buy.

The only problem with this is that you cannot rely solely on value to make your financial decisions. For example, sometimes a company may be heading for bankruptcy and the fact that it is cheap does not mean that it is worth buying since the price is not going to rebound but is heading to zero instead. We need an addendum to value investing, such as the use of a trend factor, or momentum. Simply speaking, momentum investing is the opposite of value investing. In other words, follow the trend: if a security has been a winner for quite some time, it is probably good to follow the market and buy it.

As noted previously, one might say these strategies work in opposition to each other – one tells you to buy when it's cheap and the other one tells you to be aware of cheap companies because their price might be getting lower and the trend might be hurting them. But when you put them together you can get the best of both worlds; buying cheap companies that are following a good trend and selling expensive companies that do not carry any momentum. This is why factor diversification is so important.

Curiously, if you were to follow either momentum or value strategies from 1926 until the present you would have made money with either strategy in a very consistent way. But it would have been even more powerful to have a 50/50 combination of both: the two strategies are negatively correlated and when one of them loses money usually the other one starts working. One example of this occurred in the year 2008, when value strategies had a terrible year but momentum performed well.

As a matter of fact, a strategy based solely on the book-to-price factor[1] would yield an information ratio of only 0.32; a momentum strategy would have a slightly higher information ratio[2] of 0.50; but still this is a small quantity compared with the 50/50 combination which has an information ratio of 0.86. If we create portfolios based on a simple 50/50 combination of the original factors and we impose upon each the same risk, we will expect the combo to approximately double the returns of each separate strategy.




*Source: Kenneth French, Tuck School of Business*

However, there are no "sure things" even when employing this combination investment strategy. The worst streaks in our sample date back to the last half of 1932 when the 50/50 combination underperformed for six months in a row, and from April to October of 1937 when the 50/50 combination underperformed for a total of seven months in a row. These were rather unusual situations when neither trend following nor value investing worked. What we can learn from this is that eventually our combination strategy recovers to extend its profitable record.

The other lesson that we can learn from this is that two factors are probably not enough. For example, we could insert a third factor into our analysis, such as "Dividend Yield," which consists of buying companies that pay high dividends and selling those that pay low or no dividends. While this factor is not as strong as the previous two, it was positive in both of the periods previously mentioned.

A more recent story comes from the year 2007 when the combo strategy underperformed for five months during the summer, while the dividend yield factor inched into positive territory and served as a cushion to the combination of momentum and value that were simultaneously not working during that interval. ■

**References**

For more information see Kenneth French's data library at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

1 *Book-to-Price factor is one way to measure if a company is cheap or expensive.*

2 *Information Ratio is a measure of a strategy's returns relative to the risks it incurs.*