

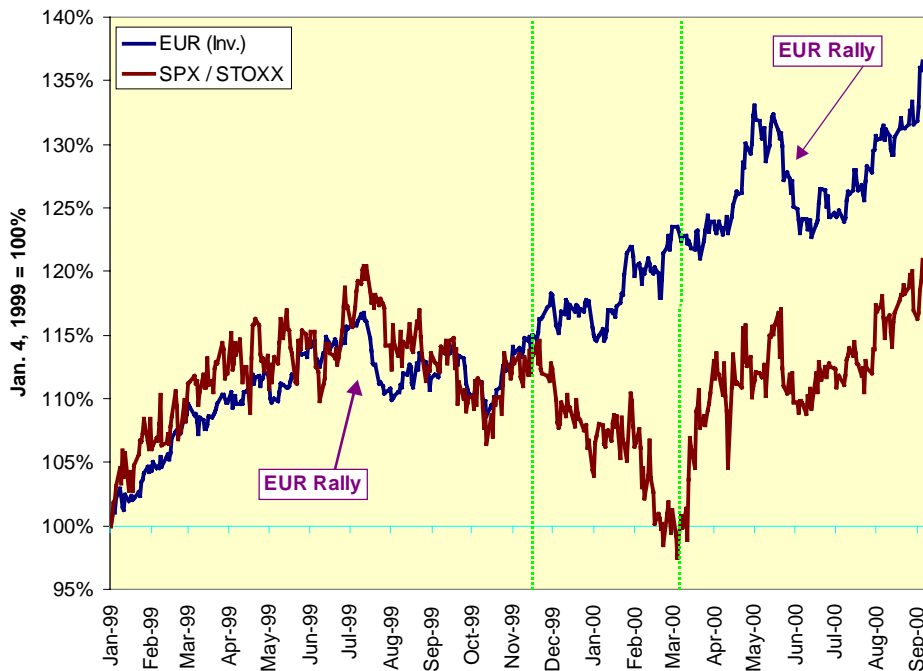
## Trading The Euro Through Equity Indices

Time can be your best friend or your worst enemy. We've all heard the old chestnut about time in the market being more important than timing the market, but while long-term investing is great for stocks and bonds, it's not the way to go for currencies, commodities, or options. These endeavors reward trading skill more than simple perseverance, which may be an unflattering explanation for why there are more wealthy stock investors than wealthy currency and commodity traders.

There's no law against being resourceful, so let's see whether we can express our short-term trading opinions via long-term investment vehicles. We opined last week that an economic slowdown in the U.S. may provide the catalyst for a long-awaited rally in the euro. Will this manifest itself in the spread between the U.S. stock market, represented by the S&P 500 (SPX), and the European stock market, represented by the euro-denominated Dow Jones STOXX index?

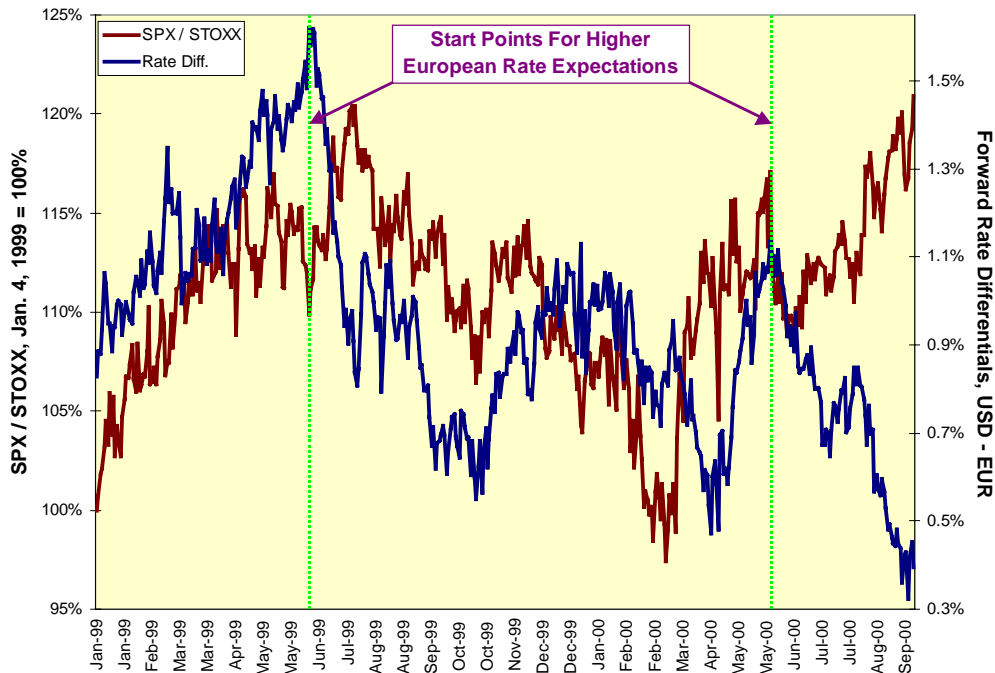
For the first eleven months of the euro's existence, the relative performance of the two stock indices tracked the depreciation of the euro very closely (the graph below depicts the euro's performance in an inverse manner, its Jan. 4, 1999 value is divided by its current value). After the Fed's decision to raise the funds rate to 5.5% on November 16, 1999, the stock indices diverge from the continuously depreciating euro. Between that day and the mid-March 2000 peak of the NASDAQ rally, the STOXX outperformed the SPX rather handily. Once the bloom came off the tech rose in March, the SPX resumed outperforming the STOXX at a rate roughly parallel to the euro's depreciation.

**Relative Performance of SPX to STOXX As A Function of Euro Depreciation**



One might conclude three things from the November 1999 - March 2000 period. First, STOXX outperformance requires a period of U.S. interest rates rising relative to European interest rates. If we define interest expectations as the forward rate between one and ten year horizons, U.S. interest rate expectations have been declining irregularly relative to European rate expectations since the Fed's first rate hike in June 1999, and have reached the lowest differential since the advent of the euro. The present underperformance by the STOXX coincides with expectations for higher European interest rates, and this is consistent with our November-March observation.

Relative Performance of SPX to STOXX As A Function of Interest Rate Expectations



Second, STOXX outperformance requires a concentration of U.S. equity gains in an index outside of the SPX. Over the very same November-March window, the NASDAQ 100 (NDX) and NASDAQ composites outperformed the STOXX by 39% and 28%, respectively. Comparisons between national equity markets are sensitive to the benchmarks employed. Unfortunately for the sake of the simple model demonstrated below, the collinearity between the NDX and SPX is too high to employ the two simultaneously in an descriptive model for the euro.

The third conclusion is STOXX outperformance is independent of the euro's course. This observation appears true only in the November -March period. Ideally, we would like to test this hypothesis in both bull and bear markets for the euro, but that will have to wait until we see what a bull market in the euro looks like. In the two minor rallies the euro has seen, July-August 1999 and May-June 2000, the STOXX outperformed the SPX.

### Confirming The Relationship

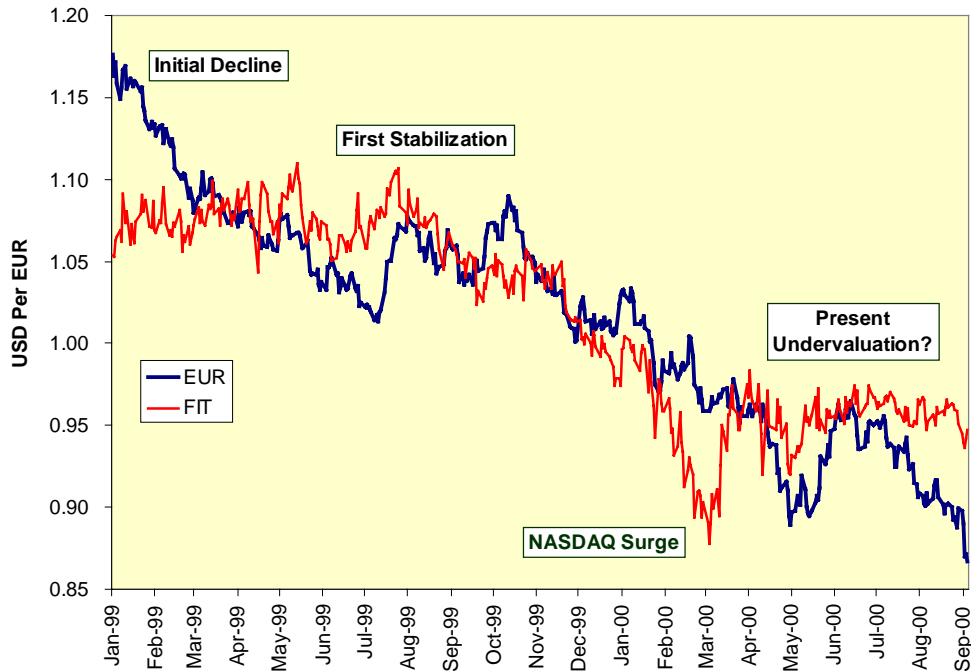
We can combine these variables into a simple regression model and obtain the following:

$$\text{EUR} = 0.209 + .00237 * [\text{Forward Rate Differential}] + 0.193 * [\text{SPX/STOXX}], r^2 = .71$$

(.0000815) (.00708)

More elaborate multivariate models involving relative volatilities between the indices and the yield curves might improve the overall fit, but would not change the simple and intuitively appealing conclusion that relative performance of the STOXX to the SPX acts as a proxy for the euro.

## Modeling The Euro As A Function of Stock Indices And Rate Expectations



Four periods of divergence between the actual values of the euro and this model's fit are highlighted. The first is the initial decline of the euro, which can almost be excused as a consequence of uncertainty. The second, seen when the fit exceeds the actual, is the first stabilization of the currency. The third is the apparent overvaluation resulting from the effects of the NASDAQ surge discussed above. The final and intriguing fourth period is the present period of what could be a major undervaluation: The model is suggesting the euro is undervalued by 9.2%.

### Which Will Come First?

As we discussed last week, any revaluation of the euro will be sudden. A likely scenario will involve a sign of U.S. economic weakness that will lead to a further implosion of the rate gap, possibly accompanied by some unpleasantness in the U.S. equity markets. A repatriation of European investment funds will lead to a simultaneous revaluation of the euro and strong relative performance by the STOXX relative to the SPX.

A simple way to play this development is to overweight European equities denominated in euros; a purchase of CAC or DAX futures will suffice. More sophisticated derivatives and spreads can be employed as well, and these will be discussed in the near future.