José Manuel González-Páramo: Monetary and fiscal policies in times of crisis

Speech by Mr José Manuel González-Páramo, Member of the Executive Board of the European Central Bank, at the conference of the Monetary and Fiscal Policies Network (MONFISPOL), Goethe Universität Frankfurt, Frankfurt am Main, 19 September 2011.

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I. Introduction

Ladies and gentlemen,

Let me start by thanking the organizers for inviting me to this conference. These are exceptionally hard times for policymakers around the world, and probably the most exciting times for researchers. I am sure that the financial crisis will prove to be a source of inspiration for the economics profession in general and for economic policy analysis in particular.

The economic literature provides useful insights into the nature and causes of the current crisis. I am thinking in particular of the literature highlighting the fragility of equilibria and the possibility of self-fulfilling prophecies. A literature that includes the seminal work of Diamond and Dybvig (1983) on bank runs, which has inspired a large number of papers dealing with financial crises like the present one.[1] Equally relevant has been the large literature on self-fulfilling sovereign debt crises, building on papers like Calvo (1988) and Cole and Kehoe (2000), as well as the literature on public debt sustainability and fiscal and monetary policy interactions, including Leeper (1991, 2011) among others.

That said, while the literature provides important insights, actual decision making during the crisis, like in other exceptional circumstances, had to be based on practical experience and necessarily involved judgment.

Furthermore, it is also clear that we cannot be content with the current state of economic analysis. The rich body of economic knowledge that has helped us rationalize the crisis ex post has not been equally helpful in foreseeing and avoiding it. Economic research has made significant progress since its origins. Yet, recent events have reminded us how far we are from the “end of economics”.

This conference offers an example of the type of work that we should promote. As I understand it, the MONFISPOL project aims at contributing to the evaluation of macroeconomic policy by advancing the analysis of optimal fiscal and monetary policy in a monetary union such as the euro area. At the ECB, we enthusiastically welcome and promote this type of research.

In my talk I will discuss the challenges that the current crisis has posed to policymakers, and central banks in particular. I will first try to give a brief account of the origins and evolution of the crisis, of the policy interventions and of what I think needs to be done in order to prevent the repetition of such events. I will then conclude by highlighting some of the issues that I think should be among the priorities in our research agenda.

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[1] Gorton (2010) has recently described the current financial crisis as a run involving the “shadow” banking system and the repo market.

II. The unfolding of the crisis

II.1 The situation before the eruption of the crisis

The first seven years of the euro area were characterized by stability, both internally as well as globally. Indeed these were the years that saw the emergence of a number of papers trying to make sense of the so-called "Great Moderation": a phenomenon that started in the mid 1980s. The question then was "why did macroeconomic volatility decline?" Ben Bernanke (then Governor of the Federal Reserve Board) identified "three types of explanations [in the existing literature] … structural change, improved macroeconomic policies, and good luck" (Bernanke, 2004). Now, of course, the question is: why are those tranquil times over?

Up until the summer of 2007, the relative stability of corporate-bond and sovereign spreads – interrupted only by mild turbulences during the dot-com crisis at the turn of the millennium – can be observed against the backdrop of widespread moderation in macroeconomic volatility. Chart 1 shows a snapshot of the relative calm, before the recent storm, for BBB corporate spreads for the euro area and the US as well as 10 year sovereign bond spreads (relative to the Bund) for a number of euro-area countries. To a large extent, the positive trend in macroeconomic growth and stability and the low and stable credit premia are closely related.

II.2 From US sub-prime turmoil to the global financial crisis

The protracted period of tranquillity was abruptly brought to an end by the collapse of the US housing bubble and the subsequent implosion of the sub-prime mortgage market. In the early stages, the financial turmoil was circumscribed so that it was very difficult to assess its severity. Furthermore there was a widespread belief that the real economy, both in the US and in the euro area, was sufficiently strong to withstand the financial turbulence (ECB, 2011).

This notwithstanding, the European Central Bank did not fall victim to complacency and promptly intervened in the money market with an injection of 95 billion euros when severe strains emerged in that market in August 2007. This was the first of a series of interventions aimed at securing liquidity in the face of an interbank market paralyzed by fear. Concerning these interventions, it is particularly worth mentioning the high degree of international coordination among central banks. Besides the simultaneous liquidity injections in domestic currencies that took place in many advanced economies, the ECB was able also to rapidly provide ample liquidity in dollars thanks to swap agreements with the Federal Reserve.[2]

Despite these unprecedented interventions, and similar measures implemented in the US, in October 2008 Lehman Brothers collapsed wrecking havoc on international financial markets and the world economy. The spiralling of the crisis is evident if we look at the Libor-OIS and Euribor-OIS spreads in Chart 2.

The ECB's response to the crisis was swift and combined a mix of standard and non-standard monetary policy measures.

As regards the former, official interest rates were cut in a sequence of steps, bringing the main refinancing rate from 4.25% to 1% within a span of 6 months. The first of these reductions – on October 8, 2008 – was part of a concerted move with other major central banks.

In order to meet banks' increased demand for liquidity and to reduce uncertainty, a number of non-standard measures, which we have characterised as our "enhanced credit support" policy, were adopted. The most important of these have been the fixed-rate full-allotment

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[2] In response to the most recent intensification of the crisis, the ECB, in coordination with the Federal Reserve, Bank of England, Bank of Japan and Swiss National Bank, decided on 15 September 2011 to conduct US-liquidity providing operations with a maturity of approximately three months, thereby yet again demonstrating its willingness to act rapidly in times of crisis.

policy, the introduction of additional and new long-term refinancing operations and the extension of the list of collateral eligible for monetary policy operations. By allowing banks to continue rolling-over their short and medium-term financing, the liquidity provision of the ECB avoided a fire-sale of assets.

Like various other central banks, the Eurosystem has also embarked on outright purchases of securities, though on a relatively limited scale, in order to support the broader functioning of euro area financial markets.

The Covered Bond Purchase Programme was initiated in July 2009. This programme was part of the "enhanced credit support" measures and its objective was to support a financial market segment that is particularly important for the longer-term funding of banks and the financing of the real economy in the euro area. The spill-over effects connected with the intensification of the financial crisis in September 2008 had led to a virtual shut down of the covered bond market, notwithstanding the high credit quality of this type of asset. In response, the Eurosystem purchased EUR 60bn of covered bonds between July 2009 and June 2010. Empirical research conducted by ECB staff suggests that the CBPP has been successful in achieving its goals (Beirne et al., 2011).

Not least due to strong and timely action by central banks and governments, worldwide signs of stabilisation in financial markets emerged, with spreads returning to pre-Lehman levels and positive output growth resuming in the second half of 2009. In this respect, the ECB's non-standard measures played a non-negligible role in supporting the euro area economy.

II.3 From the financial to the sovereign debt crisis

Chart 1 also shows that sovereign credit spreads (relative to the German Bund) started to widen already in the early stages of the crisis as the market reassessed risk across the board. But sizable repercussions on the sovereign bond market are noticeable only after the collapse of Lehman Brothers, when the spread on Irish and Greek long-term government bonds soared above 250 basis points. This reflected the fact that, during the initial stages of the crisis, government guarantees for the financial sector and, more generally, the policy response to the crisis implied a transfer of risk from the private sector to the government sector. However, as deficits surged and the Greek government revealed a much larger deficit than previously thought, the attention focused more on the state of public finance. From then on, and in particular after the downgrading of Greek bonds by all the major rating agencies, the financial crisis that originated in the US turned into a sovereign debt crisis with a European epicentre.

This escalation of events brought the crisis to a new dangerous level. While in the early phases concerns focused around the risk of a protracted recession the new phase raised concerns regarding the ability of some euro area countries to honour their debt obligations.

The widening of sovereign bond spreads and the malfunctioning of securities markets in a number of countries impaired the smooth operation of the monetary policy transmission mechanism. In order to address this problem the Eurosystem initiated its Securities Markets Programme (SMP) by means of which private and public securities became eligible for outright purchase by the Eurosystem.

A key distinguishing feature of asset purchases made under the SMP is that their liquidity impact has been sterilised through the conduct of weekly liquidity absorbing operations. Overall, there has been no net injection of central bank liquidity to the market as a consequence of these operations. These measures and their objectives are therefore fundamentally different from quantitative easing. For the ECB, non-standard measures have always been seen as a means of coping with abnormal functioning of some key markets, which, if unaddressed, would have posed problems for the effective transmission of monetary policy. This implies that, standard and non-standard measures are seen as complements, not substitutes. We have never chosen non-standard measures as

alternatives or substitutes for changes in official interest rates. Indeed our standard and non-standard measures were implemented in parallel. This so-called separation principle is illustrated by the rate increases in the first half of 2011 in a context of stable or reinforced liquidity measures.

These measures seemed to produce positive effects in the early stages, when spreads stabilized and the market gave signs of increased confidence. Yet a slower than expected recovery and overstretched public finances have made investors and consumers retrench in the second and third quarters of 2011, with spreads widening again and for an even larger group of countries in the euro area, reaching over 2000 basis points for Greece. In order to diffuse tensions in the euro area secondary sovereign bond market, the ECB, in its 7 August statement, indicated that it would resume its Securities Markets Programme. Importantly, this statement was made following the announcement of new fiscal and structural policy measures by the Italian and Spanish governments.

III. Lessons to be learned

Against this background, it is clear that what needs to be explained is how we went from historically tranquil times to the worst financial crisis since World War II and, eventually, to an equally severe sovereign debt crisis. Was it sheer bad luck? Or can we detect the seeds of the crisis in policies and structural changes that had taken place before? And if so, what needs to be changed?

It would be foolish to argue that what we have experienced in the last four years is the sole result of an exceptionally large adverse shock. Major structural changes in financial markets gave life to a gigantic securitization market which allowed financial intermediaries to diversify their portfolios and, hence, to reduce their exposure to risk. Or so market participants liked to believe. As in the case of collateralized mortgage obligations (CMOs) and credit default swaps on CMOs and CDOs, many securitised products had an unknown or very uncertain risk profile due to the novelty of the financial products and the lack of data. The systemic risk associated with these assets was naively underpriced, and the consequence was an excessive exposure to risk.

Such mechanism has been captured in a recent model by Boz and Mendoza (2011). They show that if investors have imperfect information on the risk profile of assets, and have to learn over time these characteristics, boom-bust cycles can easily emerge. In particular, after a positive shock that increases the availability of credit (e.g. financial innovation), financially constrained investors must assess the riskiness of the new environment: i.e. whether they are short lived or sufficiently persistent to warrant an increase in leverage. Given the limited information available on the new environment, mis-pricing of risk is very likely. The materialization of the underlying, yet mis-priced risk (like the widespread losses in the sub-prime mortgage market) in an environment of over-leveraged investors could have negative consequences via the sudden deterioration of investors' balance sheets, and hence of their collateral.

In a similar spirit Brunnermeier and Sannikov (2010) and Brunnermeier, Eisenbach and Sannikov (2011) emphasize the role of occasionally binding credit constraints in generating sudden contractions. They argue that in normal times (under moderate risk) borrowers are not limited by the value of their collateral. Only when risk increases and, hence, also the likelihood of hitting the borrowing constraint, borrowers will start liquidating their assets in order to increase their safety buffer. This can lead to fire-sales of assets, which will in turn lead to a deterioration of collateral values and set in motion a vicious spiral. Most interestingly their analysis emphasizes the role of *liquidity risk* (as opposed to *credit risk*): the more illiquid is the asset the larger is the price effect of fire-sales. An initial increase of risk, that generates margin calls or increased haircuts, will lead to larger asset-price falls the more illiquid are these assets. For these reasons, financial intermediaries play a key role in this environment. On the one hand they increase stability by providing liquidity-transformation

services. On the other hand, when their net-worth deteriorates, their ability to provide liquidity (inside money) is impaired increasing the value of outside (central-bank) money. As the money multiplier shrinks, "Fisherian deflation" sets in worsening the debt burden of borrowers and, hence, further amplifying the contraction.

Regrettably, the diversification delusion discussed in Boz and Mendoza and the understatement of the *liquidity-risk* channel in Brunnermeier et al. affected investors as well as policymakers and regulators. Indeed this same literature tells us that there can be ample scope for welfare improvements through economic policy. The fundamental reason for this public role is that private agents, typically, are not large enough players to internalize the general equilibrium – or even market specific – consequences of their portfolio decisions (as in the case of fire sales). These results warrant ample liquidity injections by central banks and underpin the current wave of regulatory reforms undertaken in the European Union as well as in other major economies. Among these reforms, it is important to mention in particular the new Basel Accord (Basel III) on banks' capital adequacy which is consistent with the idea of Brunnermeier et al. that critical reductions in banks' capital can generate dangerous liquidity shortages. Equally important is the establishment of the European Systemic Risk Board (ESRB) with macro-prudential oversight responsibilities over the financial system in the European Union, which directly relates to the limited ability of financial markets to internalize systemic risk.

Another important lesson that has been learned, admittedly the hard way, is that it is very difficult, if at all possible, for the market to correctly price sovereign risk. Charts 1 and 3 offer a clear example of what I mean. In particular consider two of the most troubled economies, i.e. Greece and Ireland. The evolution of their public finances in the recent history leading up to the crisis is dramatically different (as Chart 3 shows), in large part reflecting the deep differences in their growth experiences. Up to the start of the crisis Ireland experienced a rapid fall in the debt-to-GDP ratio, while Greek public debt had been hovering around 100% of GDP for the whole period (even considering older un-revised figures). Yet both economies were paying virtually the same rate on their debt as Germany did, the main reason being that the exchange rate risk had been removed by the single currency. Furthermore the market might have also made the assumption that by being in a monetary union each member country now benefited from a collective euro area wide implicit guarantee over its government's liabilities. But were those debt levels equally sustainable?

Up to the crisis, the "Celtic Tiger" was seen as an example of good public finances, having reached a debt-to-GDP ratio of about 25% in 2007 from more than 80% in the mid 1990s. The seemingly healthy picture of the Irish economy concealed deep imbalances that constituted implicit liabilities for the government. The real estate and banking sectors swelled to disproportionate levels compared to the ability of the government to intervene in case of major disruptions. A similar picture is offered by Spain, although in a less dramatic way, where the housing boom was the main driver of growth. It is obviously extremely difficult for the market to be able to assess these implicit liabilities. This is a further reason why macro-prudential oversight by public institutions is crucial in order to mitigate the risks of systemic crises.

With hindsight, we can say that the excessive compression of sovereign risk premia has been unfortunate as it removed an important disciplinary device for issuing countries. There is widespread agreement that a new set of rules for fiscal discipline must be introduced. As the ECB already pointed out at the time, it was regrettable that France and Germany breached the Stability and Growth Pact (SGP) in November 2003 and that the European Council failed to initiate the Excessive Deficit Procedures. The reform of the SGP undertaken in 2005 has addressed a number of weaknesses of the of the original design, in particular by enhancing its economic rationale and by calling more effectively on member states to undertake fiscal adjustments. Nevertheless, as I have pointed out in 2005 (González-Páramo, 2005), the reform had serious shortcomings, as it introduced more explicit flexibility and room for economic judgement. In this way, in order to guarantee sustainability, the new

pact required even more commitment by the member states to consolidate their public finances and to rigorously and consistently apply the new rules. In light of the current crisis, the next major challenge for the European Union will be to design rules that are at the same time credible, effective and enforceable.

The recent Euro Plus Pact of March 2011 is an important step in the right direction. The ECB strongly supports the objectives of the pact, i.e. to foster competitiveness and employment, to contribute to the sustainability of public finances and to reinforce financial stability. The pact has been reinforced by the statement made by the Heads of State or Government of the euro area on 21 July 2011 (see also Trichet, 2011). In particular, it has been reaffirmed that fiscal consolidation is a primary goal of member states. In this regard all countries not under a programme will have to achieve a deficit below 3% by 2013 at the latest. Indeed countries that have experienced turmoil in their sovereign debt market have already taken unprecedented measures to ensure sustainability of public finances. The ECB will monitor these developments very closely, as sound public finances are a fundamental prerequisite for a credible and effective monetary policy.

IV. Fiscal and monetary policy in the euro area: need for tighter governance

Allow me to dwell a little bit more on the sovereign debt crises and the challenges it poses to monetary policy. As mentioned earlier, the economic literature has long emphasized the intimate connection between fiscal and monetary policy. The relationship between monetary and fiscal authorities can be of two alternative types. The first is one of “dependence” – typically of the monetary authority on the fiscal authority. The second type is a relation of “mutual independence” with a well defined monetary policy mandate. The literature has shown that countries displaying more independent central banks also enjoyed lower average inflation rates (e.g. Cukierman, 1992 and Walsh, 2003, Chapter 8). As argued earlier, this set-up can deliver price stability and growth only if accompanied by clear and enforceable rules for the fiscal authorities. Ensuring this, as we know too well, is not a minor challenge.

In the case of a monetary union among sovereign countries with independent fiscal authorities, the challenge is much bigger. In a monetary union the misbehaviour of one fiscal authority can be offset, at least partially, by the virtuous behaviour of other countries, and the more so the smaller is the economy that misbehaves. In the face of these free-riding incentives, the non-cooperative behaviour of the member states can generate unsustainable fiscal policies.

A large number of papers have highlighted the challenges that come with the establishment of a monetary union among countries with independent fiscal authorities. We know, for example, that if there are no limits to non-monetary policies (e.g. fiscal policy), governments might have the incentive to pursue lax policies in the national interest, putting pressure on the central bank to increase inflation (Chari and Kehoe, 2008). This literature has long called for a strengthening of fiscal rules, but also for euro-area wide bank supervisory bodies in order to bypass dangerous incentives at the national level to tolerate imbalances in the domestic banking sector, with associated risks of contagion and systemic crises (Uhlig, 2002).

Indeed, the current dire situation is the result of the lack of effective and enforceable rules, i.e. of the lack of a credible fiscal commitment. Before the crisis, after initial efforts to consolidate public finances, some governments have enjoyed increasingly feeble external pressures to put their own house in order, thanks mainly to favourable global economic conditions, and have reverted to unsustainable fiscal stances. Others have turned a blind eye on the domestic economic imbalances that were building up, mainly as a consequence of abundant credit, and enjoyed the delusion of sustainable growth. As the crisis unfolded, all those vulnerabilities materialised calling for supranational interventions. As I have mentioned earlier, some of these interventions involved the ECB, as in the case of (sterilized) purchases of sovereign bonds in the secondary market. These type of unconventional interventions can only be seen as exceptional measures which would not have been necessary in the

presence of appropriate institutional arrangements and credible rules for fiscal authorities. In designing these rules and institutions, European legislators will find vast insights in the existing economic literature.

V. Priorities for the academic research agenda

Let me conclude with a "wish list" for economic research.

As I have alluded to before, current generation economic models used at central banks were ill equipped to signal the mounting risks of a global recession. The two sides of the current crisis – credit markets and sovereign debt crises – originate from the excessive leverage of private and public agents and by the extreme under-pricing of risk by investors.

The DSGE literature has made considerable progress in this direction in the last 10 years. Most of this literature builds on the idea of asymmetric information and agency problems in financial markets.[3] These models appeared at central banks quite some time before the crisis and their development has intensified since 2007.[4] The main lesson that we have learned from this literature is that financial frictions can generate considerable amplification and enhance persistence of aggregate shocks. They may also be a source of sizeable international spillovers. Unfortunately, though, all these models are solved using linear methods and completely lack the non-linearity that is crucial to explaining disproportionate effects of seemingly small shocks. Linearized models can explain the crisis, only ex-post, by hitting the economy with exceptionally large shocks.

The model of Brunnermeier et al. that I have mentioned earlier is also based on the same type of financial frictions. Yet, by preserving the model's non-linearity, it is able to generate endogenous time-varying risk and feedback-loops that can bring about boom-bust cycles from even modest shocks. Indeed we know that the nonlinearity implied by financial constraints can generate multiple equilibria, with the further possibility that non-fundamental shocks (so-called sunspots) can generate large economic fluctuations. In this regard, further research on non-linear solution techniques should have high priority in the economic profession's research agenda.

The current financial crisis has certainly offered strong arguments to convince the sceptics that financial markets must not be neglected. The crisis has also taught us that another usually neglected market, the money market, is claiming its right to belong in business cycle models. In order to assess the fragility of the financial market and the risk of a systemic crisis, we need models where the liquidity-transformation role of financial intermediaries plays an explicit part. Some of the models that I have referred to include financially constrained banks. Yet most of them abstract from liquidity issues. On the other hand, quite some progress has been made in the banking and finance literature – typically in partial equilibrium or highly stylized models – in characterizing the interbank market. For example Heider, Herova and Holthausen (2009) show that private information in the interbank market, where liquidity plays a central role, can generate different regimes, including turmoil and market breakdowns. Here too there is a high premium on incorporating these ideas into quantitative policy models.

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[3] This literature has been popularized by Bernanke and Gertler (1989), Carlstrom and Fuerst (1997) and Bernanke, Gertler and Gilchrist (1999) in models of costly state verification (à la Townsend, 1969) and by Kiyotaki and Moore (1997) in models of incomplete contracts and collateral constraints.

[4] One of the early contributions in this direction is Christiano, Motto and Rostagno (2003), which formed the basis for developing a rich DSGE model with financial frictions at the ECB. Related works developed at central banks include Christiano, Trabandt and Walentin (2007), Brzoza-Brzezina and Markarki (2010), Gerali et al. (2008), Darracq Pariès and Notarpietro (2008), Dib (2010), Darracq Pariès et al. (2010) and Lombardo and McAdam (2011).

Some progress in this direction can be seen in recent work by Gertler et al. (2010), who show in a DSGE model how the monetary policy stance can influence portfolio decisions of financial intermediaries and, hence, their exposure to risk. This model has important policy implications as it incorporates the moral-hazard consequences of policy decisions and of regulatory reforms, like new capital requirements and other macro-prudential regulations.

Another deficiency in standard models is the absence of a meaningful role for the fiscal authority. As argued above, modelling the interconnection between public finances and the economy is a very difficult task, as the sudden deterioration of public finances can often be ascribed to the materialization of implicit commitments, something which is very hard to quantify ex-ante. Yet we know that in order to design appropriate policy responses to crisis events we need to have accurate predictions of their likely macroeconomic impact, which in turn crucially depends on the state of public finances. An early description of the deep interdependence of monetary and fiscal policy was provided by Sargent and Wallace (1981). More than a decade later the debate centred around the so called "Fiscal Theory of the Price Level" (FTPL, see Sims, 1994). Most of the DSGE models used for monetary policy analysis either disregard completely the fiscal side or assume a "passive" fiscal policy and an "active" monetary policy (as Leeper would put it). This constellation is certainly of interest but, in light of the recent events and issues that I have described earlier, quite remote from reality. In improving our policy models we will certainly benefit from Leeper's research agenda (see e.g. Leeper, 2010). We may also benefit from the same inescapable logic of the FTPL as far as the interconnection between monetary policy, fiscal policy and the risk of sovereign default is concerned (as pointed out recently by Uribe, 2006). This is a further example of how non-linear dynamics can play a crucial role.

The literature on self fulfilling debt crises mentioned at the beginning of my speech and the related developments in the literature on exchange rate crises (Obstfeld, 1996) emphasize the importance of economic policy in determining the conditions under which self-fulfilling crises can occur. The level of public debt is often a key determinant of these conditions, as high levels of debt increase the cost of interest rate hikes and heighten the sensitivity of public finances to risk premia. Embedding these concepts in our policy models would allow us to assess changes in the risk of self-fulfilling crises and would give some quantitative guidance in designing the appropriate policy responses.

Finally, the standard model is based on the assumption of perfectly and equally informed rational agents. As argued above, in the case of asset-backed securities, a decisive role was played by the limited knowledge of their risk profile (Boz and Mendoza, 2010). Many have described the origin of the financial crisis as the result of second-moment shocks. In particular market agents realized that their guesses on asset price correlations were wrong. The very evolution of the crisis has been characterized by enormous uncertainty. The increase in uncertainty froze markets and paralyzed consumers and investors (e.g. Bloom, 2009). Policy models displaying these features would be close to a holy grail for central bank's policy analysis.

All in all, there seems to be quite some ground to cover in macroeconomic modelling. Yet, the programme of this conference gives me further reasons to believe that it won't be long before these wishes will be realized.

Thank you for your attention.

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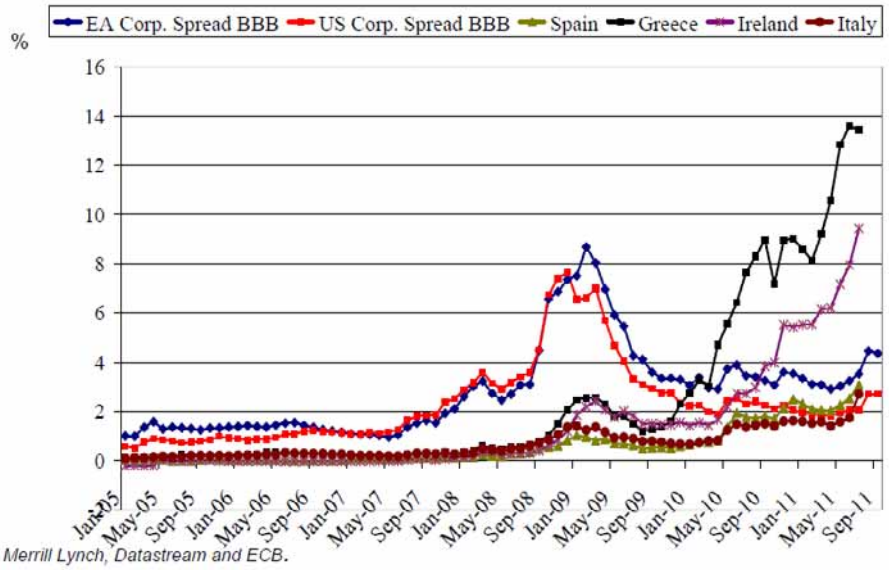
Chart 1: Corporate and sovereign bond spreads



Source: Merrill Lynch, Datastream and ECB.

Note: 7-10 years BBB financial and non-financial corporate bond yields minus government bonds and 10-year government bond yields minus Bund yield

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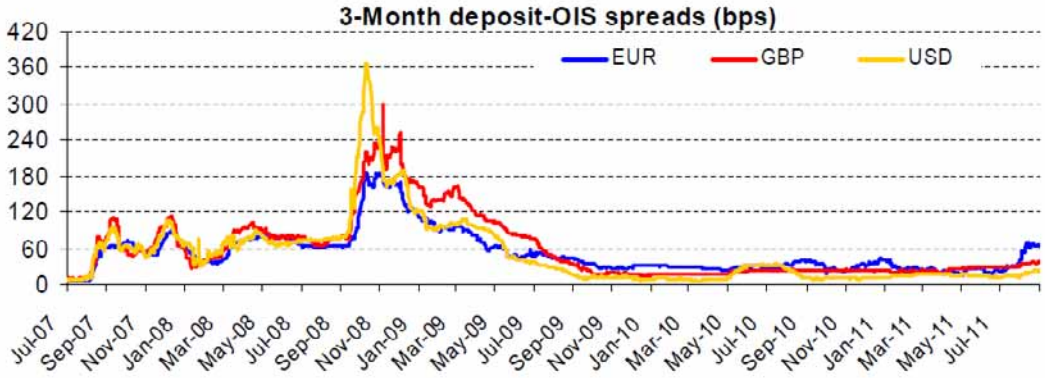
Chart 2: Money market spreads



Source: Bloomberg

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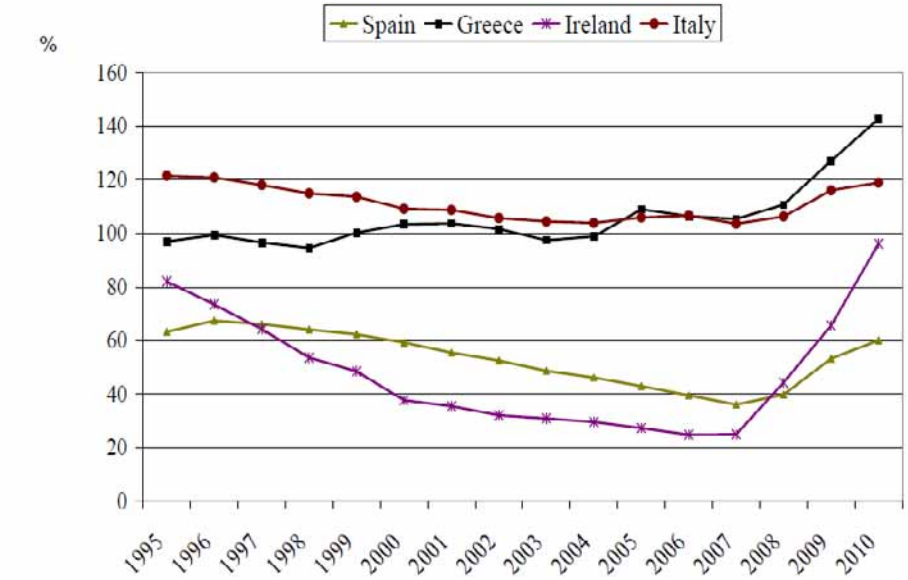
Chart 3: Debt to GDP ratio



Source: European Commission and ECB.

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