The Interest Rate Price Of A Currency Union

Certain acts of define desperation; these include self-identification by cubicle-dwellers as a contrarian, paying tuition for a course on entrepreneurship, subscription to any diet plan and, of course, repetition of any management buzz-phrase such as "thinking outside of the box." When you hear the latter term, replace it with, "thinking with a child's natural curiosity" and be done with it.

Let's take the subject of a currency union, please. The author witnessed the construction of the Berlin Wall and its toppling a mere 28 years later and wonders if the euro will endure for longer than that tribute to human oppression. You can conceive of the euro as a single entity or you can think outside of the box and conceive of it as a set of fixed exchange rates between all of its members. As there are seventeen members of the Eurozone at the time of this writing, the euro actually converts $[(17^2 – 17)/2]$, or 136 currency pairs into a set of seventeen national currencies trading at fixed rates to each other and at a floating rate to the rest of the world. This sort of network economics is why centralized nodes, including stock and commodity exchanges, have such cost efficiency in sharing information.

Two asides are in order: While the United Nations, an organization never known as a bastion of efficiency in anything, decided on a small set of official languages, just six at last count, the European Union insists on simultaneous translations into all member languages during its proceedings; this may strikes notoriously mono-lingual Americans who are impressed with Europeans' multilingual skills as unnecessary, and it certainly is cumbersome. The second is the move to the euro was devastating to the large population of oddball currency traders at European banks and money-changers: Some people actually made their living trading the Finnish markka against the Portuguese escudo, or some-such, regardless of its general flouting of the principles of economic utility.

But there is a significant downside to fixing currency rates, and that is a country can fix its short-term interest rates or it can fix its currency exchange rates, but it cannot fix both simultaneously. Thus if Greece, just to take the prime example of the whole 2009-2012 European sovereign debt mess, has a de facto fixed exchange rate against Germany, all macroeconomic adjustments have to be achieved through higher short-term interest rates as opposed to a combination of higher short-term interest rates and a weaker currency.

Consequences Of The Fix

We should expect, then, for the weaker credits within the Eurozone to have higher short-term interest rates and flatter yield curves than they would have otherwise. Conversely, we should expect the stronger credits within the Eurozone to have lower short-term interest rates and a steeper yield curve than they would have otherwise. A second consequence is the interest rate distortion makes the common currency weaker than it would be otherwise for the stronger credits and stronger than it would be otherwise for the weaker credits.

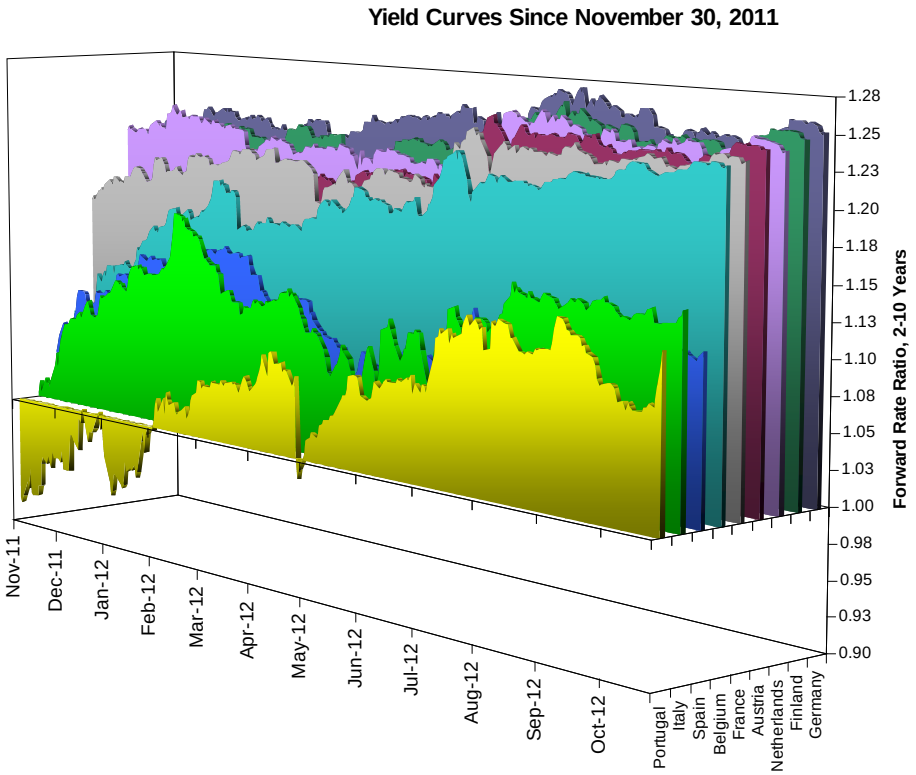
The third consequence is a bit stranger. The implied volatility of any short-term interest rate viewed as artificially low and at the anchor end of a yield curve steeper than it would be otherwise rises. The reason is devilishly simple: The market knows once the suppression of short-term interest rates ends; those yields will snap higher and flatten the yield curve in consequence.

It we sum these effects, we see lose-lose propositions all the way around: Weaker credits have to struggle with higher short-term interest rates and a stronger currency, while stronger credits have to deal with higher implied volatility and a steeper yield curve. As improperly valued currencies affect all segments of an economy and as interest rates by definition equilibrate current and future consumption, the mechanics of a currency bloc creates a large and differing number and distribution of winners and losers in its member states as the price of avoiding those extra trading pairs.

Two Measures Over Time

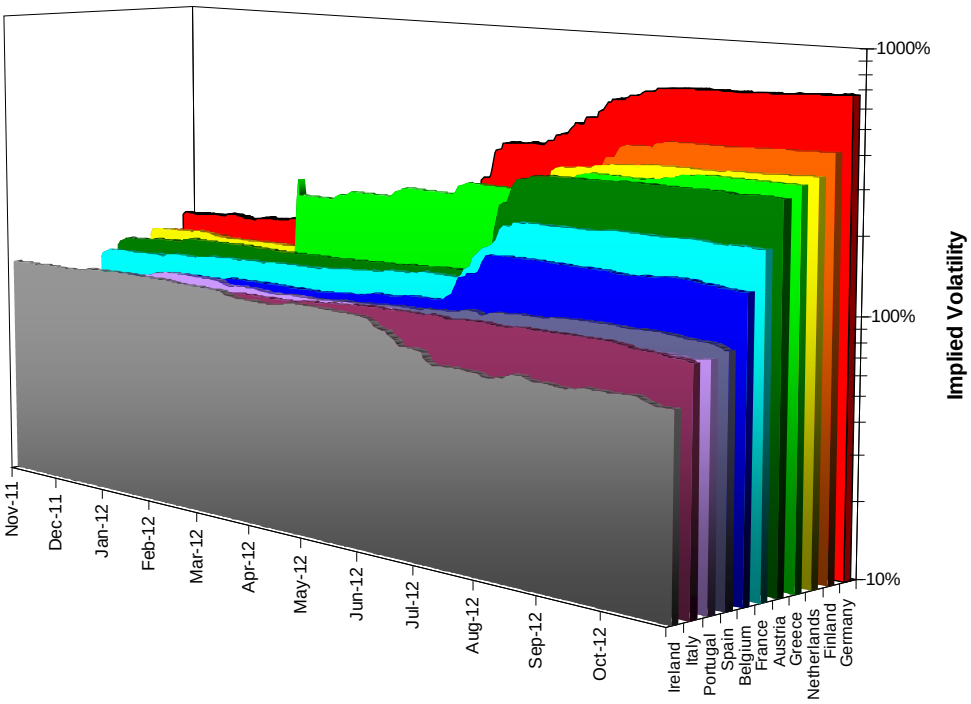
Let's illustrate the distortions of the Eurozone currency bloc across two dimensions. The first is the sovereign yield curve as measured by the forward rate ratio between two and ten years ($FRR_{2,10}$). This is the rate at which we can lock in borrowing for eight years starting two years from now, divided by the ten year rate itself. The more this ratio exceeds 1.00, the steeper the yield curve is. As an aside, neither the Greek $FRR_{2,10}$, nor the Irish $FRR_{2,10}$ are shown. Greece defaulted in March 2012 and restructured; Ireland similarly stopped issuing ten-year notes. Both yield curves had moved into and out of inversion. The second dimension is the implied volatility of two-year zero-coupon sovereign debt.

How have these measures traded since the expansion of currency swaps into the Eurozone at the end of November 2011? First, the weakest remaining member of the former PIIGS quintet, Portugal, was the last country to have an inverted yield curve. However, it along with Spain and Italy have the flattest yield curves while stronger credits such as Germany, Finland and the Netherlands have the steepest yield curves.



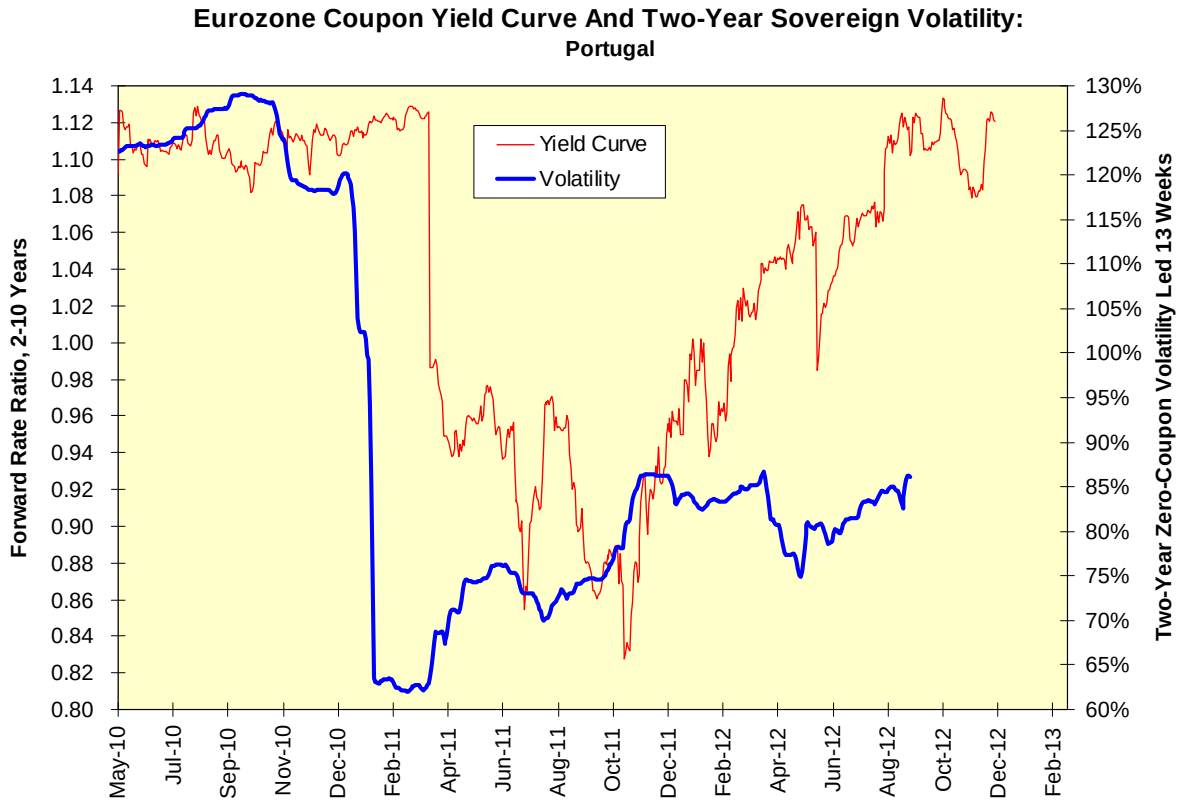
Next, the picture for two-year zero-coupon implied volatility is as-expected as well. The weaker credits, Greece after its March 2012 restructuring excepted, have the lowest volatility for the counterintuitive reason the market does not consider them accidents waiting to happen. The flood of money into the short-term paper of the higher-quality credits such as Germany drove volatility higher, with deleterious consequences for insuring against interest rate volatility.

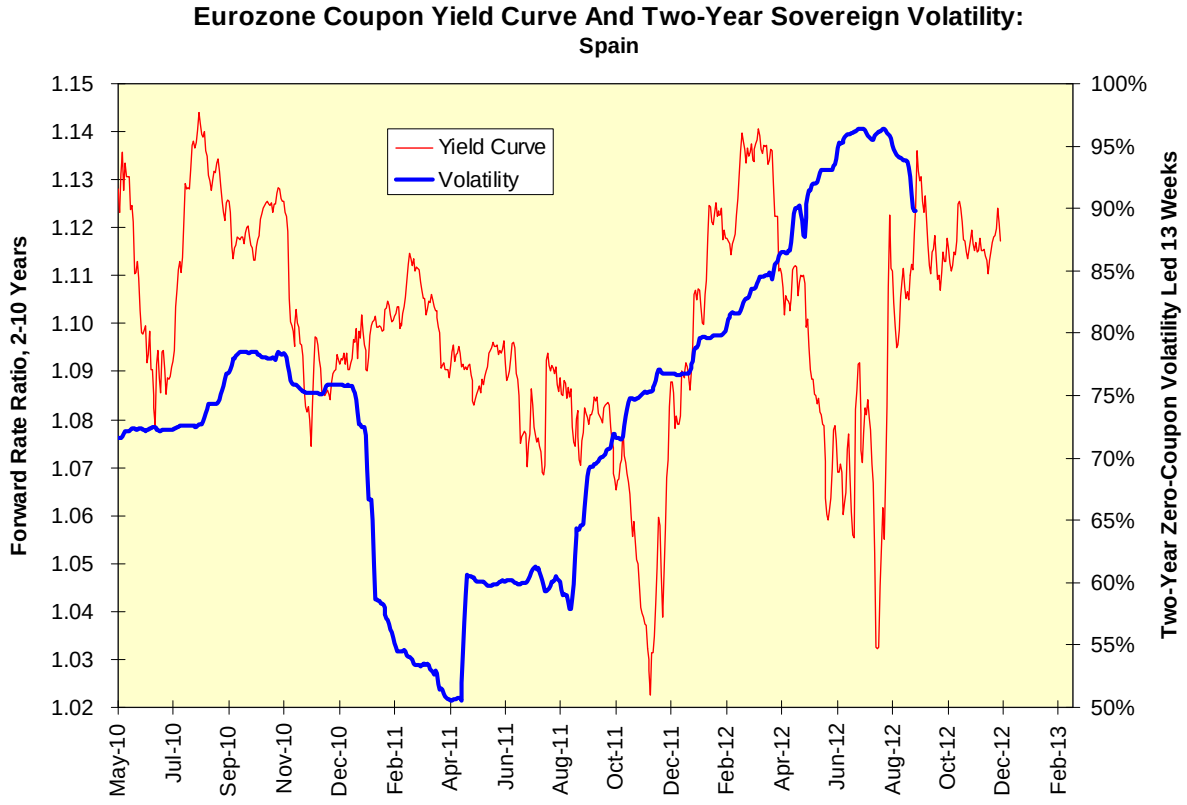
Two-Year Zero-Coupon Implied Volatility Since November 30, 2011



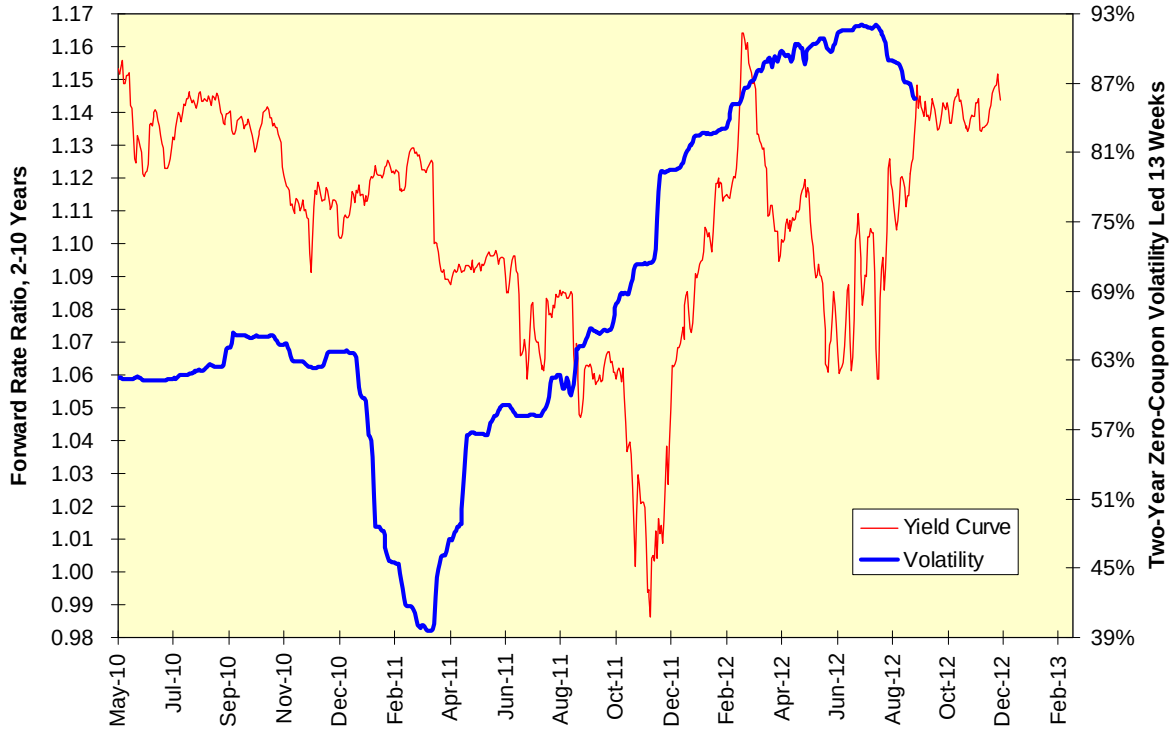
National Histories

Now let's step back and take a look at the selected paths of various strong and weak credits. The $FRR_{2,10}$ tends to lead two-year zero-coupon implied volatility across a number of markets by thirteen weeks, or one calendar quarter. This is consistent with the quarterly expiration and debt issuance cycles in many countries. These are presented below without further comment as they show us how the one variable allowed to operate in a currency union, short-term interest rates, drives volatility and the cost of insuring financial risk.

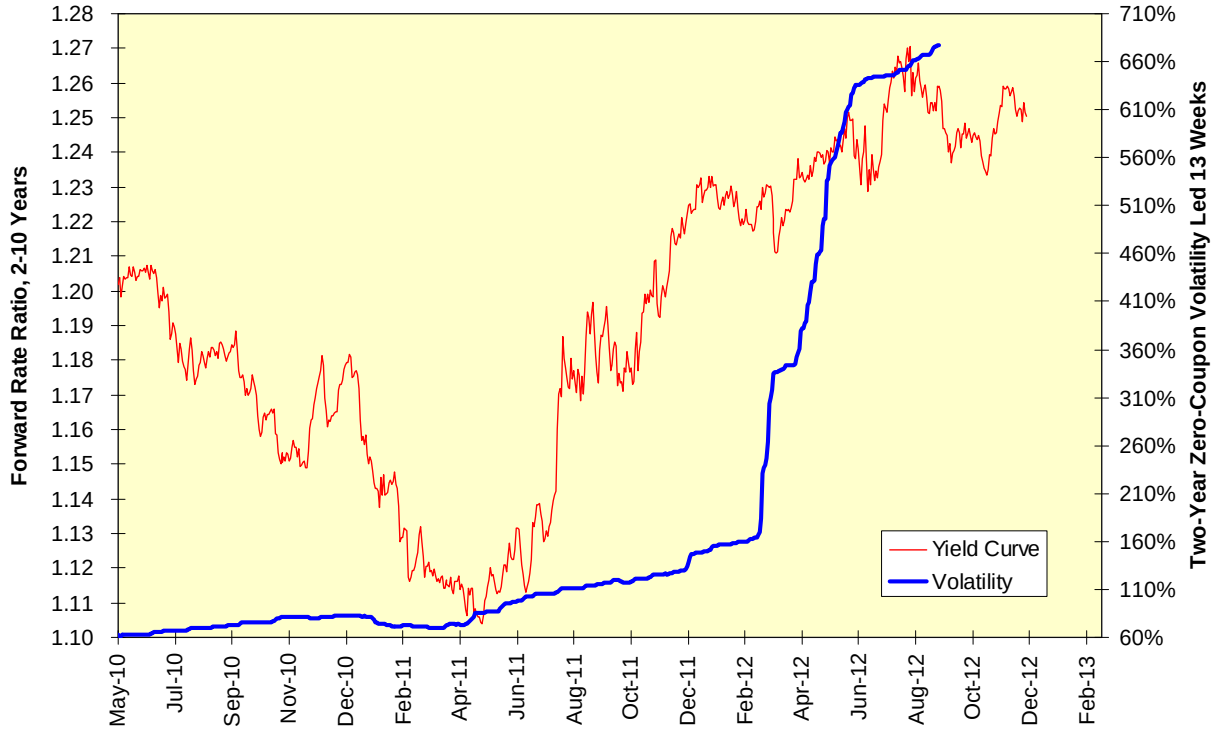

Eurozone Coupon Yield Curve And Two-Year Sovereign Volatility:
Portugal
Yield Curve
Volatility
Forward Rate Ratio, 2-10 Years
Two-Year Zero-Coupon Volatility Led 13 Weeks
1.14
1.12
1.10
1.08
1.06
1.04
1.02
1.00
0.98
0.96
0.94
0.92
0.90
0.88
0.86
0.84
0.82
0.80
130%
125%
120%
115%
110%
105%
100%
95%
90%
85%
80%
75%
70%
65%
60%
May-10
Jul-10
Sep-10
Nov-10
Dec-10
Feb-11
Apr-11
Jun-11
Aug-11
Oct-11
Dec-11
Feb-12
Apr-12
Jun-12
Aug-12
Oct-12
Dec-12
Feb-13

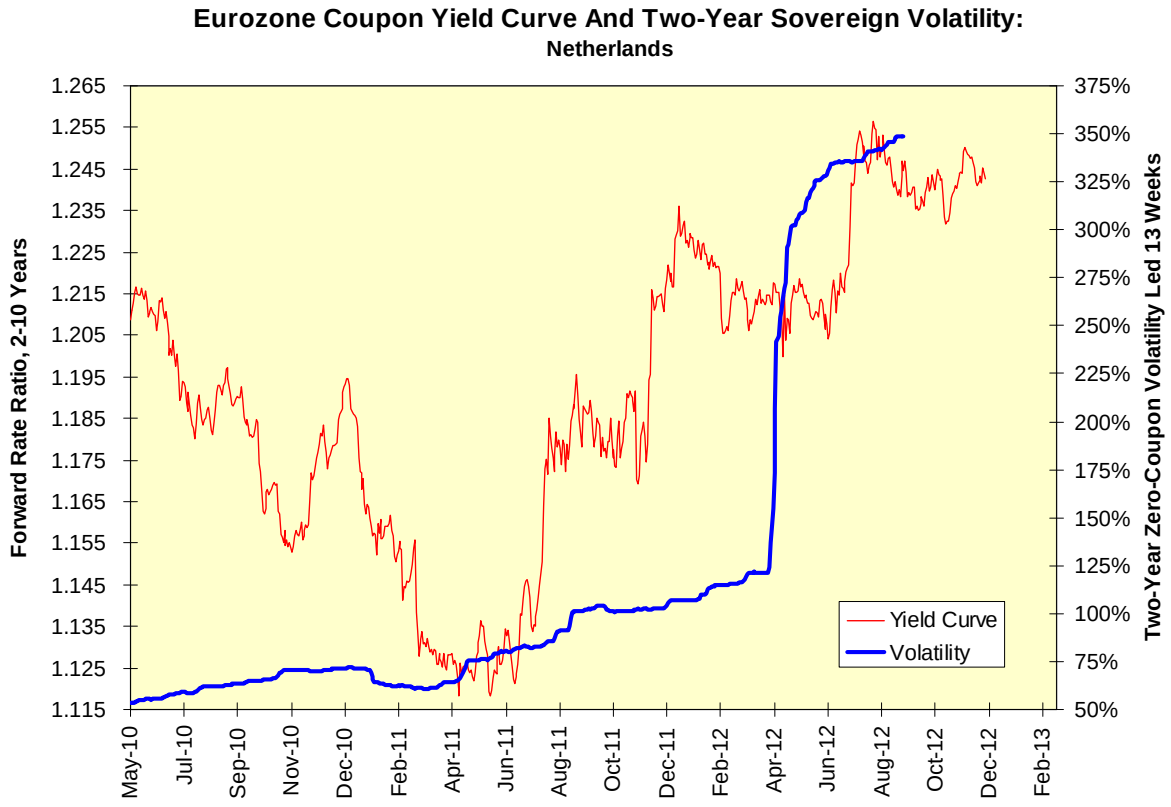

Eurozone Coupon Yield Curve And Two-Year Sovereign Volatility:
Spain
Yield Curve
Volatility
Forward Rate Ratio, 2-10 Years
Two-Year Zero-Coupon Volatility Led 13 Weeks
1.15
1.14
1.13
1.12
1.11
1.10
1.09
1.08
1.07
1.06
1.05
1.04
1.03
1.02
100%
95%
90%
85%
80%
75%
70%
65%
60%
55%
50%
May-10
Jul-10
Sep-10
Nov-10
Dec-10
Feb-11
Apr-11
Jun-11
Aug-11
Oct-11
Dec-11
Feb-12
Apr-12
Jun-12
Aug-12
Oct-12
Dec-12
Feb-13

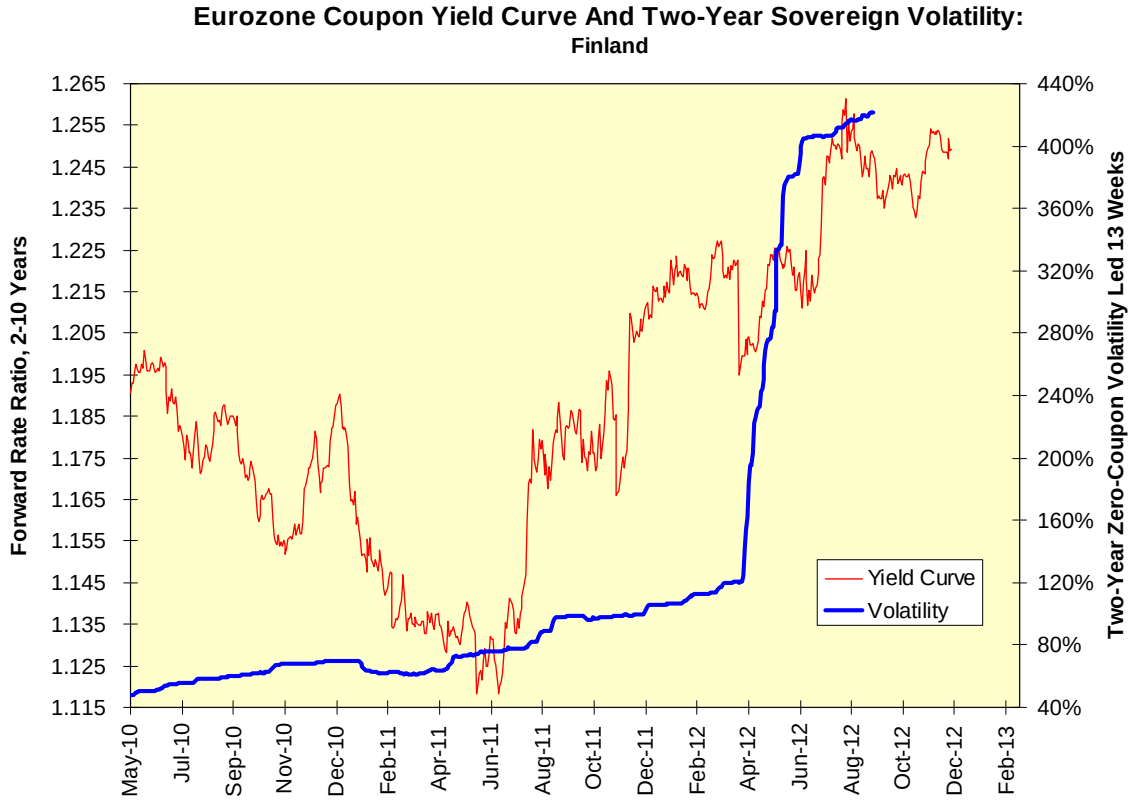
Eurozone Coupon Yield Curve And Two-Year Sovereign Volatility:
Italy



Eurozone Coupon Yield Curve And Two-Year Sovereign Volatility:
Germany




Eurozone Coupon Yield Curve And Two-Year Sovereign Volatility:
Netherlands
Forward Rate Ratio, 2-10 Years
Two-Year Zero-Coupon Volatility Led 13 Weeks
1.265
1.255
1.245
1.235
1.225
1.215
1.205
1.195
1.185
1.175
1.165
1.155
1.145
1.135
1.125
1.115
375%
350%
325%
300%
275%
250%
225%
200%
175%
150%
125%
100%
75%
50%
May-10
Jul-10
Sep-10
Nov-10
Dec-10
Feb-11
Apr-11
Jun-11
Aug-11
Oct-11
Dec-11
Feb-12
Apr-12
Jun-12
Aug-12
Oct-12
Dec-12
Feb-13
Yield Curve
Volatility


Eurozone Coupon Yield Curve And Two-Year Sovereign Volatility:
Finland
Forward Rate Ratio, 2-10 Years
Two-Year Zero-Coupon Volatility Led 13 Weeks
1.265
1.255
1.245
1.235
1.225
1.215
1.205
1.195
1.185
1.175
1.165
1.155
1.145
1.135
1.125
1.115
440%
400%
360%
320%
280%
240%
200%
160%
120%
80%
40%
May-10
Jul-10
Sep-10
Nov-10
Dec-10
Feb-11
Apr-11
Jun-11
Aug-11
Oct-11
Dec-11
Feb-12
Apr-12
Jun-12
Aug-12
Oct-12
Dec-12
Feb-13
Yield Curve
Volatility

Kick That Bloc

As Keynes noted famously, “The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influence, are usually the slaves of some defunct economist.”

The world of currency trading has been driven by the ideas of several Nobel laureates, including Milton Friedman, who espoused floating exchange rates as a way of getting to self-correcting current account balances, and Robert Mundell, the real architect of the euro. Both floating exchange rates and the euro were designed to replace existing regimes found wanting and in perpetual crisis mode; both floating exchange rates and the euro went on to create their own rolling and somewhat quasi-permanent crises. Until the Eurozone both abandons its separate national histories and adopts a common fiscal policy, it will suffer at the interest rate cost defined by its internally fixed exchange rates. That is quite simply a given.