

The European Debt Crisis: Policy Responses and Implications For Growth, Interest Rates, Currencies and Equity Markets

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OCTOBER 2011

Introduction: A Greek Tragedy Enters its Final Act

Aristotle suggests that as an art form, Greek “Tragedy” is characterized by seriousness and dignity involving a great person who experiences a reversal of fortune. The reversal in fortune is the inevitable, but unforeseen, result of some action driven by a character flaw or mistake by the hero. Often in Greek Tragedy, the tragic hero (and audience) achieves some revelation about human fate and destiny.¹

Most would suggest that the tragic hero of this story is Greece; burdened by its excessive borrowing, but a more detailed telling of the story reveals many tragic heroes. Among them are the European Union (EU), The European Central Bank (ECB) and the European banking system. The actions of each contributed to the problems Europe faces today, though in the end, solving the Greek debt crisis is really about saving the banking system and the world’s economy. As this tragedy enters its final act, what has Europe learned from the events of the last 18 months, and how will they act upon them in structuring a solution to the crisis it faces today?

How the European debt crisis resolves itself matters to the future of the EU, and the more immediate consequences for economic growth, asset values and how portfolios should be positioned. This paper examines three ways in which the crisis may resolve itself and the implications of each (Table 1):

- **Soft Landing:** Greece is able to reduce its debt burden and brings down borrowing costs.
- **Disorderly Default:** European leadership fails to craft a solution that reassures markets which leads to sovereign defaults beyond Greece, and widespread bankruptcy across European banks.
- **Orderly Restructuring:** European leadership crafts a coordinated solution with creditors reducing principal.

Table I: Summary of Outcomes

	Soft Landing	Disorderly Default	Orderly Restructuring
Description	Greece is able to reduce its debt burden, reestablish the market's confidence in it, and bring borrowing costs down	EU fails to provide support and markets push borrowing costs to unsustainable levels; forcing Greece to default	Coordinated effort to restructure Greek debt, provide liquidity to other nations, and recapitalize banks
Necessary Conditions	Economic growth in excess of fiscal drag from austerity measures; additional "official" funding	Greece fails to reduce its borrowing needs; EU unable to reach agreement on proper course of action	EU, ECB and IMF reach agreement on plan and provide funds necessary to assist in restructuring of Greek debt, provide liquidity to Italy & Spain, and recapitalize banks
Implications for			
Sovereign Default	Greece avoids default as do other PIIGS nations	Greek default leads market to fear of Italian/Spanish default, markets react by forcing default	Greek debt is restructured, requiring at least 50% loss to bond holders; Italy and Spain avoid default
European Banks	In absence of sovereign defaults, European banks remain solvent	In face of multiple sovereign defaults, European banks face widespread bankruptcy, requiring hundreds of billions of euros of recapitalization	Losses from Greek default are minimal
Euro	Eurozone survives and appreciates	Euro depreciates and weaker members leave	Euro appreciates over medium term, Greece likely remains member of euro-zone
Likelihood?	Low	Low to moderate; costs of allowing default are very high, but political cooperation is necessary to avoid default	Moderate to high

In evaluating the various paths, the most likely outcome will involve a coordinated solution that includes:

- An orderly restructuring of Greek debt requiring creditors to exchange existing debt for new debt that reduces and stretches out the return of principal
- A provision of liquidity to the remaining PIIGS nations (Portugal, Italy, Ireland, Spain), eliminating the possibility of additional sovereign defaults
- A recapitalization of European Banks to protect their solvency
- Defense of the Eurozone

We believe this outcome is most likely because of the enormous costs of a Greek default to Europe and the world, and because of the evidence that the EU is putting into place the mechanisms necessary for

an orderly restructuring. The risk to this conclusion is that the EU lacks the governance structure necessary to end political infighting among competing interests, and is unable to craft a solution agreeable to all parties. In this case it is likely that markets make the decision for them by pushing first a Greek default, and then other sovereign defaults, ultimately leading to bank insolvency.

The impact of a successful orderly restructuring of Greek debt on asset prices is relatively straightforward. Once markets are convinced that Italy, Spain and European banks will remain solvent, markets should begin to behave as if Europe were to negotiate a soft landing with Greece remaining in the Eurozone: global equity prices rising, credit spreads tightening, yield curves flattening, energy and commodity prices rising, and finally, the Euro strengthening against the dollar. How markets actually react to a coordinated restructuring will depend on other factors influencing assets prices, such as whether the EU and the ECB implement expansionary fiscal and monetary policies designed to offset the growing possibility of a recession in Europe.

How Did We Get to Today?

In explaining how the European Union arrived at the sovereign debt crisis its faces today, it would be easiest to go back to the spring of 2010, when Greece’s unexpectedly large fiscal deficit first attracted the market’s attention, or to the 2008 financial market crisis that exasperated its borrowing needs. These events and the critical institutions were widely covered and are summarized in Tables 2 and 3. What is more critical to understand are how the laws, rules and policies necessary to create the EU and the ECB helped provoke a financial crisis by changing incentives and introducing moral hazard² into the decision making of the EU’s member states and European banks.

Table Two: Timeline of Events

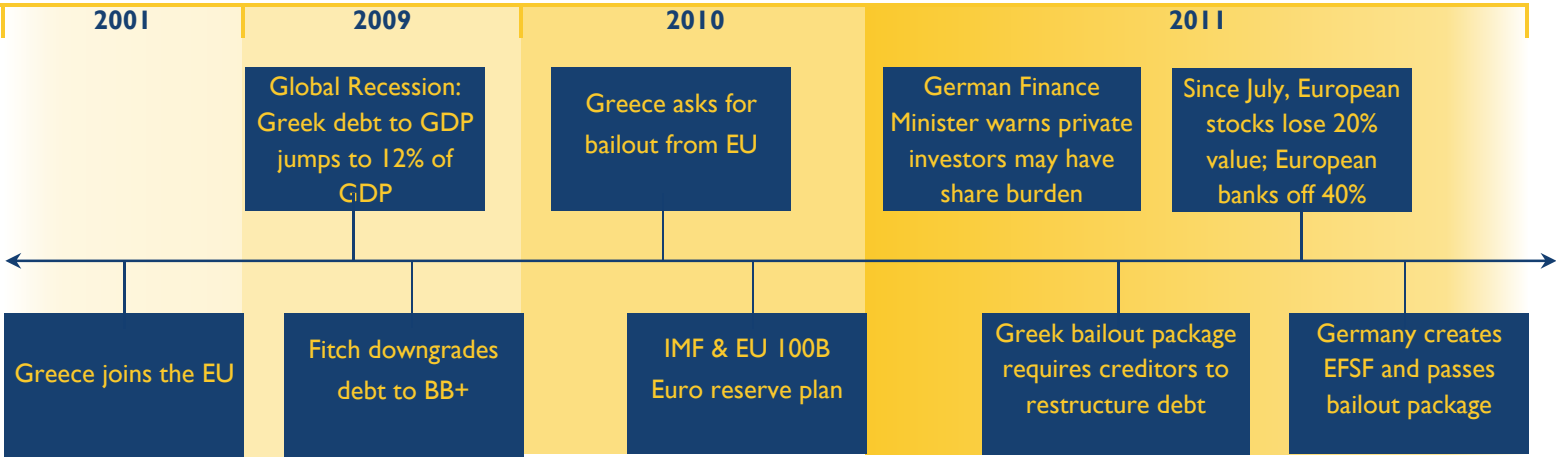


Table 3: A List of the Players

Greece	Greece with a population of 11 million produces 3% of the EU's GDP; less wealthy and productive than other members of the EU, Greece took advantage of lower borrowing costs as a member of the EU to grow through borrowing. Its debt as a share of GDP is approaching 160%; its interest costs exceed 6% of GDP and 20% of government spending.
PIIGS	PIIGS is an acronym that refers to the economies of Portugal, Italy, Ireland, Greece, and Spain. The nations are lumped together because of their sovereign debt burdens which are all greater than 100% of their GDP. The nations together have sovereign debt of over 3 trillion Euros and account for about 30% of EU GDP.
Italy	Sovereign debt is 1.8 trillion Euros and 120% of GDP. Italy is similar to Greece in it suffers from low productivity and economic growth, making it difficult to outgrow its debt burden. Italy has introduced austerity measures designed to bring government deficits down from 5% of GDP to 3%. The risk Italy faces is the amount of debt that matures and must be rolled over near term: 300b Euros in 2011 and 275b Euros.
Spain	Sovereign debt is only 70% of GDP, but total public and private debt is 395% of GDP, second only to Japan. Much of this debt was created by a bubble in property prices which fueled borrowing. Current 10-year CDS spreads suggest a 33% probability of default.
European Union (EU)	Established by the Maastricht Treaty in 1993, today the European Union is made up of 27 countries with over 500 million residents and accounts for over 21% of the world's output. The European Union (EU) was established with purpose of creating a single market permitting the free movement of people, goods, services and capital, and to maintain common policies across its members with respect to justice, trade, and to a lesser extent, foreign and defense policy.
European Monetary Union (EMU)	Refers to countries within the EU abiding by rules allowing them to adopt the Euro. These rules include limiting government borrowing, and controlling interest rates and inflation before giving up their own monetary policy and currency
European Central Bank	The ECB administers monetary policy for the 17-countries that are part of the Eurozone; its primary objective is to issue Euro notes and maintain price stability. Unlike the US FRB, which controls the money supply by buying and selling Treasury bonds, the ECB engages in short term rep contracts with bank, i.e., the banks borrow cash putting up other assets as collateral. The ECB controls the European money supply and interest rates by deciding how much money to make available.
European Banks	European monetary policy encourages European banks to purchase sovereign debt and treat it as risk free on its balance sheets. As a result, European banks have too much exposure to sovereign debt on their balance sheets and they are more highly levered than American banks.
Euro Bond	Euro denominated bond issued by individual countries that would be backed by EU members and thus encourage cheaper lending to PIIGS countries.
EFSF	The European Financial Stability Facility (EFSF) is a special purpose vehicle financed by members of the Eurozone to combat the European sovereign debt crisis. It was agreed upon with the purpose of preserving financial stability in Europe by providing financial assistance to Eurozone states in trouble. The EFSF can issue bonds to raise the funds needed to provide loans to Eurozone countries in poor financial situations by recapitalizing banks or buying sovereign debt. If it is not used, the EFSF will expire in 2013 and be replaced by the European Stability Mechanism (ESM)
Securities Markets Program (SMP)	Introduced in 2010, the program allows the ECB to purchase sovereign debt in secondary markets to provide liquidity to dysfunctional markets
European Stability Mechanism (ESM)	The ESM will replace the EFSF in 2013 as a "permanent" crisis solution. Euro country members will provide 80b Euros of capital; the ESM's effective lending capacity will be 500b Euros.

European Central Bank and European Banks

In order to capture the benefits of a single market, not only did the EU need to harmonize rules and laws across countries, it also needed to create a single currency, the Euro, which requires each nation to abandon its own independent monetary policy and currency.³ In the U.S., the Federal Reserve Bank controls the money supply by buying and selling Treasury securities. With no “Eurobond” equivalent to Treasury bonds, the ECB controls money supply by changing the level of lending it undertakes with member banks. The ECB encourages banks to acquire sovereign debt of its member countries and then present it to ECB as collateral for new finance.⁴ Under this system, it became very profitable for banks to buy short-term government paper and deposit it with the ECB in return for new loans.

As a tool of monetary policy, these operations had a number of unintended consequences. First, it signaled to banks that the ECB would stand by sovereign debt and prevent its default; leading to excessive lending to sovereigns. By always accepting a bank's holding of sovereign debt, the ECB helped create more liquid markets for the debt of weaker sovereigns, meaning it could be issued at lower cost.⁵ This effectively eliminated market imposed constraints on the issuance of debt. With the ability for banks to hold sovereign debt as a risk free asset on their balance sheets and use it as collateral for new loans from the ECB, European banks find themselves overall, highly leveraged and with higher levels of debt to GDP when compared to US banks.⁶ This suggests that European banks are thinly capitalized and that writing down sovereign debt could leave banks insolvent.

Greece

In creating the Euro, the EU needed each nation to abandon its own independent monetary policy and currency. In theory, moving to a single currency also requires each nation to give up control of its fiscal policy. Given the difficulty in getting nations to agree, the EU settled instead for fiscal convergence; each nation agreed to keep its deficits less than 3 percent of GDP and its total government debt as a share of GDP less than 60 percent, but faced no real penalties for failing to do so. Creating a single currency while failing to constrain each nation's spending, taxation, and thus borrowing, had a number of unintended consequences. First, it left poorer nations at a competitive disadvantage to wealthier nations, and secondly, it encouraged too much borrowing by poorer nations with limited growth prospects.

Prior to joining the EU, Greece was one of Europe's poorer countries; plagued by high inflation, a weak currency and low productivity compared to its northern neighbors. Greece's ability to compete on a global basis can be partially defined by its level of productivity and the value of its currency. Before joining the EU, Greece was able to compete through price competition by altering its interest rates and inflation rate in a way that reduced the value of its currency. In joining the EU and giving up the drachma in favor of the Euro, Greece gave up the tools at its disposal to make its less productive companies more competitive and as a result initially faced slower growth.

These costs were masked by the immediate benefits of EU membership. These benefits, lower prices, lower borrowing costs and access to more credit, all fueled internal growth and contributed to a higher standard of living. As a member of the Eurozone, Greece found itself able to borrow in Euros at rates similar to Germany.⁷ The move from the weak drachma to the Euro effectively lowered the cost of international goods to Greece and brought inflation down by nearly 3 percent. In retaining control over its fiscal policy, Greece was able to spend more and pay for it through borrowing. The Greek public, business community and government all took on additional debt. Following its entry into the Eurozone, government spending grew by nearly 8 percent per year while revenues grew by less than 5 percent per year. This caused the climb in sovereign debt from 98 percent of GDP in 1997, to 130 percent in 2010.^{8,9}

Greek Bailouts and the End of Sovereign Debt Guarantees

It is often asked how the small nation of Greece is in a position to bring down the entire European Union. One answer is that the concern is not about Greece defaulting on their debt, but about the recognition by creditors that the EU will no longer "guarantee" sovereign debt. European banks should be able to absorb the default of Greek debt and survive as a system, but it is unlikely they will survive

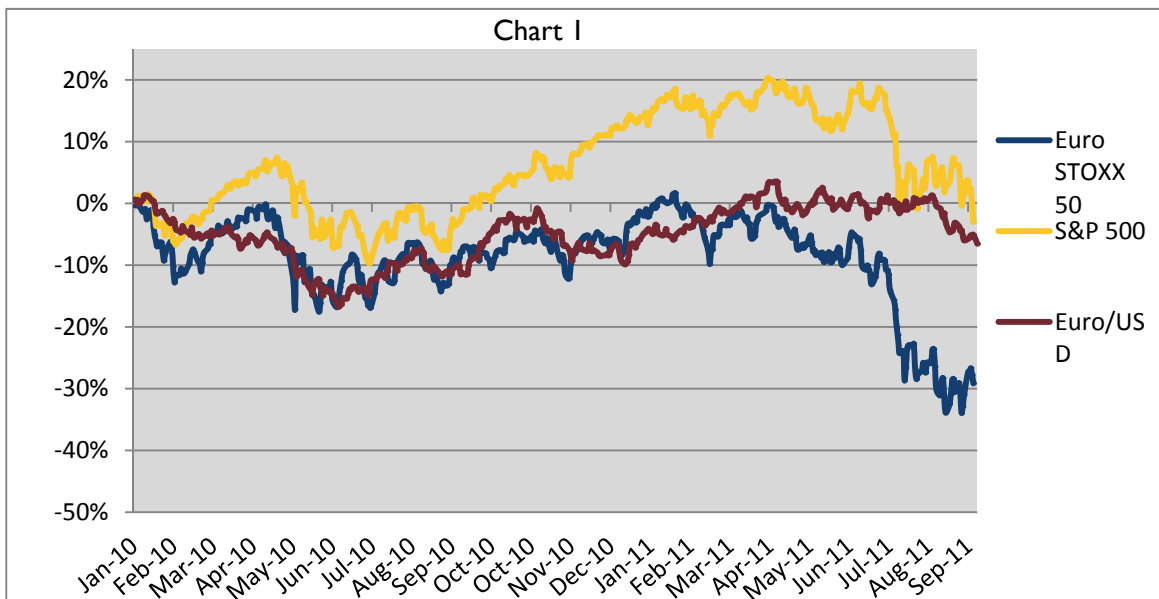
the default of larger nations, such as Italy. Markets are responding by driving up sovereign borrowing costs, and driving down the shares of banks with sovereign debt exposure.

When Greece's debt issues rattled markets in 2010, officials came to the rescue with an 110b Euro bailout.¹⁰ The bailout, or "guarantee," assured markets that Greece could service its debt and the country dropped from the headlines. By the summer of 2011, uncertainty returned as economic conditions within Greece and Europe deteriorated further. This led to a spike in credit spreads and the price of insurance on Greek and other PIIGS debt, as well as a market sell-off of European equities. Many in the marketplace were rightly questioning the "guarantee" as the EU could no longer afford to defend Greece and the other PIIGS nations.

In early June 2011, shortly after Moody's downgrade of Greek sovereign debt well into junk status at Caa1, German finance minister Wolfgang Schauble stated that, "Any additional financial support for Greece has to involve a fair burden sharing between taxpayers and private investors. Such a result can best be reached through a bond swap leading to a prolongation of the outstanding Greek sovereign bonds by seven years."¹¹

The realization that the implicit guarantee of sovereign debt was in danger of ending led the market selloff to spread to a nation with an even greater debt burden; Italy.¹² To prevent further contagion, European leaders stepped in on 21 July 2011, to reassure the markets with additional funds and requirements for Greece, and a new structure for the Eurozone's bail-out facility; the European Financial Stability Facility (EFSF).¹³ More critically, it formalized the end of the implicit guarantee by requiring that Greek bondholders accept a loss of principal.¹⁴

With creditors understanding the likelihood of accepting losses on Greek debt, markets reacted by abandoning European equities, especially European banks and sovereign bonds. From July to September 2011, German, Italian and French stocks sold off by more than 20 percent (compared to 11 percent for the S&P) while their bank stocks fell by approximately 40 percent. These impacts are described below in Chart I. Yields and insurance on sovereign debt exploded with Greek debt yielding 20 percent more than German bonds.



Paths to a Solution

Given the market's acceptance that Greek default is inevitable, what should European leaders do to bring an end to the situation? What will the implications be for other European nations, banks and the survival of the Euro? Discussed below are three possible outcomes: a soft landing, a disorderly default, or an orderly default; the conditions that would lead to each outcome, and their implications. The following analysis of each leads us to conclude that the most likely outcome is an orderly default that leaves the Eurozone intact.

Soft Landing

In a successful soft-landing markets gain confidence in Greece's abilities to reduce borrowing needs and service its sovereign debt. The enormous spreads demanded to lend and insure Greek debt return to normal levels and Greek borrowing costs fall. Owners of Greek debt are paid in full and concerns about the solvency of other debtor nations and the European banks diminish. European equity markets, shares of banks in particular, would begin to recover, and finally, the Euro survives. Everybody is happy in this outcome. In today's environment the probability of a soft landing is low. A soft landing might have been possible if the right steps were taken by policymakers; instead at least two mistakes were made.

The first mistake was requiring Greece to institute burdensome austerity measures and not push economic liberalization measures that would have raised GDP growth. Instead, austerity measures worsened Greece's fiscal deficit by reducing government spending and contributing to recession. The Greek population pushed back against the imposition of additional austerity measures, and markets now question its ability to solve the problem.

The second mistake was moving away from the guarantee of Greek borrowing before the market had faith in Greece's ability to service that debt. Recognizing that creditors would have to accept losses on bad loans to Greece in the future forced the market to price Greek debt in a manner that truly reflected its risks. The rise in borrowing costs and decrease in tax collections since Greece adopted austerity measures and entered a recession have surpassed the savings generated from austerity measures. Unless Europe steps back in with assurances that they will lend to Greece in the absence of private sector lending, a soft landing is impossible.¹⁵

Disorderly Default

Markets have recognized that a soft landing is unlikely. In public, EU officials continue to maintain that they will not allow Greece to default. In private, however, there appears to be recognition that default is inevitable, but it should be "orderly." The EU is quietly readying the mechanisms necessary to coordinate an orderly default,¹⁶ but the danger is in the timing. If the European Union is unable to craft a solution before markets force matters, they will push into default.

What events might lead to a disorderly default? There are two possible causes: failure by the EU to make a payment to Greece from the agreed to bailout fund, and the market believing the funds available to support Greece and the other PIIGS are insufficient.

Some have suggested that the EU, frustrated with the pace of progress in deficit reduction may simply refuse to make a payment to Greece. The probability of this outcome is essentially zero. Failure to make a payment to Greece would cause the market to demand even higher yields on Greek debt and possibly reduce liquidity enough to cause default as Greece is unable to roll its debt. The market would then begin to sell off one weak country after another, eventually bringing the banking system down. The EU is well aware of this scenario and will not fail to deliver agreed upon aid to Greece.

Many events could cause the market to believe the agreed to bailout facilities are insufficient. Two examples occurred recently. In August 2011, the ECB reactivated its Securities Market Program (SMP) which permits it to intervene in public and private debt markets to address malfunctioning markets. It did this to purchase Italian and Greek debt when markets were demanding extremely high spreads to roll-over existing and finance new debt. The ECB eventually purchased 80 billion Euros of assets and was effective in bringing down rates and reestablishing some calm in the markets.¹⁷ The second occurred in mid-September 2011; US money markets concerned about the solvency of European banks significantly reduced their willingness to lend to European banks. In a vital coordinated effort, the Federal Reserve Bank, the Bank of England and the Swiss Central Bank stepped in to provide liquidity.¹⁸

A Greek default would cause the market to begin questioning (1) whether other nations with large debt burdens are capable of servicing them; and (2) whether banks holding sovereign debt are solvent. These concerns would cause markets to sell their holdings of other nations' sovereign debt or else be left holding debt worth pennies on the dollar. Even if not initially insolvent, these nations would find themselves unable to roll-over their debt and be forced into default. As these nations default, banks holding their debt would be forced to "mark it to market". The high leverage ratios of European banks means they are holding little equity, and as a result, even small mark downs could lead to insolvency. The market would respond accordingly and bank depositors would begin withdrawing assets, shareholders would begin selling assets, counterparties who provide funding to these banks assets would refuse to roll-over short term loans, and even banks outside of Europe that lend to European banks would find their balance sheets under stress.

These actions would see their way next into the real economy as business would find it either impossible or too expensive to access the short term money and credit markets necessary to fund their activities. Without access to credit, businesses would stop purchasing and providing credit to their customers; eventually leading to layoffs and to recession.

How costly would a disorderly default be? Total PIIGS debt, private and sovereign, amounts to over \$4 trillion. Of this, less than \$1 trillion is sovereign debt. Nearly 90 percent of this \$4 trillion is held by European banks. Bank exposure to Greece, Ireland and Portugal debt is approximately \$300b, of which \$100b held is sovereign debt and .5X their tangible equity. Bank exposure to Italy and Spain is over \$1.5 trillion with nearly \$1 trillion of it sovereign debt and 1.5X their tangible equity. A 50 percent write-down of Greek sovereign default would hurt mostly Greek banks. However, if sovereign default spread to Italy, not only would far more banks be left insolvent, but it would cause bank lending to dry up and additional loan defaults as the economy enters recession. The United States reacted to the collapse of Lehman Brothers and the seizing up of financial markets with a number of liquidity provision programs, including the \$700 billion TARP plan, that ultimately helped recapitalize the banking system. Though the

banking system survived, US GDP fell at an annualized rate of 8.9 percent in the fourth quarter of 2008 and 6.7 percent in the first quarter of 2009. The \$970 billion stimulus plan passed into law in February 2009 only put a floor under GDP growth.

Table 4: Country Statistics

	Greece	Italy	Spain	Portugal	Ireland	Germany	France
Real GDP (2011E)	233b euros	1232	686	162	170b		
Per capita GDP/EU Avg	73%	89%	79%	56%	121%	107%	107%
GDP Growth (2010)	-4%	1%	-0.30%	1.10%	-0.30%	3.30%	1.60%
Deficit to GDP (2011E)	8%	4%	7%	6.20%	10%	2%	6%
Interest Burden (2011E/%GDP)	6.10%	5%	2.80%	3.3	3.80%	2.40%	2.70%
Debt to GDP (2011E)	169%	120%	70%	99%	111.00%	82%	85%
Share of public debt held							
Abroad	70.00%	48%	48.00%	68%	57.00%	50.00%	60.00%
Domestically	30.00%	52%	52.00%	32%	43.00%	50.00%	40.00%

External Debt Creditor Country	Greece (BN Euro)	Ireland	Portugal	Spain	Italy
Greece	--	0	0	0	1.0
Ireland	6	--	4	20	29
Portugal	7	3	--	18	3
Spain	1	10	57	--	24
Italy	4	11	4	18	--
Germany	27	102	27	133	113
France	42	32	30	121	311
Netherlands	4	14	4	54	32
U.K.	9	97	16	77	49
U.S.	5	42	0	38	26
Japan	0	15	0	16	28

Any event that affects confidence in the value of sovereign debt could provide disastrous results. The EU is aware of the tenuousness of the situation and is reacting quickly to any situation that could cause a swing in market sentiment. This leads us to conclude that the likelihood of a disorderly default is low; the costs of allowing it to happen are simply too high.

An Orderly Default

With the dire consequences of a disorderly default, the EU, IMF and the ECB have been putting in place mechanisms to facilitate an orderly default that minimizes the potential that the crisis spreads beyond Greece.¹⁹ These mechanisms would include plans to:

- Systematically restructure sovereign debt involving a reduction in principal and an extension of maturities

- Provide liquidity to solvent nations whose ability to roll-over maturing and finance new debt may come under attack if markets fail to discriminate between good and bad countries
- Recapitalize banks with substantial balance sheet exposure to sovereign debt

The questions at issue are:

- What should a restructuring look like (how big a haircut must creditors take)?
- How much is needed to restructure Greece's debt, to defend Italy and Spain from default and to recapitalize European banks hurt by sovereign default?
- Where would the funding come from to provide liquidity to solvent borrowers and recapitalize banks hurt by sovereign defaults?

Debt Restructuring

As part of the 21 July 2011 assistance package for Greece, terms are to be negotiated for a deal in which creditors participate in a voluntary debt buy-back program that would allow Greece to purchase outstanding debt at current prices which reflect a 30 percent discount to par.²⁰ Many believe, however, that to reduce its burden to levels that would allow a resumption of Greek growth, creditors must accept an immediate hair-cut of 60-70 percent of principal, an extension of maturities with a temporary suspension of interest and principal payments, or some combination of both that would cut the nation's sovereign debt to 50-70 percent of GDP.

Liquidity and Recapitalization Needs

It is unclear how much liquidity support the solvent PIIGS nations would require in the event of contagion fueled capital flight following a Greek default, but it is estimated that total bank exposure to Greek sovereign debt totals less than 50 billion Euros and is spread out among a number of banks. Containing default to Greece makes bank recapitalization manageable. Estimates vary, but under a scenario where sovereign default spreads and all PIIGS sovereign debt is written down 50 percent, a recapitalization effort of 250 to 500 billion Euros would be required for banks to remain solvent. The recession that would follow widespread sovereign default would lead to the default of private sector as well as bank debt. It should be noted that European banks make use of large amounts of short-term funding which would likely no longer be available. It is in the interests of the EU to provide as much liquidity as necessary to prevent solvent nations other than Greece from defaulting, which would cause the widespread bankruptcy of European banks.

Funding Liquidity Mechanisms and Bank Recapitalization

The total package of aid available to solve Europe's problems is approximately 750b Euros via the EFSF (440b Euros), the EU (60b Euros) and the IMF (250b Euros). It is unclear how much support is needed to fund Greece's debt restructuring, liquidity for the solvent PIIGS nations and bank recapitalization, but it is easy to believe these needs exceed the assets of the programs designed to facilitate a smooth adjustment.

A number of solutions have been offered to increase the resources available to contain the problems.

- Making greater use of the ECB's balance sheet to provide liquidity²¹

- Expanding the balance sheet and lending capabilities of the IMF with additional contributions by countries with strong reserve positions such as China²²
- Levering the 440b Euros available through the EFSF such that it is capable of guaranteeing over 1 trillion Euro²³

In summary, minimizing the costs of Greece's default will require a coordinated response leading to restructuring and liquidity provision. These tools do exist, they just need to be agreed upon and put into place. EU officials are now publically setting the stages for such an event and are speaking openly about the possible need for a restructuring and the plans underway to recapitalize European banks.²⁴ This leads us to believe that the EU is getting "its ducks in a row" or crafting the "grand solution" as various analysts have suggested, and that at some point, a coordinated restructuring of Greek debt will be announced.

Survival of the Euro

Discussions about Greek default eventually come around to whether it will remain a member of the Eurozone or leave and reestablish the drachma as its currency. While sound arguments for the long-run benefits for leaving can be made, in reality, the immediate costs are so dramatic that it is unlikely Greece will leave.

A restructuring of Greek debt will buy the nation breathing room, but it will not solve fundamental problems that confront the country. While Greek wages are low by European standards, they are too high given the nation's low relative productivity. By having sacrificed an independent monetary policy and currency to be part of the Euro, Greece effectively removed the most valuable tool for restoring competitiveness; the ability to control its prices and currency value. In the absence of an independent monetary policy, Greece's only option for restoring competitiveness is bringing down real wages through the suppression of wage growth, but this can take years to accomplish.²⁵ As a result, many have called for Greece to leave the Euro and reestablish the drachma at a value that would immediately make Greek goods 30 percent more attractive to Europe and the world.

While currency devaluation was an effective policy for countless countries in recent history, Greece faces challenges those countries did not. Countries that used currency devaluation had the luxury of devaluing their own currency. In creating a new drachma, Greece would have to deal with the consequences of existing contracts and liabilities being denominated in Euros. In choosing to leave the Euro, the nation's banks will no longer have access to the ECB and would thus be unable to pay back most of its international creditors. Concern over access to Euros would lead to a bank run, further contributing to the collapse of the Greek banking system. And while Greece will have defaulted or restructured its sovereign debt, private businesses will still have obligations denominated in Euros and will face significantly higher borrowing costs.²⁶ As a result, many businesses are likely to default. Analysts estimate that the cost of Greece leaving the Eurozone would be between 13,000 and 16,000 Euros per person in the first year, and more each year after in an economy with per capita income of under 28,000 Euros.²⁷

It is also not in Europe's interest to see Greece depart as it threatens the entire system. Other weak nations might choose to follow suit, threatening the Euro's existence and the long-run benefits to be gained by further economic integration within Europe.²⁸

Implications for Asset Class Prices

In considering the implications to asset prices of the current situation in Europe and how it is resolved, it is important to;

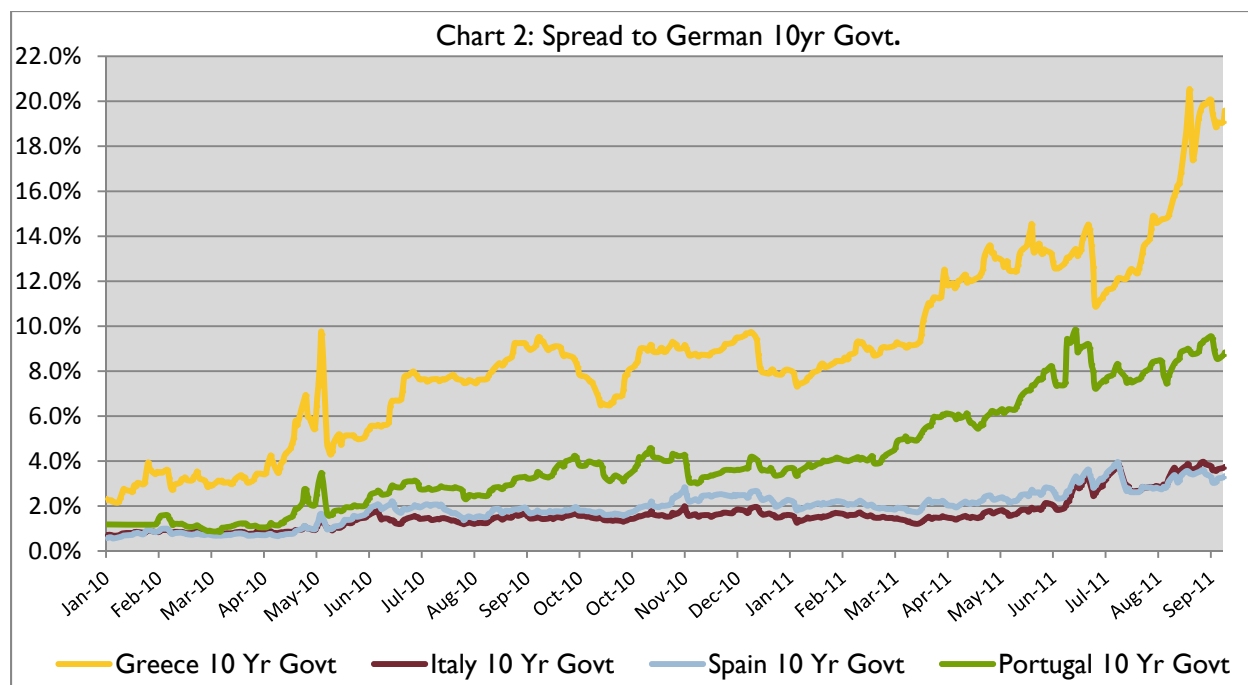
- Examine the behavior of markets following any crisis
- Define the time horizon under consideration
- Examine the behavior of asset prices leading up to the crisis

The occurrence of a crisis, regardless of the specifics surrounding it, generally entails some level of uncertainty about the cause of the event, how it will be resolved, whether it might spread, and its implications for economic activity and earnings; i.e., it introduces risk. Uncertainty causes markets to seek certainty; i.e., avoid risk. As a result, in any crisis, we observe flight from assets whose future values are uncertain to those whose values are more certain; i.e., risk free assets.

With this framework, it is clear that in the case of disorderly default and to a lesser extent in an orderly restructuring, we can expect:

- Equity prices to fall in a flight to more liquid assets whose future value is better understood
- Short interest rates to fall in a flight to safety
- Credit spreads to widen as investors flee riskier assets
- Cross-asset correlations to increase as investors flee all risk assets
- Implied volatilities to rise until uncertainty diminishes

The Greek debt crisis and its implications for greater Europe have played out in the markets for over 18 months (Chart 2). European and global equity prices have fallen. Uncertain investors have migrated to US Treasury instruments, and along with Federal Reserve Bank policy, brought down the short end of the yield curve. Markets have tended to treat risk assets the same, with asset price changes more correlated to top-down events than fundamentals.



The questions to ask now are: is the resolution of Europe’s problems already priced in the markets or will asset prices continue to react to new news? Will the path to the problems’ ultimate resolution have an impact on asset prices? Does it matter to markets whether Europe’s problems are resolved in a soft-landing, a disorderly default or an orderly restructuring? The answer to the latter question is yes, as the path to resolution will have implications for the costs to society of cleaning up the mess and its impact on economic growth rates going forward.

Should Europe fail to get their “ducks in a row,” and the market forces multiple sovereign default, leading to widespread bankruptcy of European banks, we can expect a global wide sell off of all risk assets in a flight to safety. As that outcome has severe consequences for global economic growth, a recovery in asset prices will be delayed until plans for restoring growth gain credibility in the market.

Should Europe somehow manage to negotiate a soft landing, the costs of restructuring Greek debt and recapitalizing European banks would be minimal, as would the consequences for European and Global economic growth. In the absence of any other negative shock, European equity prices would begin a recovery as markets respond positively to greater certainty about the earning prospects of companies going forward. Rates on corporate debt would come down for the same reason, and the slope of the yield curve would flatten as investors seek yield in longer duration instruments. Energy and commodity prices would begin to head back up on renewed optimism concerning economic growth, and as a soft landing presumes that Greece remains in the Eurozone, the Euro would stabilize and begin to rise toward pre-crisis levels.

Should Europe craft a grand solution leading to a restructuring of Greek debt and a recapitalization of European banks, markets are likely to respond positively once they have confidence in the EU’s resolve

in defending Italy and Spain and the solvency of Europe's bank. As Europe's plan successfully plays itself out, markets should begin to behave as they would if Europe were to negotiate a soft landing. European equity prices would rise, yield curves would flatten, energy and commodity prices would rise, the Euro would strengthen at the dollar's expense, and US equity prices would benefit as uncertainty about Europe's growth prospects diminish.²⁹

How markets actually react to a coordinated restructuring will depend on other factors influencing asset prices, such as whether the EU and the ECB implement expansionary fiscal and monetary policies that are designed to offset a recession. On a relative value basis, European equities, banks in particular, have fallen far more than their US counterparts, though some of that decline can be attributed to the Euro's decline. On a number of price metrics, European equities are historically cheap; 15-20 percent cheaper than US equities. It is unclear when and how, Europe's debt crisis will be resolved, leaving continued uncertainty for investors. Once this uncertainty is resolved, European equities appear attractively valued. Long-term investors underweight Europe should consider moving toward a strategic allocation.

Conclusions

It is clear that the European Monetary Union introduced moral hazard into decision making in numerous places, including the implicit guarantee of sovereign debt with no control over member state spending and borrowing. The recognition of this problem and the decision to end that implicit guarantee is a positive step.

Having the benefit of recent history as it regards the market's response to Lehman Brothers' bankruptcy in 2008, the European Union is well aware of the consequences of allowing a disorderly default. The European Union has shown signs of moving toward an acceptable solution to the problem it faces today. At the same time, it must be recognized that the European Union is not a single nation with a coordinated process for reaching decisions among competing interests. Instead, it is made up of multiple nations with their own competing interests and decision making processes. This is a critical point in determining whether Europe's problems are resolved by themselves or the market. While Europe has demonstrated some signs of moving toward a coordinated solution, there is the risk that they will not do so before the market forces the matter. If the market demands a solution before policy makers put one in place the worst case scenario of a disorderly default will become a reality. Since it is clear to all parties involved what arrangements must be made and what the costs of failing to do so are, we believe the disorderly default outcome to have a low probability. As the market increases pressure for a solution, policy makers will react as needed with an orderly restructuring.

Notes

¹ http://en.wikipedia.org/wiki/Greek_Tragedy

² Moral hazard is a situation in which a party insulated from risk behaves differently from how it would behave if it were fully exposed to the risk.

³ The Euro became an accounting currency in 1999, used by 11 of the then 15 members of the EU. Euro notes and coins were first printed in January of 2002. Today, seventeen EU countries have abandoned their currency in favor of the Euro.

⁴ "Europe on the Brink", Peter Boone and Simon Johnson; Peterson Institute for International Economics; July 2011

⁵ European banking rules also accorded sovereign bonds a special status; viewed as risk free, banks could buy sovereign bonds without setting aside reserves against possible losses. This rule has allowed banks to lend more to governments at lower interest rates than would otherwise be the case. “In Europe, bonds deemed risk-free fueled debt crisis”, Washington Post, 9/23/11

⁶ “Europe on the Brink”, Peter Boone and Simon Johnson; Peterson Institute for International Economics; July 2011

⁷ Prior to entering the EMU Greek borrowing costs were on average 3% more than those of Germany.

⁸ The borrowing allowed the Greek government to fund the now infamous public sector benefits that has fueled resentment across Europe. During its first 10-years in the Euro-zone, Greek sovereign borrowing funded a doubling of public sector wages, making them on average three times higher than private sector wages. Greek workers were permitted to retire as young as 50-years old at pensions valued at 80% of their working wages. This compares to Germany where workers can retire at age 67 with pensions equal to less than half of their working income.

⁹ Greek debt could potentially rise to 157 percent of GDP by end of 2011. Greek sovereign debt as a share of GDP is now at 6 percent and 15 percent of government revenues. Both of these figures continue to climb.

¹⁰ In November of 2009, Greece announced that its budget deficit would be 12.7% of GDP, more than double the previously published figure; the result of recession and the revelation that Greece had been concealing the true size of its deficits. Greece responded by announcing spending cuts, to which markets responded with weak demand for a Greek bond sale. This was followed by the April 27th S&P downgrade of Greek sovereign debt to BB+: “junk” status with estimated losses of 50-70% in the event of a default. Yields on Greek debt climbed to 15.3% raising questions about its solvency given its short term borrowing needs and reduced revenues, leading to liquidity problems. Worried that concerns about Greece might spread to other EU nations, the EU and IMF agreed on May 2, 2010 to a 3-year €110bn rescue package, designed to cover Greece’s external borrowing needs over that period (€70b of debt refinancing and €30b in new borrowing needs), giving the nation time to reduce its borrowing needs and reassure the markets that Greece could service its debt.

¹¹ Reuters, Greece-Germany-Letter, 6/8/11

¹² In early July, the market turned its attention to Italy, its 120% debt/GDP ratio, the 175b Euro of debt it needs to refinance in the second half of 2011 and more importantly its 1.8 trillion Euro of sovereign debt (Greece’s total sovereign debt is approximately 300b Euros). Spread across many banks, individual banks might be able to absorb their exposure to Greece and remain solvent; but the combined size of Italy and Spain’s sovereign debt (2.5 trillion Euros) is beyond the ability of the EU, the ECB and the IMF to step in and provide assistance to governments and banks to calm the markets.

¹³ On July 21, 2011 European leaders not only approved a new bailout for Greece but a new structure for the Eurozone’s bailout facility, the EFSF (European Financial Stability Facility), which still requires the EU’s 17 members’ approval. The EFSF exists to provide assistance to nations other than Greece in need of liquidity. When approved, it will have about 450 billion euros at its disposal. In addition to the EFSF, which is funded by members of the European Monetary Union, another 300 billion is available from the EU and the IMF. And finally, the ECB has stepped into to provide liquidity to its nation members and remove risk within the banking system by exchanging acquiring sovereign debt in exchange for new assets.

¹⁴ As part of the July 21 assistance package for Greece, terms are to be negotiated for a deal in which creditors participate in a voluntary debt buy-back program that would allow Greece to purchase its outstanding debt at current prices which reflect a 30% discount to par. Greece wants a 90% participation rate, but if it does not get it, Greece could void the deal and offer a much deeper non-voluntary write down. This program would be funded through the 440 billion Euro EFSF facility which still requires approval of the member countries.

¹⁵ One proposed solution to get around reluctance by nations like Germany to fund Greek borrowing through bailout funds would be for Europe to help Greece indirectly through the “Eurobond.” There has been a number of proposals for how a Eurobond program would be structured. What is common to them all is the ability for nations, like Greece, to borrow in Euros at rates that reflect the financial strength of Europe. This would reduce Greece’s financing costs and return the backing of the EU and in effect the “guarantee.” Assured of a return of principal, borrowing costs and market pressures should recede. Currently there is little support for the creation of Eurobonds within Germany which would bear over 30% of the risk and have no mechanism to control Greek spending and borrowing.

¹⁶ Orderly default: a restructuring of sovereign debt-to include a reduction in principal and an extension of maturities-along with plans to (1) provide liquidity to solvent nations whose ability to roll-over finance new debt may come under attack if markets fail to discriminate between good and bad countries; and (2) recapitalize banks with substantial balance sheet exposure to sovereign debt.

¹⁷ It also helped relieve investor pressure on France, who because of its banks' \$600 billion (Greek \$53b, Spanish \$147b, and Italian \$405b) of holdings debt saw spreads on French sovereign debt widen to 90 basis points over German debt (30 basis points historically).

¹⁸ The central banks acted after dollar funding dried up for European banks following Moody's decision to cut the credit ratings of Credit Agricole and Societe Generale citing their reliance on short-term funding and Greek exposure.

¹⁹ "The timing of a Greek default remains in the hands of the troika and it is difficult to believe that they will decide to pull the plug at this stage because of the potential impact upon the other troubled sovereigns and the banking sector." "Who knows what contingency plans they have prepared behind closed doors," he wrote, "And on the day that all the ducks are lined up then that might be the day that support for Greece is withdrawn"; "Ducks in a Row"; Bloomberg 9/19/11

²⁰ Greece wants a 90 percent participation rate, but if it does not get it, Greece could void the deal and offer a much deeper involuntary write down. This program would be funded through the 440 billion Euro EFSF facility with the required approval of the member countries. "Analysis: Planning for Greek debt default" Reuters, 9/21/11

²¹ The ECB through its SMP program has purchased approximately 150b Euros, minimally increasing its balance sheet. In its operations, the US Federal Reserve Bank purchased over \$1.6 trillion of government debt representing over 16 percent of outstanding federal government debt. The implications are that ECB has the tools at its disposal to provide the liquidity necessary to defend the sovereign debt of the remaining PIIGS and in protecting against default, minimize its impact on bank balance sheets and the needs to recapitalize them. At the end of the day it is likely that the ECB will provide whatever liquidity is necessary to prevent the crisis from spreading, rather than sit by and let the banking system collapse and the Eurozone self-destruct.

²² It has been reported that internal IMF analysis showed that the fund could comfortably lend out another \$390 billion without endangering its balance sheet. In a worst-case scenario, it may face demands for \$840 billion. China has suggested it, and other emerging market countries in strong positions that depend on exports to the developed world, could increase their allocations to the IMF, thereby increasing its lending capabilities.

²³ Many have suggested expanding the EFSF's capacity, leveraging it up, by turning it into a bank. The idea was publically rejected by the EU, but the approach behind it appears to be under consideration. One version discussed the EFSF's capital being used to guarantee new issues of sovereign debt. As an example, the fund could indemnify investors against losses on the first 20 cents of every Euro of new debt. That would allow the EFSF to guarantee debt worth five times its current capacity. At the EFSF's current borrowing costs, Spain and Italy could borrow at well below current market rates to recapitalize its banks.

²⁴ "Greek Default Talks Gather Pace"; Reuters, 9/23/11

²⁵ Some argue that Greek real wages must decrease by 30% to restore its competitiveness. There are two options to do so. One is to introduce structural reforms that grow productivity relative to wages, reducing unit labor costs; Germany's recent experience reveals this would take 10 to 15 years to accomplish. The second approach, a 30% deflation in prices and wages would lead to deepening and likely socially unacceptable recession.

²⁶ Financing in drachma or Euros would be expensive in nominal terms because of high real interest rates and risk premium demanded by lenders for high expected high inflation and Greek default.

²⁷ "Europe's Impossible Choice: The Greek Exit Paradox", CNBC, 9/16/2011

²⁸ Unfortunately, Europe and Greece's need the country to remain within the Eurozone given the way Greece's competitive problems remain; it will continue to lack the policy tools needed to achieve competitiveness and it will continue to sell goods priced in a currency that is too strong relative to its productivity. This problem must be addressed after the more pressing problems of sovereign default, bank solvency and contagion are addressed.

²⁹ The impact on the Euro, should Greece or others abandon the currency, is unclear; the isolated impact of Greece's departure should lead to its strengthening, but concern over its long-term viability as a currency could lead investors to flee the currency.