

Stock Market Spreads: Narrower Decisions, Wider Horizons

Legend has it that Vince Lombardi, upon assuming the helm for the Green Bay Packers, devised an aptitude test for his players using only a brick wall. Those who ran at the wall and leapt over it became receivers. Anyone who knocked the wall down was lineman material. Run through the wall, can you? You are now a running back. Finally, anyone who stopped in front of the wall, assessed the situation, and then simply walked around it would be the quarterback.

Today's management consultants would call this a "masonry-based human resources taxonomy matrix" or something similar and charge six figures for their wisdom.

It's All Relative

If we can judge by investor behavior, the world is filled with lineman and running back wannabes. Most of us are long-only trend followers; known otherwise as buy-and-hold investors, as we have been told time and again this is the only proven way to make money in the stock market. And, in fairness, the long-term record of such a strategy is compelling, provided you are able to withstand drawdowns unacceptable to most sophisticated traders. Could any hedge fund manager post the 76% drawdown of the Nasdaq Composite between the March 2000 and October 2002 and remain in business, let alone avoid a blizzard of lawsuits from irate investors?

What would the shrewd quarterback do? The first thing is to recognize there are two ways to trade, absolute return and relative return. Anyone who buys and sells individual stocks, ETFs or stock index futures is an absolute-return trader: You buy low and sell high and repeat as often as necessary. It is simple, clean and socially acceptable after a fashion. It is also, although not commonly recognized as such, a spread trade: You are selling/buying cash and buying/selling whatever. Implicit in your trading decision is you have selected the asset to buy or sell only after comparing it to all other alternatives. The list of investors and traders who truthfully claim to do this is a short one.

The relative-return trader explicitly narrows the comparison decision. Instead of selling cash and betting whether asset 'X' will rise or fall in price, the decision becomes will 'X' rise or fall in relation to 'Y'? Not that this makes the trading decision any easier or even less risky, mind you; it simply increases the signal-to-noise ratio of the trade. While day-traders can thrive on the short-term noise afforded by any market, traders with longer-term horizons need to ignore noise and focus more on the signals arising from persistent fundamental trends.

Long-term stock traders generally have focused on the sell cash / buy stock spread trade and hoped for the growth of the economy to bail them out over time; short-term traders have focused on the opportunities afforded by trading vehicles such as stock index futures and ETFs. Now let's add a third route to trading profits, the intermediate-term (days to a few weeks) relative return trades of:

1. Matched pairs: The trading of two highly correlated security futures against each other;
2. Alpha: The trading of a security future against an index future; and
3. Index spreads: The trading of one index future against another

Matched Pairs

These trades a favorite of the hedge fund world, but it is probably a fair statement that Wall Street would prefer you not delve into them as they of necessity involve a short position in one of the stocks. Security futures simplify the pairing process by virtue of their margin of 20% of current market value as opposed to the 150% required for a short stock position and by their lack of a need to first locate shares to borrow from a stock loan department. It remains to be seen for how long they will maintain their advantage of having no uptick rule, but put that in the advantage column for now.

Matched pairs hold two other advantages. The first is they are technically well behaved; that is they are capable of very persistent trends, easy-to-spot consolidations and reversals that stick. The second is they

make intuitive sense; every Coca-Cola you drink is a Pepsi-Cola you do not. If a firm gains a competitive advantage over a rival, as Intel did over Advanced Micro Devices in the late 1990s before the favor was returned in 2000, the trade can persist for months or even years on end.

Trendspotting: The Intel - AMD Pair



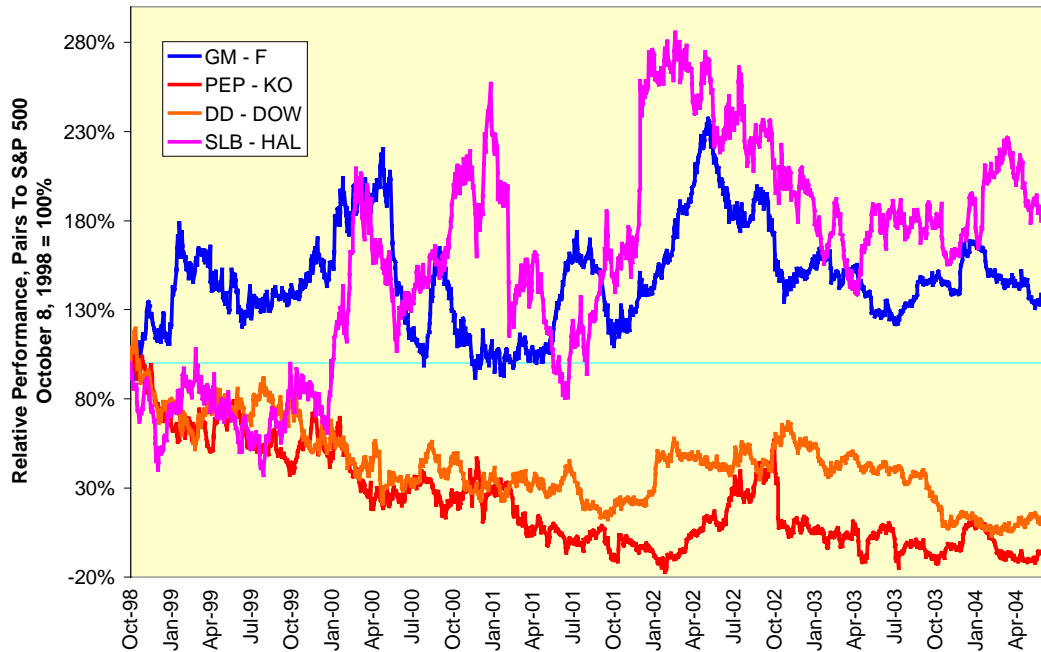
The degree to which matched pairs can move tends to surprise traders when they first look at them. One way to illustrate this is to take the spread and index it to the movement of the S&P 500 over a period:

$$RelativePerformance = \frac{Spread_m / Spread_{t_0}}{SPX_m / SPX_{t_0}}$$

Let's track the movement of four matched pairs from the market low of October 8, 1998, the end of the Russian default-Long Term Capital Management crisis of that year relative to the S&P 500. The S&P 500 rose from a level of just under 960 on that date to a high of more than 1525 on March 24, 2000, only to head back to 775 by October 2002. That qualifies for strong movement. The following four unremarkable matched pairs dwarfed this action:

- General Motors - Ford (GM - F)
- Pepsico - Coca-Cola (PEP - KO)
- DuPont - Dow Chemical (DD -DOW)
- Schlumberger - Halliburton (SLB - HAL)

Bigger Returns, Stronger Trends



Matched pairs can offer risk reduction, a point not to be ignored. Risk is defined as the variance of daily percentage price changes, or returns, although most of us define risk as just one half of this, the one involving losses. Variance and its cousin covariance, or the degree to which two markets move together, are at the heart of modern portfolio theory and risk management. What do they mean to us? If we buy stock A and sell stock B in equal quantities, the resulting variance of the spread is:

$$\sigma^2_{A-B} = \sigma^2_A + \sigma^2_B - 2 * Cov_{A,B}$$

The more positive the covariance, defined below, of A and B is, the greater the overall risk reduction. At the extreme, say buying the stock and selling its security future at exactly fair value, risk moves to zero.

$$Cov_{A,B} = \frac{1}{N} \sum_{i=1}^N (A_i - \mu_A)(B_i - \mu_B)$$

Covariance values by themselves are not meaningful, so they are commonly converted into correlation by dividing them by the product of the standard deviations of both markets, as seen below. Correlation, designated as ρ , ranges from -1.00 for a perfectly negative relationship to 1.00 for a perfectly positive relationship.

$$\rho_{A,B} = \frac{Cov_{A,B}}{\sigma_A * \sigma_B}$$

Alpha

Simple commands can stir the blood; this certainly was the case with Winston Churchill's directive, "Sink the Bismarck!" Conventional stock fund managers have one themselves: "Beat the Benchmark!" In practice, this compels fund managers to be closet indexers; their style becomes trying to duplicate their benchmark

index and on occasion overweight a few winners and underweight a few losers. Boring, yes, but it is a pretty good living if you can get it.

This little process is called the search for alpha, a direct outgrowth of the capital asset pricing model (CAPM) that has proven to be one of the more enduring concepts in finance despite several known shortcomings. Critics should remember that William Sharpe, its intellectual father, likely has one more Nobel Prize in economics than they do, however. The CAPM holds that the expected return on an asset 'i' is the risk-free rate of interest plus beta times [the expected return on the market minus the risk-free rate].

$$E_i = R_f + \beta^*[E_m - R_f]$$

Beta is the slope of a regression line between the returns on the asset and the returns on the comparative market or portfolio. It measures the relative risk of holding an asset. The constant term in this regression, or alpha, is the expected incremental return on the asset relative to the market's return for any accepted risk level beta.

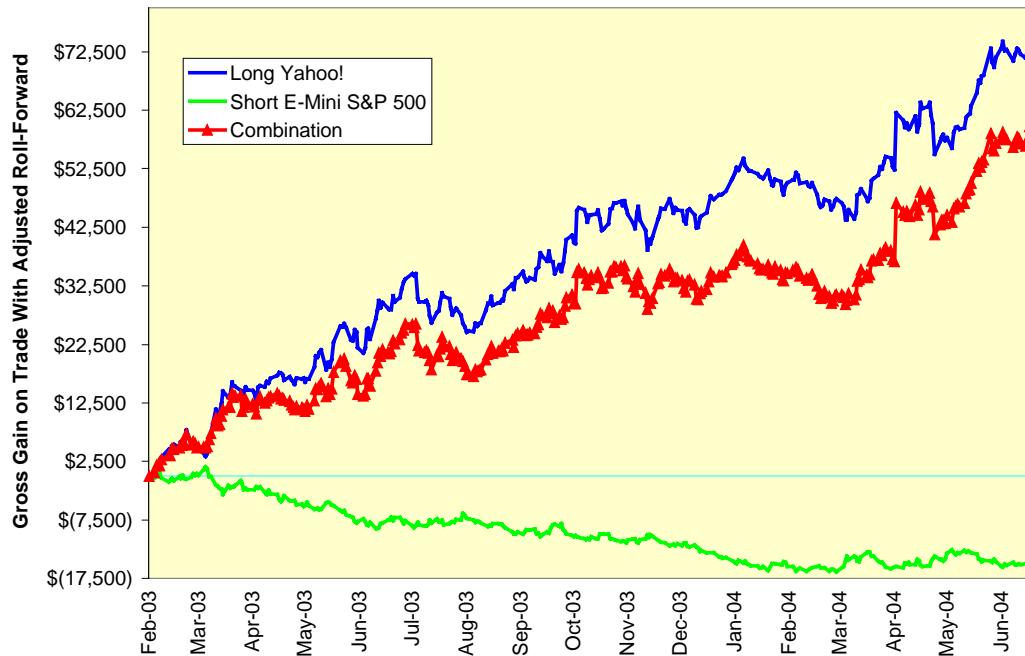
$$E_i = \alpha + \beta^*E_m + \varepsilon$$

Alpha trades have the same compelling logic behind them as do matched pairs: Implicit in the purchase or sale of any stock is the foregone trade of not simply buying or selling the underlying index. Benchmarks such as the S&P 500 are famously tough to beat, and the investing public has responded thereto by flocking to index funds as a core investment.

A dollar-neutral alpha trade is surprisingly easy to construct. Let's say on Friday, February 7, 2003, a time of great market uncertainty going into the Iraq War, you decided that the long bear market in Internet stocks was about to draw to a close; the same might not have been apparent for the S&P 500. On this day, the split-adjusted price of Yahoo! was \$8.77; the adjusted price of the March 2003 future was \$8.785. A March 2003 S&P E-mini settled at 830.50. Each Yahoo! security future represented \$878.50, and each E-mini \$41,525.

The number of contracts of Yahoo! futures to trade per each E-mini S&P 500 at each contract initiation date would have been the ratio of their dollar values. This number would have been 47 Yahoo! futures in March 2003, a number that dwindled down to only 18 Yahoo! futures by the June 2004 contract rollover to account for Yahoo!'s price appreciation relative to the S&P 500 over the life of the trade.

Winning The Alpha Bet

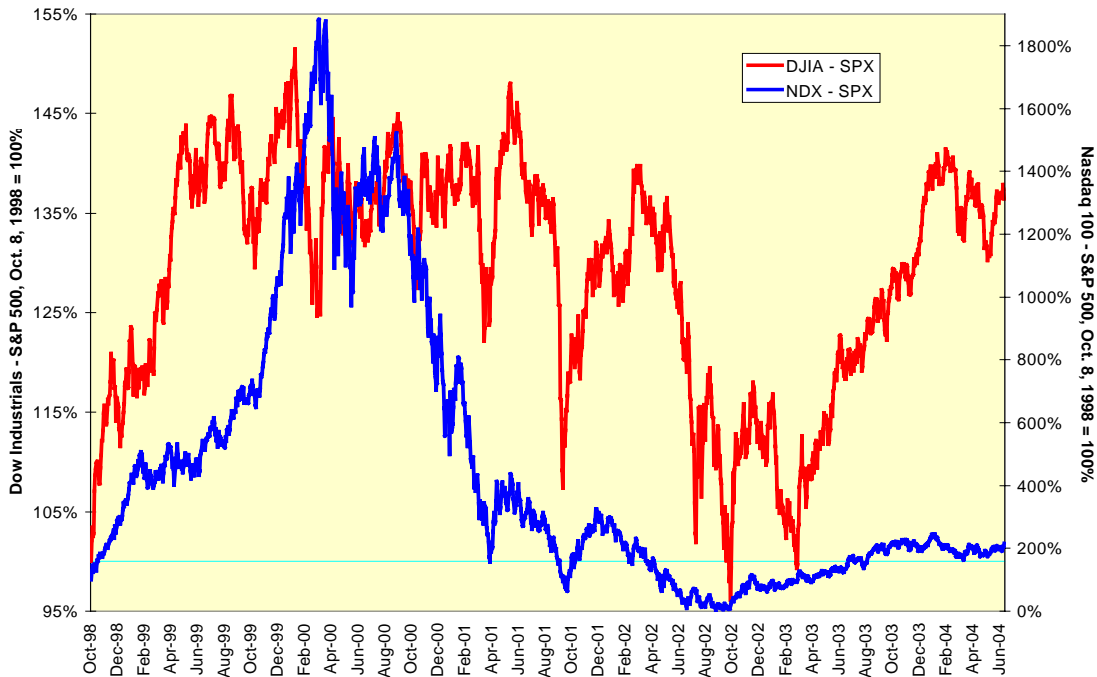


Index To Index

Just as stock-to-stock and stock-to-index spreads provide persistent and technically well behaved trends, the spreads between the major indices provide significant trading opportunities as well. The composition, industry representation, weighting schemes and volatility of each are different, and that is really all we need to know. Various industries have their proverbial day in the sun - think technology in the late 1990s - and the misaligned fortunes of these industries across indices create long-lived trends.

The cumulative effects of these differences over time can be quite striking. The rise and fall of the Nasdaq 100 is well chronicled, but the relative fortunes of the Dow Jones Industrial Average against the S&P 500 over the past year have been just as significant. While industrial giants such as Boeing, Caterpillar, Honeywell, 3M, Alcoa and General Motors are in both indices, their weight in the Dow Industrials simply is greater, and that has propelled the venerable index well ahead of the S&P 500 over the past year. The big gainers in the S&P were technology stocks with too-small weightings to affect overall performance.

Index Spreads Post Major Action



Putting It All Together

The combination of security futures and index futures opens the world of equity trading to the same types of relative value trades employed regularly in fixed income, currency, energy and grain markets. These relative value trades will be explored in turn over the next few months.

Traders debate two things endlessly, whether markets are efficient and whether they should be traded technically or fundamentally. These arguments are misplaced. Over a short-term timeframe, price action has a great deal of noise content; only the really hard cases persist in claiming that each and every tick somehow embodies perfect information in real time. The greater the noise content - just think how individual stocks get tossed about during buy and sell programs - the more you must trade on a technical basis. The opposite is true for long-term traders: A firm with a strategic business decision to make involving commodity prices really cannot busy itself where the price will be tomorrow or next week. It must worry about the next ten years.

The three classes of relative value trades discussed above encapsulate the best aspects of both debates. While the efficient market theory may hold true instantaneously, it is silent about the effects of a stream of new information arriving over time. As stocks prices themselves are nothing but discounting instruments for future earnings, they can and must change over time not only on an absolute basis but also on a relative basis to each other and to the broad market. Therefore these spreads can be traded as technical representations of long-term economic processes. As the same short-term noise buffets the legs of these spreads, these short-term effects tend to get canceled out in the spread.

What we have left over, then, are trading instruments rich in signal relative to noise and based on relative fundamental developments whose inflows are persistent enough to provide us with easy-to-trade technical trends. If this sounds like a good way to solve the problem of Vince Lombardi's brick wall, it should.