# European Bond Spreads, Yield Curves And Volatility

A client posed the question a few years ago during one of the many rolling sovereign credit crises then roiling the Eurozone as to when the whole thing would fall apart. The answer he received was, "Never." The elites of the Eurozone could never admit an error of that magnitude. In addition,, the construct actually worked well for Germany as the euro kept its exports competitive in a way the Deutsche mark would not and kept its domestic borrowing costs low as flight capital from the Eurozone's periphery depressed Bund rates. Most important of all, no one had a good idea of how to execute an amicable divorce.

The euro can be thought of as a fixed exchange rate amongst the European Monetary Union's (EMU) 18 member countries. Once we accept this, it follows from the above each member country's short-term interest rates, yield curves and fixed-income volatilities have to swing about to absorb the stresses resulting from perceived changes in credit quality. One of the Eurozone's central battles with reality, alluded to in the founding Maastricht Treaty of 1992 but then ignored in practice, is the fiction all of its members could be forced into having the same credit quality if only they adhered to some arbitrary standards of budget deficits, debt-to-GDP ratios and the like. In reality, of course, different countries have different credit ratings and different cultural attitudes toward debt, official corruption, tax collection, etc. This is not meant to disparage anyone or any country; it is almost the definition of a different national culture and why the geographic expression of "Europe" has so many small countries instead of one large one.

Much of the cultural history of Western Europe has been a longing for the single political entity lost with the collapse of the Roman Empire in the West in 476 A.D. Get over it, already.

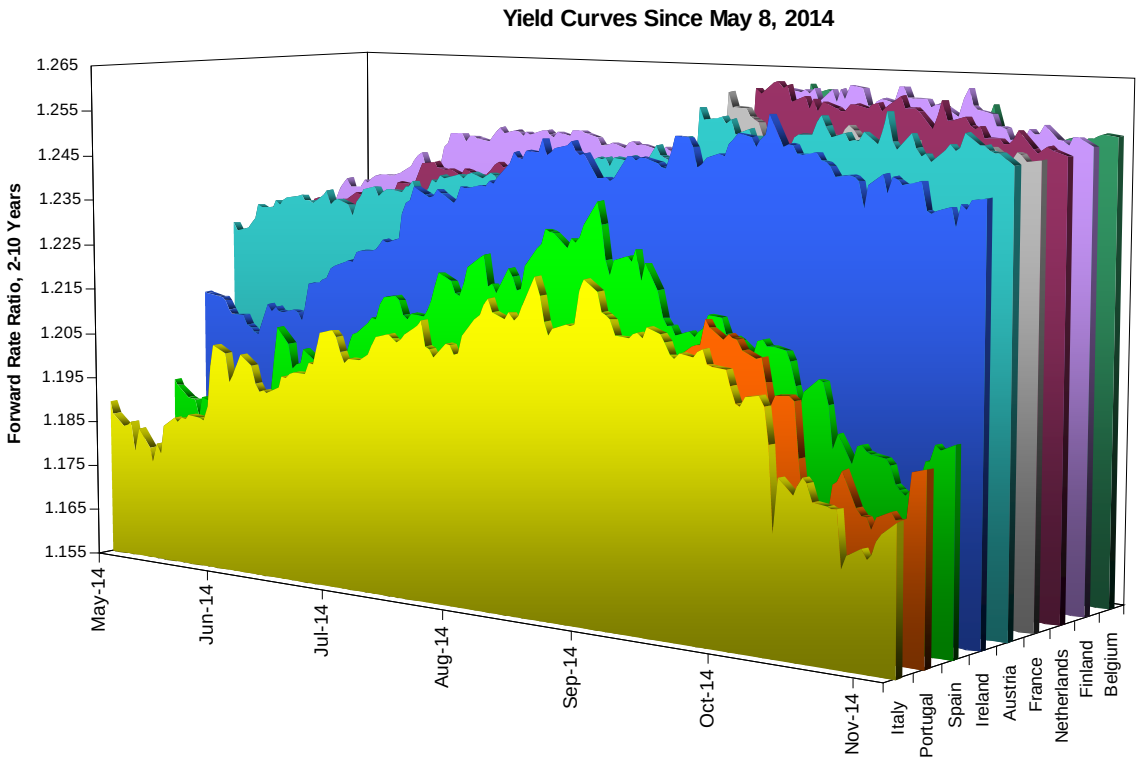
**Differential Yield Curves**

Governments may like to have their cake and eat it, too, but reality asserts itself early and irrefutably on occasion. A government or central bank can fix an exchange rate or it can fix a short-term interest rate, but it cannot fix both simultaneously. As the fundamental equation for currencies has the forward currency level as a function of the spot rate and the short-term interest rates of the two countries involved, you are left with a single equation and three unknowns. This why currencies can move around so much; there is no one single price that clears the system but rather a large number of spot rate and interest rate combinations.

If a government pegs the exchange rate in a currency board system as Argentina and Bulgaria tried for much of the 1990s, they have to raise or lower their short-term interest rates fairly actively to maintain that peg. This becomes annoying for both borrowers and lenders, to say the least. If a country fixes a short-term interest rate, as the U.S. did in December 2008 or as Japan first did in March 2001, the currency will have to swing about as external interest rates change. This also becomes annoying, in this case for importers and exporters. As everyone in the economy is either a borrower or lender and is involved in international trade via the purchase of imported goods if nothing else, it is easy to see how schemes to manage currencies becomes everyone's business rather quickly.

Both the stronger and weaker credits within the EMU see their yield curves respond to the Eurozone's various stresses. We can measure this by the forward rate ratios between two and ten years ($FRR_{2,10}$) for each nation's sovereign debt. This is the rate at which we can lock in borrowing for eight years starting two years from now, divided by the ten-year rate itself. The steeper the yield curve, the more the $FRR_{2,10}$ exceeds 1.00; an inverted yield curve has a $FRR_{2,10}$ less than 1.00.

We should expect weaker credits' short-term interest rates to rise and flatten their yield curves during times of stress as these countries need to compensate for their greater risk. Conversely, we should expect stronger credits' short-term interest rates to fall and steepen their yield curves during times of stress as risk-averse investors seek a refuge. This has happened with great regularity in the Eurozone, especially since the sovereign credit crisis began in late 2009. The movement of national $FRR_{2,10}$ since the euro started turning lower in May 2014 illustrates this phenomenon well.

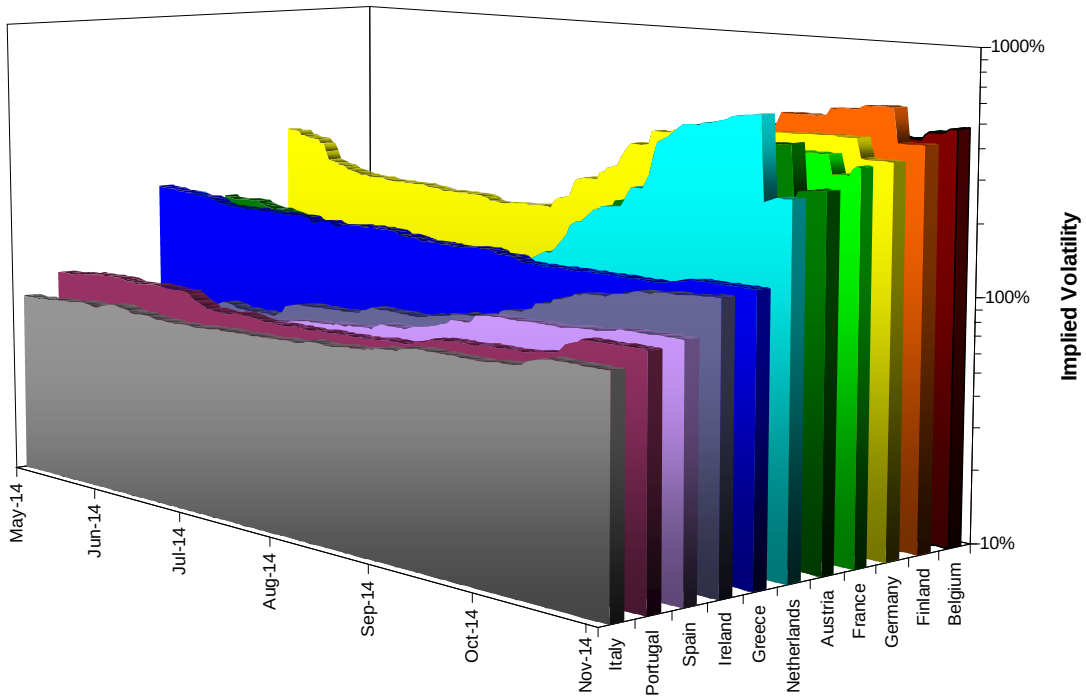



Source: Rosewood Trading

**Two-Year Interest Rate Volatility**

A related phenomenon occurs with the implied volatility of two-year zero-coupon notes in each country. As short-term interest rates fall and as yield curve steepens, implied volatility rises, often to meaningless levels. We should expect these volatility readings to be much lower for weaker credits such as Italy, Portugal and Spain and higher for stronger credits such as Germany, Finland and Belgium, and this is exactly the case. Once again, this phenomenon will be illustrated from the May 2014 downturn in the euro onwards.

**Two-Year Zero-Coupon Implied Volatility Since May 8, 2014**




Source: Bloomberg

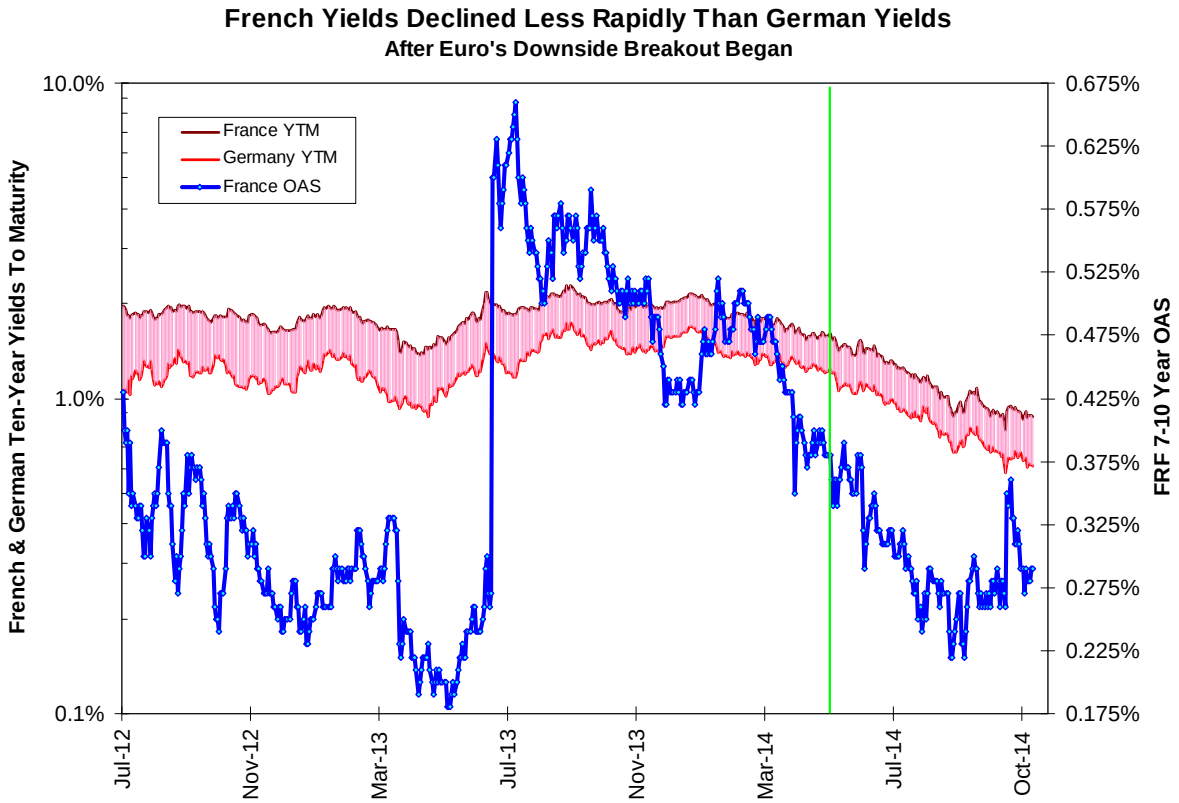
**Franco-German Yield Spreads**

Let's take a look at the yield spread between 7-10 year French OATs and German Bunds before and after the May 8, 2014 noted above and marked with a green vertical line in the chart below and ask whether the euro's downturn had any effect on this spread. The chart begins with the July 2012 "whatever it takes" comment made by the ECB's Mario Draghi in support of the euro.

The 7-10 year Bund yields have decreased at a loglinear rate of 0.5063% over this period while 7-10 year OAT yields have declined at a daily loglinear rate of 0.4745%. However, OAT yields had been declining more rapidly until the end of October 2014, and the 7-10 year OAT has outperformed its Bund counterpart since May 2014 by 6.45% versus 5.92%. Option-adjusted spread (OAS) levels for the French bonds have declined by seven basis points, from 0.36% to 0.29%, but this measure stayed within a narrow range from July 2014 onwards.

While the sovereign credit default swap (CDS) market is an imperfect indicator at best, it should be noted both five-year French and German CDS priced in USD increased very slightly after May 2014, from 45.719 to 52.58 basis points in the French case and from 21.302 to 22.65 basis points in the German case. These measures started to rise from their September 2014 lows shortly after the ECB failed to initiate direct quantitative easing via the purchase of sovereign bonds.

The euro's decline was not a strongly significant contributor to higher returns, though. If we compare the post-May 2014 period to the July 2013-May 2014 period when the euro was rising, we see an increase in average daily returns from 0.0247% to 0.0502% for 7-10 year OATs and from 0.0153% to 0.0452% for 7-10 year Bunds. These are different at only 67.13% and 77.30% confidence levels, respectively.




Source: Bloomberg

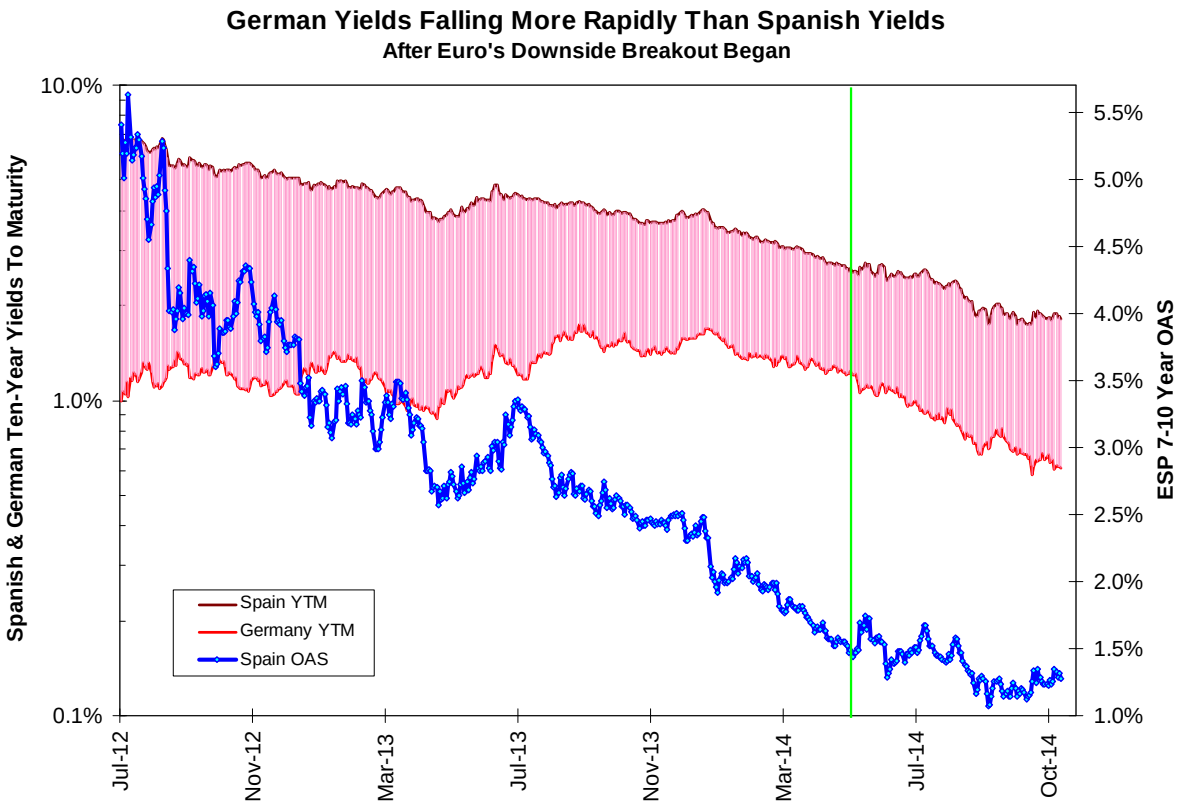
**Spanish and Italian/German Spreads**

Now let's repeat the exercise for the spreads between Spanish and Italian 7-10 year bonds. Spanish and Italian yields have decreased at daily loglinear rates of 0.3557% and 0.2238%, respectively, since May 2014, far less than the 0.5063% daily loglinear rate for 7-10 year Bunds. However, total returns for Spanish and Italian 7-10 year bonds over this period exceeded those for Bunds, 6.52% and 5.85%, respectively, versus 3.78%.

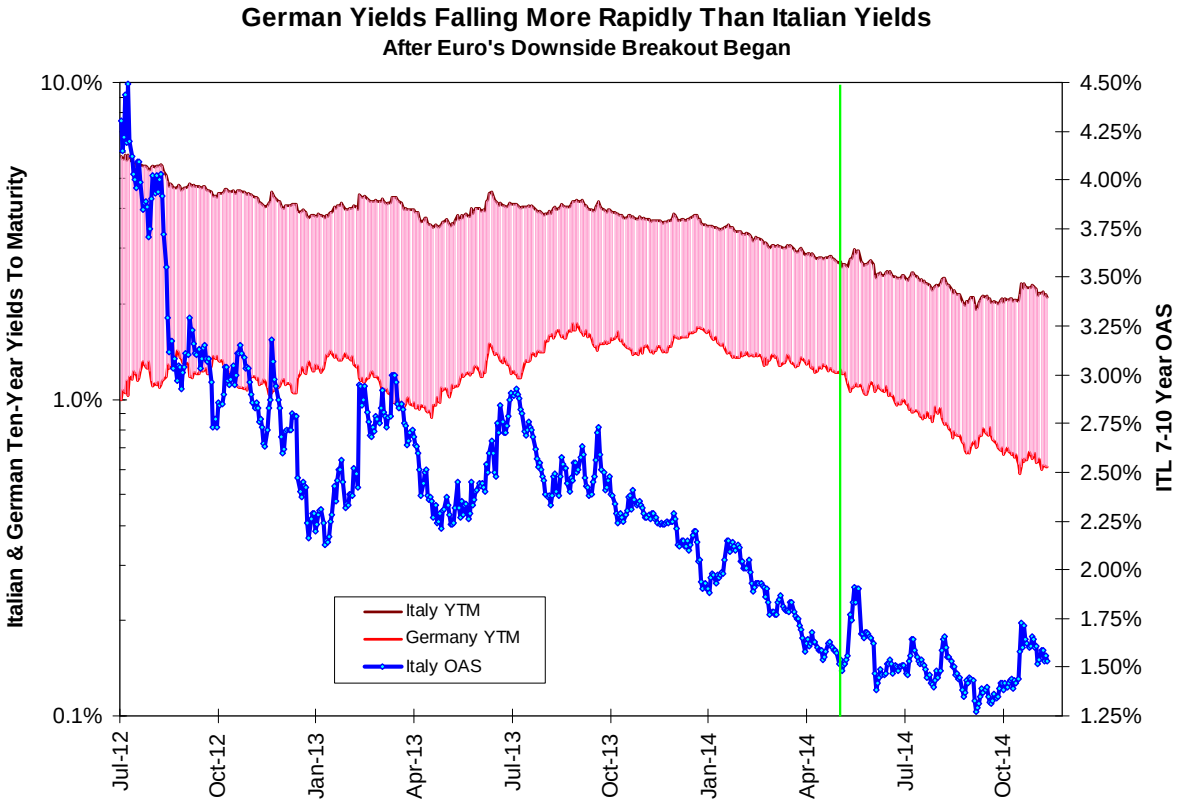
OAS levels for the two bonds declined by 16 and 5 basis points, respectively. However, both OAS levels have increased since the ECB disappointed the market by not moving to direct quantitative easing in September, increasing by 22 and 14 basis points, respectively. Five-year sovereign CDS levels have increased for both countries since May 2014, with Spanish CDS levels rising from 83.00 to 100.68 basis points and Italian levels rising from 105.00 to 124.66 basis points.

The euro's decline has not been a significant contributor to Spanish and Italian 7-10 year bond returns. If we compare the post-May 2014 period to the July 2013-May 2014 period when the euro was rising, we see average daily returns declined for both bonds once the euro turned lower; from 0.079% to 0.061% in the Spanish case and from 0.0628% to 0.0473% in the Italian case. The returns were different at insignificant confidence levels of just 36.84% and 32.31%, respectively.

While the gains for both Spanish and Italian bonds have been strong absolutely, they remain subpar relatively as the weakening macro outlook in the Eurozone and the lack of direct quantitative easing has encouraged risk-averse flows into Germany and other strong Eurozone credits.




Source: Bloomberg




Source: Bloomberg

One of the more interesting aspects about relative 7-10 year bond returns in the Eurozone has been how the flight into stronger credits has steepened their yield curves via significantly lower and even negative short-term interest rates; at one point, Germany's two-year Schatz of -0.094%. That yield destroyed the reinvestment income on Bund coupons and allowed not only French but Spanish and Italian bonds to outperform Bunds on a total return basis. As long as the Eurozone remains under economic stress and the ECB remains under pressure to keep interest rates low and preserve the euro, sovereign yield curves and volatilities will behave as seen above and, perversely, weaker credits' bonds will continue their strong performance.