GAUGING DIFFERENTIAL RETURNS

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With the coming of January comes renewed interest in how the stock market will perform in the new year. We admit that we don't know. This might be a shame were there not already a surplus of readily-accessible predictions.[1]

Sometimes having a market forecast is only a first step. An investor whose portfolio contains more than a comprehensive capitalization-weighted index fund may also want to predict the *differential* between the portfolio and the market index.[2] We don't know how to do that either.

What we can do, however, is to help investors frame their expectations about the likely size of return differentials. We recently introduced the concept of **dispersion** as a way to measure the degree to which the components of a market index perform alike or differently.[3] Other things equal, in a low dispersion environment, the distribution of individual stock returns around the index average is relatively tight; in a high dispersion environment, the distribution is relatively wide. The gap between the best and worst performers is therefore a direct function of the market's dispersion level.

Exhibit 1: Dispersion of the S&P 500® from 1991-2013
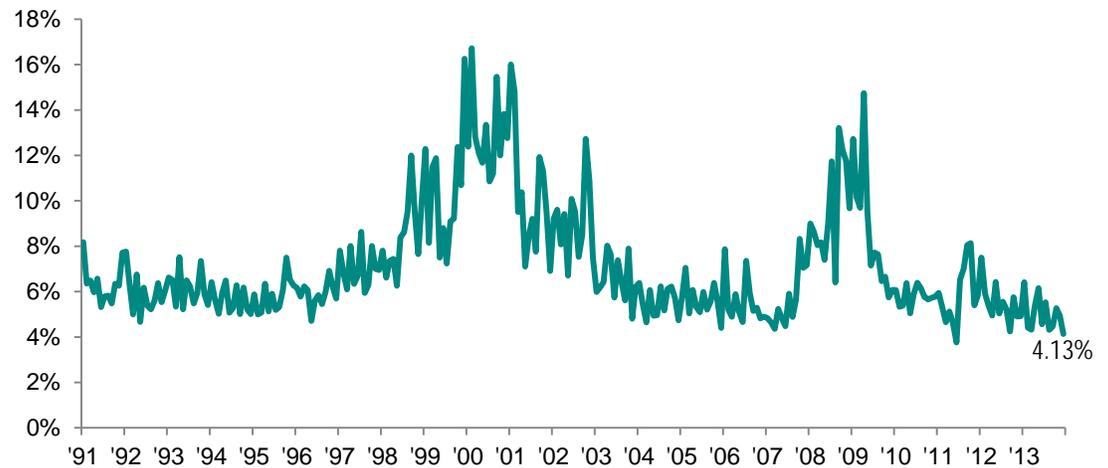
Source: S&P Dow Jones Indices. Data from Jan. 1991 through Dec. 2013. Charts are provided for illustrative purposes. Past performance is no guarantee of future results.

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[1] For example, see "Here's What 14 Top Wall Street Strategists Are Saying About The Stock Market In 2014," http://www.businessinsider.com/wall-street-market-predictions-2014-2013-12.

[2] Of course, for active investors all such predicted differentials are positive.

[3] Tim Edwards and Craig J. Lazzara, "Dispersion: Measuring Market Opportunity," December 2013, http://us.spindices.com/documents/research/research-dispersion-measuring-market-opportunity.pdf

INDEX INVESTMENT STRATEGY

Exhibit 1 charts the dispersion of the S&P 500 Index from 1991 through 2013. As is typical of equity indices, dispersion for the S&P 500 falls within a fairly limited range. More than half of all monthly readings were between 5% and 8%; levels below 4% or above 15% are so uncommon that we can regard the 4% - 15% range as a practical limit to dispersion for this index.[4] When dispersion is high (as, e.g., in 2000 or 2008), it tells us that the gap between a "typical" stock's return and the index's return is relatively large. When dispersion is low (as it is now), it tells us that stocks are relatively tightly distributed around the index's average return.

Although we calculate dispersion using capitalization-weighted indices, it is, perhaps paradoxically, most useful to investors who don't take a strictly cap-weighted passive approach. For example, in a high dispersion period, an active stock picker has more scope to display his skill than he does in a low dispersion environment. For a given (positive) skill level, higher dispersion should lead to higher levels of excess return. (And negative skill, regrettably, will produce larger losses.) This implies, other things equal, that the spread between the best and worst managers should rise as dispersion rises.[5]

The application of the principle that higher dispersion leads to larger performance spreads is not limited to active managers. If our interpretation of dispersion is correct, then **the performance of indices that are derived from the S&P 500 should also reflect the impact of S&P 500 dispersion**. And as many formerly active strategies become indicized,[6] the role of dispersion in understanding their returns will grow.

Exhibit 2 illustrates the operation of this principle for a number of *strategy* or *factor* indices, all of which are subsets of the S&P 500. Unlike a cap-weighted index, which is designed to represent a segment of the capital market, strategy indices are typically designed to produce a particular pattern of returns that investors might find useful. We constructed the exhibit as follows:

- Using the data underlying Exhibit 1, which charts the dispersion of the S&P 500 between 1991 and 2013, we classified each month in the period into one of four dispersion quartiles.

- For each of the indices listed in Exhibit 2, we computed the monthly difference between the index's return and the return of the S&P 500. We then took the absolute value of these differences – what we care about is the magnitude of the difference between each strategy index and the S&P 500, not its sign.

- We average the absolute value of the differences for each index in each dispersion quartile.

Exhibit 2: Dispersion and Mean Absolute Deviation in Different Dispersion Environments					
	Least Disperse (%)	2nd Least (%)	3rd Least (%)	Most Disperse (%)	Ratio of Most/Least
S&P 500 High Beta	1.83	2.28	3.29	6.38	3.5
S&P 500 Low Volatility	1.09	1.27	1.73	3.89	3.6
S&P 500 Equal Weight	0.53	0.76	1.09	2.05	3.9
S&P 500 Dividend Aristocrats	0.71	0.95	1.36	3.31	4.6
S&P 500 Growth	0.36	0.61	0.76	1.73	4.8
S&P 500 Pure Growth	0.38	0.63	0.79	1.80	4.8
S&P 500 Value	0.88	1.60	1.66	3.89	4.4
S&P 500 Pure Value	1.24	1.80	2.25	4.54	3.7

Source: S&P Dow Jones Indices. Data from Jan. 1991 through Dec. 2013. Charts are provided for illustrative purposes. Past performance is no guarantee of future results. This chart may reflect hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

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[4] Dispersion history for other selected indices can be found at http://us.spindices.com/documents/commentary/dashboard-volatility-and-dispersion-201312.pdf.
[5] This expectation is borne out by SPIVA data. See Edwards and Lazzara, *op. cit.*, pp 2-3.
[6] See "Coming Soon to a Dictionary Near You," November 29, 2013, http://www.indexologyblog.com/2013/11/29/coming-soon-to-a-dictionary-near-you/.

Consider, for example, the S&P 500 Dividend Aristocrats[®], which measures the performance of those S&P 500 members that have increased their dividends for at least 25 consecutive years.[7] When the market is in its least-disperse quartile, the average monthly deviation of the Aristocrats index versus its parent S&P 500 is 0.71%. In the next least-disperse quartile, the average deviation rises to 0.95%, then to 1.36%, and finally, in the most-disperse quartile, to 3.31%. **Its average monthly deviation was 4.6 times larger in the most disperse quartile than in the least.** The indices in Exhibit 2 are constructed in different ways and designed to serve different purposes, but in every case their average monthly deviation from the S&P 500 rises monotonically as the S&P 500's dispersion rises.[8]

This is impressive evidence of dispersion's ability to guide our expectations of index return differentials. Dispersion doesn't *predict* differential returns; instead, **differential returns are a *consequence* of index dispersion.**

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[7] See http://us.spindices.com/indices/strategy/sp-500-dividend-aristocrats for more details.
[8] For certain indices some months will be absent due to data limiatations. See Performance Disclosure for the first value dates for the indices listed here.

PERFORMANCE DISCLOSURE

The launch date of the S&P 500 Low Volatility and S&P 500 High Beta indices was April 4, 2011.

The launch date of the S&P 500 Growth, Pure Growth, Value and Pure Value indices was Dec. 19, 2005.

The launch date of the S&P 500 Dividend Aristocrats index was May 2, 2005.

The launch date of the S&P 500 Equal Weight index was January 8, 2003.

All information presented prior to the index inception date is back-tested. Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index was officially launched. Complete index methodology details are available at www.spindices.com.

Past performance is not an indication of future results. Prospective application of the methodology used to construct the indices may not result in performance commensurate with the back-test returns shown. The back-test period does not necessarily correspond to the entire available history of the index. Please refer to the methodology paper for the index, available at www.spdji.com or www.spindices.com for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations. It is not possible to invest directly in an Index.

Another limitation of back-tested hypothetical information is that generally the back-tested calculation is prepared with the benefit of hindsight. Back-tested data reflect the application of the index methodology and selection of index constituents in hindsight. No hypothetical record can completely account for the impact of financial risk in actual trading. For example, there are numerous factors related to the equities (or fixed income, or commodities) markets in general which cannot be, and have not been accounted for in the preparation of the index information set forth, all of which can affect actual performance.

The index returns shown do not represent the results of actual trading of investor assets. S&P/Dow Jones Indices LLC maintains the indices and calculates the index levels and performance shown or discussed, but does not manage actual assets. Index returns do not reflect payment of any sales charges or fees an investor would pay to purchase the securities they represent. The imposition of these fees and charges would cause actual and back-tested performance to be lower than the performance shown. In a simple example, if an index returned 10% on a US $100,000 investment for a 12-month period (or US$ 10,000) and an actual asset-based fee of 1.5% were imposed at the end of the period on the investment plus accrued interest (or US$ 1,650), the net return would be 8.35% (or US$ 8,350) for the year. Over 3 years, an annual 1.5% fee taken at year end with an assumed 10% return per year would result in a cumulative gross return of 33.10%, a total fee of US$ 5,375, and a cumulative net return of 27.2% (or US$ 27,200).

DISCLAIMER