



The 'No Direction' Portfolio

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One of the most important decisions that an investor can make is the degree to which his or her portfolio is coupled to the broader market. This decision is quite distinct from risk tolerance. Whether or not you want an aggressive (high return / high risk) portfolio or a more conservative (lower return / lower risk), it is a good idea to be proactive in deciding how much you want your portfolio to be a bet on the direction of the market as a whole. Bonds help investors to temper portfolio sensitivity to the broader market, but only at the expense of returns. The correlation of your portfolio to domestic markets can be managed to a limited extent by investing in foreign market indices, but these are also quite highly correlated to the S&P500:

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

If you want to build a portfolio that can generate returns consistent with a high degree of equity exposure but have concerns about the direction of the overall market, a promising strategy is to assemble a series of stocks that have low Beta values and have relatively low correlation to one another:

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

This approach allows you to have a portfolio with solid returns but which is largely decoupled from the performance of the S&P500. Put into statistical terms, this means that you have a portfolio that has low Beta and low R-squared (for definitions see Investopedia.com). After writing the article above, one of the users of *Quantext Portfolio Planner*, our portfolio management software, developed a portfolio designed to achieve these objectives and he asked my opinion of it. The portfolio was interesting enough that it merited an article. I am calling his portfolio the 'No Direction' portfolio because its performance does not depend on the direction that the S&P500 goes.

Fund / Company Name	Ticker	Percentage of Funds
Anheuser-Busch	BUD	5.0%
Bank of America	BAC	4.0%
BCE, Inc.	BCE	6.0%
BB&T Corp.	BBT	6.0%
Waste Management	WM	7.0%
Consolidated Edison	ED	6.0%
Hormel	HRL	6.0%
Johnson & Johnson	JNJ	7.0%
Pulic Svc. Enterprise Grp.	PEG	5.0%
Wyeth Labs	WYE	2.0%
Valero Energy Corp.	VLO	3.0%
Lexington Realty Trust	LXP	5.0%
AFLAC Inc.	AFL	5.0%
ConAgra Foods	CAG	6.0%
Pepsico, Inc.	PEP	4.0%
General Electric	GE	3.0%
Constellation Brands, Inc.	STZ	3.0%
Procter and Gamble	PG	4.0%
Vanguard Intermediate Bond	VBIIX	6.0%
Blackrock Corp. High Yield	COY	7.0%

'No Direction' Portfolio

This portfolio varies somewhat from the one that was sent to me. In particular, the original portfolio used TIP, a TIP ETF, rather than the bond fund and also included another REIT. I have used VBIIX and COY because they achieved many of the same goals but had longer data histories and I wanted to look at this portfolio in a range of historical market conditions. Aside from these substitutions and some changes to the allocations, this is very similar to the portfolio that I received. This portfolio is invested in a range of companies with well-known brands and spans many different industries. If you want to reduce your exposure to swings in the broader market, many of these stocks are all-stars. The investor who designed this basic portfolio went to considerable effort to find stocks that exhibited low correlation to each other and to the broader market, while still generating solid returns. The historical performance of this portfolio has been quite attractive:

Data through 12/31/06	Average Annual Return	Standard Deviation in Annual Return
Trailing 3 Years	11.2%	4.5%
Trailing 5 Years	11.0%	6.8%
Trailing 10 Years	15.7%	12.0%

Trailing performance of “No Direction” portfolio

In the trailing three-, five-, and ten-year periods, this portfolio has out-performed the S&P500 with a lower level of volatility (i.e. risk) than the market as a whole. This is not, in and of itself, a terribly notable achievement. What makes this portfolio more interesting is that it has exhibited very low Beta and low R-squared for all of these periods:

Data through 12/31/06	Beta	R-squared	Yield
Trailing 3 Years	33.9%	27.7%	3.7%
Trailing 5 Years	40.5%	55.6%	3.8%
Trailing 10 Years	45.4%	33.2%	4.0%

Trailing Beta, R-squared and Yield

This portfolio has achieved its returns without tracking the market very closely. To give a sense of how interesting this portfolio feature is, consider the Beta and R-squared values for a series of index ETF's:

ETF	Beta	R-squared
SPY	100%	100%
TIP	-3%	0%
ICF	127%	26%
IDU	37%	8%
EFA	106%	54%
EEM	204%	53%

Trailing 3 Year Beta and R-squared for some index ETF's (through 12/31/2006)

SPY is designed to track the S&P500 perfectly, so Beta and R-squared should both be 100%. TIP, an inflation-protected bond fund, is expected to have very low Beta and very

low R-squared. This is characteristic of bonds. ICF, a real estate focused ETF, has a fairly high Beta but a low R-squared. The trailing three years have been a bit odd for real estate. As real estate has become a hot asset class, its Beta and R-squared have increased dramatically. The trailing five year Beta and R-squared for ICF are considerably lower at 48% and 16% respectively.

Building a portfolio with low Beta, low R-squared, and a return that is considerably above bonds on an absolute and risk-adjusted basis is easy if you are willing to look back and optimize to the past. A portfolio with 55% in VBIIX and the remaining fraction equally allocated between ICF and IDU has accomplished the same high returns with low Beta and low R-squared over the trailing three and five year periods (with the same level of risk) as the 'No Direction' portfolio, but this is a result of the fact that real estate and utilities have seen enormous rallies over this period. Such a portfolio is too concentrated in terms of style. The 'No Direction' portfolio shown at the start of this article is much more diverse in terms of sector allocations. The recent past is not a good guide to choosing a highly concentrated portfolio because the hot sectors tend to change in time. This is where forward-looking Monte Carlo is useful and *Quantext Portfolio Planner (QPP)* uses this approach to generate outlooks for the future performance of a portfolio. When I ran the 'No Direction' portfolio through **QPP**, it predicted future average annual return of 11-12% per year and standard deviation of around 12% per year. This makes this portfolio quite attractive in terms of the risk/return balance. For a general reference on this issue, see this article: <http://www.quantext.com/RiskReturn.pdf>. By contrast, our 55% VBIIX / 22.5% ICF / 22.5% IDU portfolio is predicted to generate an average annual return of 6.7-7.8% per year, with a standard deviation of 8.3-10.7% per year. The QPP simulation results confirm what one would expect. The 'No Direction' portfolio is likely to provide a higher future return because it is not simply a raw bet on a couple of sectors that have out-performed during a recent period.

At this point, our discussion has gotten a bit abstract. Let's get back to reality. The reason why most investors might want a 'no direction' portfolio (i.e. low Beta and low R-squared) is to temper the impact of bear markets. Portfolio managers with a quantitative

bent talk about ‘stress testing’ a portfolio. ‘Stress testing’ a portfolio means seeing how it would have held up in market conditions with big declines in the broader market. This can be particularly important because correlations between some assets and asset classes have been observed to increase when things get bad. In this case, we can examine a three-year bear market period. Consider the performance of Vanguard’s S&P500 index fund, VFINX from 1/1/2000 to 12/31/2002:

Historical Data	
Start: 1/1/2000	End: 12/31/2002
Average Annual Return	Standard Deviation (Annual)
-12.63%	18.99%

VFINX performance during bear market

VFINX averaged -12.6% in return, with almost 19% in volatility. This was an unpleasant period for the broader market. By contrast, the ‘No Direction’ portfolio fared very well during this period (R² is another notation for R-squared):

Historical Data	
Start: 1/1/2000	End: 12/31/2002
Average Annual Return	Standard Deviation (Annual)
14.71%	14.22%
Historical Beta: 25.71% Historical Yield: 3.96% Portfolio R ² : 11.7%	

‘No Direction’ portfolio performance during bear market

Further, the metrics of correlation to the broader market are also consistent with the other market periods analyzed. Beta and R-squared are comparable to what we have seen in the most recent 3-, 5-, and 10-year periods. This kind of result provides some confidence

that the statistical properties of this portfolio can provide protection when you really need it: during an extended bear market.

The concept of the 'No Direction' portfolio is that it does not depend on whether the broader market goes up or down. In quantitative finance, this is often referred to as a 'market neutral' strategy. While hedge funds develop complex market neutral portfolio strategies, a portfolio like the one shown here is a low-cost alternative. As always, I note that a 'model' portfolio used to illustrate a point does not mean that I am endorsing it for anyone. This is, however, an interesting portfolio. This portfolio gains foreign exposure (and lower Beta and R-squared) partly due to the presence of companies that sell a lot of their wares overseas in the local currency. There are also a lot of consumer goods companies in this portfolio. These consumer goods firms with strong global brands provide some protection from swings in the value of U.S. currency. If you want protection from market swings, these are all valuable portfolio considerations. Selling meat products (HRL) may not be a very 'cool' business, but HRL has famously outperformed Motorola (MOT) since the start of 1990, when Hormel went public, and with far less volatility. Many basic consumer goods firms are essentially de-coupled from the broader U.S. market. The portfolio has a couple of bank stocks (BBT and BAC) and even some telecom exposure, albeit in Canada (BCE). Ultimately, of course, the proof of the 'No Direction' portfolio is in the fact that it weathered the millennium bear market with flying colors and has shown that its performance is also de-coupled from the broader market in terms of Beta and R-squared over a variety of timescales.

The gentleman who sent me this portfolio is approaching retirement and thus wishes to protect himself from big market swings, realizing at the same time that he needs to harness equity markets to generate the growth that he needs to support a long retirement. This is a very important issue, with many advisors realizing that older investors may need to be more aggressive than previously thought:

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

The type of portfolio strategy laid out in this article may be a good way to go—with the allocation to bonds being determined by his total risk appetite.

Disclosure: the author owns JNJ

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>