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Paper by invitation

The Greek Crisis: Causes and Implications

Summary: This paper presents and critically discusses the origins and causes of the Greek fiscal crisis and its implications for the euro currency as well as the SEE economies. In the aftermath of the 2007-2009 financial crisis the enormous increase in sovereign debt has emerged as an important negative outcome, since public debt was dramatically increased in an effort by the US and the European governments to reduce the accumulated growth of private debt in the years preceding the recent financial turmoil. Although Greece is the country member of the eurozone that has been in the middle of this ongoing debt crisis, since November 2009 when it was made clear that its budget deficit and mainly its public debt were not sustainable, Greece's fiscal crisis is not directly linked to the 2007 US subprime mortgage loan market crisis. As a result of this negative downturn the Greek government happily accepted a rescue plan of 110 billion euros designed and financed by the European Union and the IMF. A lengthy austerity programme and a fiscal consolidation plan have been put forward and are to be implemented in the next three years.

Key words: Sovereign risk, Debt crisis, Bonds market, Expectations, Fiscal guarantees.

JEL: F34, G01, G15.

The financial crisis that unfolded in mid-2008 led to a dramatic increase of public debt in many advanced economies. During the recent months, we have seen the transformation of the 2007 US subprime mortgage loan market crisis into a sovereign debt crisis in the eurozone.[1] This overwhelming increase in the public debt has been to some extent the outcome of the effort by the governments to reduce the private debt that was accumulated during the years preceding the recent financial turmoil (Paul De Grauwe 2010a). Based on the *ECB Quarterly Euro Area accounts* for the years 1999 – 2010, a number of observations can be made. First, there are periods during which private debt increased substantially in the eurozone whereas there are other periods that private debt has been reduced with a great speed. Second, during periods of economic booms, private debt has risen by an accelerating rate. Third, for the whole period the increase in private debt was substantially greater than the percentage increase of public debt. Fourth, during the 2005-2007 economic boom, there is an average annual increase in private debt of the eurozone countries of approxi-

[1] Carmen M. Reinhart and Kenneth S. Rogoff (2009, 2010) provide an excellent analysis of the recent financial crisis. They also provide evidence on the issue of growth in periods of rising debt.

mately 35% of GDP. In contrast during the years of economic recession 2008-2009, private debt slows down and public debt growth accelerates (De Grauwe 2010a).[2]

The overall picture from these accounts is that private debt increased more than public over the whole period. This is exactly what we have observed since the peak of the crisis in October 2008 with governments being forced to bail out problematic banks, taking over a major share of the debts of failing financial institutions. Furthermore, they followed expansionary fiscal and monetary policies along with an array of complementary stimulus programmes in order to increase aggregate demand and to make sure that their economies will not fall in deep recession. These large stimulus programmes and bail out schemes are expected to increase total public sector debt of the world developed economies over 100% of the GDP in 2011 (Organization for Economic Cooperation and Development - OECD 2010). The sovereign debt crisis has important implications for the eurozone raising questions about it's viability and about the future of the euro as a common currency (Adrian Blundell-Wingall and Patrick Slovic 2010; International Monetary Fund - IMF 2010). As of this writing the debt crisis in the eurozone is still unfolding since (i) Ireland is the second country (Greece was the first one) requesting financial support from the rescue mechanism set out by EU/IMF and (ii) spreads on the 10-year government bond yields of Portugal and Spain have been increased substantially during the last month, raising fears for a potential domino effect in the eurozone. Part of this increase in interest rate spreads can be attributed to speculation but the roots of the problem are laid on the public finances of these countries, which have dramatically deteriorated in the aftermath of the financial turmoil. More specifically, gross debt/GDP ratio increased across all EMU economies over the period 2007-2010 but not in a symmetric way; it was increased by 62.3% in Ireland, by 38.2% in Greece and by 36.3% in Spain. These were the largest increases of the gross debt/GDP ratio in the eurozone. Therefore, it was made clear that the recent financial turmoil had important consequences for fiscal policy in the economies of the eurozone since the governments of the EMU countries provided large amounts of money to the domestic banking system in order to stabilize it. In addition, they adopted countercyclical fiscal policy measures to smooth out the consequences of economic recession (Theoharry Grammatikos and Robert Vermeulen 2010). An important question at this stage is whether the overall debt level for eurozone countries is sustainable. It seems that this issue is not crucial one since the total government debt for the eurozone countries is 86% of GDP. However, as we have already explained, this is not the case if one considers the situation in individual countries in the periphery of EMU (see also De Grauwe 2010a, 2010b). Grammatikos and Vermeulen (2010) argue that one needs to decompose total debt into three components in order to evaluate the issue of debt sustainability. These components are: the *primary balance,* which is fully controlled by the government; the *interest and growth contributions,* which are not directly controlled by the government since it largely depends of expenses made by the government in the past as well as on the current economic situation; and the *stock-flow adjustments*, which are not considered to be direct expenses but can be rather considered as in-

[2] Irving Fisher (1932) argued that there is a trade–off between private and public debt. When the government tries to reduce the private debt this leads to an increase of the public debt.

vestments that lead to the increase of government's assets. The last component is of crucial importance when we take into consideration the bank bailouts put forward by several governments. However, this part of the public debt may be similar to a group of countries it is the fast increase in the primary deficit due to the high speed of contraction that can lead to a serious debt crisis because of its permanent nature. Greece, Portugal, Ireland and Spain are the countries with the largest primary balance and interest and growth contributions. Furthermore, Stephen G. Cecchetti, M. S. Mohanti, and Fabrizio Zampolli (2010) look into the prospects and implications of the future evolution in public debt. They argue that the most worrying aspect of the future development on public debt is that most of the future budget deficits (and thus public debt) are structural rather than cyclical in nature.

The current Greek tragedy appears to have at least three key players. First, beyond any doubt the main responsibility for the debt crisis in Greece rests with the Greek governments and the existence of a weak political system that led to a constant mismanagement of the domestic economy adding government debt at a rate, which was much higher than the rest of the eurozone at a time that the level of the public debt has already been more than 100% of GDP. Therefore, the solution to the Greek problem in the long run would be to redesign its economic and fiscal policies whereas in the short run the attempt to ease the problem of liquidity came in the form of the 110 billion euros three-year rescue package financed by EU and IMF. Second, the financial markets and in particular the credit rating agencies have been very myopic in predicting the 2007 US sub-prime mortgage loan crisis. This failure led them to an overreaction in their attempt to unveil potential sovereign debt crises. Greece and other periphery EMU countries were the natural targets since they had for a long period of time very large budget deficits. They then downgraded Greece, which eventually led her to withdraw from the international bond markets (Ireland was recently forced to do the same). Finally, a fair part of blame for the current situation is linked with the delayed reaction of the European Central Bank as well as by the Eurozone governments. Eurozone countries and in particular Germany failed to give a clear signal to the markets that they were willing to provide immediate political and financial support to whichever country was facing financial problems. One reason for this slow reaction is linked to the issue of whether a bail out of a country-member is allowed according to the EU treaties. A stronger reason is the lack of political union in Europe, which has not as yet, in the fear of moral hazard issues, allowed the formation of a federal fiscal budget and a risk-sharing scheme within EU. In early 2010, the European Central Bank did not have a clear strategy to fight the imminent debt crisis. In other words, ECB did not provide a clear signal to the markets that it would keep accepting government bonds as collateral in liquidity provision even in the case that the credit ratings of the bonds have been downgraded below the A- threshold rating. It was only when it was made clear that the markets will keep speculating on the Greek bonds that the ECB announced that it will continue accepting the Greek government bonds well into 2011 (De Grauwe 2010b, 2010c).[3]

[3] Michael G. Arghyrou and Alexandros Kontonikas (2010) and Arghyrou and John D. Tsoukalas (2010) analysed the EMU sovereign debt crisis along with the particular case for Greece with an application of the currency crisis models. They argued that these models can help us to understand the current situation.

The rest of the paper is organized as follows. Section 1 provides a review of the sources of fiscal imbalances and the debt crisis in Greece. In section 2 we discuss the Greek stability programme and the rescue package financed by the EU and IMF. Section 3 looks into the alternative scenarios for the Greek economy as the debt crisis deepens in the eurozone with section 4 providing our concluding remarks.

1. What are the Main Causes of the Greek Fiscal Crisis?

A number of factors have contributed to the fiscal crisis that Greece has been experiencing since October 2009. Some of these factors are endogenous; have to do with the structure of the Greek economy itself, the prolonged macroeconomic imbalances that the Greek economy faces and the credibility problem of macroeconomic policy. Other factors are exogenous and have to do with the implications of the recent financial turmoil and the timing of the response of Europe to the Greek fiscal crisis. We will briefly review first the internal causes of the deteriorating fiscal stance of the Greek economy and then we will discuss external factors that might have contributed to the Greek fiscal crisis.

1.1 Endogenous Causes of the Greek Fiscal Crisis

There is no doubt that running consistently widening public deficits in conjunction with declining external competitiveness played a decisive role on the deteriorating fiscal stance of the Greek economy. The EU statistics agency, Eurostat, has recently revised upward the Greek budget deficit for 2009 and this has risen to 15.4% of GDP. Increased public expenditure in recent years led to dramatic increase in borrowing requirements and high levels of accumulated public debt. The level of Central Government Debt as of 31.12.2009 amounts to € 298.5 billion. Government debt under Public Debt Management Agency's management represents 93% of total Central Government Debt outstanding (Figure 1). The debt-to-GDP ratio will continue to increase in coming years because of the € 110 billion EU rescue package, most likely getting above 150% by 2020.

Figure 2 reports the evolution of public debt from the early 1970s to the present time in relation to the political regime and the different governments in office. We clearly observe that the debt/GDP ratio was constant until 1979 and at very low levels, about 25%. The inauguration of the socialist government led by the late Andreas Papandreou highlights the new era in the Greek fiscal stance as the structural break in the series indicates. The socialist government implemented an economic policy programme that was mainly based on inducing the income of the average Greek household through extensive borrowing from the markets. This borrowing was completely streamlined to higher consumption levels in an effort to raise the standard of living of households. This process was also fuelled by the incoming capital flows from the EU in the form of agricultural subsidies and from the financing of infrastructure within the broader framework of the convergence and cohesion policies of

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In particular for the case of Greece they found that there is a steady deterioration of macroeconomic fundamentals since 2001 and that there is a double shift in markets' expectations from a regime of credible commitment to EMU participation to a non-credible EMU commitment without fiscal guarantees.

the EU. In a relevant study, Stelios Makrydakis, Elias Tzavalis, and Athanassios Balfoussias (1999) have shown by using data for the period 1958-1995 that the Greek government failed to satisfy its intertemporal budget constrain and thus public debt turned out to be unsustainable in the long-run. They argue that the source of the detected unsustainability was due to a deterministic fiscal policy regime change, which was estimated to occur around 1979.[4] They also claim that the problem of debt unsustainability is due to endogenous factors and therefore, action should be taken in order to avoid the prospect of eventual insolvency.[5]

The lack of the necessary fiscal consolidation during the past ten years, when Greece was experiencing high growth rates, in relation to the continuous false reporting of fiscal data (in mid-October 2009, the newly elected government announced the budget deficit for 2009 was estimated to be 12.7% of GDP while the previous government was arguing in September 2009 that deficit would not be higher than 6.5% of GDP) have undermined the Greece's government credibility. On top of that, the decline in competitiveness since EMU entry (Dimitris Malliaropoulos 2010) led to a persistent deficit in the current account. Increased "twin deficits" together with the lack of structural reforms in home regarding labour market flexibility, social security and market competition, obliged Greece to issue new bonds at short maturity periods and at higher interest rates compared to the "anchor" of the EMU, that is Germany. The ability of the Greek government to roll-over its debt has been questioned due to the perceived by international capital markets high probability of sovereign default.

An important factor contributing to this perception is the maturity profile of the Greek public debt (Figure 3). As it is evident from Figure 3, balloon payments for the Greek bonds issued in the past are concentrated in the period 2010-2019, which affects the probability of sovereign default in these years. As a result, investors are requiring higher and higher interest rates in order to lend new money to Greece and this is mirrored in widening and volatile Greek spreads to German Bund. Figure 4 shows how the Greek spreads fluctuated from early November 2009 -just after the newly elected Socialist government came to power- until Sunday 11 April when Eurozone members agreed to provide, if needed, financial assistance to Greece. More specifically, in the spring-summer of 2008, the spread of the 10-year Greek government bond yield against the German bund ranged from 25-65 basis points. Then following the credit crunch, the Greek spread reached 285 basis points in March 2009. There was then a decline the Greek spread reaching 121 basis points in August 2009. Following the general elections in October 2009 a dramatic increase of the spread was recorded when it was obvious that public debt was not sustainable. "When the news broke out, the new government in Greece was slow in its response, trying to reconcile electoral promises with hard reality as well as opposing tendencies within the party" (Tsoukalis 2010, p. 1). It kept rising and it reached 586 basis points in

[4] It is safe to assume that a similar study with extended sample until 2010 and using the same econometric methodology would still support this outcome.

[5] Contrary to the results of the Makridakis, Tzavalis, and Balfoussias (1999), Athanasios P. Papadopoulos and Moise Sidiropoulos (1999) were unable to reject the null hypothesis of public debt long-run sustainability for the Greek economy and they also failed to provide evidence of a structural break in the series of debt/GDP ratio.

April 2010. As of this writing, it stands a bit higher than 900 basis points following the fears for a domino effect in the eurozone and the worries regarding the Greek government's ability and willingness to fully implement the austerity programme.

Figure 5 illustrates the history of Greece's ratings. It shows the most recent credit rating of the Greek bonds assigned by the main ratings agencies (Moody's, S&P, Fitch and R&I). These ratings vary from BB+ to BBB-. Greece has been recently downgraded to BBB- because of the high budget deficit and the perceived by the markets, unsustainable level of public debt.

1.2 Exogenous Causes of the Greek Fiscal Crisis

The Eurozone governments failed to give a clear signal indicating their readiness to support Greece, while the Greek fiscal crisis was escalating. Legal scepticism and questions like "are bailouts illegal?" were raised, mostly by Germany, for an issue which was partly political. However, there is nothing in the Maastricht Treaty that prevents a Member State or all EU Member States from helping a country in financial difficulty, individually or with the support of an outside body (IMF, EBRD, EIB, World Bank etc.). More specifically, Article 100, section 2 of the Maastricht Treaty states that "where a Member State is in difficulties or is seriously threatened with severe difficulties caused by natural disasters or exceptional occurrences beyond its control, the Council, acting by a qualified majority on a proposal from the Commission, may grant, under certain conditions, Community financial assistance to the Member State concerned". Because of these disagreements among EU countries, markets assumed that the implicit guarantee on Greek debt by other EU countries has been withdrawn. While Eurozone policy makers were debating whether bailouts are illegal, at the same time there were some ambiguities about ECB's collateral eligibility criteria that is the ECB's policy to accept or refuse the downgraded (see Figure 5) Greek government bonds as collateral in liquidity provision presented. These ambiguities created problems for financial institutions holding Greek government bonds.

Another exogenous factor that contributed to the instability of the Greek economy was the lack of solidarity funds at an EU level. EU is a monetary union not an economic one with a Federal Budget. EU has a common monetary policy set at a supranational level but economic policy (budgetary policies, wage policies, social policies, credit regulations etc.) is still in the hands of national policy makers. Whenever a crisis occurs at the EU periphery, there is no adjustment mechanism in place to deal with such a crisis at a supranational level. The lack of European solidarity was inevitably mirrored in widening Greek spreads to German Bund. Eventually, the EU leaders agreed on 25 March 2010 an €110 billion (consisting of €80 billion provided by the EMU and €30 billion from the IMF) 3-year rescue package for Greece and on 11 February 2010, President Jean-Claude Trichet announced that ECB will continue to accept Greek government debt as collateral, independently of the ratings assigned by the rating agencies.

Lastly, Greece and Greece's major trading partners in the Balkan peninsula were also hit by the 2007 global crisis - originating from the US sub-prime loan market crisis - but with a time lag (Prodromos Vlamis and Evaggelos Karousos 2010). Nevertheless, recession may have hit Greece somewhat less badly than other countries because a relatively small manufacturing sector and of the large share of the shadow economy which is estimated to be 25%-30% of GDP.

2. An Overview of the Fiscal Consolidation Programmes of Greece

2.1 Greece's Government Response to the Crisis

Facing with escalating cost of borrowing in the late 2009 and the beginning of 2010 the Greek government designed and adopted a fiscal consolidation programme in order to reduce the public debt and provide the framework to improve stability and growth to the economy. The Greek Stability and Growth Programme submitted to the European Commission on January 15, 2010. Its main elements on the revenues side were focused on (i) measures to reduce tax evasion and improve tax collection (estimated to be worth €1.2bn, 0.5% of GDP); (ii) reduction of social contribution evasion (to raise €1.2bn, 0.5% of GDP); (iii) a special levy on profitable companies (raised €0.87bn, 0.4% of GDP); (iv) acceleration of EU receipts for the public investment programme (to raise €1.4bn, 0.6% of GDP) and (v) increase on several types of indirect taxes. Regarding the government expenditures the following measures were taken, (i) a 10% cut in general government expenditure on salary allowances (expected to save €0.65bn, 0.3% of GDP); (ii) a recruitment freeze in the public sector for 2010 (to save €0.15bn, 0.1% of GDP); (iii) implementation of a 5:1 retirement/recruitment ratio for public sector employees from 2011 onwards. Termination of many short-term contracts in the public sector, to cut operating expenditures for ministries 10% (estimated to save €0.12bn, and to result in a cut of 7k-8k teachers on short-term contracts); (iv) reduction in the budget item linked to social security and pension funds by 10% (to save €0.54bn, 0.2% of GDP) and (v) other relevant measures to drastically reduce government expenditures in most public services (see also Arghyrou and Tsoukalas 2010).

2.2 The EU-IMF Fiscal Consolidation Package

The measures taken by the Greek government were proved to be short-lived since they were not enough to restore markets' confidence. The Greek government was soon forced to enter in negotiations with the EU commission and the other EMU member-countries in order to agree on a rescue plan given its difficulties to borrow from financial markets. On 25 March 2010, an agreement was reached for a rescue plan, which involved a mechanism that relied on bilateral loans to Greece from other EU countries and loans from IMF at interest rates, which were lower than the market ones. The main features of this rescue plan on the revenue side are: (i) Value-added tax bands to be raised (by 4.5-5.0% for the lowest, 9-10% for the medium band and 19-21% for the standard band). Higher VAT rates are estimated to result in €1.3bn of new revenues (0.55% of GDP); (ii) a substantial increase in indirect taxes of gasoline, tobacco and alcohol along with higher electricity charge and (iii) an increase of property taxes, taxes on luxury goods an on offshore companies and real estate. With respect to the required cuts on government expenses the mail elements are: (i) further reductions on total salary payments to employees of the public sector; (ii) a freeze on state pensions and (iii) Public sector works to be cut 5% (to save €0.5bn) and education spending to be cut €0.2bn. [6]

This initial rescue plan was revised on 2 May 2010 with the implementation of further austerity measures in an effort to achieve the targets set by the EU commission and the IMF. The main features of the revised plan regarding the effort to increase tax revenues are: (i) a further rise of 2% in the main VAT rate to 23% (from 21%). The two lower VAT rates will also be raised (by 1% for the current 10% rate and by 0.5% for the current 5% rate). The government expects the new VAT increases to generate additional revues of €0.80bn (or 0.3% of GDP) in 2010 and €1.00bn (or 0.4% of GDP) in 2011. This was coupled by measures to broaden the VAT tax base; (ii) a further increase in the indirect taxes on fuels, tobacco products and alcoholic beverages, expected to bring in additional revenues of €0.45bn (or 0.2% of GDP) in 2010 and €0.60bn (or 0.3% of GDP) in 2011 and (iii) imposition of further taxes on luxury goods, on firms' profits (a one-off tax) and (iv) introduction of a "green tax". The measures to further reduce the expenses have been again very drastic. Thus (i) The 13th and 14th annual salary instalments will be abolished for civil servants earning a gross salary in excess of €3,000/month; (ii) The Public Investment Budget (PIB) for 2010 will be reduced by €0.5bn (or 0.2% of GDP); (iii) a 3-year freeze in wages and pensions and (iv) further cut backs in central government operational costs.

The implementation of this strict austerity programme will hopefully stabilize the economy. However, it is expected to cause a substantial decrease in demand for goods and services pushing the Greek economy to a deep recession. In this case, it will become more difficult for Greece to meet the requirements of the rescue plan. Therefore, it is absolutely imperative for the Greek fiscal and monetary authorities to design and implement economic policies that will boost economic growth and reduce unemployment (at the moment unemployment is rising at an accelerating rate).

3. Implications of the Greek Fiscal Crisis and Future Challenges for Greece and Eurozone

Let us say at the outset that it is not in the interest of any country to let one member of the EMU to run away from its debt obligations, as the associated political and economic costs would be substantial for everyone. There will be a general confidence loss in ability of EU to deal with its fiscal and wider economic challenges. On the one hand, if Greece is let/forced to default, contagion to other Eurozone bond markets and Eurozone financial institutions, that hold significant part of the Greek bonds, is a strong possibility. Debt crisis in one member country of the Eurozone might trigger a more general crisis involving other Eurozone countries perceived to be "fragile" and have similar budgetary problems (like Spain, Ireland, Portugal). Spillover from Greece into Balkans might be possible too via trade and, more importantly, via financial links. Financial links via Greek banks are widespread, since

[6] See also Arghyrou and Tsoukalas (2010) and Ioannis Kokkoris, Rodrigo Olivares-Caminal, and Kiriakos Papadakis (2010).

Greek banks have a considerable market share in Balkans and the south-eastern European economies and they are among the more aggressive lenders in these countries. Moreover, if Greece is let/forced to default, Greek commercial banks which hold government debt (about € 45bn) will be in trouble too.

On the other hand, if Greece voluntarily leaves EMU, quits Euro and establishes a national currency, there will be certain economic costs to meet. Firstly, it will face larger debt payments due to devaluation of the national currency. Secondly, international capital markets for new borrowing will be closed for Greece for a number of years (Barry Eichengreen 2007). Thirdly, Greece will be violently forced to balance its budget since it will be locked out international markets and it would not be possible to borrow money to finance budget and trade deficits.

One last point; when discussing possible scenarios about the Greek fiscal crisis one should not forget that the euro project seems to be mostly a political construction and not an economic one. "Economic and monetary union was the offspring of the Franco-German couple, President Mitterrand and Chancellor Kohl to be precise. It was about high politics and peace on the continent, much less so about economics" (Loukas Tsoukalis 2010). By all means, credibility of the euro is currently at stake but too much political capital has been invested in it throughout the years to let it die. At the moment there is no consensus among the EU member states to move towards political union but, it is absolutely imperative to design and implement an institutional budgetary framework (such as the European Financial Stability Facility) for supporting financially countries that face fiscal difficulties There is a need for a "close and increasingly binding coordination of national economic policies, combining incentives and sanctions, coupled with effective surveillance and conditional assistance" (Tsoukalis 2010). However, at this moment it is clear that there is no consensus within Eurozone member states to move forward into a more coherent political union that would allow the transferring of budgetary and tax responsibilities to supranational authorities (De Grauwe 2010d, 2010e).

Given that at the moment the monetary union is not coupled with a political union, two less ambitious -but very important plans for the medium term- have been proposed in the relevant literature. First, Daniel Gros and Stefano Micossi (2008) and Gros and Thomas Mayer (2010) have recently proposed the creation of a European Monetary Fund (EMF). This new institution will receive its funds from those countries that run excessive budget deficits and debt levels. If a similar a crisis arises in the future, the EMF will be in position to support those countries that need financial assistance and in addition it will have the authority to impose certain rules when allocating supporting funds. Second, De Grauwe and Wim Moesen (2009) proposed the creation of a common Eurobond, which might reduce pressures to Eurozone economies with excessive budget deficits. They argue that the interest rate for the Eurobond should be the weighted average of the national interest rates in order to avoid moral hazard problems. Furthermore, it is expected that the creation of a common Eurobond market (that will be sufficiently large) will attract foreign investors and provide with additional liquidity the bond markets in the eurozone economies.

4. Summary and Concluding Remarks

The sovereign debt crisis in the eurozone is expected to have far reaching implications for the mechanisms of the eurozone as well as for the European Union. The current debt crisis have shown that a reform of current EU mechanisms must be put in force, otherwise the stability of the eurozone will be jeopardised and the euro currency itself will be negatively affected.

We hope that it was made clear from our analysis that apart from the endogenous structural problems of countries like Greece and other EMU periphery economies, a fair amount of the current problems could be attributed to the functioning of eurozone itself. In order for similar crisis to be avoided in the future, a set of mechanisms should be designed and implemented at a supranational level. First, a mechanism that will promote convergence in the competitive position of the individual members of the EU and will prevent the creation of trade imbalances is necessary. Second, economic policy (budgetary policies, wage policies, social policies, credit regulations etc.) is still in the hands of national policy makers. Whenever a crisis occurs at the EU periphery, there is a need for an adjustment mechanism in place to deal with crisis at a supranational level. If such mechanisms are created that would literally transform the European Monetary Union into a political union with a common fiscal policy. This task seems to be unattainable for the foreseeable future.

References

Argyrou, Michael G., and Alexandros Kontonikas. 2010. "The EMU Sovereign-Debt Crisis: Fundamentals, Expectations and Contagion." Cardiff Business School Working Paper E2010/9.

Argyrou, Michael G., and John D. Tsoukalas. 2010. "The Greek Debt Crisis: Likely Causes, Mechanics and Outcomes." Cardiff Economics Working Papers E2010/3.

Blundell-Wingall, Adrian, and Patrick Slovik. 2010. "The EU Stress Test and Sovereign Debt Exposures." OECD Working Papers on Finance, Insurance and Private Pensions 4.

Cecchetti, Stephen G., M. S. Mohanti, and Fabrizio Zampolli. 2010. "The Future of Public Debt: Prospects and Implications." Bank of International Settlements Working paper 300.

De Grauwe, Paul. 2010a. "The Start of a Systemic Crisis of the Eurozone?" VOX Research-based Policy Analysis and Commentary from Leading Economists. http://www.voxeu.org/index.php?q=node/4384 (accessed May 11, 2010).

De Grauwe, Paul. 2010b. "The Greek Crisis and the Future of the Eurozone." http://www.econ.kuleuven.be/ew/academic/intecon/Degrauwe/PDG-papers/Discussion_papers/EuroIntelligence-March-2010.pdf (accessed March, 2010).

De Grauwe, Paul. 2010c. "Crisis in the Eurozone and How to Deal with It." Centre for European Policy Studies, CEPS Policy Brief 204.

De Grauwe, Paul. 2010d. "How to Embed the Eurozone in a Political Union." VOX Research-based Policy Analysis and Commentary from Leading Economists. http://www.voxeu.org/index.php?q=node/5166 (accessed June 17, 2010).

De Grauwe, Paul. 2010e. "Fighting the Wrong Enemy." VOX Research-based Policy Analysis and Commentary from Leading Economists. http://www.voxeu.org/index.php?q=node/5062 (accessed May 19, 2010).

De Grauwe, Paul, and Wim Moesen. 2009. "Gains for All: A Proposal for a Common Euro Bond." Centre for European Policy Studies. http://www.ceps.eu/book/gains-all-proposal-common-eurobond (accessed April 3, 2009).

European Central Bank. 2010. *Quarterly Euro Area Accounts*. Frankfurt: European Central Bank.

Eichengreen, Barry. 2007. "The Breakup of the Euro Area." NBER Working Paper 13393.

Fisher, Irving. 1932. *Booms and Depressions: Some First Principles*. New York: Adelphi Company.

Grammatikos, Theoharry, and Robert Vermeulen. 2010. "EMU Financial Contagion and the Sovereign Debt Crisis." Cardiff Economics Working Papers with number E2010/9.

Gros, Daniel. 2010. "The Greek Fiscal Adjustment Programme: An Evaluation." Centre for European Policy Studies, CEPS Commentary. http://www.ceps.eu/book/greek-fiscal-adjustment-programme-evaluation (accessed April 27, 2010).

Gros, Daniel, and Stefano Micossi. 2008. "A Call for a European Financial Stability Fund." Centre for European Policy Studies, CEPS Commentary. http://www.ceps.eu/book/call-european-financial-stability-fund (accessed October 30, 2008).

Gros, Daniel, and Thomas Mayer. 2010. "Towards a Euro(pean) Monetary Fund." CEPS Policy Brief 202.

International Monetary Fund. 2010. *World Economic and Financial Surveys*. Washington: International Monetary Fund.

Kokkoris, Ioannis, Rodrigo Olivares-Caminal, and Kiriakos Papadakis. 2010. "The Greek Tragedy: Is there a *Deus ex Machina*?" International Corporate Rescue. http://www.chasecambria.com/site/journal/article.php?id=478 (accessed October 10, 2010).

Malliaropoulos, Dimitris. 2010. "How much did Competitiveness of the Greek Economy Decline since EMU Entry?" *Eurobank Research, Economy and Markets,* 5(4): 1-16.

Makrydakis, Stelios, Elias Tzavalis, and Athanassios Balfoussias. 1999. "Policy Regime Changes and the Long-run Sustainabilility of Fiscal Policy: An Application to Greece." *Economic Modelling*, 16: 71-86.

Organization for Economic Cooperation and Development. 2010. *Economic Outlook 90, November.* Paris: Organization for Economic Cooperation and Development.

Papadopoulos, Athanasios P., and Moise Sidiropoulos. 1999. "The Sustainability of National Fiscal Policies in the European Union: Evidence from Selected European Countries." *International Advances in Economic Research*, 5: 289-307.

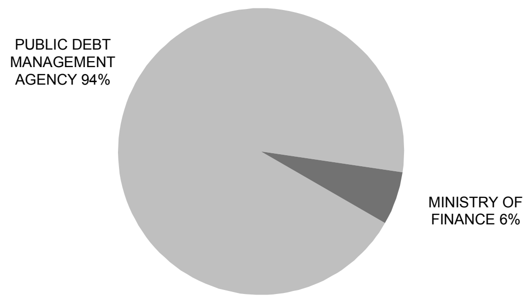
Reinhart, Carmen M., and Kenneth S. Rogoff. 2009. "The Aftermath of Financial Crises." *American Economic Review Papers and Proceedings*, 99: 466-472.

Reinhart, Carmen M., and Kenneth S. Rogoff. 2010. "Growth in a Time of Debt." *American Economic Review Papers and Proceedings*, 100: 573-578.

Tsoukalis, Loukas. 2010. "We can't Go On Like This." ELIAMEP Special Paper. http://www.europe2020.org/spip.php?article633&lang=en (accessed March 4, 2010).

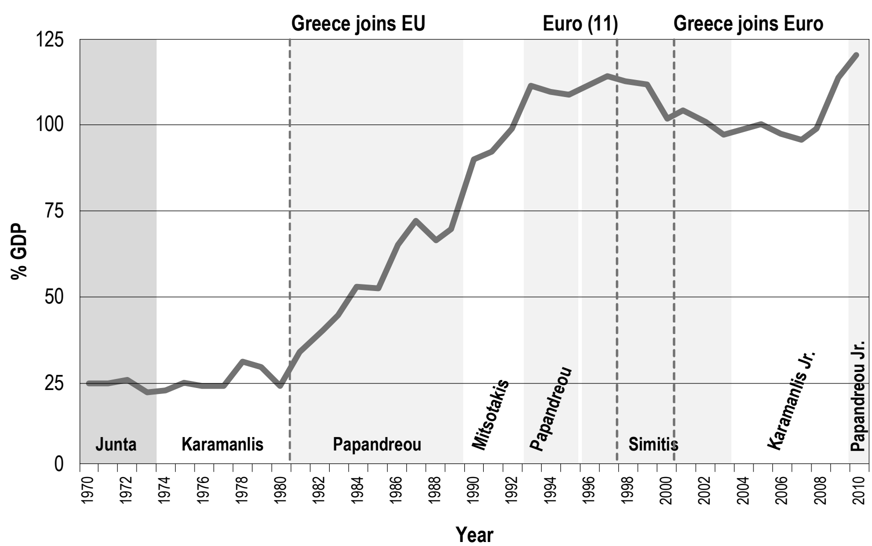
Vlamis, Prodromos, and Evaggelos Karousos. 2010. "The Greek Banking Expansion in the Balkans: An Overview of Developments in the Light of the Recent Financial Crisis." Mimeo (in Greek).

Appendix



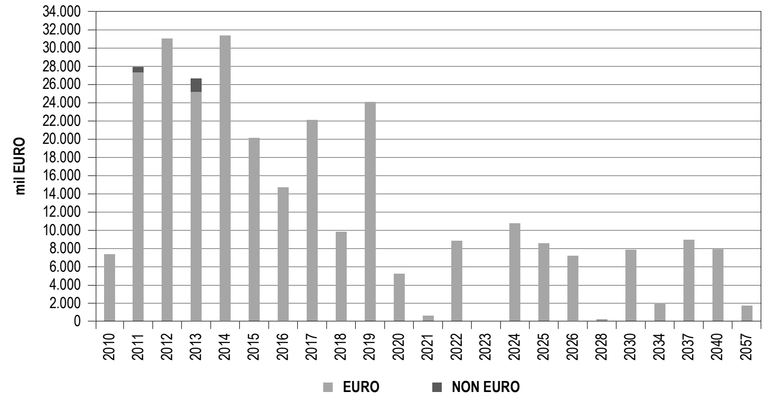
Source: General Accounting Office, Ministry of Finance. Includes military debt, European Investment Bank, Bank of Greece, Council of Europe loans and securitized debt (accessed September 30, 2009).

Figure 1 Composition of the Greek Government Debt



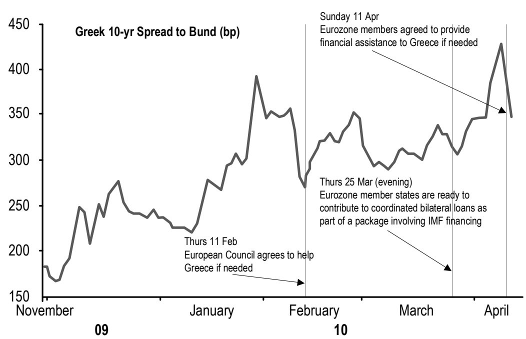
Source: Authors' construction. The public debt data was taken from the Bank of Greece (2010).

Figure 2 Evolution of the Greek Public Debt



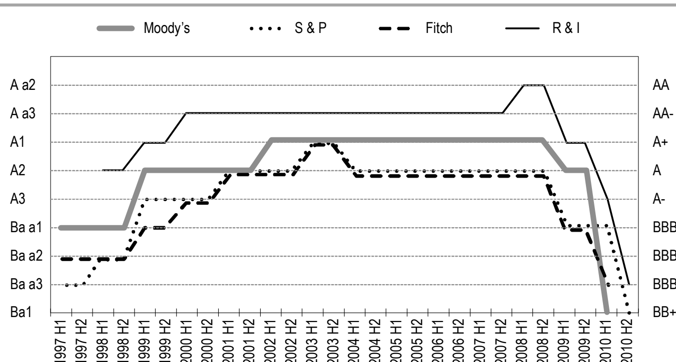
Source: Public Debt Management Agency (2010).

Figure 3 Public Debt: Maturity Profile



Source: Reuters EcoWin Pro (2010).

Figure 4 Greek Spreads: Wide and Volatile



Source: Public Debt Management Agency (2010).

Figure 5 Credit Rating of Greek Bonds