Eurozone Sovereign Debt Crisis Briefing

...a briefing on the status, causes and solutions for the Eurozone sovereign debt crisis

October 22, 2012

Eurozone Sovereign Debt Crisis - Current Status

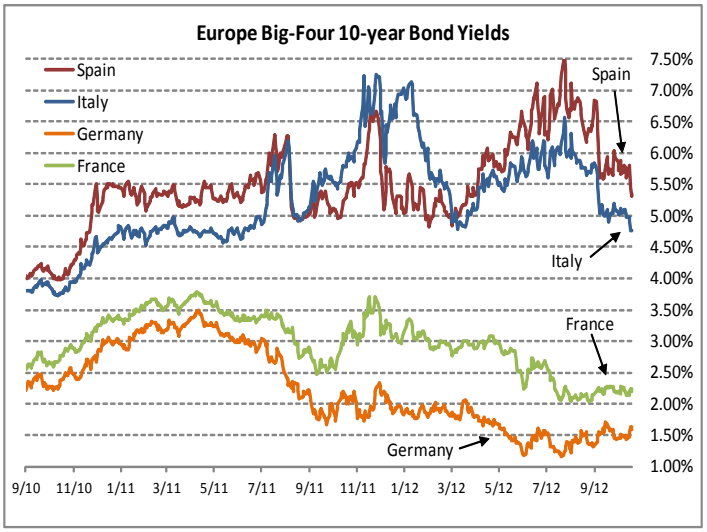
The European Central Bank (ECB) at its meeting in September finally came to the rescue and offered to directly participate in a bailout program for struggling countries such as Spain. The ECB promised to use its unlimited balance sheet to help stabilize the Eurozone debt crisis, taking a big step forward and succeeding in causing Spanish and Italian bond yields to drop sharply. There are still many obstacles to overcome, but there is finally a sense that there might be a path forward in the Eurozone debt crisis without an implosion of the euro or the loss of Eurozone members.

The markets at present are waiting for three major events. First, the markets are waiting for a deal that provides Greece with its next 31 billion euro tranche of bailout aid. Second, the markets are waiting for Spain to formally accept the bailout program offered by the ECB and the Eurozone through its European Stability Mechanism (ESM) permanent bailout facility. Spain's participation in this program would provide investors with assurance that Spain's finances are under the direct supervision of Eurozone and IMF officials and that Spain has the firepower of the ECB and ESM to ensure that it can get the financing that it needs to cover its government budget deficit over the next several years.

Third, the markets are waiting to see exactly how the bailout of the Spanish banking system will transpire. The Eurozone has already committed up to 100 billion euros for the Spanish bank bailout, but there are still major questions about exactly how this aid will be applied.

Meanwhile at the Eurozone policy level, the markets are watching carefully to see how quickly the Eurozone can progress on its goal of banking union. Banking union will begin with a pan-Eurozone banking supervision system and will eventually include a Eurozone bank failure resolution system and deposit insurance system. A pan-Eurozone bank supervision program is being required by Germany and other countries as a condition for allowing the ESM to provide bailout capital directly to banks. That ESM direct recapitalization function is critical to breaking the fatal loop between the European banks and their sovereign governments.

Eurozone officials are effectively on a two-track system. Over the short-term, Eurozone officials need to put out the fires in Spain and Greece and protect Italy from contagion. Over the longer-term, Eurozone officials are working on closer integration to address the Eurozone's structural problems.



We will first review the situation in several key Eurozone countries and then delve into the institutional issues behind the crisis, wrapping up with a review of key Eurex Exchange markets.

Greece is a long-term project

The Eurozone dodged a bullet when the Greek election on June 17 produced a pro-bailout coalition of parties led by the new Greek Prime Minister Antonis Samaras. That follow-up election was made necessary by the hung election on May 6 when no party gained more than 22% of the vote. There was a chance that the radical left Syriza party could have taken control of the government at the second election in June, which would have resulted in a major showdown between the Greek government and Eurozone officials and the possible result of Greece leaving the Eurozone.

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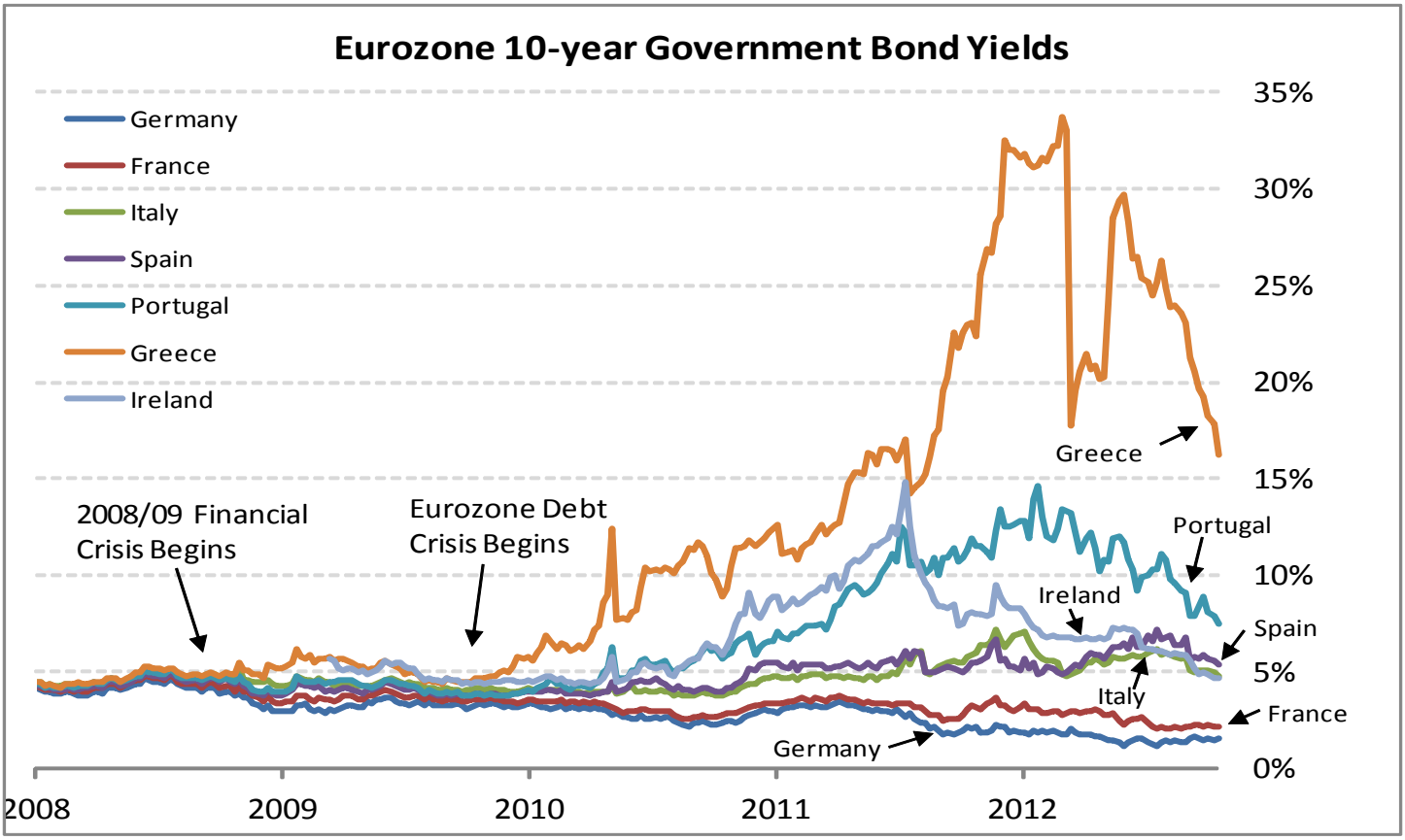
There is no legal path for a country to leave the Eurozone and give up the euro as its currency. The legal department at the European Central Bank studied the issue in 2009 and concluded that there are so many problems with an exit that the chances of that happening are next to zero. Nevertheless, a Greek exit from the Eurozone could still happen no matter how legally complicated it may be. Moreover, if a country does actually leave the Eurozone, then the markets would be concerned about other countries leaving the Eurozone because a template would then be available.

Greece currently has a signed and sealed bailout process in place. Greece signed a 140 billion euro bailout deal in February that provides the loans it needs to get through the next two years, including 50 billion euros to recapitalize Greek banks. Greece through the process also managed to shed 100 billion euros worth of debt with a bond swap agreement, which was essentially a default and forced Greek debt holders to take a 53.5% nominal loss on their investment.

The problem is that since the February bailout agreement was signed, Greece's fiscal situation has deteriorated due to the political turmoil in Greece and the lack of implementation of required austerity measures. In addition, the Greek economy has deteriorated by more than expected, which has hurt tax revenues and increased social costs. Officials from the Eurozone, ECB, and IMF (referred to as the "troika") are currently negotiating a plan for Greece to implement additional austerity measures and agree to a long list of policy changes. If Greece agrees to the implementation of these measures, then troika officials will release the next tranche of aid. Officials also need to determine whether Greece's bailout agreement will need to be restructured in order to meet the long-term target of a debt level of no more than 120% of GDP by 2020.

The fact that troika officials are doling out aid on a quarterly basis virtually ensures that there will be a show-down nearly every quarter about whether Greece is meeting its austerity targets and is implementing its agreed-upon policy measures. The markets therefore must accept the likelihood that the Greek situation will constantly be on the edge over at least the next few years. Greece could yet simply give up on trying to meet the troika's austerity measures and default on the remainder of its debt. This would likely involve an exit from the Eurozone and the re-adoption of the drachma.

The good news, however, is that most Greeks do not really want to leave the Eurozone. Moreover, the Eurozone can



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ill afford the risks of Greece leaving the Eurozone due to the possibility of contagion for Spain and Italy and huge collateral damage and costs. Greeks are fed up with their politicians and austerity but polls show that up to 80% of Greeks favor remaining in the Eurozone. Despite all the brinkmanship, there is strong underlying pressure for both sides to do what is necessary to keep Greece in the Eurozone.

Spain is close to entering ECB/ESM bailout program

Spain is facing very serious financial troubles caused by a meltdown of the real estate market, the Spanish banking system, regional government finances, and ultimately central government finances. Spain's finances were in solid shape before the 2008/09 global financial crisis. Remarkably, Spain in 2007 had a budget surplus of 1.9% of GDP and a total debt load of only 36% of GDP. However, the global financial crisis caused a deep Spanish recession and a bust in the Spanish real estate bubble, which in turn caused a banking crisis, a deep recession, and an implosion of the government's finances.

There is little doubt that Spain will eventually be forced to formally apply for the bailout program offered by the ECB and ESM to support its central government's financing needs. Spanish Prime Minister Rajoy has been dragging his feet on formally requesting the program because of the political costs of becoming a ward of the Eurozone and the IMF. In addition, the pressure on Mr. Rajoy to request the program has been substantially reduced by the ECB's announcement in September of its bond-buying program and the subsequent sharp drop in Spanish bond yields.

Nevertheless, Spain is expected to request at least a precautionary line of credit that will have the ECB and ESM on call for help if and when help is needed. Spain can get an "Enhanced Conditions Credit Line" from the ESM by signing a memorandum on budget targets and reform measures and submitting to an IMF monitoring program. Spain's participation in the program would need to be approved by all the Eurozone national governments.

Eurozone officials are hoping that the ESM would have to earmark no more than 100 billion euros for a Spanish government bailout, with Spain covering the rest of its financing needs in the bond markets at yields that are held down by ECB's bond-buying program. Spain needs to borrow a gross 207 billion euros in 2013 in order to cover bond redemptions and its budget deficit, according to Spanish budget forecasts.

Spain already has in place a bailout program from the Eurozone for its banking system of up to 100 billion euros, although it appears that less than 60 billion will actually be needed based on recent bank stress tests by Spain's outside banking consultants. However, this bailout program is only for Spain's banks and is not for the central government.

The details of exactly how the bank bailout will work have yet to be finalized. The bailout money will likely be provided to Spain's national bank bailout facility, the "Fund for Orderly Bank Restructuring" (FROB). The loans will likely be carried on the Spanish government's books, which means the Spanish government will be held responsible for repaying the loans and the loans will increase the total size of the government's debt load. The bank bailout loans will give Eurozone officials strong control over the reform and restructuring of Spain's banking system.

Aside from banking problems, the Spanish central government also has major problems with liabilities at the regional government level. The regional governments previously had a large degree of fiscal autonomy and went on various spending sprees that resulted in high budget deficits and high debt levels. Prime Minister Rajoy recently pushed legislation through the Spanish parliament that seeks to curb the financial autonomy of the regions and imposes more fiscal control by the central government. Still, the regions are lining up for bailout money from the central government. In addition, there is a movement in the region of Catalonia to secede from Spain, which increases the problems for the central government in trying to contain the financial damage at the regional level.

As for Spanish government finances, Spain is currently struggling to meet its 2012 budget deficit target of 6.3% of GDP. The IMF predicts that Spain's deficit in 2012 will be about 7% of GDP, excluding the costs of the bank bailout. Spain's deficit in 2011 was 9.4% of GDP. Looking forward, the IMF is forecasting Spain's 2013 deficit at 5.7% of GDP, above the current target of 4.5%. Spain is aiming to reduce its budget deficit to 2.8% of GDP by 2014, although that seems very unlikely at present. Spain's total debt load is projected to expand to about 90% of GDP in 2012 from about 85% in 2011.

Spain received a big break when Moody's on October 17, 2012 affirmed Spain's Baa3 investment-grade rating due to expectations that Spain would participate in the ECB/ESM bailout program. The markets had feared that Moody's

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might downgrade Spain's bonds to a junk rating. A junk rating could have caused a wholesale dumping of Spanish bonds by investors and would have made it more difficult for Spain to continue financing bonds in the private bond markets. Spain can only participate in the ECB/ESM bailout program if it has "complete market access" to raising funds in the private bond markets. For its part, Standard & Poors on October 10, 2012 downgraded Spain's bond rating by two steps to BBB-, which is the lowest investment grade and only one step above junk.

Spain has the fourth largest economy in the Eurozone and has nearly 1 trillion euros worth of cumulative debt and loans. The Eurozone needs to get Spain stabilized for its own good and also to prevent contagion from overtaking Italy. The Eurozone, with its current resources and with help from the ECB, can handle a bailout of Spain. However, the Eurozone could be stretched beyond its limit if a large and simultaneous bailout is required for Italy.

Italy remains in a precarious position

Italy remains in a precarious position due to its extremely high cumulative debt, which totaled 120% of GDP in 2011. The good news, however, is that Italy's budget deficit is comparatively low. Italy's budget deficit in 2011 was 3.9% of GDP, which was slightly below the overall Eurozone figure of 4.1% of GDP and was well below France's deficit of 5.2% of GDP. In fact, if it were not for interest costs, Italy would actually be running a budget surplus, indicating that its spending is generally under control.

Nevertheless, the Italian government in mid-April was forced to defer its goal of a balanced budget until 2015 from the original target of 2013 because of its downward revision in the 2012 GDP forecast to -1.2% from -0.5%, which hurt its fiscal position and pushed the deficit forecasts higher. Italy now expects a budget deficit of 0.5% of GDP in 2013, a deficit of 0.1% in 2014 and a balanced budget in 2015. The market consensus is that Italy's GDP will fall by -2.3% in 2012 and by another -0.5% in 2013, finally starting to recover in 2014 by +0.5%.

Italy's forecasted 2013 budget balance actually translates to a *surplus* of 0.6% of GDP when adjusted in structural, cyclical terms, which is the measure for Europe's new fiscal pact. Still, Italy needs to run sizeable budget surpluses for more than a decade in order to bring down its huge cumulative debt load down to more reasonable levels. The Italian government is forecasting that its cumulative debt will start falling to 121.5% of GDP in 2013 and to 118.2% in 2014.

The IMF in May praised Italy's progress after conducting its annual review. The director of the IMF's European department, Reza Moghadam, said, "The policies put in place have created a certain degree of stability, they are ambitious and wide ranging... [pulling Italy] back from the brink. Progress of the last months is a model to look at even at the European level."

Italy's progress on its budget and structural reforms has been delivered by Mario Monti, who took over as prime minister in November 2011 from Silvio Berlusconi who was finally forced out of power by a loss of confidence among the electorate and the parliament. Mr. Monti, an economist and former European Commission member, heads a technocratic government that is expected to stay in power until elections due by the end of April 2013. Mr. Monti in late 2011 pushed through a 20 billion euro austerity package that curbed Italy's deficit. Italy's parliament in June then approved labor law reforms requested by Eurozone partners that make it easier for employers to lay off employees but also expanded the country's unemployment compensation system.

The main concern is whether Italy can start to show positive GDP growth at some point during 2013, which would improve the budget deficit and stop the negative feedback cycle of austerity and recession. The market is also worried about whether Italy will have the political fortitude to run the budget surpluses that will be necessary for decades to bring down Italy's debt level. The key question is whether the markets will trust Italy and whether bond yields will be low enough so that Italy can continue to finance itself in the private markets without a bailout.

Italy has the third largest economy in Europe and accounts for 17% of overall Eurozone GDP. Italy's GDP share is just four points smaller than France's 21% share of Eurozone GDP and 10 points less than Germany's 27% share. Moreover, Italy has more than 2 trillion euros worth of total debt. Italy is too big to fail and is also too big to save. It is critical for the success of the Eurozone for Italy to pull itself up by its bootstraps and make the tough decisions that are necessary to get its economy back in gear, start paying down its debt, and maintain the trust of investors.

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Portugal is generally on track with its adjustment program

Portugal is generally on track with its adjustment program and has so far demonstrated strong political commitment to meet the terms of its bailout agreement. Portugal received a 78 billion euro (46% of GDP) bailout package in May 2011.

Portugal just received a new stamp of approval in September after a review by troika officials. The chief of the IMF mission to Portugal, Abebe Selassie, said on September 13, 2012 that, "The Portuguese have been implementing the adjustment program in a very steadfast way and it has been yielding some very credible results."

Troika officials agreed to give Portugal more time to meet its deficit targets because tax revenues have been hurt by Portugal's shift to a more export-oriented economy and by a deeper-than-expected recession. Portugal's deficit target for 2012 was raised to 5.0% of GDP from 4.5%, and its target for 2013 was raised to 4.5% of GDP from 3%. Portugal's deficit target for 2014 is for 2.5% of GDP. Troika officials said that Portugal's debt, which is expected to peak at 124% of GDP, "remains sustainable and will be on a firm downward trajectory after 2014."

However, public protests broke out in Portugal in September when the government announced plans for large tax increases on wages and other income to meet the deficit target in 2013. Portugal has a larger deficit gap to fill partially because of the deep recession. The market consensus is that Portugal's GDP will decline by -3.2% in 2012 and by -1.8% in 2013 and will finally turn positive by +0.4% in 2014. The market consensus is that Portugal's unemployment rate will rise further to 16.4% in 2013 from 15.5% in 2012.

Portugal is trying to meet its target of regaining access to the bond markets by September 2013. Portugal has already started lengthening the maturity of its bill sales to test the waters. If Portugal does not regain full access to the markets by September 2013, then the Eurozone may well have to provide Portugal with a second bailout package. Portugal continues to be a weak link in the Eurozone debt crisis with the possibility of further deterioration in Portugal's finances, social unrest, and a second bailout.

Ireland executes on its adjustment program

Ireland is still struggling to recover from its banking crisis that occurred after the global 2008/09 financial crisis and recession. Ireland's banks were overextended on property loans and experienced massive losses when the real estate market went bust. Ireland provides an example of what happens when a banking system that is 3.6 times larger than its national GDP implodes on a real estate bust. The direct fiscal cost of bailing out the banking system is costing Ireland

Key Players in the European Debt Crisis

National Leaders

- German Chancellor Angela Merkel
- French President Francoise Hollande
- Italian Prime Minister Mario Monti
- Spanish Prime Minister Mariano Rajoy
- Irish Prime Minister Enda Kenney
- Portuguese Prime Minister Pedro Passos Coelho
- Greek Prime Minister Antonis Samaras

Finance Ministers

- German Finance Minister Wolfgang Schäuble
- French Finance Minister Pierre Moscovici
- Spanish Finance Minister Luis de Guindos
- Irish Finance Minister Michael Noonan
- Portuguese Finance Minister Vitor Gaspar
- Greek Finance Minister Yannis Stournaras
- Eurogroup President Jean-Claude Juncker

European Officials & IMF

- ECB President Mario Draghi
- Bundesbank President and ECB Council member Jens Weidmann
- Bank of France Governor and ECB Council member Christian Noyer
- Bank of Italy Governor and ECB Council member Ignazio Visco
- European Council President Herman Van Rompuy
- European Commission President Jose Manuel Barroso
- Vice President of the European Commission responsible for Economic and Monetary Affairs and the Euro Olli Rehn
- IMF Managing Director Christine Lagarde

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42% of its GDP, according to the OECD.

Ireland's costs for cleaning up its banking system soared because Ireland guaranteed most of the liabilities of its private banks, including all deposits, bonds, senior debt and certain subordinated debt. Ireland went beyond the bank bailout programs implemented by most other countries by making whole the unsecured creditors and bond holders of failed banks, substantially boosting the overall cost of the bank bailout for Ireland's taxpayers.

Ireland was unable to handle the costs of its bank cleanup on its own and required a bailout in November 2010 as bond investors lost confidence and Irish bond yields rose above 8%. Ireland received a 68 billion euro bailout from the Eurozone and IMF.

The Irish economy has recovered remarkably well following the meltdown and the recession that lasted from 2008 through 2010. Irish GDP rose by +1.5% in 2011 and the market consensus is for GDP growth of +0.1% in 2012, +1.1% in 2013 and +1.8% in 2014. The Irish government aims to cut its budget deficit in 2012 to 8.3% of GDP, which would be below the 8.6% target required by the Eurozone adjustment program and would be down from the 9.4% budget deficit in 2011. The target is for Ireland to reduce its budget deficit to 3.0% of GDP by 2015. Ireland's total debt is expected to peak at 120.3% of GDP in 2013 and then start to fall.

Ireland has been called the "poster boy for austerity" because Ireland's government and voters have accepted the austerity measures that are necessary to pay down its debts without a default. Ireland has met all of its bailout targets and has implemented tough reforms. Moreover, Irish voters on May 31, 2012 approved the Eurozone's fiscal pact by the comfortable margin of 60% to 40%, illustrating the political support for Ireland's adjustment program. It was critical for voters to approve the fiscal pact because Ireland would have otherwise been cut off from further Eurozone bailout funds if another bailout is needed in the future.

Standard & Poors on April 28, 2012 reaffirmed Ireland's rating at the investment grade level of BBB+, which is three steps above junk. However, S&P kept a negative warning on Ireland's debt rating in part because of the "still substantial risk" that the government will not hit the target of reducing its budget deficit to 3% of GDP by 2015.

Ireland's 10-year bond yield has dropped sharply to 4.65%, where it is below the yields for both Spain and Italy. This attests to the market's confidence in Ireland's adjustment program. In fact, Ireland in early July began selling short-term bills again after having been shut out of the markets since 2010. But even more impressive was Ireland's ability later in July to sell 4.2 billion euros of 5-year and 8-year bonds at yields near 6%, which was a strong vote of investor confidence.

Ireland's bailout package runs out at the end of 2013. If Ireland cannot fully fund itself in the private markets starting in early 2014, then it will need a second bailout package. However, Ireland has already made a good start on returning to the bond markets. As long as Ireland stays on track with its adjustment program and there are no fresh disasters in Europe, it currently appears that Ireland will not need a second bailout package and will be self-sufficient again by 2014.

Cyprus requires a bailout

Cyprus on June 25 officially requested a bailout from the Eurozone. Cyprus needed the bailout in large part to rescue its banks, which lost some 4 billion euros when Greek sovereign debt was restructured and holders of the debt lost about 50% of the face value.

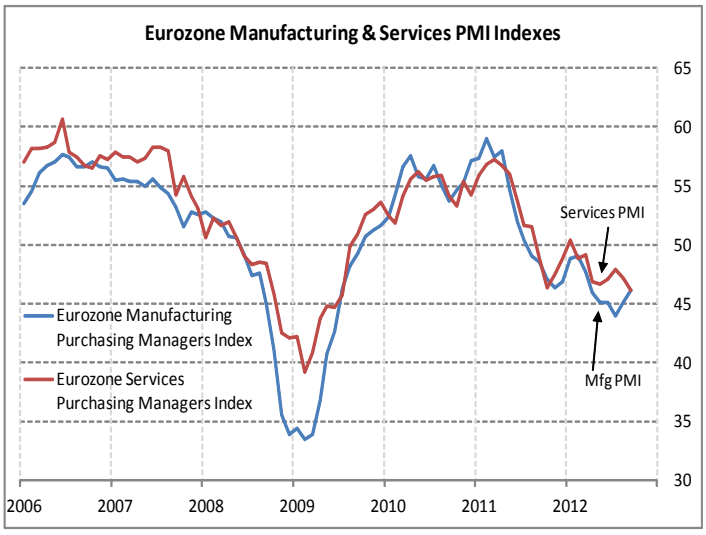
The bailout for Cyprus will be approximately 11 billion euros, according to current estimates. That amounts to a hefty 62% of Cyprus' GDP. The bailout aid will go towards restructuring banks as well as paying principal on maturing government debt and covering the government's budget deficits through 2015. Cyprus has been unable to borrow money in the private bond markets since spring 2011.

Troika officials are currently negotiating a formal agreement with Cyprus. The first tranche of aid is expected by December.

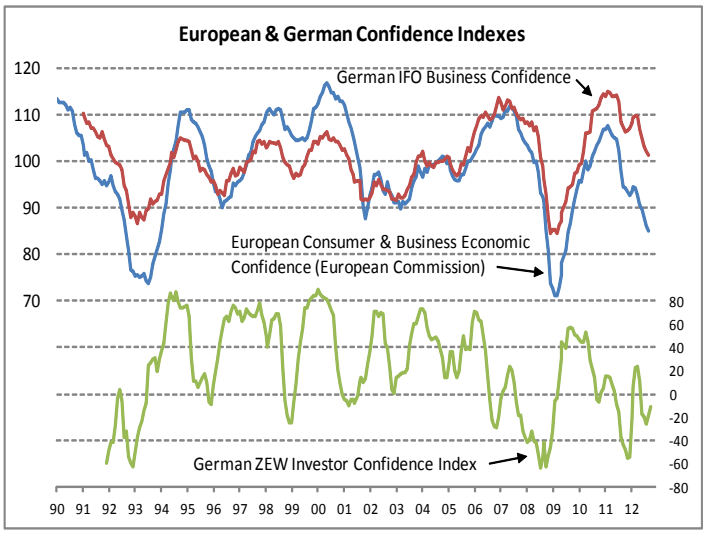
The amount of aid involved in the bailout of Cyprus is relatively small at 11 billion euros compared with other bailout needs. Nevertheless, the need for a bailout of Cyprus illustrates how the Greek debt restructuring had deadly spillover effects for its neighbor and illustrates the dangers of contagion and spillover effects in general.

The "Growth versus Austerity" Debate

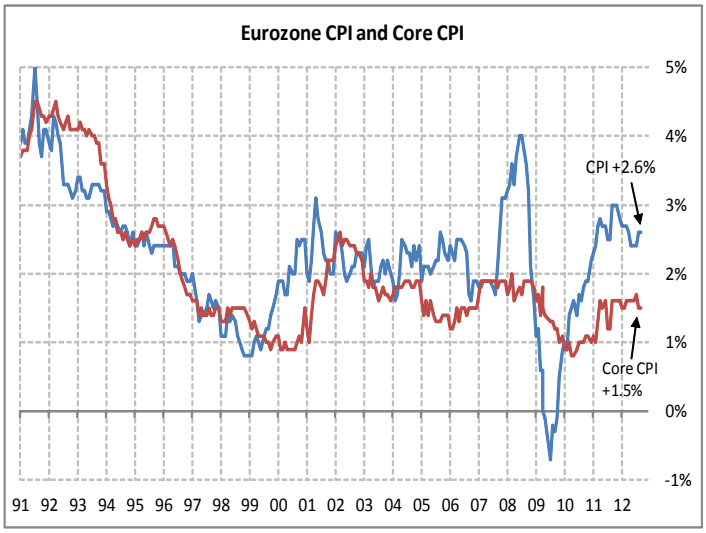
European voters are clearly tired of austerity with the sharp cutback in services and social payments, government employee layoffs, higher taxes, and recessionary economic conditions. Voters in France, for example, ousted former French President Sarkozy in the May 6, 2012 election and replaced him with Socialist leader Francois Hollande. Mr. Hollande promised to meet French budget deficit reduction targets but he also promised to put more emphasis on growth as opposed to austerity. In the Greek election on May 6, 2012, the radical left Syriza party rose from obscurity to take second place in the election on its leader's promise to reject the austerity required by the Greek bailout program. Questions are increasingly arising about whether sharp reductions in budget deficits are self-defeating because they produce slower economic growth and lower tax revenues, which in turn makes the deficit worse and requires another round of deficit cutting. In fact, this negative feedback pattern has received the name of an "austerity trap."



New York Times columnist and winner of the Nobel Prize in Economics, Paul Krugman, is the most vocal of those economists who are attacking austerity as being counterproductive. Mr. Krugman, in a New York Times column in April said that Europe is committing "economic suicide" and that Europe's policy of austerity is "just insane."



German Chancellor Angela Merkel has clearly heard the calls for more "growth" and she says she is open to various growth measures such as reforming labor markets and improving competitiveness. She also favors using existing European Union funds to finance various investment and infrastructure projects. However, she believes the time of large-scale debt-financed stimulus projects has long since passed because Europe simply cannot afford them. She believes that one of the key tenets of "growth" is fiscal consolidation whereby the peripheral countries of Europe display enough fiscal determination to regain the trust of bond investors and bring down their interest costs. She says there is no amount of bailout money that will be enough if the troubled European countries cannot improve their economic competitiveness and cannot bring down their budget deficits relatively quickly in a credible manner to regain access to the bond markets.



Ms. Merkel is changing her language somewhat to accommodate the new focus in Europe on "growth." However, Ms. Merkel is not likely to compromise when it comes to meeting budget deficit targets. Her view is that meeting the budget deficit targets in the various adjustment programs is the only way that Europe will eventually emerge from the debt crisis. Ms. Merkel, in fact, faces heavy political pressure within

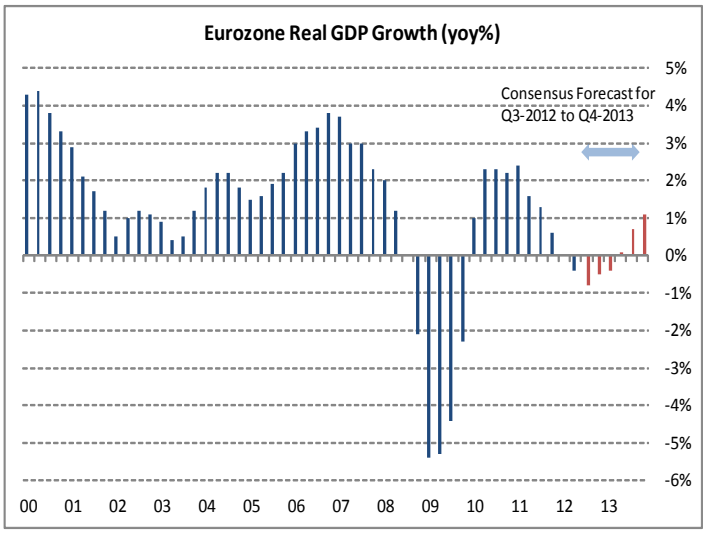
The "Growth versus Austerity" Debate (continued)

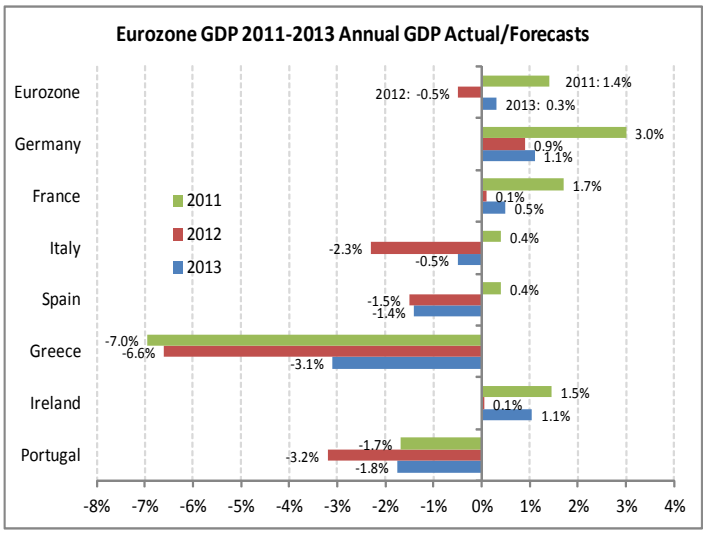
Germany not to provide additional bailout funds or social welfare transfers to the troubled Eurozone nations. Ms. Merkel's Christian Democratic Union party earlier this year was trounced in state elections in Germany's most-populous state of North Rhine-Westphalia in part because German taxpayers are tired of paying for the mistakes of other nations.

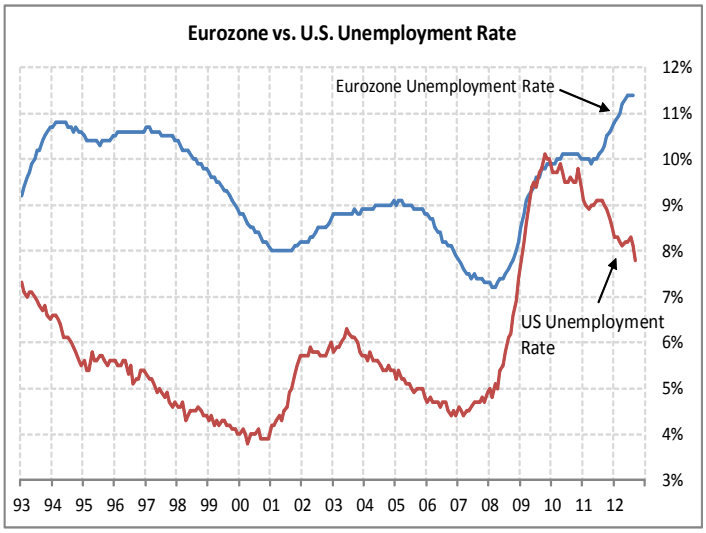
There is no doubt that Europe is facing tough times. Europe is currently in a recession after seeing negative or unchanged GDP growth in the last three consecutive quarters of -1.2% (quarter-quarter annualized) in Q4-2011, unchanged in Q1-2012, and -0.8% in Q2-2012. Looking ahead, the market consensus is that Eurozone GDP growth will remain negative through early 2013 at -0.8% year/year in Q3, -0.5% y/y in Q4, and -0.4% y/y in Q1-2013. Growth is then expected to finally turn positive in Q2-2013 at +0.1% y/y. For all of 2012, the market consensus is for annual Eurozone GDP of -0.5% followed by weak growth of +0.3% in 2013 and +1.3% in 2014.

Behind the overall Eurozone GDP figures lies wide variation in performance, as seen in the nearby chart. Germany is keeping its head above water and is acting as a locomotive for the rest of the Eurozone. The market consensus is for German GDP growth of +0.9% in 2012, improving to +1.1% in 2013 and +1.5% in 2014. French GDP growth is expected to be barely positive at +0.1% in 2012 and then improve to +0.5% in 2013 and +1.1% in 2014. Italy is expected to show negative GDP growth of -2.3% in 2012 and -0.5% in 2013, following by weak positive growth of +0.5% in 2014. Spain's GDP is expected to decline by -1.5% in 2012 and -1.4 in 2013 and then turn positive by +0.5% in 2014. Portugal is in bad shape with forecasted GDP declines of -3.2% in 2012 and -1.8% in 2013 followed by positive growth of +0.4% in 2014. Greece is seeing depressionary economic conditions with expected GDP declines of -6.6% in 2012 and -3.1% in 2013, which would add to the -7.0% plunge seen in 2011. It is worth noting that Europe's big-four countries of Germany, France, Italy, and Spain account for about three-quarters of Eurozone GDP.

Meanwhile, unemployment in Europe is at truly alarming levels. The overall Eurozone unemployment rate was 11.4% in June through August 2012, a record high for the data series that has about two decades of history. Economist Paul Krugman notes that Spain had an unemployment rate of 25.1% in August that is seen only in an outright economic depression. The unemployment rate in Greece was similarly high at 24.8% in June. The latest unemployment rates are also extremely high in Portugal at 15.9%, Ireland at 15.0%, and Italy at 10.7%.







Eurozone Fiscal Picture

The Eurozone debt crisis has laid bare the Eurozone's fundamental flaw of the lack of fiscal integration. The countries use a common currency, but they retain sole responsibility for their national fiscal operations, which includes collecting tax revenues, spending money, issuing debt, and setting policy for budget deficits and cumulative debt.

When the currency union was formed, all the members agreed to the Stability and Growth Pact, which specifies that national annual budget deficits cannot exceed 3% of GDP and that national debt cannot exceed 60% of GDP. However, there was no serious enforcement mechanism for these ceilings. Germany itself broke the rules when the 2008/09 financial crisis hit and the recession caused spending needs to skyrocket. Germany's budget deficit rose as high as 4.3% of GDP in 2010 before coming down to 1.0% of GDP in 2011. Germany's total debt as a percentage of GDP rose to 83.0% in 2010 and then fell mildly to 81.2% in 2011, remaining far above the 60% ceiling.

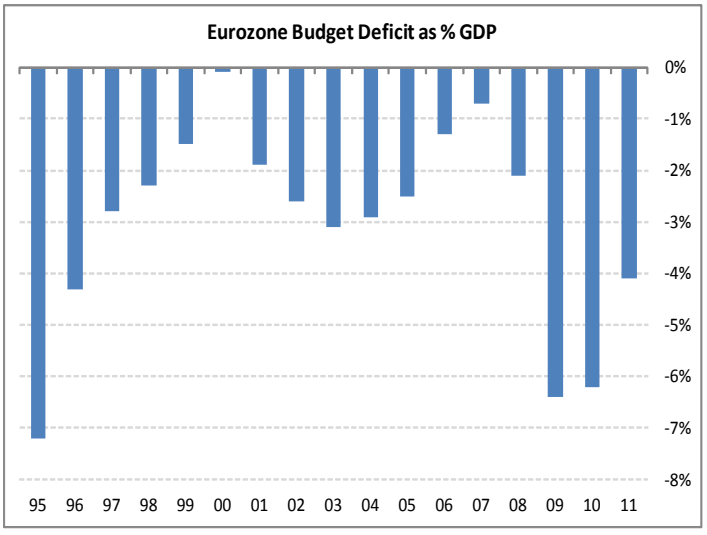
In order to address the lack of fiscal unity, German Chancellor Angela Merkel, as a condition for expanding bailout facilities in December 2011, convinced other Eurozone leaders to agree to a fiscal pact. The fiscal pact is officially named the "Treaty on Stability, Coordination and Governance" (TSCG).

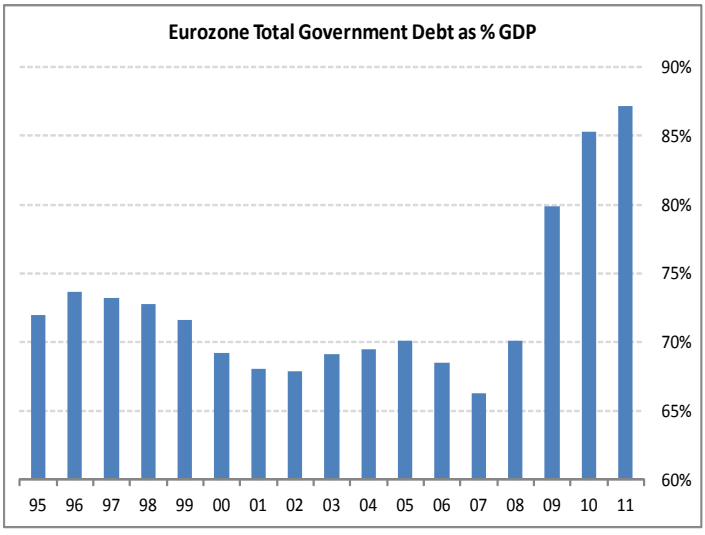
The fiscal pact is essentially a balanced budget requirement. The pact requires countries to maintain either a budget surplus or at worst a maximum structural budget deficit of 0.5% of GDP. The law makes an allowance for recessions when cyclical factors temporarily cause a larger budget deficit due to lower tax revenues and higher social spending on items such as unemployment and food assistance. Countries that have government debt levels below 60% of GDP are allowed to run a structural deficit of up to 1.0% of GDP. Countries that have a total debt level of more than 60% of GDP are required to reduce their debt by at least one-twentieth per year.

Countries must enshrine the fiscal pact rules in their national constitutions or at an equivalent level in their national laws, thus making the fiscal rules fundamental to the country's law and difficult to reverse. The national laws must also contain an automatic correction mechanism that kicks in to bring down the deficit in the event that the deficit level is breached.

The treaty, which was signed by national leaders on March 2, 2012, will take effect on January 1, 2013 as long as at least 12 members of the 17-member Eurozone have ratified the treaty. All of the European Union countries signed the pact except the U.K. and Czech Republic. The fiscal pact is not a treaty modification of EU laws but is instead a separate intergovernmental treaty. This was necessary because the UK objected to the fiscal compact becoming part of EU law and because the UK refused to agree to the terms of the fiscal compact.

A key aspect of the fiscal pact is that no country can receive bailout funds from the European Stability Mechanism unless it has ratified the fiscal pact. This puts particular pressure on bailout recipients to approve the treaty and adopt the fiscal pact's balanced budget requirements. Portugal and Ireland have both ratified the fiscal pact, which means that both could qualify for a second bailout round in 2013 or 2014 if that becomes necessary.



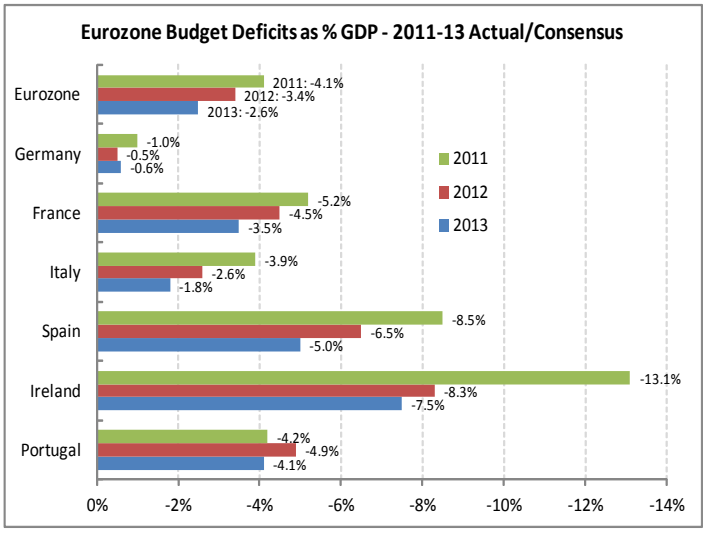


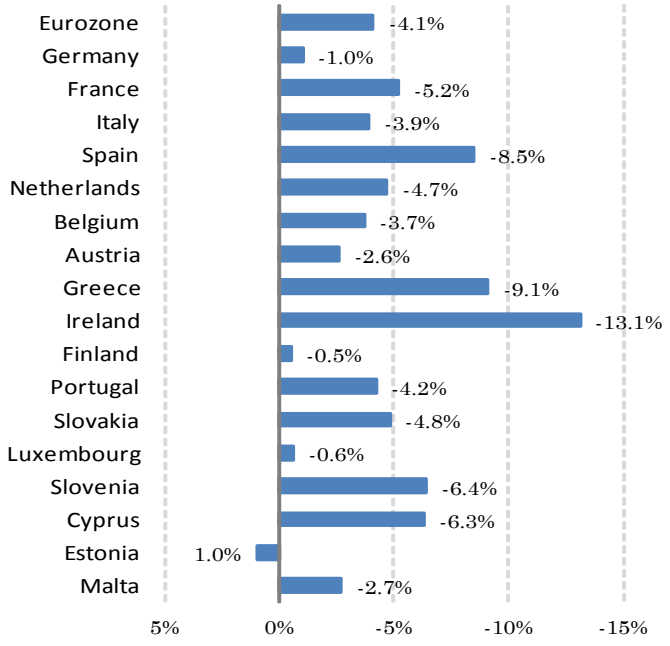
Eurozone Fiscal Picture (continued)

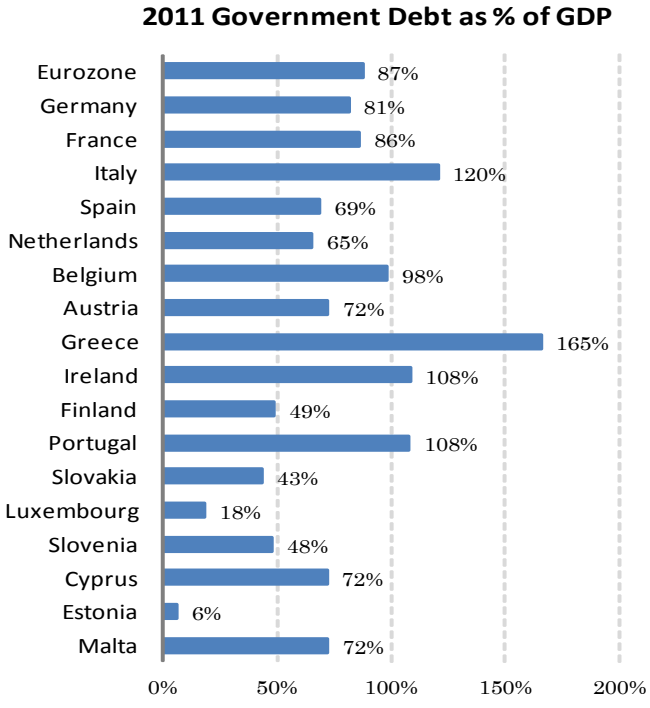
The nearby charts illustrate the severe fiscal condition of most Eurozone countries. The chart on the previous page shows that the overall Eurozone budget deficit was only 0.7% of GDP in 2007, but then soared to a peak of 6.4% just two years later in 2009 due to the global financial crisis and recession. There has been progress on bringing down the deficit as seen by the drop to 4.1% of GDP in 2011. However, the overall debt level has continued to climb and reached 87.2% of GDP in 2011.

The chart below shows that the countries with the largest budget deficits in 2011 were Ireland at 13.1% of GDP and Greece at 9.1%. The countries with the largest amount of outstanding debt in 2011 were Greece (165% of GDP), Italy (120%), Ireland (108%), and Portugal (108%).

The chart to the right shows the market consensus for how budget deficits are expected to slowly decline in 2012 and 2013. The expected decline in budget deficits of course depends not only on spending/tax policy measures but also on economic growth and tax revenues in the respective countries.







Eurozone Bailout Facilities - EFSF and ESM

Eurozone officials addressed the European debt crisis with a series of ad hoc bailout measures that finally coalesced into a permanent bailout facility called the European Stability Mechanism (ESM). The ESM became operational on October 8, 2012 with ESM's first board meeting. The ESM board is made up of the 17 finance ministers of the Eurozone countries. The German Federal Constitutional Court on September 12, 2012 dismissed a group of lawsuits challenging the constitutionality of the ESM under German law, thus paving the way for the ESM to become operational.

The ESM, when it is fully funded, will have 500 billion euros of bailout capacity. The ESM is a flexible facility that can be used to provide loans, buy bonds, or provide precautionary lines of credit. The ESM will eventually be able to also provide direct assistance to banks with loans or capital. The ESM is working together with the ECB on the bond-buying bailout program whereby the ESM can buy bonds at primary auctions while the ECB buys 1-3 year bonds in the secondary market.

Eurozone officials initially set up the European Financial Stability Facility (EFSF), which is a temporary facility that will remain in existence only through 2013. The EFSF was given 440 billion euros of bailout capacity. Of that capacity, 200 billion euros have already been used and the fund has 240 billion euros of unused capacity.

The EFSF started out with a credit rating of AAA from Standard & Poors. However, Standard & Poors on January 17, 2012, downgraded its rating on the EFSF by one notch to AA+. The action was taken in the wake of S&P's downgrade several days earlier of nine Eurozone sovereign government credit ratings. In that batch of sovereign downgrades, France and Austria lost their AAA ratings. The EFSF was downgraded because of the downgrade in the sovereign nations standing behind the EFSF with capital contributions and guarantees. The 440 billion euro capacity of the EFSF was not affected by S&P's credit rating downgrade. The ESM, when rated, seems likely to have the same AA+ rating as the temporary EFSF facility.

Eurozone finance ministers in March 2012 made several important decisions related to the EFSF and ESM. First, the ministers decided to allow the EFSF and the ESM to run in parallel until the EFSF expires at the end of 2013. They decided to allow the 240 billion euros of unused capacity in the EFSF to be used for funding in the event that the ESM is not fully operational when funding is needed.

The ESM will be slowly brought up to its full capacity by mid-2014 with Eurozone governments paying in capital in two installments in 2012, two installments in 2013, and the last installment in the first half of 2014. If a big bailout is required before the ESM is fully funded, then the capital contributions to the ESM can be accelerated.

Eurozone leaders, after their decisions in March, billed the total Eurozone bailout size at about 800 billion euros. This included (1) 500 billion of capacity from the ESM, (2) 200 billion euros worth of EFSF bailout money that had already been committed to Greece, Portugal and Ireland, (3) 53 billion euros worth of bilateral loans that had already been paid out to Greece, and (4) an additional 49 billion euros worth of Greek loans from the European Union.

In addition to those funds, Eurozone nations committed an additional 150 billion euros to the International Monetary Fund (IMF) to boost the ability of the IMF to provide bailouts alongside the Eurozone. In other resources dedicated to battling the crisis, the ECB lent 1 trillion euros to European banks in the 36-month longer-term refinancing operations (LTROs) and purchased a total of 214 billion euros worth of Eurozone sovereign bonds as part of its Securities Market Program to stabilize peripheral bond yields.

The bottom line is that the ESM now has about 430 billion euros worth of bailout funds that can be tapped by Eurozone nations. This is calculated as the 500 billion ESM capacity minus about 60 billion euros needed for the Spanish bank bailout and minus the 11 billion euros needed for a bailout of Cyprus.

The ESM's current capacity of 430 billion euros is clearly enough to cover any additional bailout funds that Greece, Portugal, Ireland, or Cyprus may need before they can return to the private markets. That capacity is also enough to handle Spain's likely need for a bailout of its government finances, which is expected to be less than 100 billion euros.

However, the ESM's capacity would be strained to the limit if it needs to provide a 2-3 year bailout for Italy as well, even with the ECB's commitment to buy uncapped amounts of 1-3 year bonds. Spain and Italy together have combined gross borrowing needs of about 800 billion euros from 2012 through 2014. Eurozone officials are doing everything they can to avoid a bailout for Italy, which has a huge total debt load of more than 2 trillion euros and would stretch even the most optimistic view of the Eurozone's current bailout capabilities.

European Central Bank - Response to the Eurozone Sovereign Debt Crisis

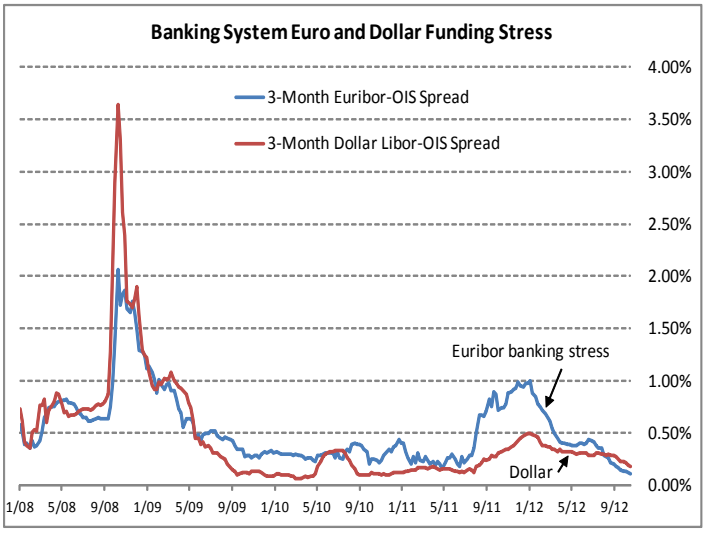
The European Central Bank (ECB) is arguably the only reason that the Eurozone and the European banking system have not already collapsed. Virtually all observers agree that Eurozone political leaders did not contain the European debt crisis early on when the costs would have been much lower. Instead, they delayed taking action until they were forced to act by various crisis events, thus allowing the problems to fester and causing risk contagion to spread to other countries. Eurozone leaders plodded along in a slow and reactionary manner and the ECB was left to pick up the pieces.

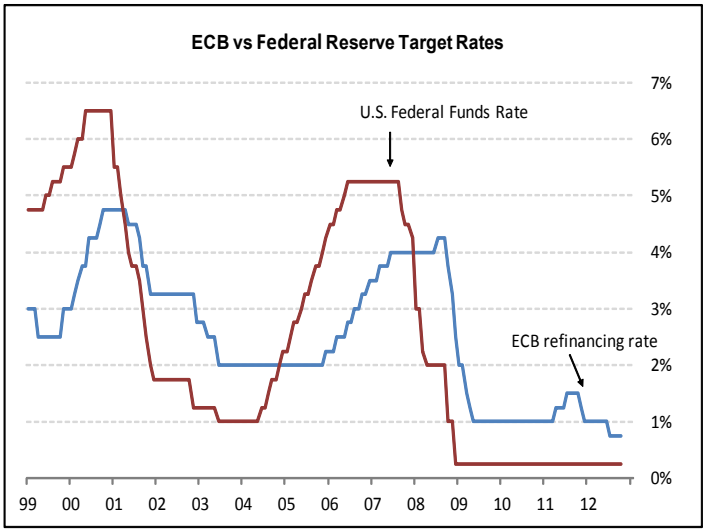
When the global financial crisis began with the bankruptcy of Lehman Brothers in September 2008, the ECB reacted by cutting interest rates and adopting non-standard measures such as providing all the loans to European banks that they requested, which in ECB parlance is called "full allotment." The ECB progressively cut its main refinancing rate by a total of 3.25 percentage points from 4.25% in September 2008 to 1.00% by May 2009.

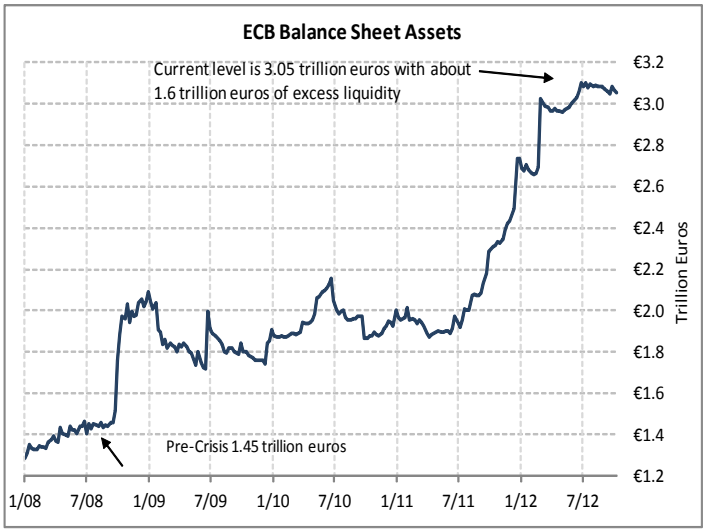
The 2008/09 global financial crisis and recession produced a sharp deterioration in government finances around the world. However, the European debt crisis did not technically begin until December 2009 when Fitch cut Greece's credit rating and Standard & Poors warned of a downgrade. It soon became obvious that Greece's finances were unsustainable and that Greece would need a bailout. It also became obvious that Ireland and Portugal would require bailouts.

The Eurozone debt crisis quickly metastasized into a European banking crisis because European banks held large quantities of sovereign bonds that suddenly carried substantially lower values and higher risks. Banks became worried about lending to each other due to concern about bank failures and that caused the effective collapse of the interbank lending market. The ECB was forced to pick up the slack and greatly expand lending to European banks. The increase in the banking system's stress level can be seen in the spread between the 3-month Euribor rate and the overnight indexed swap rate (see nearby chart). That spread rises when banks refuse to lend to each other for as long as 3 months and the 3-month rate rises relative to safer overnight funding.

The ECB in the first half of 2011 did not appreciate the growing seriousness of the European debt crisis. Former ECB President Jean-Claude Trichet was more focused on inflation risks and the ECB therefore actually raised its refinancing rate by 25 basis points to 1.25% in April and then raised the rate by another 25 basis points to 1.50% in







European Central Bank - Response to the European Sovereign Debt Crisis (continued)

July. The European debt crisis then quickly became much worse in the second half of 2011, as seen by the 80 basis point surge in the spread between the 3-month Euribor and the overnight indexed swap rate from July 2011 through December 2011.

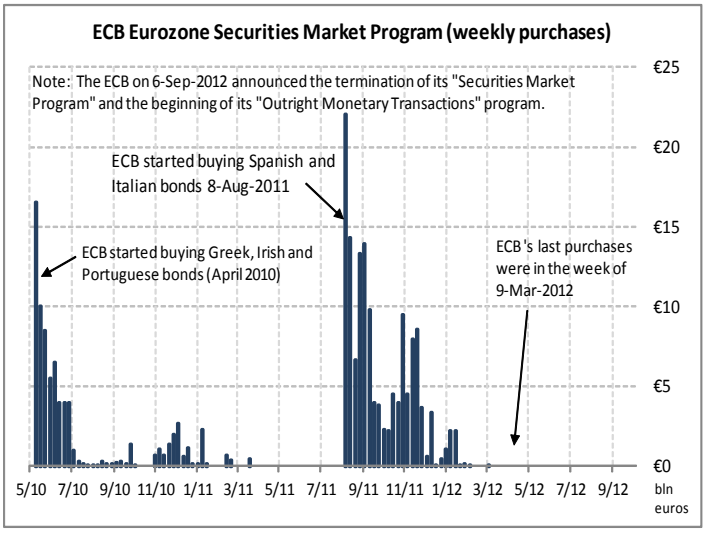
During this time, U.S. money market funds were withdrawing dollar funding from European banks due to concerns about the health of the European banking system. This created a shortage of dollar funding in the European banking system that drove dollar funding rates higher. The U.S. Federal Reserve in late November 2011 was forced to expand its dollar swap lines with the ECB and other central banks in order to provide much more dollar liquidity to the European banking system and to alleviate some of the dollar funding stress.

The severe stress in the European banking system finally started to subside when Mario Draghi took over as ECB president on November 1, 2011. Two days after he became ECB president, the ECB cut its refinancing rate by 25 basis points to 1.25%. The ECB in December then cut the refinancing rate by another 25 basis points to 1.00%. More importantly, the ECB at its meeting on December 8, 2011, announced that it would conduct two 36-month longer-term refinancing operations (LTROs), one in late December and one in February. These two LTROs provided a total of 1.019 trillion euros worth of 36-month loans to more than 800 European banks.

The LTROs gave the banks the funding they could not easily obtain in the interbank or bond markets and greatly reduced the chances of a European bank failure. In addition, many European banks used the cash they borrowed at 1.00% to buy European sovereign bonds at much higher yields, thus locking in a guaranteed spread as long as the sovereign didn't default. This initially produced a marked reduction in Italian and Spanish bond yields.

The 36-month LTROs were a critical policy response that bought the Eurozone more time to more fully tackle the underlying fiscal problems and to provide European banks with more time to build up their capital bases so they could better withstand losses in the future. The 36-month term of the loans meant that banks did not have to worry about paying the loans back for three years.

The ECB was forced into the LTROs partially because the ECB by law cannot directly finance Eurozone national



governments. This means that the ECB technically cannot engage in the same type of large-scale quantitative easing moves made by the U.S. Federal Reserve, the Bank of England, and the Bank of Japan. In a quantitative easing move, a central bank buys the debt securities of its national government, thus permanently injecting reserves into the banking system and "printing money." Aside from the legal issue, the ECB in any quantitative easing move would have the problem of trying to decide which securities of its 17 Eurozone members to buy.

Despite the legal prohibition on directly financing governments, the ECB went ahead and purchased bonds of the troubled Eurozone countries on a limited basis under a program called the "Securities Market Program." The ECB made these purchases, not to finance the governments or to inject reserves, but as a last-ditch measure to try to provide some confidence to the markets and prevent a runaway surge in yields. The chart above shows how the ECB engaged in relatively large purchases of Greek, Irish and Portuguese government securities starting in May 2011. The ECB in August 2011 then started buying Italian and Spanish bonds on an even larger scale.

From a legal standpoint, the ECB argues that its securities purchases are allowed because the ECB is buying securities in the secondary markets rather than at original security auctions (i.e., it is not directly financing countries). The ECB also provides a legal justification for the move by saying that the purchases are designed to improve the transmission of monetary policy, thus couching the purchases in terms of monetary rather than fiscal policy.

Key German monetary officials strongly opposed the securi-

European Central Bank - Response to the European Sovereign Debt Crisis (continued)

ties purchases because they argued that it was not the job of the ECB to provide funding to nations, even indirectly. They also worried that the ECB's balance sheet would be severely impaired by holding sovereign securities with credit ratings near or below junk ratings. Indeed, if Greece were to fully default on the 40 billion in Greek securities held by the ECB, the ECB's capital would be completely erased and the ECB would technically be insolvent, requiring new capital injections from Eurozone nations. After the ECB completed its second LTRO in February, the ECB by early March 2012 stopped making purchases under its Securities Market Program.

The ECB at its meeting on June 6, 2012 left its refinancing rate unchanged at 1.00% and announced that its policy of full allotment (i.e., providing banks with as much funding as they request) would be extended until at least January 15, 2013. ECB President Draghi said that ECB members discussed an interest rate cut at the meeting and that "a few" members of the Governing Council "would have preferred" an interest rate cut.

In fact, the ECB at its next meeting on July 5, 2012 implemented that 25 basis point rate cut to 0.75%, the lowest level in the ECB's history and even lower than the 1.00% rate seen in the immediate aftermath of the 2008/09 financial crisis. The ECB also cut its deposit rate to zero, meaning banks holding reserves on deposit with the ECB would no longer receive any interest on those deposits. The purpose of the cut in the deposit rate to zero was to encourage banks to find more useful outlets for their cash such as lending the cash to other banks in the interbank lending market, to buy fixed-income securities to bring down interest rates on sovereign and corporate bonds, or to make new loans to businesses and consumers to stimulate the economy.

ECB's "Outright Monetary Transactions" (OMT) program" -- The ECB at its policy meeting on September 6, 2012 then announced its new "Outright Monetary Transactions" (OMT) program. This was a huge step forward on containing the Eurozone debt crisis because the ECB for the first time agreed to use its unlimited balance sheet to buy an uncapped amount of bonds of troubled Eurozone countries. The mission is to keep bond yields down at sustainable levels to allow troubled countries to continue to raise financing in the private bond and money markets.

Under the program, the ECB will buy an uncapped amount of bonds in the secondary market with a maturity between 1 and 3 years issued by countries that agree to participate in the program. The country must formally request aid from the ESM and the country must agree to a macroeconomic adjustment program with targets supervised by Eurozone officials and the IMF. The ECB's program thus has "conditionality" attached whereby the country will only qualify for ECB bond purchases as long it is meets its economic adjustment program.

The ECB said that any bond purchases under the OMT program will be sterilized (i.e., offset) with reserve draining operations, meaning the bond purchases will not involve printing new money. The ECB also said it would have the same rights as private bond buyers if the bonds should go into default and would not have a senior claim on the bonds in default. This was a critical aspect of the program since it will encourage private investors to continue to buy bonds since they will not have to worry about having their claims being reduced in a restructuring by a senior ECB claim.

In announcing the new OMT program, the ECB also announced the formal end of its "Securities Market Program" (SMP). As mentioned earlier, the ECB from May 2010 through March 2012 bought a total of 214 billion euros worth of bonds of troubled countries to suppress their bond yields.

ECB President Mario Draghi received the approval of the new OMT program in advance from the German and French governments. However, Bundesbank President Jens Weidmann at the September 6, 2012 ECB meeting dissented from the OMT decision because of his view that the program constitutes government financing. The ECB Council nevertheless went ahead with the program despite the objections from the Bundesbank and Mr. Weidmann.

The ECB/ESM bond-buying program provides a means for the Eurozone to bail out troubled countries with help from the ECB's unlimited balance sheet. The Eurozone's bailout capacity is therefore far in excess of the ESM's capacity of 500 billion euros. The bond markets were very impressed by the ECB's program and bond yields fell sharply after ECB President Draghi started hinting at the new program in late July.

The ECB at its policy meeting on October 4, 2012, left its key interest rates unchanged. ECB President Draghi at his post-meeting press conference reiterated a strong commitment to preserving the euro and he said that the ECB was

European Central Bank - Response to the European Sovereign Debt Crisis (continued)

ready to begin OMT transactions "once all the prerequisites are in place." The ECB was waiting for Spain to formally request aid from the ESM and agree to a macroeconomic adjustment program.

Additional ECB weapons

The ECB is not out of ammunition if the Eurozone economy remains mired in a recession or if the Eurozone debt crisis does not improve. First, the ECB could cut its refinancing rate further from the current level of 0.75%, thus pushing short-term rates lower. That would also put new downward pressure on the euro, thus providing some support for Eurozone exporters.

Regarding interest rates, the ECB could also cut its deposit rate to a negative interest rate such as -0.25%, which would mean that banks would have to pay the ECB to deposit funds with the ECB. That would provide a disincentive for European banks to park funds with the ECB and would instead encourage banks to put that cash to work by buying securities or lending the cash to other banks or to businesses and consumers.

Second, the ECB could conduct another large-scale Longer-Term Refinancing Operation (LTRO). That would provide another round of unlimited liquidity to the banking system to support banks and would put some fresh downward pressure on sovereign bond yields. One problem with another LTRO, however, is that banks are running short on the collateral that they must post with the ECB to secure the loan from the ECB. The ECB has already had to reduce the quality requirements for the collateral that it accepts for bank loans. If the ECB conducts another LTRO, it would likely need to cut its collateral quality requirements another notch, thus further impairing the quality of its balance sheets assets.

Third, the ECB could expand its provision of liquidity to banks in troubled nations through its "Emergency Liquidity Assistance" (ELA) program. In this program, instead of lending money directly to particular banks, the ECB provides funding to national central banks, which in turn provides the liquidity to their domestic banks. In this way, the ECB holds the national central bank responsible for repaying the loan, not the troubled bank. The ECB has made increasing use of ELA's to indirectly fund troubled banks through national central banks. This protects the ECB's balance sheet to some extent from the high risks of troubled banks and the poor collateral that these banks often hold.

Fourth, the ECB could provide additional liquidity in an indirect manner if the European Stability Mechanism (ESM) were to obtain a banking license and be allowed to borrow from the ECB, thus leveraging its capital and giving it more bailout firepower. With expanded capacity, the ESM would have more bailout funds to provide to troubled Eurozone countries. However, German and ECB officials have so far strongly resisted the idea of giving the ESM a banking license and allowing it to borrow from the ECB. The ECB does not want to be on the hook for more loans than might be necessary. The ECB would also lose control of what the ESM might do with the bailout funds, meaning the ECB could end up financing a loose cannon controlled by politicians. The ECB also believes that financing the ESM comes too close to the prohibition on the ECB in providing financing to governments.

The ECB clearly has additional tools to use as necessary to address the Eurozone debt crisis. The ECB is likely to remain flexible and dedicated to the cause of saving the European banking system and indeed the euro as a whole. The markets are generally confident that the ECB will do whatever it needs to do to prevent an all-out disaster.

Eurozone Debt Crisis - Solutions

In order to discuss solutions, it is first necessary to understand the reasons behind the Eurozone debt crisis. The reasons vary from country to country but they involve several main problems: (1) the 2008/09 financial crisis and recession, which caused budget deficits to soar due to falling tax revenue and rising social spending (this applies to all the Eurozone countries), (2) long-term fiscal mismanagement in some countries with insufficient political restraint to curb budget deficits and rising debt at the national and regional levels (e.g., Greece, Italy, and Spain), (3) real estate booms and busts that brought down banks with bad property loans (Ireland and Spain), and (4) national banking systems that grew so large they threatened to take down the sovereign governments along with them (Ireland and Spain).

Another more basic reason for the debt crisis was a fundamental flaw in the design of the Eurozone. The Eurozone countries have a common currency and monetary policy, but there is no fiscal union and no common fiscal policy. One or more countries can get into serious fiscal trouble and they have no way to recover except by temporary bailouts, a debt default, and/or an exit from the Eurozone.

In addition, the Eurozone was thrown together with disparate countries having different degrees of competitiveness and external current account balances. This by itself is a recipe for disaster because a less competitive country cannot adjust by allowing its currency to depreciate. Instead, these countries suffer an "internal devaluation" involving recession and a decline in wages and living standards.

It is also critical to recognize that the European debt crisis is as much a banking system crisis as it is a sovereign debt crisis. The banks and the sovereign governments are joined at the hip and threaten to take each other down in a slow-moving spiral. As banks fail, the sovereign government in that country comes under pressure to stop bank runs and to prevent a credit crunch. The government then takes over the troubled banks and must recapitalize those banks with money that is borrowed in the bond market (or from a bailout facility), which further damages the creditworthiness of the sovereign government and in turn drives up its bond yields and interest costs. Meanwhile, as the sovereign government runs into debt problems, the value of its government securities plunges and impairs the balance sheets of the banks that hold huge quantities of Eurozone sovereign bonds, leading to funding problems for the banks and runs on their deposits.

There are some radical solutions that have been suggested for the European debt crisis that involve a wholesale restructuring of the Eurozone. For example, there could be a two-speed Eurozone with the core reserved for countries with stronger fiscal positions and competitiveness. There could also be a pre-packaged means for a country that simply can't survive in the Eurozone and needs to return to having its own currency. The Eurozone countries could even simply give up altogether and go back to the old system of having individual currencies and national central banks.

However, the Europeans have spent decades on European integration and they have a huge amount of capital and prestige riding on its success. European integration is considered the antidote to the two world wars that were fought in Europe in the first half of the 20th century. Europe's politicians at present will not even entertain the thought of allowing the Eurozone to fully disintegrate. With this in mind, practical solutions are necessary that will allow Europe to move forward to fix its current problems and create a successful union for the future.

The full solution would be for the Eurozone to turn itself into the equivalent of the United States of America with a primary federal Eurozone government and Eurozone nations that become equivalent to the states in the U.S. This idea will not work right now since European countries have a very strong sense of self-identity and are not ready for full monetary, fiscal, and political union. Yet, this is the direction in which the Eurozone must move if it hopes to make the euro a success over the long-term. Ms. Merkel recently noted that, "I have always said we need more Europe." She favors a host of integration measures that will boost Eurozone unification and coordination. However, Ms. Merkel notes the long time line by adding that, "There are integration steps that require treaty changes, and we are not there yet today."

ECB President Draghi recently identified four building blocks that are required to put monetary union on a sound long-term footing: (1) economic union, (2) political union, (3) fiscal union, and (4) banking union.

1. Economic Union -- Economic union refers to the implementation of reform measures in certain countries to boost labor competitiveness and reduce costs. This will make exports from those countries more competitive in the world economy and prevent these countries from running large current account deficits. This would create a more balanced union and eliminate the current situation where uncompetitive countries require large capital influxes and internal

Eurozone Debt Crisis - Solutions (continued)

devaluations.

2. Political Union -- Political union refers to the process of deepening the political foundations of the Eurozone by expanding the legislative authority of the European Union. This is obviously problematic since Eurozone countries generally do not want to give up even more sovereignty to Brussels than they have already. Yet the goal at present is to at least strengthen European political institutions.

3. Fiscal union -- Fiscal union refers in part to having common and enforceable budget rules and providing a means to help troubled members. German Chancellor Angela Merkel's fiscal pact is a significant step in the direction of fiscal union. The fiscal pact is essentially a balanced budget requirement with an automatic adjustment procedure enshrined in nations' constitutions or laws with similar weight. Ms. Merkel's fiscal pact is a long-term measure that will certainly help over time to prevent fiscal meltdowns, although it offers little help over the short-term since countries have already far exceeded the guidelines. Fiscal union also involves moving towards giving Eurozone officials veto power over national budgets and even starting up a Eurozone Treasury.

The idea of common euro bonds also comes under the general heading of fiscal union. This idea has been pushed by French President Hollande and Italian Prime Minister Monti, among others, but has been staunchly opposed by German Chancellor Merkel. The idea is to issue euro bonds that are jointly backed by all the Eurozone members including Germany. This would allow Spain, Italy and other troubled countries to access the capital markets at much lower costs than with their national bonds.

However, joint euro bonds would substantially raise Germany's interest costs and represent a very hard sell to German taxpayers. One poll showed that 80% of Germans oppose joint euro bonds. German taxpayers are not interested in paying higher interest costs in order to jointly guarantee bond money for countries such as Greece or Portugal that might spend the money in ways that Germans might think is inappropriate or profligate.

Ms. Merkel is strongly opposed to the idea of jointly-issued euro bonds on any short-term time frame and refers to the concept as a "debt union" rather than a real solution. She says that having one Eurozone interest rate will simply reduce the pressure on national governments to implement the fiscal and reform measures that are necessary in those countries. To top things off, Ms. Merkel believes that joint euro bonds would be considered unconstitutional under Germany's laws. However, Ms. Merkel does say that joint euro bonds could be considered years down the road when fiscal and political union is more complete.

4. Banking union and common bank supervision -- Banking union refers to bringing all of Europe's banks together under common Eurozone bank supervision and having a unified bank resolution and deposit insurance system. As mentioned earlier, the Eurozone debt crisis is as much of a Eurozone banking system problem as it is a sovereign debt problem. The Eurozone sovereign debt crisis cannot be fully solved until the Eurozone banking system is integrated and strengthened.

Eurozone leaders at their summit in June 2012 agreed to move towards banking union with a single European banking supervisor, a common EU deposit-guarantee scheme, and a single bank-resolution facility to wind down the region's bad banks. One of the primary goals of common banking supervision is to allow the ESM to start providing bailout capital directly to troubled banks. This would sever the fatal loop between banks and sovereign governments since a country would not have to take additional debt onto its balance sheet to bail out its national banks.

Since the initial agreement in June 2012 on banking union, however, Germany has substantially slowed progress for the idea. EU leaders at their summit in October 2012 agreed to simply have a legislative framework in place by the end of 2013 and to phase in pan-Eurozone bank supervision during 2013. The full bank supervision program, headed by the ECB, is not expected to fully begin until 2014. The general idea is to put the ECB in charge of bank supervision of at least large European banks, and possibly all European banks, with day-to-day support provided by the current national bank supervisors.

There has also been substantial backsliding on the issue of the ESM providing direct capitalization aid to banks. Germany, the Netherlands and Finland are now taking the view that the ESM can only provide direct aid to banks for future banking problems, not for legacy problems. This would prevent the ESM from directly helping banks in Spain and perhaps Ireland with past problems. The ESM could still provide loans to governments such as Spain, which can use those funds to bail out their banks. Moreover, the ESM cannot provide direct help to banks until an "effective" pan-

Eurozone Debt Crisis - Solutions (continued)

Eurozone banking supervision is in place, which is not likely until 2014. The markets are no longer particularly optimistic about the ESM being used to help directly bail out banks.

The idea of a Eurozone-wide deposit guarantee system is also running into serious opposition from Germany and other stronger countries that do not want to see their deposit guarantee programs drained by troubled foreign banks. A Eurozone-wide deposit guarantee program is likely to take years to fully implement and is not likely to provide help for legacy deposit losses.

A Eurozone-wide deposit guarantee program would be helpful to deal with the current problem of slow runs on banks in Greece, Spain and Italy. Depositors are withdrawing their deposits from checking and savings accounts and are putting the cash under their mattresses or are transferring the cash to safer banks in Germany or outside the Eurozone altogether.

Banks in the Eurozone all have in place national deposit guarantees of up to 100,000 euros per person to prevent a normal bank run. However, the deposit guarantees don't cover so-called "redenomination risk," which is the risk that a depositor in Greece, for example, could have his or her account seized and automatically converted to severely depreciated drachmas if Greece leaves the Eurozone. In addition, depositors in Greece and Spain do not have full confidence that their national deposit insurance programs are strong enough to withstand the severe stress of any additional bank failures.

Depositors who are withdrawing their cash from Greek, Spanish and Italian banks are making a rational decision based on their self-interest, although it is clearly making the overall Eurozone debt crisis worse by draining the capital and funding from banks in Greece, Spain, and Italy. A unified and strong Eurozone deposit guarantee system that covers redenomination risk would help to prevent bank runs and provide more support for the banks in the troubled Eurozone countries.

There is no progress at present on setting up a bank resolution facility, which is the third pillar of banking union next to banking supervision and deposit insurance. The Eurozone needs an entity such as the Federal Deposit Insurance Company (FDIC) in the U.S. that has the legal authority to not only guarantee deposits but also to decide how to wind-down failed banks. The ECB as the Eurozone bank supervisor will presumably have some authority to wind down banks, although that has yet to be addressed on a comprehensive basis.

The bottom line for banking union is that it is highly complex and is moving very slowly. Banking union is a critical precondition for future Eurozone financial stability but it will take years to implement and will provide little help over the near-term.

Other solutions

There are other measures that can be taken to address the Eurozone debt crisis. As mentioned earlier, the ECB could cut interest rates another notch or could conduct another large LTRO to provide a new dose of liquidity to the European banking system.

ESM expansion -- The Eurozone countries could boost the size of the ESM from 500 billion euros to well over 1 trillion euros in order to convince the markets that the ESM has more than enough capacity to handle any conceivable problems that may arise down the road. The markets would be much more comfortable about the Eurozone debt crisis if they knew that all the facilities are in place that could possibly be needed to deal with the crisis without the need for a new round of approvals from Eurozone national governments.

However, an expansion of the ESM beyond its current size of 500 billion euros is not likely to happen without fresh crisis events. Ms. Merkel opposes a larger bailout fund because in her view the availability of a large bailout fund almost guarantees it will be used to its full capacity since the troubled countries will then have a way to escape from the drastic austerity and reform measures that are required. Ms. Merkel also opposes boosting bailout funds beyond the current levels for domestic political reasons because she may face the wrath of the Germany voters in federal elections in September 2013 if she goes much farther in providing bailout funds.

A different way to boost the effective size of ESM bailout resources, mentioned earlier, is to give the ESM a banking license and allow it to borrow from the ECB. Officials have also discussed the possibility of leveraging the ESM to a larger size with a public-private partnership whereby capital is brought in from outside investors.

Bond redemption fund -- Another solution that has some potential is a Eurozone bond redemption fund such as the

Eurozone Debt Crisis - Solutions (continued)

one suggested by Ms. Merkel's own council of economic advisors. Under this plan, the Eurozone could set up a huge 2.3 trillion euro debt redemption fund that pools Eurozone debt over 60% of GDP and is backed by members' gold reserves and repaid over 25 years. The fund would be a one-time program and would not finance spending going forward but would rather be designed to get debt loads down below 60% of GDP and reduce the costs of financing this debt via the joint liability of all Eurozone countries including Germany. Ms. Merkel has generally rejected this idea as another form of debt sharing.

The Prognosis

As German Chancellor Merkel has often said, there is no no "big bang" solution that will take care of all Europe's problems in one fell swoop. Instead, the Eurozone debt crisis will likely remain with us to some extent for many years. The Eurozone debt crisis will not be completely over until the last country has cleaned up its banking system and every sovereign government has returned to the bond markets for normal financing.

The solutions for the Eurozone debt crisis include closer integration such as economic, political, fiscal, and banking union. In addition, each troubled country must do its part to get its budget deficit under control, start paying down its debt level, institute reforms to become competitive in the global economy, and regain the trust of investors. If Germany and the other stronger nations want to enjoy the benefits of the common currency and avoid the huge costs of a Eurozone breakup, then they have no choice but to provide the funding and guarantees that are necessary to nurse the weaker members of the Eurozone back to health. Only then can the Eurozone move forward as a more unified currency bloc.

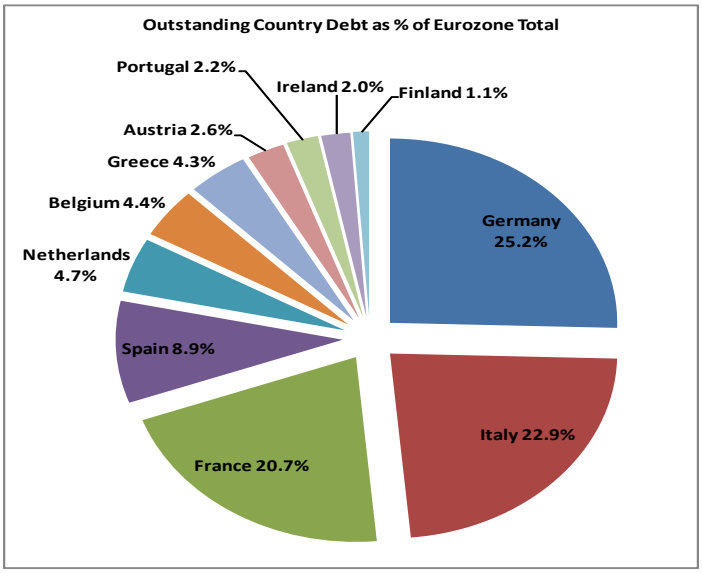
Eurozone Bond Markets

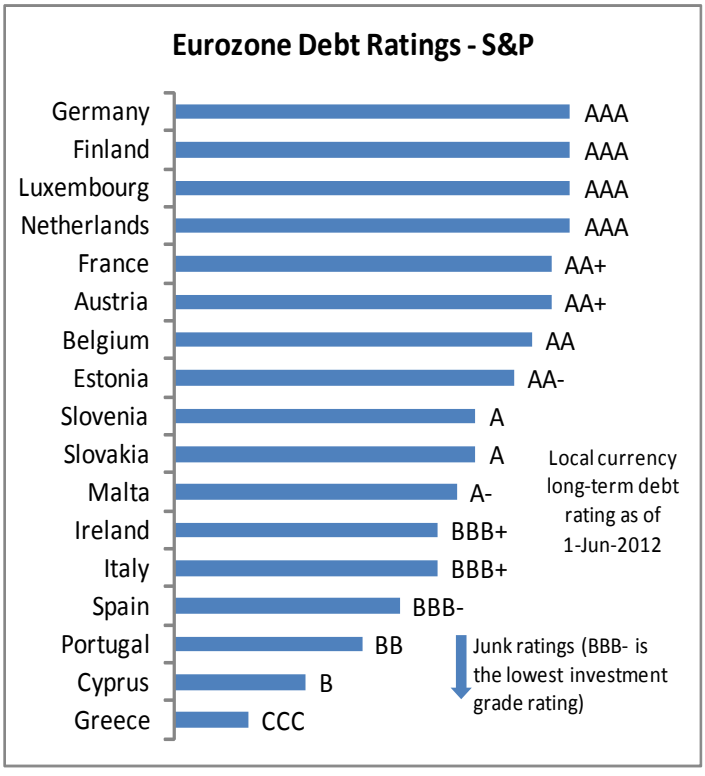
The European debt crisis has caused chaos in the Eurozone bond markets. Greece in February 2012 restructured its debt and effectively defaulted on about 100 billion euros worth of debt. There is at least a small chance that other nations such as Portugal or Cyprus, if they lose political support for austerity, may also end up defaulting on their debts. The thought of Spain or Italy defaulting on their huge amounts of debt engenders true panic among global investors. The chart to the right illustrates that Germany, France, Italy and Spain together account for more than three-quarters of total Eurozone bond issuance.

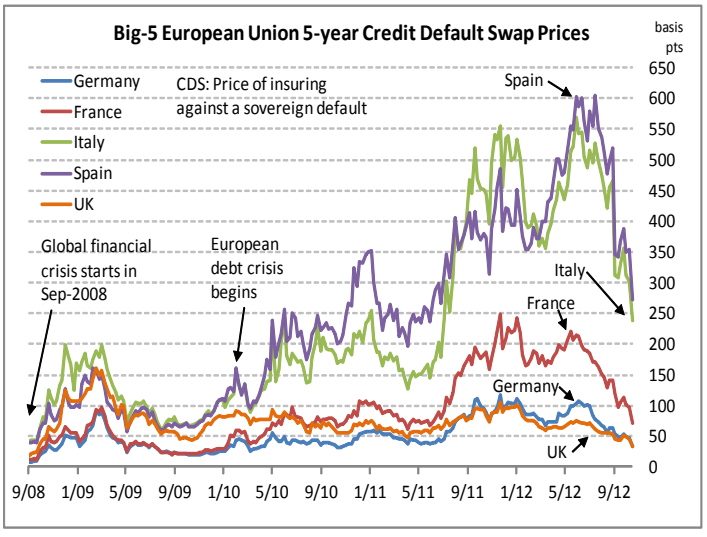
The table on the bottom-right illustrates Standard & Poors' current credit ratings for the sovereign debt of the 17 Eurozone countries. There are only four countries in the Eurozone that still have AAA ratings, i.e., Germany, Finland, Luxembourg, and the Netherlands. It is alarming to see that Italy and Spain, the third and fourth largest economies in the Eurozone, have credit ratings that are barely above junk and have no real ability to contribute to Eurozone bailout facilities. France also has reduced capacity to provide bailouts to others given that it has lost its AAA rating and has its own problems with its national banking system and fiscal consolidation.

The chart below of 5-year credit default swaps (CDS) shows the level of market concern about the health of the largest four members of the Eurozone, plus the UK. The 5-year CDS is the price that an investor pays to insure against a sovereign default at any point over the next 5 years. The chart shows how 5-year CDS prices have recently fallen sharply thanks mainly to the ECB's bond-buying program.

Standard & Poors, when it downgraded nine Eurozone countries in January 2012, said, "we would note that the ratings on the Eurozone sovereigns remain at comparatively high levels, with only three below investment grade (Portugal, Cyprus, Greece). Historically, investment-grade-rated sovereigns have experienced very low default rates. From 1975-2010, the 15-year cumulative default rate for sovereigns rated in investment grade was 1.02%, and 0.00% for sovereigns rating in the "A" category or higher." Thus, S&P, in trying to keep the crisis in perspective, notes that the odds of a major default on Eurozone sovereigns at this point remain low and that in the big picture, the Eurozone remains solvent.







Eurex Euro-Bund Futures

Eurex Euro-Bund Futures prices have been in a bullish mode since early 2011 due to the Eurozone debt crisis. German cash bunds are considered a safe-haven asset and investors have flocked to bunds to protect themselves from the risks involved in the bond markets of the peripheral Eurozone countries. Germany is one of only four Eurozone countries that still have a AAA rating from Standard & Poors. The 10-year cash German bund yield fell to a record low of 1.17% on June 1, 2012.

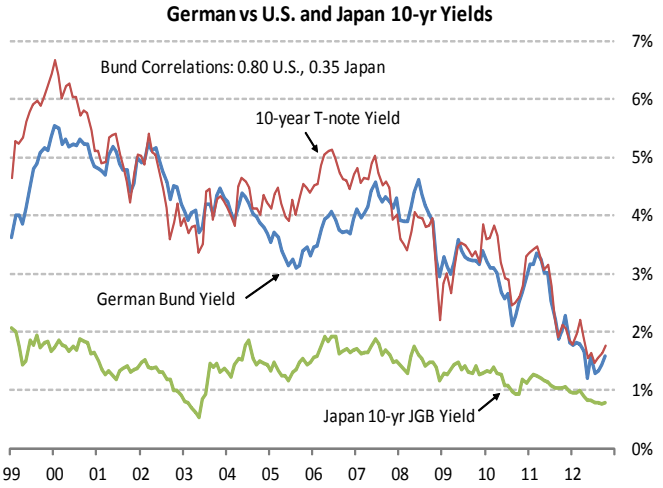
Eurex Euro-Bund Futures prices, however, peaked in June 2012 and have since trended mildly lower. German bunds have lost some of their safe-haven appeal since the ECB announced its bond-buying program in September, thus cooling off the Eurozone debt crisis somewhat. Indeed, the German 5-year credit default swap price (the price of insuring against a sovereign default) has fallen below 50 basis points from recent levels above 100 basis points, illustrating the reduced risks for Germany as the Eurozone's main guarantor. Looking ahead, Eurex Euro-Bund Futures prices will continue to be driven mainly by the ebb and flow of safe-haven demand from the Eurozone debt crisis. However, if and when Eurozone officials are successful in containing the Eurozone debt crisis, then Eurex Euro-Bund futures should begin trading more on traditional bond fundamental factors such as monetary policy and the German macroeconomic situation.

Those traditional bond fundamental factors currently remain bullish for Eurex Euro-Bund Futures due to weak German economic growth, limited near-term inflation risks, and a highly accommodative liquidity policy from the ECB. However, if the German and Eurozone economies slowly improve through 2013 as the market currently expects, then the situation will turn decidedly less bullish.

Eurex 10-year Euro-Bund Future Price



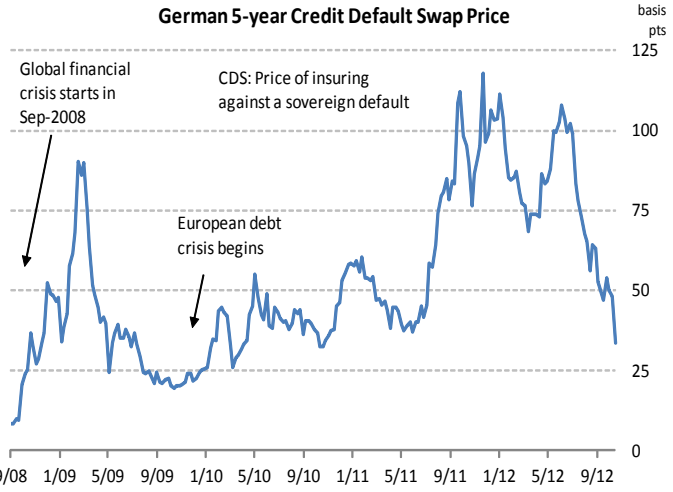
German vs U.S. and Japan 10-yr Yields



Eurex German 5-year EURO-Bobl Future Price



German 5-year Credit Default Swap Price



Eurex French Euro-OAT Futures

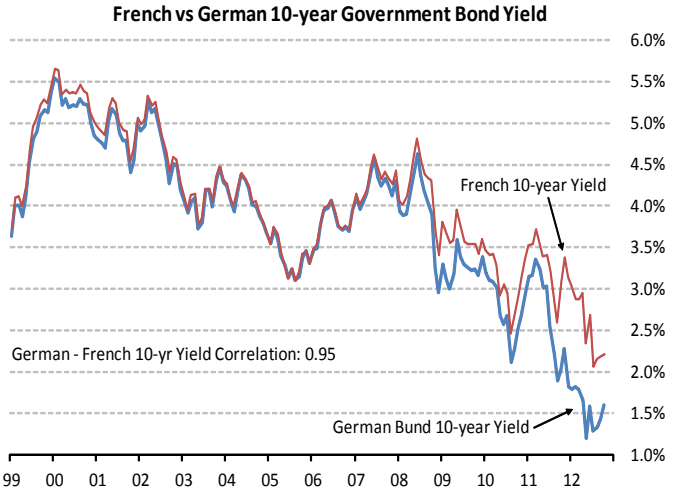
French Euro-OAT Futures prices rallied sharply in May 2012 on the worsening Eurozone debt crisis, but then traded basically sideways from August through early October. The market has recently been treading water, waiting to assess the direction of the French economy and to see if the Eurozone debt crisis situation continues to improve. The Eurex Euro-OAT Future is a futures contract based on the long-term debt securities of the French Republic ("Obligations Assimilables du Trésor").

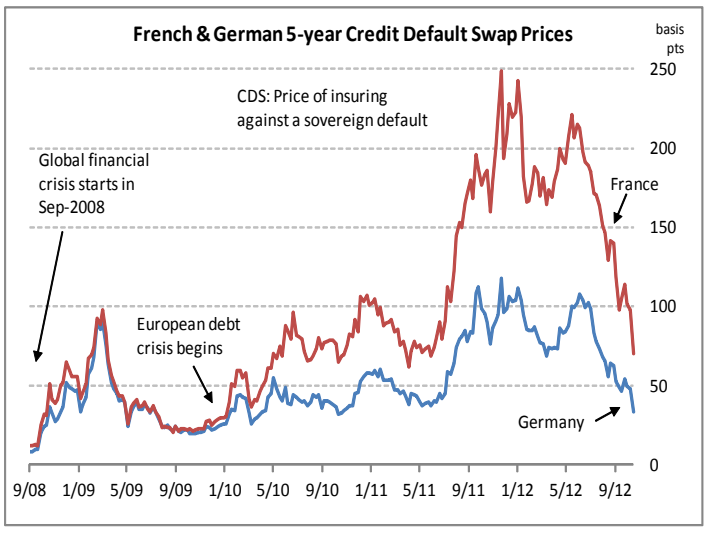
Meanwhile, the 10-year French cash government bond yield dropped sharply during May through August 2012 from the 3.00% area to a record low of 2.05% in August. The 10-year French bond yield has since moved higher to the current level of 2.23%. As the chart below illustrates, the French and German 10-year bond yields traded at nearly identical levels from the start of the euro in 1999 until the global financial crisis started in 2008. The premium of the French yield over the Germany yield widened substantially during the worst stages of the Eurozone debt crisis and currently remains relatively wide at 61 basis points.

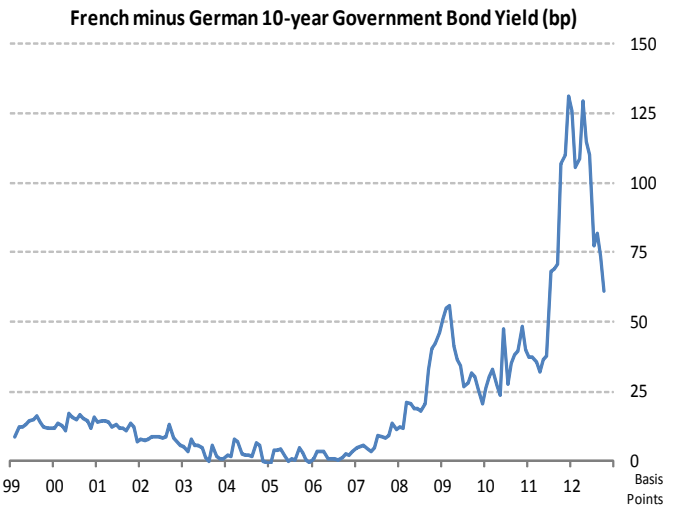
The risk on French government bonds has risen substantially in recent years. The French fiscal position has deteriorated because of the 2008/09 financial crisis and because France is being burdened with the bailout of the weaker members of the Eurozone. There has been substantial upward pressure on France's 5-year credit default swap price (the price of insuring against a sovereign default), as seen in the chart below. In fact, France lost its AAA rating from Standard & Poors in January 2012 and was downgraded by one notch to AA+ when S&P cut the credit ratings for nine Eurozone countries. However, the ECB's announcement of its bond-buying program in September allowed Spanish and Italian bond yields to drop sharply, allowing French CDS prices to drop sharply as well.

Eurex Euro-OAT Futures Price









Eurex Italian 10-year Euro-BTP Futures

The 10-year Italian Eurex Euro-BTP Futures contract sold off very sharply in late 2011 when concern about Italy was at its height. The futures contract hit a record low of 87.46 in November 2011. That record low in the futures price coincided with a peak of 7.24% in the cash 10-year Italian government bond yield.

However, the Italian Eurex Euro-BTP Futures contract then started to rally sharply when Mario Monti took over as Prime Minister from Silvio Berlusconi in November 2011. Mr. Monti quickly pushed a 20 billion euro austerity package through parliament and put Italy's finances on a more stable footing, thus gaining some trust from investors and allowing Italian bond prices to rally.

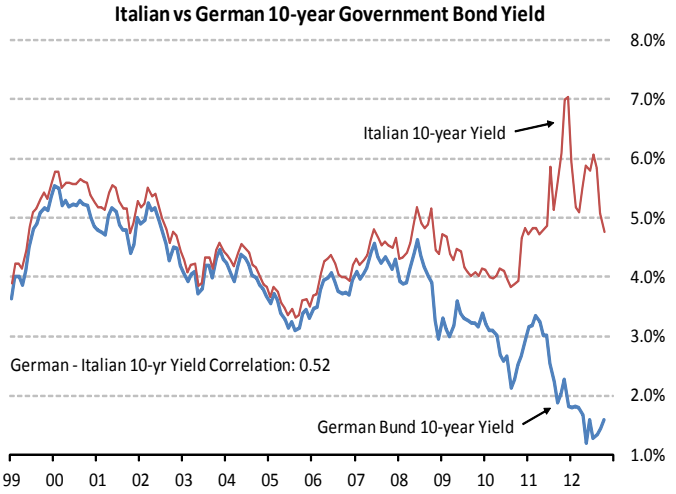
Eurex Euro-BTP Futures have recently posted a new 1-1/3 year high on optimism about the ECB's bond-buying bailout program, which boosted confidence that the Eurozone may have finally found a formula that can succeed in containing the debt crisis. In addition, Eurozone officials hope that if Spain formally participates in the bailout program, then contagion pressure on Italy will be substantially reduced.

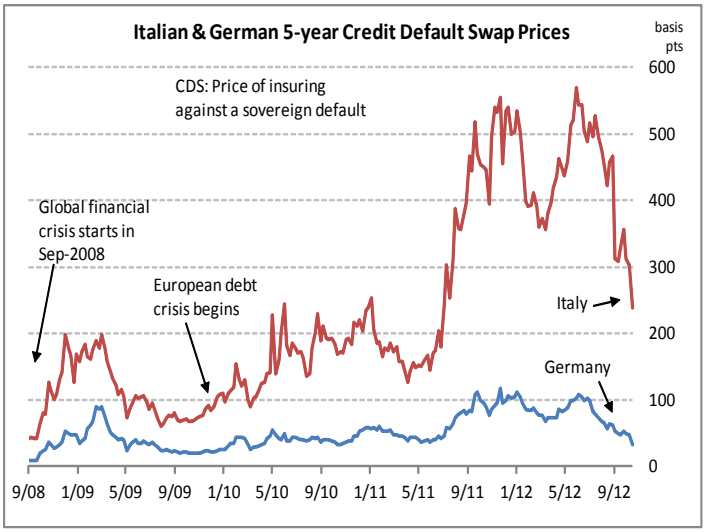
Italy's 5-year credit default swap price (the price of insuring against a sovereign default) hit a record high on a daily basis of 591 basis points in November 2011 but has since fallen sharply to the current level of 252 bp.

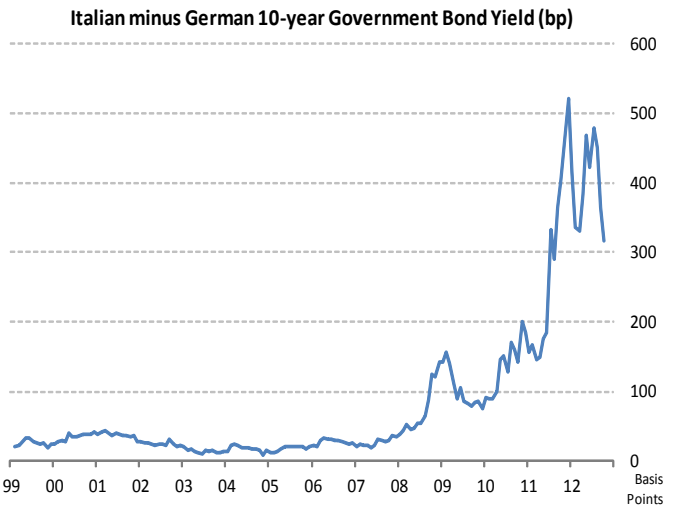
From 1999 through 2007, the Italian 10-year yield traded at an average 25 basis point premium to the German 10-year yield. However, that premium started to soar after the global financial crisis started in 2008 and really took off in 2011, reaching a peak of 551 basis points in November 2011. That spread has since come down to 317 basis points because Italy has put itself on a more sustainable fiscal path and because of the ECB's bond-buying program.

Eurex Euro-BTP Italian 10-yr Government Bond Future









Eurex 3-month EURIBOR Rate Futures

The Eurex 3-month EURIBOR Rate Futures contract has rallied sharply over the past year, posting a new contract high of 99.84 in mid-September. That translates to a yield of only 0.16% (i.e., 100.00 minus 99.84). Meanwhile, the spot 3-month EURIBOR rate is currently at 0.20%.

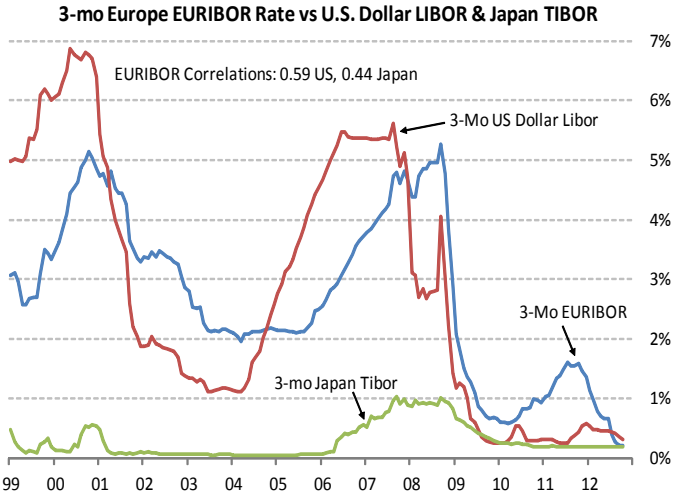
The spot 3-month EURIBOR rate traded in the range of 1.40-1.60% during the summer of 2011 after the European Central Bank (ECB) raised its main refinancing rate by 25 basis points to 1.25% in April and by another 25 basis points in July to 1.50%. However, the 3-month EURIBOR rate then plunged in November and December 2011 when new ECB President Mario Draghi engineered two consecutive 25 basis points rate cuts in November and December, reducing the refinancing rate to the 1.00% level that prevailed in the two years after the global financial crisis began in September 2008.

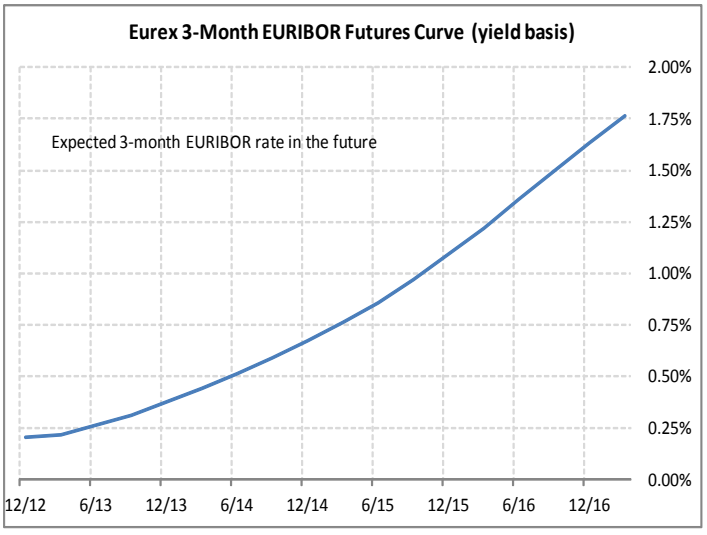
In addition to the rate cuts, the ECB in December 2011 and February 2012 conducted two 36-month longer-term loan refinancing operations (LTROs) totaling 1.019 trillion euros. The ECB at its meeting in July 2012 then cut its refinancing rate by another 25 basis points to the record low level of 0.75%, thus providing fresh support for Eurex 3-month EURIBOR Rate Futures prices.

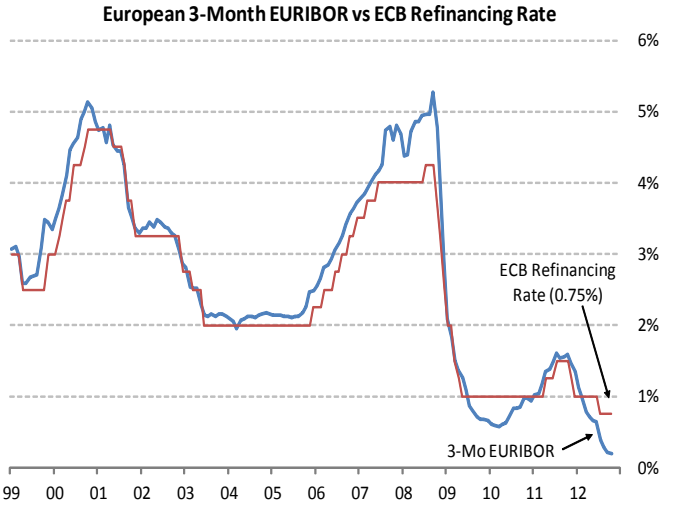
As seen in the chart below of the Eurex EURIBOR Futures curve, the market currently does not expect the 3-month EURIBOR rate to fall any further from its current level. In fact, the market is looking for the 3-month EURIBOR rate to move slowly higher over the next few years as the Eurozone debt crisis ebbs and as the Eurozone economy recovers. Specifically, the market is looking for the 3-month EURIBOR rate to rise to 0.50% by mid-2014, to 1.00% by the end of 2015, and to 1.50% by September 2016.

Eurex 3-month EURIBOR Future Price









Eurex EURO STOXX 50® Index Futures

Eurex EURO STOXX 50® Index Futures prices fell sharply starting in early 2008 as the U.S. housing crisis started and developed into a full-fledged global financial crisis with the bankruptcy of Lehman Brothers in September 2008. While the U.S. banking system and economy have partially recovered from the crisis, the European economy over the past three years has been hurt by the Eurozone debt crisis and recessionary economic conditions.

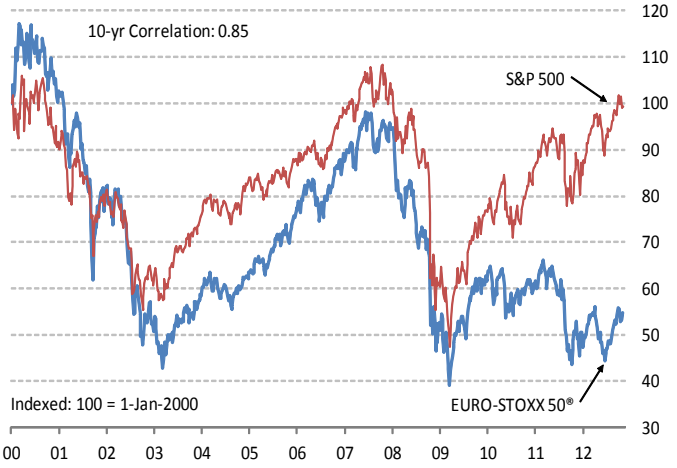
Eurex EURO STOXX 50® Index Futures prices traded basically sideways during 2010 and the first half of 2011. However, the Index then fell sharply in mid-2011 when the European debt crisis became worse and the U.S. economy softened in response to the spring debacle when Congress threatened to default on U.S. government securities rather than raise the U.S. debt ceiling. Eurex EURO STOXX 50® Index Futures prices recovered somewhat in early 2012, but then tumbled again as the European debt crisis worsened in March after Spain and Italy were both forced to defer their respective budget deficit targets due to economic recessions. Eurex EURO STOXX 50® Index Futures prices have rallied since summer when the ECB started hinting at its new bond-buying rescue program that was officially announced in September. The EURO STOXX 50® Index is currently trading at a forward price/earnings ratio of 10.8, which is at the higher end of the range seen over the past two years.

The EURO STOXX 50® index has substantially underperformed the U.S. S&P 500 index in the past three years, as seen in the chart below. This illustrates how bearish the European debt crisis has been for European companies and earnings. The chart below illustrates that Japanese stocks have also performed poorly over the past three years and have tracked the EURO STOXX 50® Index fairly closely.

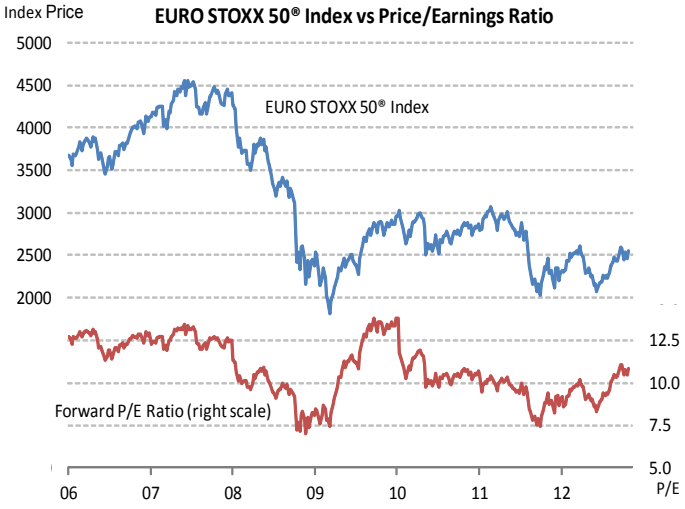
Eurex EURO-STOXX 50® Future Price



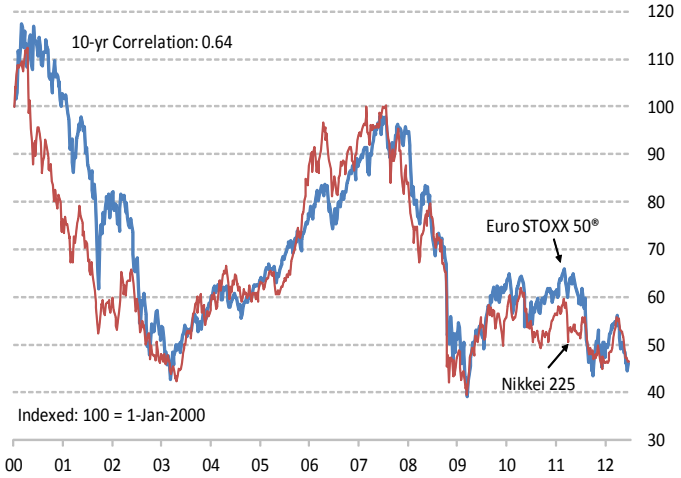
EURO-STOXX 50® vs S&P 500 Index



EURO STOXX 50® Index vs Price/Earnings Ratio



EURO-STOXX 50® vs Japan Nikkei 225 Index



Eurozone Debt Crisis - Timeline

- 9/15/2008 -- Lehman Brothers files for bankruptcy, officially starting the 2008/09 global financial crisis.
- 12/8/2009 – Fitch cuts Greece's debt rating to BBB+ from A1, a day after S&P warned of a downgrade.
- 12/14/2009 – Greek Prime Minister George Papandreou calls for an austerity plan, responding to the debt downgrade.
- 2/11/2010 – Eurozone leaders promise a bailout package for Greece but discussions are blocked by Germany.
- 5/2/2010 – Greek bailout is announced involving 110 billion euros over three years (80 billion euros from Eurozone, 30 billion euros from IMF).
- 5/9/2010 – Eurozone bailout capacity of 750 billion euros is announced with 440 billion euros from the Eurozone nations (European Financial Stability Facility), 60 billion euros from an EU emergency fund, and 250 billion euros from the IMF. ECB starts program of buying Greek, Portuguese and Irish bonds.
- 8/6/2010 – Eurozone finance ministers agree on the details of the 440 billion euro 3-year European Financial Stability Facility (EFSF).
- 11/21/2010 – Ireland requests bailout package of 80-90 billion euros.
- 12/16/2010 – Eurozone officials agree to set up permanent 500 billion euro permanent European Stability Mechanism (ESM) as the successor to the temporary EFSF.
- 4/6/2011 – Portugal requests bailout.
- 4/7/2011 – ECB raises its main refinancing rate by 25 basis points to 1.25%.
- 6/13/2011 – Greek credit rating is downgraded by three notches to CCC by S&P and Germany calls for Greek bond holders to take a haircut.
- 7/711 – ECB raises its main refinancing rate by 25 basis points to 1.50%.
- 7/11/11 – Eurozone finance ministers sign the treaty establishing the permanent European Stability Mechanism (ESM).
- 7/21/2011 – Eurozone officials agree on a second 110 billion euro rescue package for Greece that includes plans for Greek bond holders to accept a "voluntary" haircut on their bonds.
- 8/5/11 – S&P downgrades U.S debt to AA+ from AAA.
- 8/7/11 – ECB is forced to start buying Spanish and Italian bonds in an attempt to halt the surge in yields.
- 8/26/11 – Greek bond holders agree to take a 50% loss on the face value of their Greek debt, which is designed to bring Greek debt down to about 120% of GDP by 2020.
- 10/31/11 – Greek Prime Minister George Papandreou in a surprise move calls for a voter referendum on austerity measures and bailout, but reverses himself three days later after heavy criticism from Eurozone officials.
- 11/1/11 – Mario Draghi, former chief of the Bank of Italy, takes over as European Central Bank (ECB) president after Jean-Claude Trichet's term expires.
- 11/3/11 – ECB, under new leadership from Mario Draghi, cuts its refinancing rate by 25 bp to 1.25%.
- 11/4/11 – Italy agrees to allow the IMF to monitor its finances.
- 11/6/11 – Greek political leaders agree to create a new technocratic government. Lucas Papademos, former vice president of the ECB, on 11/10/11 takes over as prime minister.
- 11/12/11 – Silvio Berlusconi resigns as Italy's prime minister, paving the way for a technocratic government led by new Prime Minster Mario Monti.
- 11/30/11 – Federal Reserve expands dollar swap lines with ECB and other major central banks to cut the cost of dollar funding and alleviate dollar funding shortages in the European banking system.
- 12/8/11 – ECB cuts refinancing rate by 25 basis points to 1.00% and announces two 36-month longer-term refinancing operations (LTROs) with full allotment for late December and late February.

Eurozone Debt Crisis - Timeline

- 12/9/11 – All 17 members of the Eurozone agree on the basic outlines of a fiscal pact, which is a constitutional balanced budget requirement. The treaty is signed on March 2, 2012.
- 12/22/11 – ECB at its long-term refinancing operation (LTRO) grants 523 banks a total of 489 billion euros of 36-month loans at the 1.00% refinancing rate.
- 1/13/12 – France and Austria lose their AAA ratings as Standard and Poors downgrades France, Austria, Spain, Italy and five other Eurozone members.
- 1/16/12 – S&P downgrades EFSF from AAA to AA+.
- 2/21/12 – Eurozone officials finalize the second Greek bailout package of 130 billion euros with Greek bond holders taking a nominal 53.5% haircut on their debt holdings to bring Greece's debt down to 120.5% of GDP by 2020.
- 2/29/12 – ECB at its second longer-term refinancing operation (LTRO) provides 529.5 billion euros in 36-month loans to about 800 banks.
- 3/2/12 – New Spanish Prime Minister Rajoy unilaterally rejects his predecessor's agreement with Eurozone officials for a 2012 deficit target of 4.4% of GDP. He proposes deficit target of 5.7% but eventually agrees to 5.3% target after pushback from Eurozone officials. Spanish yields start rising as investors lose confidence in Spain's ability to meet its deficit targets and avoid a bailout.
- 4/18/12 – Italy's government revises its 2012 GDP forecast downward to -1.2% from -0.5%. Italy delays its balanced budget by two years from 2013 to 2015. Italy raises its 2013 deficit target to +0.5% of GDP from +0.1%.
- 5/6/12 – Francois Hollande wins the election and takes over for Nicolas Sarkozy as French President.
- 5/6/12 – After Greek election, the Greek political parties cannot form a government and new elections are called for 17-June-2012.
- 6/9/12 – Spain requests a Eurozone bailout of up to 100 billion euros for its banking system.
- 6/17/12 New Democracy wins Greek election and forms a pro-bailout coalition government with Pasok and Democratic Left and with New Democracy leader Antonis Samaras as the new prime minister.
- 6/25/12 – Cyprus requests a bailout for its banking system, which was hurt by Greek bad loans and government debt restructuring. The bailout request size was later pegged at 11.0 billion euros in October 2012.
- 7/5/12 – The ECB cuts its refinancing rate by 25 bp to 0.75% and cuts its deposit rate by 25 bp from 0.25% to zero.
- 9/6/12 – The ECB announces its "Outright Monetary Transactions" program in which the ECB will buy an uncapped amount of 1-3 year bonds of troubled countries that agree to an austerity and reform program supervised by Eurozone and IMF officials.
- 10/8/12 -- The permanent, 500 billion euro European Stability Mechanism (ESM) formally comes into operation with the first board meeting.

Eurex & Eurozone - Sources of Information

Eurex Product Information

- Product Guide—http://www.eurexchange.com/download/documents/publications/eurex_products_en.pdf

Sources of European economic news and data

- Bloomberg—http://www.bloomberg.com/news/regions/europe.html
- Reuters—http://www.reuters.com/finance/markets/europe
- Financial Times—http://www.ft.com/world/europe
- Wall Street Journal Europe—http://online.wsj.com/public/page/news-european-union.html
- Forbes Europe —http://www.forbes.com/home_europe/
- CNBC Europe—http://www.cnbc.com/id/15838668/

Sources of European economic and financial data

- Eurostat—http://ec.europa.eu/eurostat
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European Institutions

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