

## The Euro-Dollar Rate: Another Thing Made In China?

One of the happier aspects of currency markets over the years has been the relatively mechanical nature of the dollar-euro trade; along with the Canadian and Australian dollars, the euro both has trended (see “Let The Trend Be Your Friend: The Majors,” January 2009) and has followed differentials in interest rate expectations. The importance of this orderly behavior cannot be overstated as the central thesis in this series over the past five years has been the currency world is divisible into the dollar bloc and the euro bloc.

Two developments starting in 2009 and continuing with a vengeance into 2010 started to erode this neat behavior. The first was the development of persistent ultra-steep money market yield curves; these had been part of the Japanese landscape for years, but the adoption of quantitative easing by the U.S., U.K. and Switzerland of quantitative easing made them a part of the broader financial market environment (see “No Man Is An Island, But The U.K. Is” August 2010). The second was the development of some obvious schisms between the stronger and weaker credits within the European Monetary Union. Milton Friedman has forecast the euro would not survive its first serious recession, and while that extreme forecast proved too dire, it did in fact confirm centuries of experience indicating the Greeks, Portuguese, Spanish, Irish and Italians tended to run their domestic affairs differently than the Germans. It is amazing sometimes how people let themselves get surprised by the obvious.

A third development in the United States in 2010, the manic insistence the country would be better off if only it made its currency worthless, helped save the euro from its near-death experience in April-May. Those fleeing the euro realized they had nowhere else to go, and those fleeing the dollar surely felt the same way. All agreed the world would be better off if China strove to make the yuan more expensive while they made their currencies cheaper; the guiding principle is someone else’s currency manipulation is bad.

### The Euro And Its Indicators

First, as the world moved in and out of various degrees of financial crisis, we could expect implied and historic volatility measures both to measure the degrees of insurance purchased and price uncertainty, respectively. Implied volatility is derived from the options markets; the historic volatility used will be a high-low-close (HLC) volatility. First, a number of days between 4 and 29 that minimizes the function

$$\frac{1}{N} * \sum_{i=1}^N \frac{N}{Vol^2} * |(P - MA)| * |\Delta MA|$$

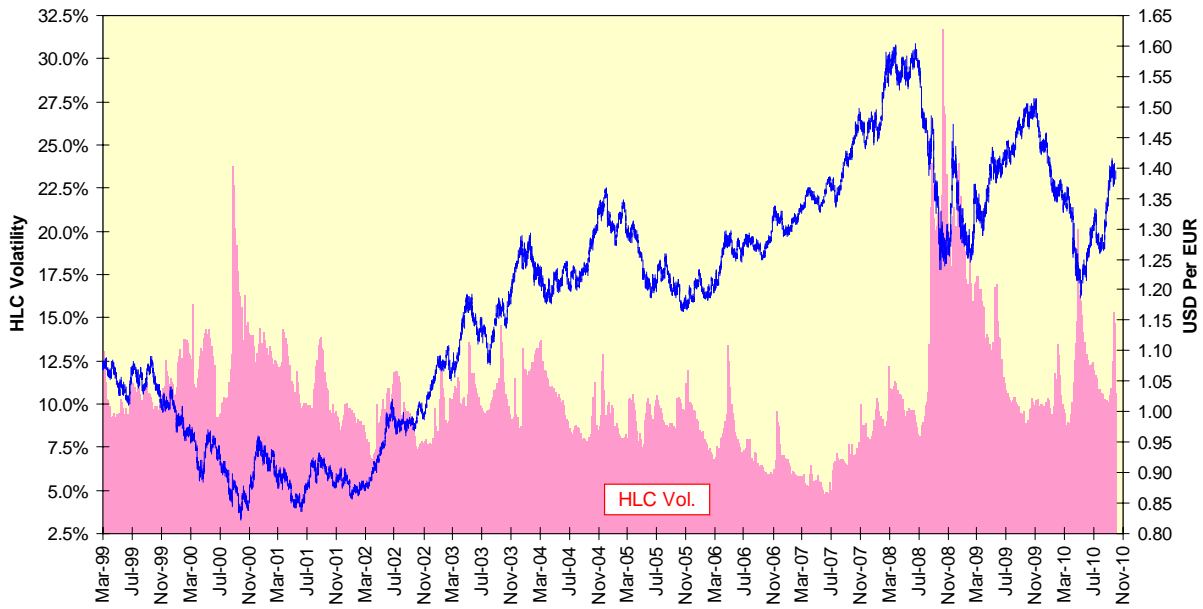
where Vol is the N-day high/low/close volatility, defined as

$$\sum_{i=1}^N \left[ \frac{.5 * \left( \ln \left( \frac{\max(H, C_{t-1})}{\min(L, C_{t-1})} \right) \right)^2 - .39 * \left( \ln \left( \frac{C}{C_{t-1}} \right) \right)^2}{N} * 260 \right]^{1/2}$$

where H, L, and C are high, low, and close, respectively.

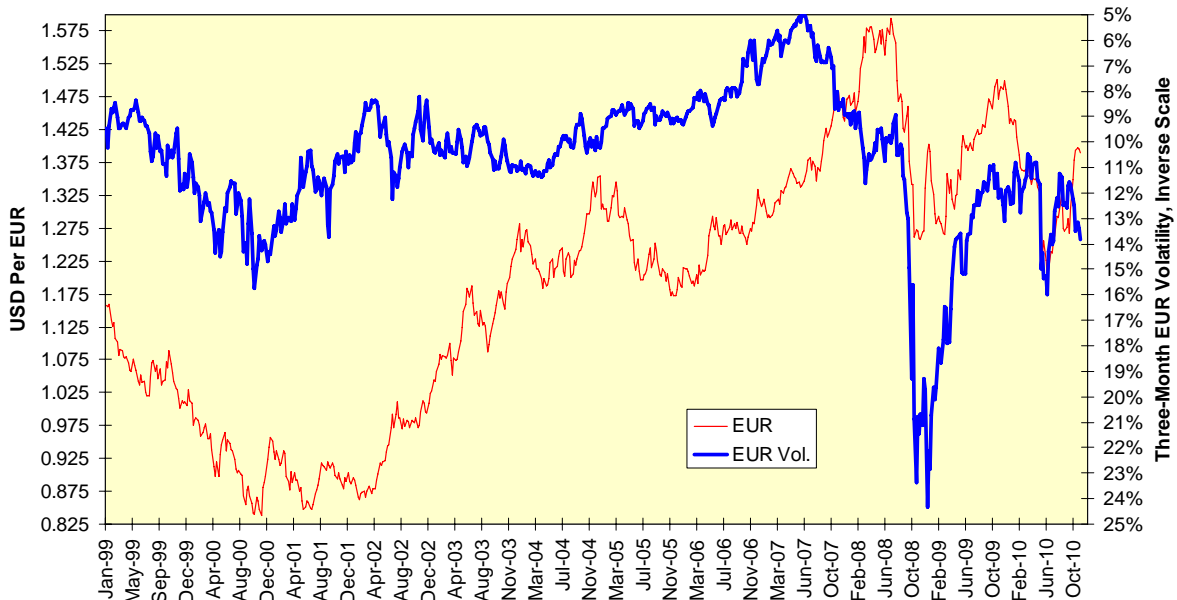
The HLC volatility has the consistent property of expanding not when the market is putting on large interday changes in one direction, as is true for standard close-to-close volatility measures, but rather when intraday ranges dominate interday changes over a given period. The euro’s HLC volatility expanded during the 2008 financial crisis and then contracted during the euro’s March-November 2009 rally. Once uncertainty accelerated following the downgrades of lesser Eurozone credits in November and December 2009, HLC volatility expanded once more into June 2010, and after a retreat rose following the Federal Reserve’s pledge to start printing dollars more quickly in August.

### The Euro's High-Low-Close Volatility Over Time



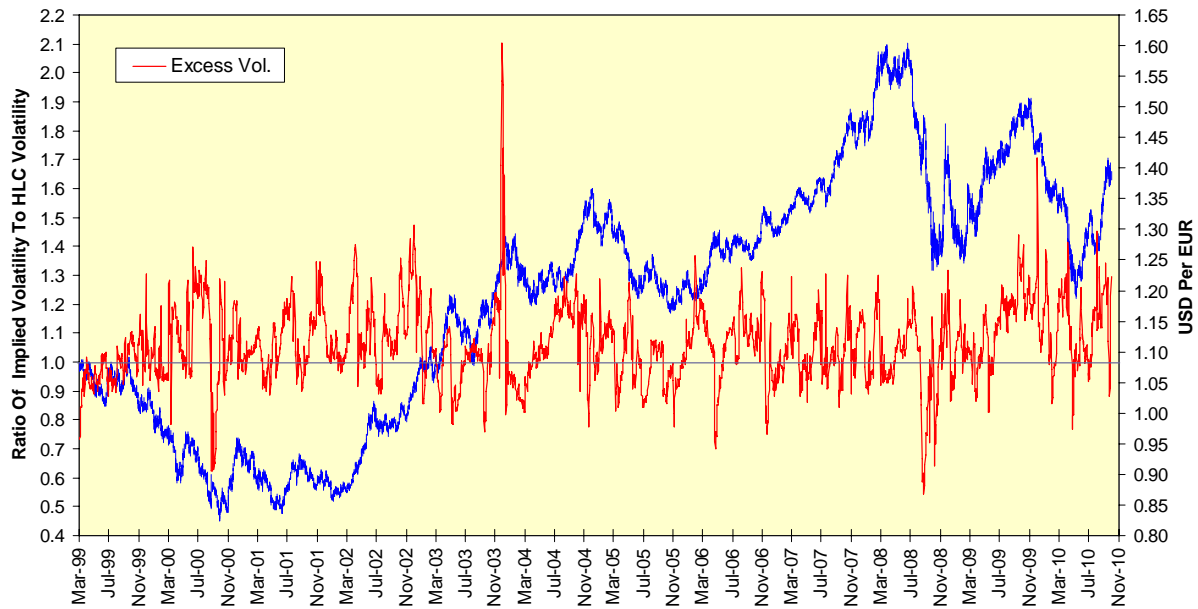
The implied volatility of three-month non-deliverable USD forwards for a EUR holder fell during the euro’s long secular bull market between 2001 and 2007, only to shoot higher in 2008 and then fall once again in 2009 before rising and falling in rhythm with the European sovereign debt and Federal Reserve money-printing escapades noted above. The degree to which this volatility has tracked the dollar-euro rate in recent years indicates a rising euro is accompanied by the belief the U.S. is acquiescing in the dollar’s fall. The U.S. can say it has a strong-dollar policy; the market clearly believes otherwise.

### Implied Volatility Tracking Spot Rate



Any volatility taken by itself is the sound of one hand clapping; if implied volatility rises when actual HLC volatility justifies such a move, then it is not the market reacting irrationally and fearfully but rather the opposite. If we take the ratio of implied to HLC volatility, dubbed excess volatility, we how it has budged only slightly through all of the currency’s sharp ups and downs in recent years. This stability suggests the options market has learned to take all of the machinations in stride and is in synch with the euro’s movements.

### The Euro's Excess Volatility In Normal Range

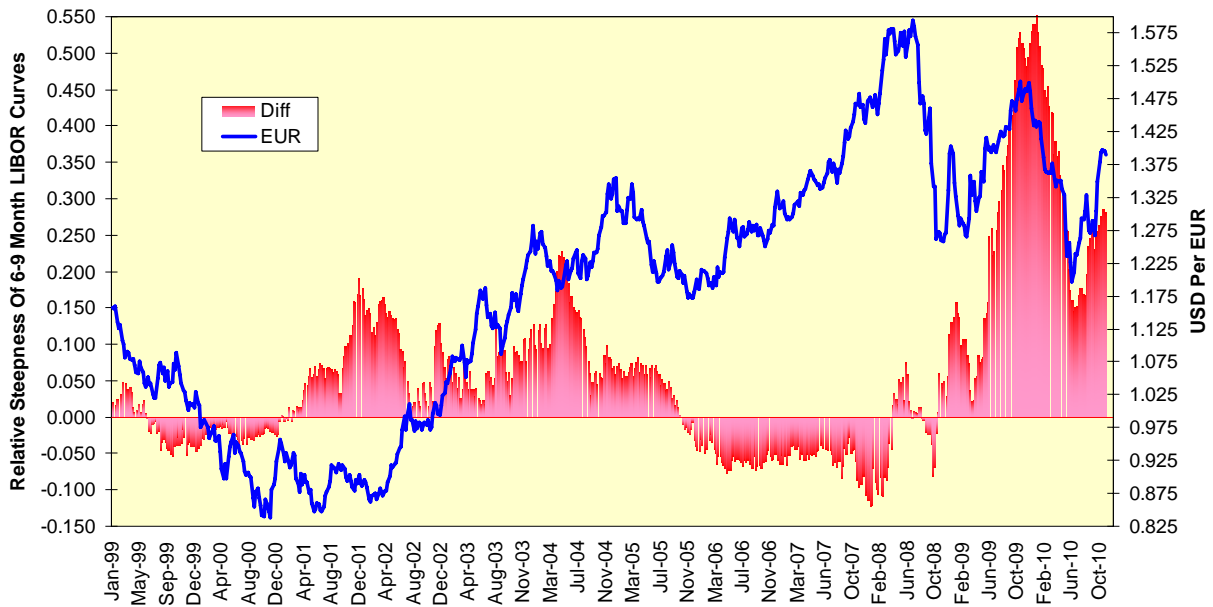


### Short-Term Interest Rate Expectations

If the volatility markets have lost a simple mechanical explanation, so too have the short-term interest rate markets. The normal pattern for years was the currency with the steeper money market curve as measured by the forward rate ratio between six and nine months ( $FRR_{6,9}$ ) would be the stronger currency, all else held equal. The  $FRR_{6,9}$  is the rate at which we can lock in borrowing for three months starting six months from now, divided by the nine-month rate itself. The more the  $FRR_{6,9}$  exceeds 1.00, the steeper the yield curve.

The USD  $FRR_{6,9}$  exploded higher in 2009 and again in 2010 as the U.S. adopted quantitative easing. The difference between it and the EUR  $FRR_{6,9}$  moved to a record level, which is an accomplishment considering how the EUR  $FRR_{6,9}$  had moved to a record steepness itself through April 2010. Moreover, while the differential used to lead movements in the euro itself by anywhere from three to six months, it lost any stable lead time after the financial crisis began. The chart below depicts the two measures without any lead or lag between them. The only conclusion we can reach is once the financial crisis moved monetary policy out of the realm of sanity in 2008-2009, relative monetary policies ceased to affect currency rates in the normal fashion. This statement is as outrageous as saying selected laws of physics no longer applied after a certain point in time.

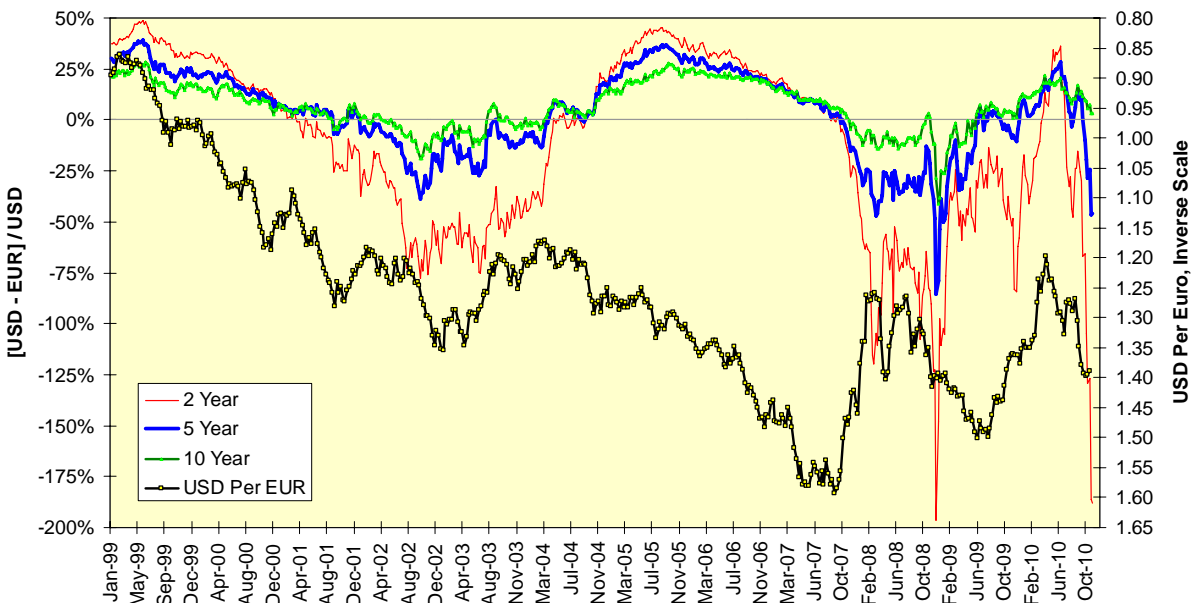
### Short-Term Rate "Perma-Expectations" Falsely Supportive Of Dollar



### Capital Market Horizons

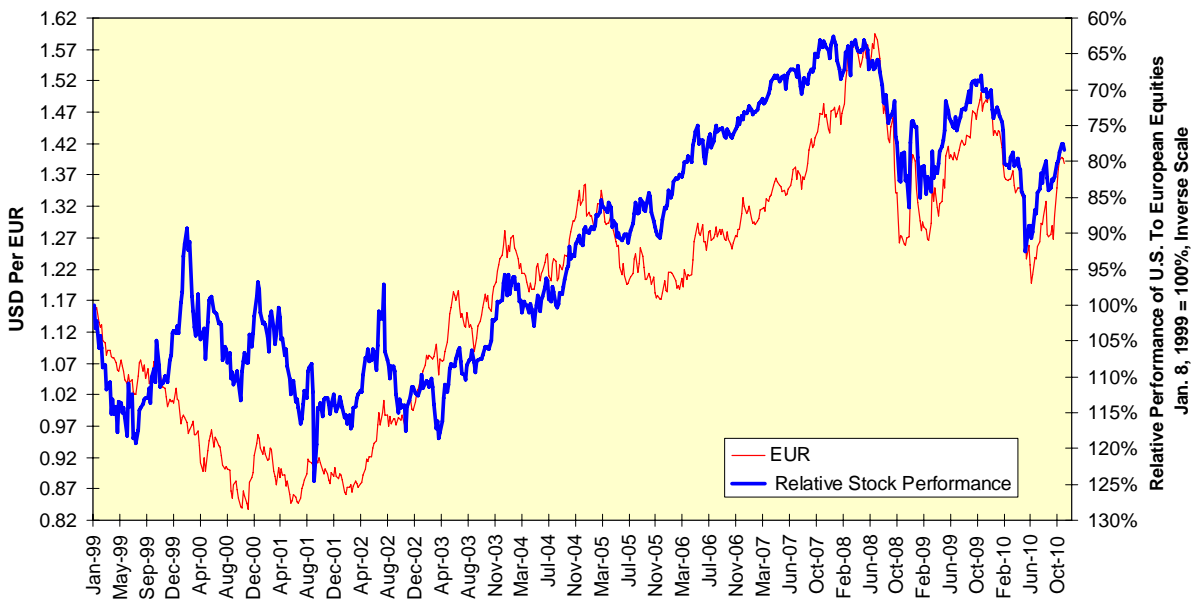
The impact of longer-term interest rate differentials is different, however. If we plot the rate gaps between the U.S. two-, five- and ten-year notes and their Eurozone counterparts, divided by the USD rates themselves, we see a negative interest rate gap, one where European rates are higher than American rates, correlates to a rising euro. This is equivalent to saying relatively lower rates in the U.S. are insufficient compensation for euro-domiciled investors to hold dollar-denominated assets over these note-horizon periods of time.

### The Euro And Note-Rate Differentials



Now let's look at the relative total returns in USD terms of U.S. and Eurozone stocks as measured by the MSCI total return indices. The general trend has been a stronger euro is correlated quite strongly with American underperformance. Indeed, a glance at the chart below, where relative stock index performance is plotted inversely, makes it appear as if international diversification between the U.S. and the Eurozone is nothing other than an expensive way of trading the euro.

## Trans-Atlantic Equities: Still Aligned With Currency In Time



If we were to apply the transitive property of equality to these relationships, we would have to say falling relative note-horizon interest rates in the U.S. leads to a weaker USD and a weaker USD is accompanied by American stock outperformance, so the relatively falling interest rates in the U.S. are a good thing for American equities on a relative basis. This argument has been made by many in the form of “a weaker dollar is good for (American) stocks.”

This action cannot persist indefinitely, however. It increasingly appears the dollar-euro rate is being bounded, with one explanation being Chinese shifting its vast reserves about to maintain both the CNY-USD rate and by extension the USD-EUR rate (see “Robin Hood Carry: The Yuan As A Funding Currency,” July 2010). That bound appears to be 1.20 – 1.40 USD per EUR at the time of this writing. The intriguing possibility arises that Chinese purchases of dollars or euros will be used to maintain the exchange rate and shift the burden of adjustment in the currency market to the two sets of interest rates, American and benchmark European. This will serve to keep currency volatility in line, as seen above, while decoupling the exchange rate from the traditional, mechanical interest rate differential drivers.

As an aside and as a disclaimer, while the use of conspiracy theories and external super-actors should be avoided at all costs, previous Chinese actions in pegging the yuan force us to allow for the possibility that massive capital flows from China can and indeed are bounding the USD-EUR rate.

One of the oldest and truest observations about such throw-your-weight-around trading is you can put it there, but you cannot keep it there. Eventually even the largest bully fails and the market goes back to normal and in this case mechanical relationships. That adjustment will be violent when it happens, probably in the form of a significantly weaker dollar and a significantly stronger yuan.