Institute of Economics

University of St.Gallen

Walter Adolf Jöhr Lecture 2012

Professor Dr. Dr. h.c. mult. Paul De Grauwe

The Governance of a Fragile Eurozone

Institute of Economics

Walter Adolf Jöhr Lecture 2012

University of St. Gallen

Professor Dr. Dr. h.c. Paul De Grauwe

The Governance of a Fragile Eurozone

St. Gallen, September 2012

Walter Adolf Jöhr Lecture
University of St. Gallen

Walter Adolf Jöhr

Since 1988 the Institute of Economics has organized the Walter Adolf Jöhr Lectures at the University of St. Gallen, Switzerland. From 1937 onwards, Professor Dr. Walter Adolf Jöhr (1910-1987) devoted fifty years of service to our University, the legacy of which remains visible in many ways up to this day. He was one of the founders of the Institute of Economics. During his tenure as President of the University of St. Gallen (1957-1963), he orchestrated the planning and construction of the University's Main Building; visionary in its integration of art and architecture, it remains a widely-acclaimed feature of today's expanded campus. Many ground-breaking publications in Economics and adjacent fields also bear witness to the achievement of Walter Adolf Jöhr, the dedicated researcher.

Prof. Dr. Paul De Grauwe*

The Governance of a Fragile Eurozone

1. Abstract

When entering a monetary union, member-countries change the nature of their sovereign debt in a fundamental way, i.e. they cease to have control over the currency in which their debt is issued. As a result, financial markets can force these countries' sovereigns into default. This makes the monetary union fragile and vulnerable to changing market sentiments. It also makes it possible that self-fulfilling multiple equilibria arise.

I analyze the implications of this fragility for the governance of the Eurozone. I argue that the role of the ECB as a lender of last resort is crucial in reducing the fragility of the Eurozone. In addition, steps towards a budgetary union are key in structurally strengthening the union.

1. Introduction

In order to design the appropriate governance institutions for the Eurozone it is important to make the right diagnosis of the nature of the debt crisis in the Eurozone. Failure to do so, can lead to designing a governance structure that is inappropriate for dealing with the problems of the Eurozone. In this paper I argue that the governance structure that has emerged after a series of decisions of successive European Council meetings, although an important step forwards, fails to address some fundamental problems in a monetary union.
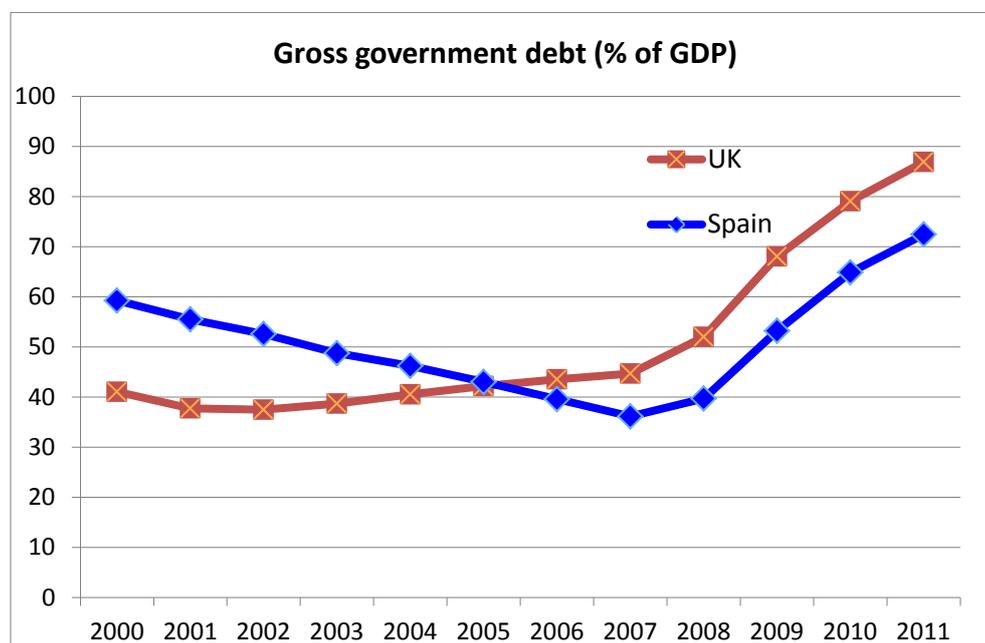
2. A Paradox

I start with the paradox that is immediately visible from a comparison of Figures 1 and 2. Figure 1 shows the debt to GDP ratios of the UK and Spain. It can be seen that since the start of the financial crisis the government debt ratio of the UK has increased more than that of Spain. As a result, in 2011 as a percent of

GDP the UK government debt stood 17% higher than the Spanish Government debt (89% versus 72%). Yet from Figure 2 it appears that the financial markets have singled out Spain and not the UK as the country that could get entangled in a government debt crisis. This can be seen from the fact that since the start of 2010 the yield on Spanish government bonds has increased strongly relative to the UK, suggesting that the markets price in a significantly higher default risk on Spanish than on UK government bonds. In early 2011 this difference amounted to 200 basis points. Why is it that financial markets attach a much higher default risk on Spanish than on UK government bonds government bonds, while it appears that the UK faces a less favourable sovereign debt and deficit dynamics?

One possible answer is that it may have something to do with the banking sector. This is unconvincing, though. The state of the UK banking sector is certainly not much better than the one of Spain. I will argue that this difference in the evaluation of the sovereign default risks is related to the fact that Spain belongs to a monetary union, while the UK is not part of a monetary union, and therefore has control over the currency in which it issues its debt.

Figure 1

Gross government debt (% of GDP)

Source: European Commission, Ameco

Figure 2:

10-year government bond rates Spain and UK
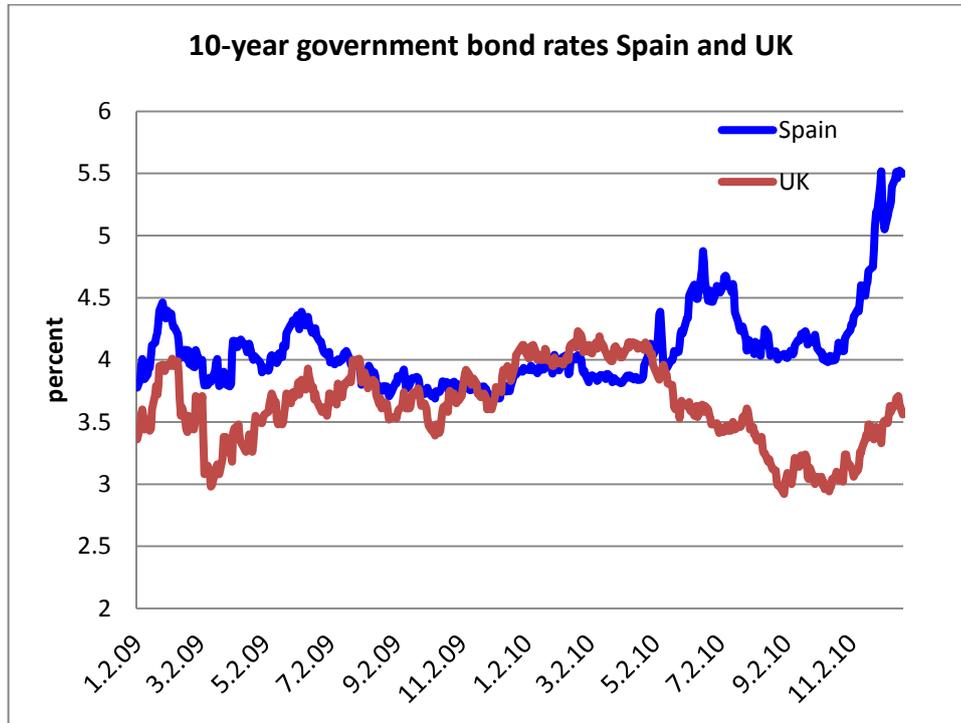
Source: Datastream

3. On the nature of sovereign debt in a monetary union

In a nutshell the difference in the nature of sovereign debt between members and non-members of a monetary union boils down to the following. Members of a monetary union issue debt in a currency over which they have no control. This has an important implication. It means that these countries' governments cannot guarantee the bondholders that the cash will always be available to pay them out when the bonds mature. This is not the case in countries that are not part of a monetary union, and have kept control over the currency in which they issue debt. Governments of these "stand-alone" countries give an implicit guarantee to the bondholders that the cash will always be there to pay them out. The reason is that these government can and will force the central bank to provide the cash in times of crisis.

The previous analysis suggests that there is an important potentially destructive dynamics in a monetary union. Members of a monetary union are very susceptible to liquidity movements. When investors fear some payment difficulty (e.g. triggered by a recession that leads to an increase in the government budget deficit), liquidity is withdrawn from the national market (a "sudden stop"). This can set in motion a devilish interaction between liquidity and solvency crises. Once a member country gets entangled in a liquidity crisis, interest rates are pushed up.

Thus the liquidity crisis turns into a solvency crisis. Investors can then claim that it was right to pull out the money from a particular national market. It is a self-fulfilling prophecy: the country has become insolvent because investors fear insolvency.

Note that I am not arguing that all solvency problems in the Eurozone are of this nature. In the case of Greece, for example, one can argue that the Greek government was insolvent before investors made their moves and triggered a liquidity crisis in May 2010. What I am arguing is that in a monetary union countries become vulnerable to self-fulfilling movements of distrust that set in motion a devilish interaction between liquidity and solvency crises.
From the preceding analysis, it follows that financial markets acquire great power in a monetary union.

4. Multiple equilibria

The inherent volatility of financial markets leads to another fundamental problem. It can give rise to multiple equilibria, some of them good ones; others bad ones. This arises from the self-fulfilling nature of market expectations. In appendix, I present a simple theoretical model showing more formally how multiple equilibria can arise.

Suppose markets trust government A. Investors then will show a willingness to buy government bonds at a low interest rate. A low interest rate embodies a belief that the default risk is low. But the same low interest rate also has the effect of producing a low risk of default. This is made very clear from our solvency calculations in table 1. Markets trust that the UK government will not default (despite its having a high debt ratio). As a result, the UK government enjoys a low interest rate. Our solvency calculation then shows that indeed the UK government is very solvent. Financial markets gently guide the UK towards a good equilibrium.

Suppose market distrusts government B. As a result, investors sell the government bonds. The ensuing increase in the interest rate embeds the belief that there is a default risk. At the same time this high interest rate actually makes default more likely. Thus in our calculation from table 1 it appears that the market's distrust in the Spanish government in a self-fulfilling way has made default more likely. Financial markets push Spain towards a bad equilibrium.

The occurrence of bad equilibria is more likely with members of a monetary union, which have no control of the currency in which they issue their debt, than with stand-alone countries that have issued debt in a currency over which they have full control. Members of a monetary union face the same problem as

emerging countries that because of underdeveloped domestic financial markets, are forced to issue their debt in a foreign currency (Calvo, et al. (2006), see Eichengreen, at al. (2005)). In the words of Eichengreen et al.(2005) this works as the "original sin" that leads these countries into a bad equilibrium full of pain and misery.

To wrap up the previous discussion: members of monetary union are sensitive to movements of distrust that have self-fulfilling properties and that can lead them to be pushed into a bad equilibrium. The latter arises because distrust can set in motion a devilish interaction between liquidity and solvency crises. Being pushed into a bad equilibrium has two further consequences. I analyze these in the following section.

5. The bad news about a bad equilibrium

There are two features of a bad equilibrium that are worth analyzing further. First, domestic banks are affected by the bad equilibrium in different ways. When investors pull out from the domestic bond market, the interest rate on government bonds increases. Since the domestic banks are usually the main investors in the domestic sovereign bond market, this shows up as significant losses on their balance sheets. In addition, domestic banks are caught up in a funding problem. As argued earlier, domestic liquidity dries up (the money stock declines) making it difficult for the domestic banks to rollover their deposits, except by paying prohibitive interest rates. Thus the sovereign debt crisis spills over into a domestic banking crisis, even if the domestic banks were sound to start with. This feature has played an important role in the case of Greece and Portugal where the sovereign debt crisis has led to a full-blown banking crisis. In the case of Ireland, there was a banking problem prior to the sovereign debt crisis (which in fact triggered the sovereign debt crisis). The latter, however, intensified the banking crisis.

Second, once in a bad equilibrium, members of monetary union find it very difficult to use automatic budget stabilizers: A recession leads to higher government budget deficits; this in turn leads to distrust of markets in the capacity of governments to service their future debt, triggering a liquidity and solvency crisis; the latter then forces them to institute austerity programs in the midst of a recession. In the stand-alone country (UK) this does not happen because the distrust generated by higher budget deficit triggers a stabilizing mechanism.

Thus, member countries of a monetary union are downgraded to the status of emerging economies, which find it difficult if not impossible to use budgetary policies to stabilize the business cycle. This feature has been shown to produce

pronounced booms and busts in emerging economies (see Eichengreen, et al. (2005)).

This feature of a monetary union makes it potentially very costly. The automatic stabilizers in the government budget constitute an important social achievement in the developed world as they soften the pain for many people created by the booms and busts in capitalist societies. If a monetary union has the implication of destroying these automatic stabilizers, it is unclear whether the social and political basis for such a union can be maintained. It is therefore important to design a governance structure that maintains these automatic stabilizers.

6. Imbalances and sovereign debt

The previous analysis allows us to connect sovereign debt dynamics and imbalances problems.

It is now widely recognized that one of the fundamental imbalances in the Eurozone is the increased divergence in competitive positions of the members of the Eurozone since 2000. The phenomenon is shown in figure 3. One may criticize this figure because of the choice of 2000 as the base year. Indeed, this choice assumes that in 2000 there were no imbalances in competitive positions, so that any movement away from the 2000-level is a departure from equilibrium and thus problematic. This is surely not the case (see Alcidi and Gros(2010). A number of countries may have been far from equilibrium in 2000 so that movements observed since that date could conceivably be movements towards equilibrium. In order to take this criticism into account I present relative unit labour costs of the member countries using the long-term average over the period 1970-2010 as the base. The results are shown in figure 4. The divergence is less spectacular, but still very significant. Figure 5 confirms this: the standard deviation of the yearly indices increased significantly since 1999.
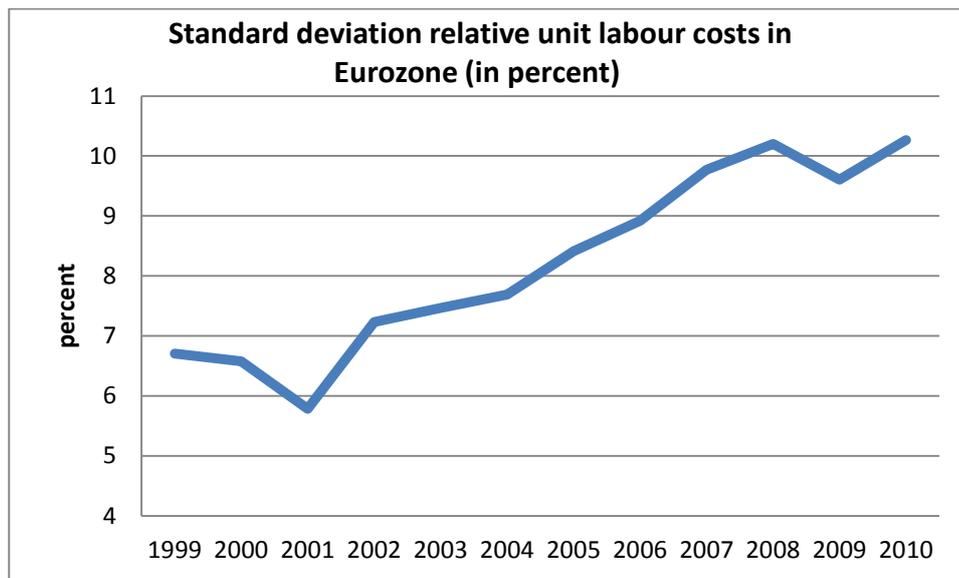
Figure 3:
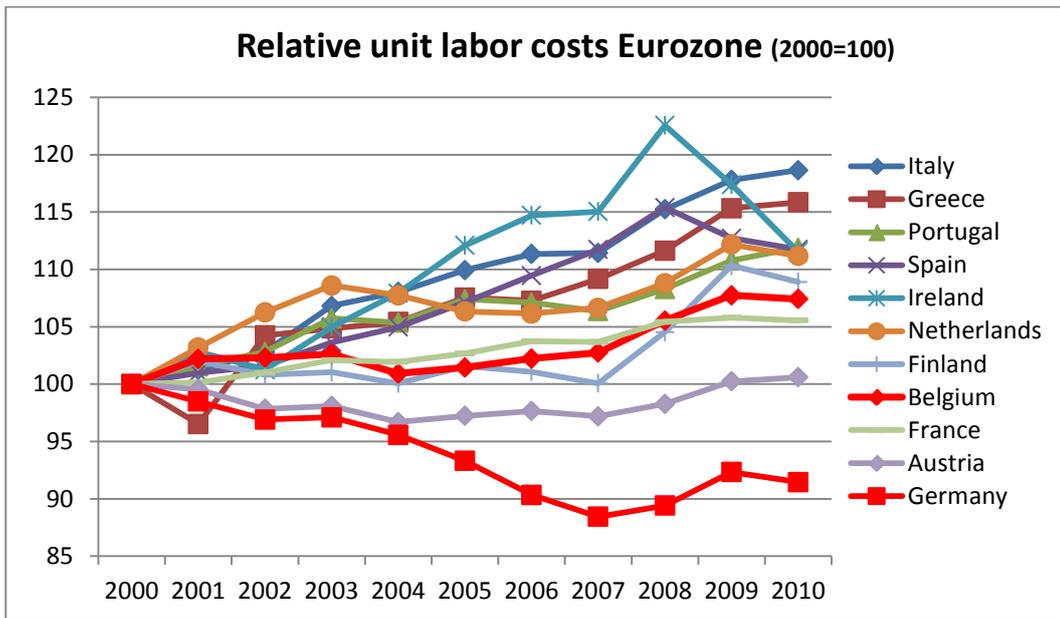
Source: European Commission, Ameco

Figure 4:

Source: European Commission, Ameco

Figure 5:

Standard deviation relative unit labour costs in Eurozone (in percent)
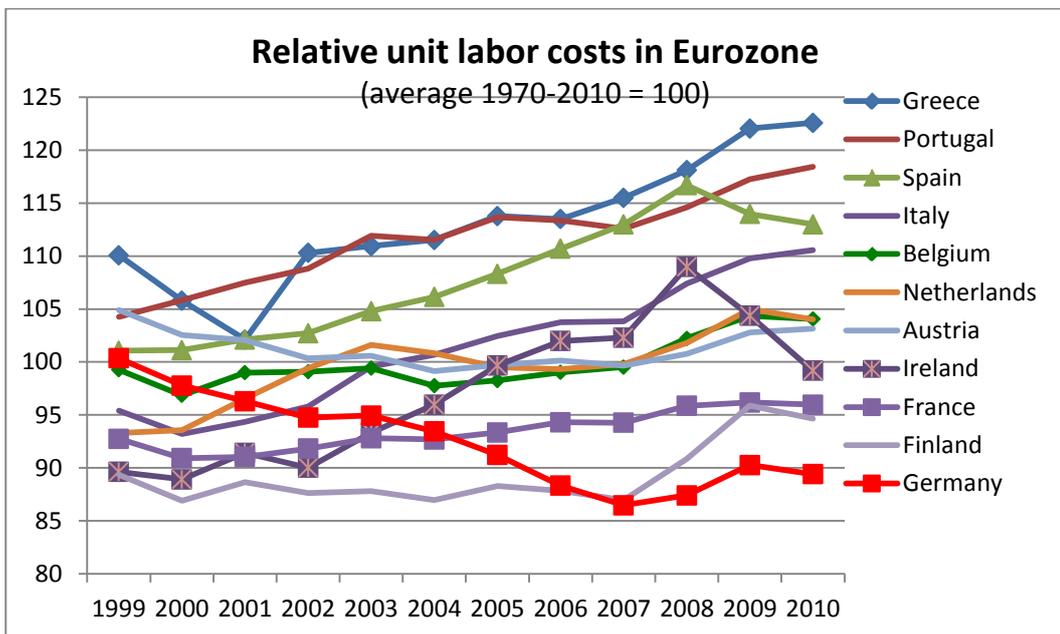
Note: Computed using data of Figure 6.

The countries that lost competitiveness from 1999 to 2008 (Greece, Portugal, Spain, Ireland) have to start improving it. Given the impossibility of using a devaluation of the currency, an internal devaluation must be engineered, i.e. wages and prices must be brought down relative to those of the competitors. This can only be achieved by deflationary macroeconomic policies (mainly budgetary policies). Inevitably, this will first lead to a recession and thus (through the operation of the automatic stabilizers) to increases in budget deficits.

Most of the analyses in textbooks now stop by noting that this is a slow and painful process. The analysis of the previous sections, however, allows us to go a little further and to link it with the debt dynamics described earlier. As countries experience increasing budget deficits while they attempt to improve their competitiveness, financial markets are likely to get nervous. Distrust may install itself. If strong enough, the latter may lead to a liquidity crisis as described before. This then inevitably triggers a solvency crisis.

Thus the period during which countries try to improve their competitiveness is likely to be painful and turbulent: Painful, because of the recession and the ensuing increase in unemployment; turbulent, because during the adjustment period, the county can be hit by a sovereign debt and banking crises. If the latter occur, the deflationary spiral is bound to be intensified. For in that case the domestic long term interest rate increases dramatically, forcing the authorities to apply even more budgetary austerity, which in turn leads to an even more intense recession. The banks that are trapped in a funding crisis reduce their credit to the economy. The country finds itself stuck in a bad equilibrium, characterized by austerity programs that fail to reduce budget deficits because they

lead to a downward economic spiral and punishing interest rate levels. The path towards recovery for members of a monetary union is likely to be crisis-prone.

The contrast with stand-alone countries that have the capacity to issue debt in their own currency is stark. When these countries have lost competitiveness, they will typically try to restore it by allowing the currency to drop in the foreign exchange market. This makes it possible not only to avoid deflation, but also to avoid a sovereign debt crisis. As we have seen earlier, these countries' governments cannot be forced into default by triggering a liquidity crisis. What is more the whole adjustment process involving currency depreciation is likely to boost output and inflation, thereby improving the solvency of the sovereign.

7. What kind of governance?

In order to solve the problems analyzed in the previous sections collective action is necessary. Collective action can be taken at two levels. One is at the level of the central banks; the other at the level of the government budgets.

Liquidity crises are avoided in stand-alone countries that issue debt in their own currencies mainly because the central bank can be forced to provide all the necessary liquidity to the sovereign. This outcome can also be achieved in a monetary union if the common central bank is willing to buy the different sovereigns' debt. I discuss the role of the ECB as a lender of last resort in the government bond markets in section 8.

Collective action can also be taken at the budgetary level. Ideally, a budgetary union is the instrument of collective action. By consolidating (centralizing) national government budgets into one central budget a mechanism of automatic transfers can be organized. Such a mechanism works as an insurance mechanism transferring resources to the country hit by a negative economic shock. In addition, such a consolidation creates a common fiscal authority that can issue debt in a currency under the control of that authority. In so doing, it protects the member states from being forced into default by financial markets. It also protects the monetary union from the centrifugal forces that financial markets can exert on the union.

This solution of the systemic problem of the Eurozone requires a far-reaching degree of political union. Economists have stressed that such a political union will be necessary to sustain the monetary union in the long run (see European Commission(1977) and De Grauwe(1992)). It is clear, however, that there is no willingness in Europe today to significantly increase the degree of political union. This unwillingness to go in the direction of more political union will continue to

make the Eurozone a fragile construction. I discuss a strategy of small steps in the process of budgetary unification in section 9.

8. The ECB as a lender of last resort in the government bond market

The single most important argument for mandating the ECB to be a lender of last resort in the government bond markets is to prevent countries from being pushed into a bad equilibrium. The self-fulfilling nature of expectations creates a coordination failure, i.e. the fear of insufficient liquidity pushes countries into a situation in which there will be insufficient liquidity for both the government and the banking sector. The central bank can solve this coordination failure by providing lending of last resort.

Failure to provide lending of last resort in the government bond markets of the monetary union carries the risk of forcing the central bank into providing lending of last resort to the banks of the countries hit by a sovereign debt crisis. And this lending of last resort is almost certainly more expensive. The reason is that most often the liabilities of the banking sector of a country are many times larger than the liabilities of the national government. In 2008 bank liabilities in the Eurozone represented about 250% of GDP. This compares to a government debt to GDP ratio in the Eurozone of approximately 80% in the same year.

While the argument for mandating the ECB to be a lender of last resort in the government bond markets is a strong one, the opposition to giving the ECB this mandate is equally intense. Let me review the main arguments that have been formulated against giving a lender of last resort role to the ECB.

Risk of inflation
A popular argument against an active role of the ECB as a lender of last resort in the sovereign bond market is that this would lead to inflation. By buying government bonds, it is said, the ECB increases the money stock thereby leading to a risk of inflation. Does an increase in the money stock not always lead to more inflation as Milton Friedman taught us? Two points should be made here.

First, a distinction should be introduced between the money base and the money stock. When the central bank buys government bonds (or other assets) it increases the money base (currency in circulation and banks' deposits at the central bank). This does not mean that the money stock increases. In fact during periods of financial crises both monetary aggregates tend to become disconnected. An example of this is shown in Figure 6. One observes that prior to the banking crisis of October 2008 both aggregates were very much connected.

From October 2008 on, however, the disconnect became quite spectacular. In order to save the banking system, the ECB massively piled up assets on its balance sheets, the counterpart of which was a very large increase in the money base1. This had no effect on the money stock(M3) (see Figure 2). In fact the latter declined until the end of 2009. The reason why this happened is that banks piled up the liquidity provided by the ECB without using it to extend credit to the non-banking sector. A similar phenomenon has been observed in the US and the UK.

Another way to understand this phenomenon is to note that when a financial crisis erupts, agents want to hold cash for safety reasons. If the central bank decides not to supply the cash, it turns the financial crisis into an economic recession and possibly a depression, as agents scramble for cash. When instead the central bank exerts its function of lender of last resort and supplies more money base, it stops this deflationary process. That does not allow us to conclude that the central bank is likely to create inflation.

Al this was very well understood by Milton Friedman, the father of monetarism who cannot be suspected of favoring inflationary policies. In his classic book co-authored with Anna Schwartz, A Monetary History of the United States, he argued that the Great Depression was so intense because the Federal Reserve failed to perform its role of lender of last resort, and did not increase the US money base sufficiently (see Friedman and Schwartz(1961). In fact, on page 333, Friedman and Schwartz produce a figure that is very similar to Figure 2, showing how during the period 1929-33 the US money stock declined, while the money base ("high powered money") increased. Friedman and Schwartz argued forcefully that the money base should have increased much more and that the way to achieve this was by buying government securities. Much to the chagrin of Friedman and Schwartz, the Federal Reserve failed to do so. Those who today fear the inflationary risks of lender of last resort operations should do well to read Friedman and Schwartz(1961).

---

[1] Note that compared to the US Fed and the Bank of England the expansion of the balance sheet of the ECB was much less pronounced. See the data in appendix. It appears that the ECB has been a timid lender of last resort compared to the Fed and the Bank of England

Figure 6:

Figure 6: Money Base and M3 in Eurozone (2007=100)
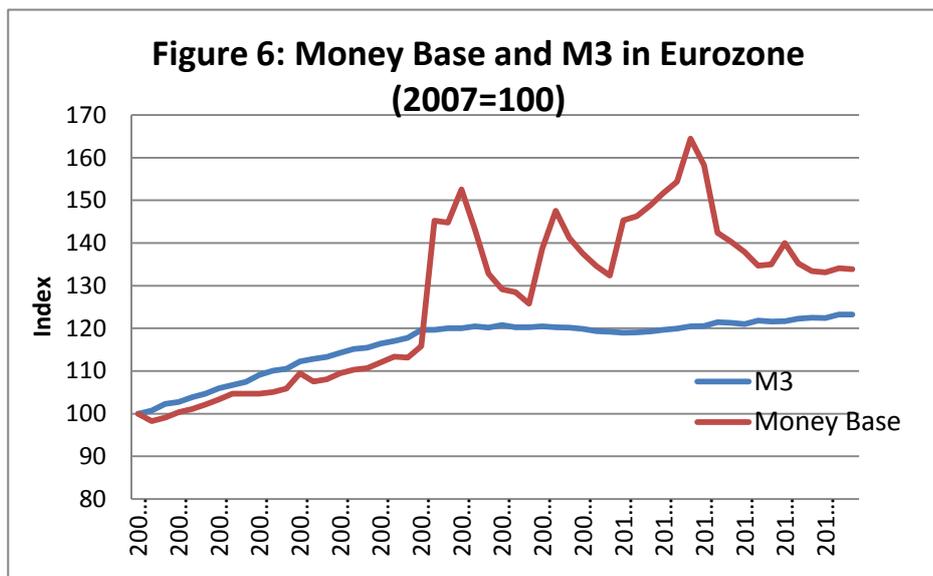
Source: ECB, Statistical Data Warehouse

Fiscal consequences

A second criticism is that lender of last resort operations in the government bond markets can have fiscal consequences. The reason is that if governments fail to service their debts, the ECB will make losses. These will have to be borne by taxpayers. Thus by intervening in the government bond markets, the ECB is committing future taxpayers. The ECB should avoid operations that mix monetary and fiscal policies (see Goodfriend(2011)).

All this sounds reasonable. Yet it fails to recognize that all open market operations (including foreign exchange market operations) carry the risk of losses and thus have fiscal implications. When a central bank buys private paper in the context of its open market operation, there is a risk involved, because the issuer of the paper can default. This will then lead to losses for the central bank2. These losses are in no way different from the losses the central bank can incur when buying government bonds. Thus, the argument really implies that a central bank should abstain from any open market operation. It should stop being a central bank. The truth is that a central bank should perform (risky) open market operation. The fact that these are potentially loss making should not deter the central bank. Losses can be necessary, even desirable, to guarantee financial stability.

There is another dimension to the problem that follows from the fragility of the government bond markets in a monetary union. I argued earlier that financial

---

[2] The same is true with foreign exchange market operations that can lead to large losses as has been shown by the recent Swiss experience.

markets can in a self-fulfilling way drive countries into a bad equilibrium, where default becomes inevitable. The use of the lender of last resort can prevent countries from being pushed into such a bad equilibrium. If the intervention by the central banks is successful there will be no losses, and no fiscal consequences.

What about moral hazard?

Like with all insurance mechanisms there is a risk of moral hazard. By providing a lender of last resort insurance the ECB gives an incentive to governments to issue too much debt. This is indeed a serious risk. But this risk of moral hazard is no different from the risk of moral hazard in the banking system. It would be a terrible mistake if the central bank were to abandon its role of lender of last resort in the banking sector because there is a risk of moral hazard. In the same way it is wrong for the ECB to abandon its role of lender of last resort in the government bond market because there is a risk of moral hazard.

The way to deal with moral hazard is to impose rules that will constrain governments in issuing debt, very much like moral hazard in the banking sector is tackled by imposing limits on risk taking by banks. In general, it is better to separate liquidity provision from moral hazard concerns. Liquidity provision should be performed by a central bank; the governance of moral hazard by another institution, the supervisor. This has been the approach taken in the strategy towards the banking sector: the central bank assumes the responsibility of lender of last resort, thereby guaranteeing unlimited liquidity provision in times of crisis, irrespective of what this does to moral hazard; the supervisory authority takes over the responsibility of regulating and supervising the banks.

This should also be the design of the governance within the Eurozone. The ECB assumes the responsibility of lender of last resort in the sovereign bond markets. A different and independent authority takes over the responsibility of regulating and supervising the creation of debt by national governments. To use a metaphor: When a house is burning the fire department is responsible for extinguishing the fire. Another department (police and justice) is responsible for investigating wrongdoing and applying punishment if necessary. Both functions should be kept separate. A fire department that is responsible both for fire extinguishing and punishment is unlikely to be a good fire department. The same is true for the ECB. If the latter tries to solve a moral hazard problem, it will fail in its duty to be a lender of last resort.

9. Budgetary Union: a strategy of small steps

While a full budgetary union appears to be a perspective for the very long run, there is a strategy of small steps that could be implemented relatively quickly and that could show the way to a fuller budgetary unionThis consists in the joint issue of Eurobonds.

By jointly issuing Eurobonds, the participating countries become jointly liable for the debt they have issued together. This is a very visible and constraining commitment that will convince the markets that member countries are serious about the future of the euro (see Verhofstadt(2009), Juncker and Tremonti(2010)). In addition, by pooling the issue of government bonds, the member countries protect themselves against the destabilizing liquidity crises that arise form their inability to control the currency in which their debt is issued. A common bond issue does not suffer from this problem.

The proposal of issuing common Eurobonds has met stiff resistance in a number of countries (see Issing(2010)). This resistance is understandable. A common Eurobond creates a number of serious problems that have to be addressed.

A first problem is moral hazard. The common Eurobond issue contains an implicit insurance for the participating countries. Since countries are collectively responsible for the joint debt issue, an incentive is created for countries to rely on this implicit insurance and to issue too much debt. This creates a lot of resistance in the other countries that behave responsibly. It is unlikely that these countries will be willing to step into a common Eurobond issue unless this moral hazard risk is resolved.

A second problem (not unrelated to the previous one) arises because some countries like Germany, Finland and the Netherlands today profit from triple A ratings allowing them to obtain the best possible borrowing conditions. The question arises of what the benefits can be for these countries. Indeed, it is not inconceivable that by joining a common bond mechanism that will include other countries enjoying less favourable credit ratings, countries like Germany, Finland and the Netherlands may actually have to pay a higher interest rate on their debt.

These objections are serious. They can be addressed by a careful design of the common Eurobond mechanism. The design of the common Eurobonds must be such as to eliminate the moral hazard risk and must produce sufficient attractiveness for the countries with favourable credit ratings. This can be achieved by working both on the quantities and the pricing of the Eurobonds.

Thus, my proposal would be to seek a combination of the Eurobond proposal made by Bruegel (Delpla and von Weizsäcker(2010) and the one made by De Grauwe and Moesen (2009). It would work as follows. Countries would be able to participate in the joint Eurobond issue up to 60% of their GDP, thus creating "blue bonds". Anything above 60% would have to be issued in the national bond markets ("red bonds"). This would create a senior (blue) tranche that would enjoy the best possible rating. The junior (red) tranche would face a higher risk premium. This existence of this risk premium would create a powerful incentive for the governments to reduce their debt levels. In fact, it is likely that the interest rate that countries would have to pay on their red bonds would be higher than the interest rate they pay today on their total outstanding debt (see Gros(2010) on this). The reason is that by creating a senior tranche, the probability of default on the junior tranche may actually increase. This should increase the incentive for countries to limit the red component of their bond issues.

The Bruegel proposal can be criticized on the following grounds. To the extent that the underlying risk of the government bonds is unchanged, restructuring these bonds into different tranches does not affect its risk. Thus, if the blue bond carries a lower interest rate, the red bond will have a higher interest rate such that the average borrowing cost will be exactly the same as when there is only one type of bond (see Gros(2011)). This is an application of the Modigliani-Miller theorem which says that the value of a firm is unaffected by the way the liabilities of that firm are structured.

All this is true to the extent that the underlying risk is unchanged. The point, however, is that the common bond issue is an instrument to shield countries from being pushed into a bad equilibrium. If the common bond issue succeeds in doing so, the underlying risk of the bonds of these countries does indeed decline. In that case these countries are able to enjoy a lower average borrowing cost. At the same time the marginal borrowing cost is likely to be higher than the average. This is exactly what one wants to have: a decline of the average debt cost, and an increase in the marginal cost of the debt. The former makes it easier to service the debt; the latter provides strong incentives towards reducing the level of the debt. This feature is important to reduce the moral hazard risk.

The second feature of our proposal works on the pricing of the Eurobonds and it follows the proposal made by De Grauwe and Moesen(2009). This consists in using different fees for the countries participating in the blue bond issue. These fees would be related to the fiscal position of the participating countries. Thus, countries with high government debt levels would face a higher fee, and countries with lower debt levels would pay a lower fee. In practical terms this means that the interest rate paid by each country in the blue bond tranche would be different. Fiscally prudent countries would have to pay a somewhat lower interest

rate than fiscally less prudent countries. This would ensure that the blue bond issue would remain attractive for the countries with the best credit rating, thereby giving them an incentive to joint the Eurobond mechanism.

It should be noted that if successful, such a common Eurobond issue would create a large new government bond market with a lot of liquidity. This in turn would attract outside investors making the euro a reserve currency. As a result the euro would profit from an additional premium. It has been estimated that the combined liquidity and reserve currency premium enjoyed by the dollar amounts to approximately 50 basis points (Gourinchas and Rey(2007)). A similar premium could be enjoyed by the euro. This would make it possible for the euro zone countries to lower the average cost of borrowing, very much like the US has been able to do.

10. Conclusion

A monetary union is more than one money and one central bank. Countries that join a monetary union lose more than an instrument of economic policy (interest rate or exchange rate). When entering the monetary union, they lose their capacity to issue debt in a currency over which they have full control. As a result, a loss of confidence of investors can in a self-fulfilling way drive the country into default. This is not so for countries capable of issuing debt in their own currency. In these countries the central bank can always provide the liquidity to the sovereign to avoid default. This may lead to future inflation, but it shields the sovereign from a default forced by the market.

Thus, member-countries of a monetary union become more vulnerable. Changing market sentiments can lead to "sudden stops" in the funding of the government debt, setting in motion a devilish interaction between liquidity and solvency crises. There is an important further implication of this increased vulnerability. This is that member-countries of a monetary union lose much of their capacity to apply counter-cyclical budgetary policies. When during a recession the budget deficits increase, this risks creating a loss of confidence of investors in the capacity of the sovereign to service the debt. This has the effect of raising the interest rate, making the recession worse, and leading to even higher budget deficits. As a result, countries in a monetary union can be forced into a bad equilibrium, characterized by deflation, high interest rates, high budget deficits and a banking crisis.

These systemic features of a monetary union have not sufficiently been taken into account in the new design of the economic governance of the Eurozone. Too much of this new design has been influenced by the notion (based on moral hazard thinking) that when a country experiences budget deficits and increasing

debts, it should be punished by high interest rates and tough austerity programs. I have argued that this approach is usually not helpful in restoring budgetary balance.

A monetary union can only function if there is a collective mechanism of mutual support and control. Such a collective mechanism exists in a political union. In the absence of a political union, the member countries of the Eurozone are condemned to fill in the necessary pieces of such a collective mechanism. The debt crisis has made it possible to fill in a few of these pieces. What has been achieved, however, is still far from sufficient to guarantee the survival of the Eurozone.

References

- Alcidi, C., and Gros, D., (2010), *The European Experience with Large Fiscal Adjustments*, CEPS Policy Brief, http://www.ceps.eu/book/european-experience-large-fiscal-adjustments

- Arezki, R., Candelon, B, and Sy, A., (2011), Sovereign Rating News and Financial Markets Spillovers: Evidence from the European Debt Crisis, *IMF Working Paper*, 11/69, March.

- Borio C., 2003, *Towards a Macroprudential Framework for Financial Supervision and Regulation?*, BIS Working Paper, n. 128

- Borio C., 2005, The Search for the Elusive Twin Goals of Monetary and Financial Stability, *National Institute Economic Review*

- Calvo, Guillermo (1988): Servicing the Public Debt: The Role of Expectations, *American Economic Review*, Vol. 78, No. 4, pp. 647 -661

- De Grauwe, P. (1992), *The Economics of Monetary Integration, 1st Edition*, Oxford University Press.

- De Grauwe, P., and Moesen, W., (2009), Gains for All: A Proposal for a Common Eurobond, *Intereconomics*, May/June

- De Grauwe, P. (2010), *A Mechanism of Self-destruction of the Eurozone*, CEPS Policy Briefs, http://www.ceps.eu/book/mechanism-self-destruction-eurozone

- Delpla, J., and von Weizsäcker, J., (2010), The Blue Bond Proposal, *Bruegel Policy Brief*, May.

- EC Commission (1977) *Report of the Study Group on the Role of Public Finance in European Integration* (MacDougall Report), Brussels.

- European Commission, (2010*), A Structured Framework to Prevent and Correct Macroeconomic Imbalances: Operationalizing the Alert Mechanism*, Brussels, November.

- Eichengreen, B., Hausmann, R., Panizza, U., (2005), "*The Pain of Original Sin",* in Eichengreen, B., and Hausmann, R., Other people's money: Debt denomination and financial instability in emerging market economies, Chicago University Press.

- Gourinchas, P.-O., and Rey, H., (2007), *From world Banker to World Venture Capitalis: the US External Adjustment and the Exorbitant Privilege*, in Clarida, R., G7 Current Account Imbalances: Sustainability and Adjustment, University of Chicago Press.

- Gros, D., (2010), The Seniority Conundrum: Bail out countries but bail in private short-term creditors, *CEPS Commentary*, 10 November.

- Gros, D., and Mayer, T., (2010), *Towards a European Monetary Fund,* CEPS Policy Brief, http://www.ceps.eu/book/towards-european-monetary-fund

- Gros, D., and Mayer, (2011), *Debt Reduction without Default,* CEPS Policy Briefs, http://www.ceps.eu/book/debt-reduction-without-default

- Issing, O., (2009), Why a common Eurozone bond isn't such a good idea, *Europe's World*, Summer, 77-79.

- Juncker, J.-C., and Tremonti, G., (2010), E-bonds would end the crisis, *Financial Times*, December, 5.

- Kannan, K., Rabanal, P., and Scott, A., (2009), Macroeconomic Patterns and Monetary Policy in the Run-Up to Asset Price Busts, *IMF Working Paper*, 09, 252

- Kopf, Christian, (2011), *Restoring financial stability in the euro area*, 15 March 2011 , in CEPS Policy Briefs.

- Peirce, P., Micossi, S., Carmassi, J., (2011*), On the Tasks of the European Stability Mechanism,* CEPS Policy Brief, March.

- Plenum der Ökonomen, (2011), *Stellungnahme zur EU-Schuldenkrise*, http://www.wiso.uni-hamburg.de/lucke/?p=581

- Verhofstadt, G., (2009), D*e Weg uit de Crisis. Hoe Europa de wereld kan redden*, De Bezige Bij, Amsterdam.

Appendix: A model of good and bad equilibria

In this section I present a very simple model illustrating how multiple equilibria can arise. The starting point is that there is a cost and a benefit of defaulting on the debt, and that investors take this calculus of the sovereign into account. I will assume that the country involved is subject to a shock, which takes the form of a decline in government revenues. The latter may be caused by a recession, or a loss of competitiveness. I'll call this a solvency shock. The higher this shock the greater is the loss of solvency. I concentrate first on the benefit side. This is represented in Figure A1. On the horizontal axis I show the solvency shock. On the vertical axis I represent the benefit of defaulting. There are many ways and degrees of defaulting. To simplify I assume this takes the form of a haircut of a fixed percentage. The benefit of defaulting in this way is that the government can reduce the interest burden on the outstanding debt. As a result, after the default it will have to apply less austerity, i.e. it will have to reduce spending and/or increase taxes by less than without the default. Since austerity is politically costly, the government profits from the default.

A major insight of the model is that the benefit of a default depends on whether this default is expected or not. I show two curves representing the benefit of a default. B_U is the benefit of a default that investors do not expect to happen, while B_E is the benefit of a default that investors expect to happen. Let me first concentrate on the B_U curve. It is upward sloping because when the solvency shock increases, the benefit of a default for the sovereign goes up. The reason is that when the solvency shock is large, i.e. the decline in tax income is large, the cost of austerity is substantial. Default then becomes more attractive for the sovereign. I have drawn this curve to be non-linear, but this is not essential for the argument. I distinguish three factors that affect the position and the steepness of the B_U curve:

- *The initial debt level.* The higher is this level, the higher is the benefit of a default. Thus with a higher initial debt level the B_U curve will rotate upwards.
- *The efficiency of the tax system.* In a country with an inefficient tax system, the government cannot easily increase taxation. Thus in such a country the option of defaulting becomes more attractive. The B_U curve rotates upwards.
- *The size of the external debt.* When external debt takes a large proportion of total debt there will be less domestic political resistance against default, making the latter more attractive (the B_U curve rotates upwards).

Figure A1: The benefits of default after a solvency shock
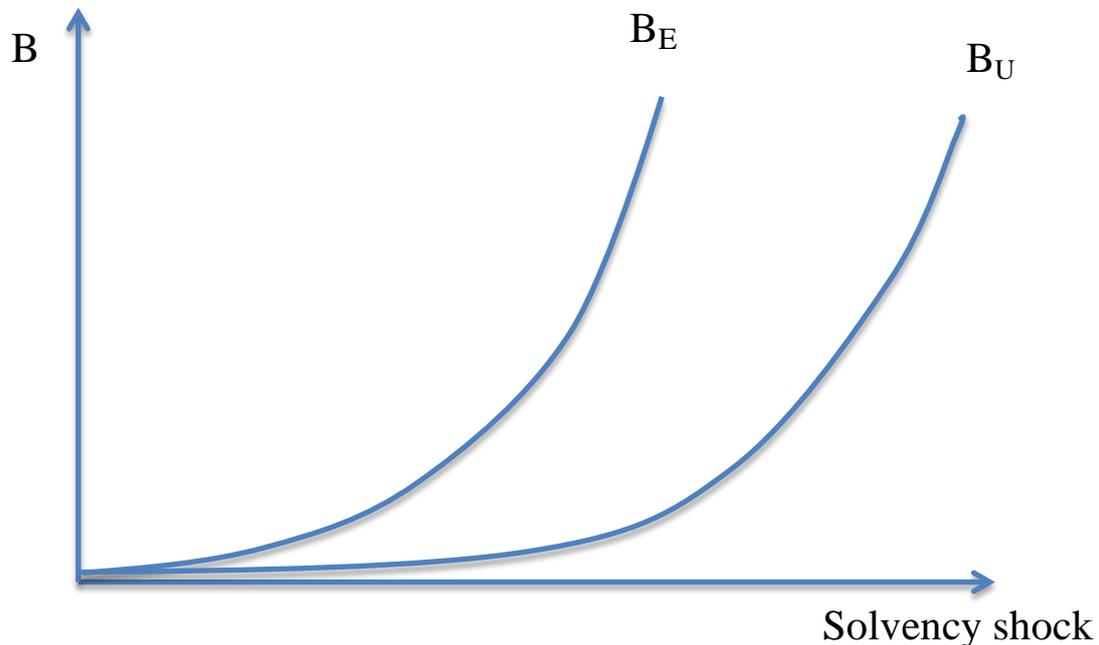
I now concentrate on the B_E curve. This shows the benefit of a default when investors anticipate such a default. It is located above the B_U curve for the following reason. When investors expect a default, they will sell government bonds. As a result, the interest rate on government bonds increases. This raises the government budget deficit requiring a more intense austerity program of spending cuts and tax hikes. Thus, default becomes more attractive. For every solvency shock, the benefits of default will now be higher than they were when the default was not anticipated.

I now introduce the cost side of the default. The cost of a default arises from the fact that, when defaulting, the government suffers a loss of reputation. This loss of reputation will make it difficult for the government to borrow in the future. I will make the simplifying assumption that this is a fixed cost. I now obtain Figure A2 where I present the fixed cost (C) with the benefit curves.

Figure A2: Cost and benefits of default after a solvency shock
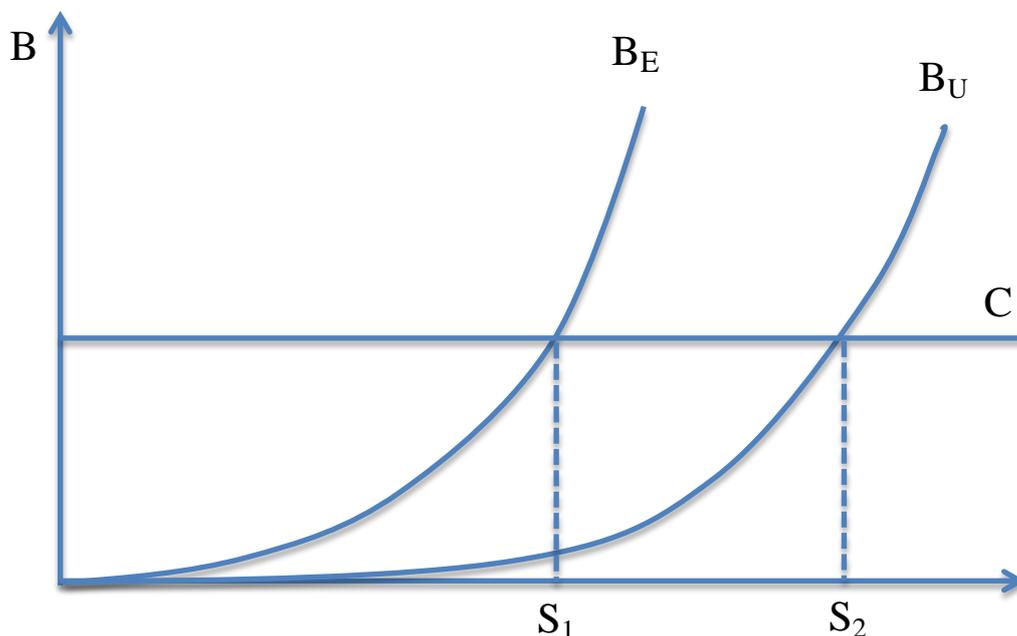
I now have the tools to analyze the equilibrium of the model. I will distinguish between three types of solvency shocks, a small one, an intermediate one, and a large one. Take a small solvency shock: this is a shock $S < S_1$ (This could be the shocks that Germany and the Netherlands experienced during the debt crisis). For this small shock the cost of a default is always larger than the benefits (both of an expected and an unexpected default). Thus the government will not want to default. When expectations are rational investors will not expect a default. As a result, a no-default equilibrium can be sustained.

Let us now analyze a large solvency shock. This is one for which $S > S_2$. (This could be the shock experienced by Greece). For all these large shocks we observe that the cost of a default is always smaller than the benefits (both of an expected and an unexpected default). Thus the government will want to default. In a rational expectations framework, investors will anticipate this. As a result, a default is inevitable.

I now turn to the intermediate case: $S_1 < S < S_2$. (This could be the shocks that Ireland, Portugal and Spain experienced). For these intermediate shocks I obtain an indeterminacy, i.e. two equilibria are possible. Which one will prevail only depends on what is expected. To see this, suppose the solvency shock is S' (see Figure A3). In this case there are two potential equilibria, D and N. Take point D. In this case investors expect a default (D is located on the B_E line). This has the effect of making the benefit of a default

larger than the cost C. Thus, the government will default. D is an equilibrium that is consistent with expectations.

But point N is an equally good candidate to be an equilibrium point. In N, investors do not expect a default (N is on the B_U line). As a result, the benefit of a default is lower than the cost. Thus the government will not default. It follows that N is also an equilibrium point that is consistent with expectations.

Figure A3: Good and bad equilibria
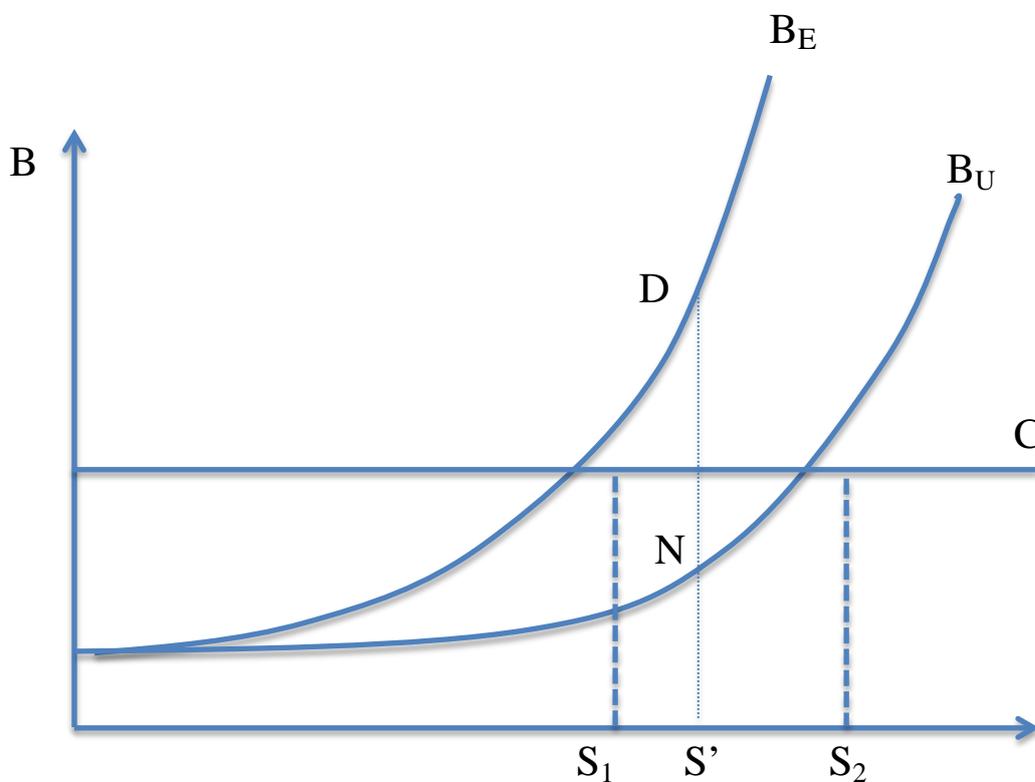
Thus we obtain two possible equilibria, a bad one (D) that leads to default, a good one (N) that does not lead to default. Both are equally possible. The selection of one of these two points only depends on what investors expect. If the latter expect a default, there will be one; if they do not expect a default there will be none. This remarkable result is due to the self-fulfilling nature of expectations.

Since there is a lot of uncertainty about the likelihood of default, and since investors have very little scientific foundation to calculate probabilities of default (there has been none in Western Europe in the last 60 years), expectations are likely to be driven mainly by market sentiments of optimism and pessimism. Small changes in these market sentiments can lead to large movements from one type of equilibrium to another.

The possibility of multiple equilibria is unlikely to occur when the country is a stand-alone country, i.e. when it can issue sovereign debt in its own currency. This makes it possible for the country to always avoid outright default because the central bank can be forced to provide all the liquidity that is necessary to avoid such an outcome. This has the effect that there is only one benefit curve. In this case the government can still decide to default (if the solvency shock is large enough). But the country cannot be forced to do so by the whim of market expectations

Walter-Adolf-Jöhr Lectures

1988   Prof. Dr. Dr. h.c. mult. **Wilhelm Krelle**, Bonn
Lange Wellen der wirtschaftlichen Entwicklung

1989   Prof. Dr. Dr. h.c. mult. **Ota Šik**, St. Gallen
Der Weg 3a und 3b. Neue Aussichten für eine Konvergenz der Systeme

1990   Prof. Dr. Dr. h.c. mult. **Kurt W. Rothschild**, Wien
Deregulierung - Anatomie eines Schlagwortes

1991   Prof. Dr. Dr. h.c. **Gottfried Bombach**, Basel
Zur Arbeitslosigkeit der Gegenwart

1992   Prof. Dr. **Ernst Heuss**, Erlangen-Nürnberg
Evolutorik und Marktwirtschaft

1993   Prof. Dr. **Erich Streissler**, Wien
Unmöglichkeit und Notwendigkeit der Wirtschaftspolitik als bleibendes Dilemma

1994   Prof. Dr. **Wolfgang Stolper**, Ann Arbor, USA
Geschichte und Theorie in der Analyse des kapitalistischen Prozesses - ein Schumpeterscher Ansatz

1995   Prof. Dr. Dr. h.c. mult. **Hans Albert**, Heidelberg
Die Idee rationaler Praxis und die ökonomische Tradition

1996   Prof. Dr. Dr. h.c. mult. **Norbert Kloten**, Tübingen
Im Sog der Währungsunion. Reflektionen über die Europäische Union und die Schweiz

1997   Prof. Dr. **Hans Christoph Binswanger**, St. Gallen
Chinesische Ökonomik. Fünf ordnungspolitische Denkrichtungen in der Chinesischen Ökonomik und ihre europäischen Parallelen

1998   Prof. Dr. Dr. h.c. **Heinz König**, Mannheim
Gründungsdynamik, Innovation und Beschäftigung

1999   Prof. Dr. Dr. h.c. mult. **Herbert Giersch**, Kiel
Marktökonomik für die offene Gesellschaft

2000   Prof. Dr. Dr. h.c. **Peter Bernholz**, Basel
Globalisierung und Umstrukturierung: Sind sie neu?

2001   Prof. Dr. Dr. h.c. mult. **Bruno S. Frey**, Zürich
Glück und Nationalökonomie

2002   Prof. Dr. **Ulrich Witt**, Jena
Wirtschaftswachstum - was geschieht auf der Nachfrageseite?

2003   Prof. Dr. Dr. h.c. **Horst Siebert**, Kiel
Müssen Arbeitslose sein? Zur Reform von Arbeitsmarkt und Sozialstaat in Deutschland

2004   Prof. Dr. Dr. h.c. **Hans-Werner Sinn**, München
Das Dilemma der Globalisierung

2005   Prof. Dr. **Ernst Baltensperger**, Bern
Vom Sinn und Unsinn des Schuldenmachens Privatschulden, Staatsschulden, Aussenschulden - Plädoyer für langfristige Konsistenz

2006   Prof. Dr. Dr. h.c. **Ernst Fehr**, Zürich
Neuroökonomik - Die Erforschung der biologischen Grundlagen des menschlichen Sozialverhaltens

2007   Prof. Dr. h.c. mult. **Martin Hellwig**, Ph.D., Bonn
Wirtschaftspolitik als Rechtsanwendung Zum Verhältnis von Jurisprudenz und Ökonomie in der Wettbewerbspolitik

2008   Prof. Dr. Dr. h.c. mult. **Wolfgang Franz**, Mannheim
Wirtschaftspolitische Beratung und Wirtschaftspolitik in Deutschland: Eine spannungsreiche Beziehung

2009   Prof. **Charles Wyplosz**, Ph.D., Geneva
Macroeconomics After the Crisis: Dealing with the Tobin Curse

2010   Prof. Dr. **Silvio Borner**, Basel
*Die Finanzkrise von 2008/09 im Lichte der
"Konjunkturschwankungen" von Walter Adolf Jöhr von 1952*

2011   Prof. Dr. **Carl Christian von Weizsäcker**, Bonn
*Staatliches Gewaltmonopol, Staatsverschuldung und
individuelle Vorsorge*

2012   Prof. Dr. **Paul De Grauwe**, London
The Governance of a Fragile Eurozone

PDFs on:
www.fgn.unisg.ch/Walter+Adolf+Joehr+Vorlesung.aspx

Contributions to Economics

1. **Ernst Baltensperger**

   Vom Sinn und Unsinn des Schuldenmachens, Privatschulden, Staatsschulden, Aussenschulden - Plädoyer für langfristige Konsistenz.
   Walter-Adolf-Jöhr-Vorlesung 2005.

2. **Frode Brevik**

   Asset Pricing and Macroeconomic Risk, 2005.

3. **Ernst Fehr**

   Neuroökonomik - Die Erforschung der biologischen Grundlagen des menschlichen Sozialverhaltens.
   Walter-Adolf-Jöhr-Vorlesung 2006.

4. **Philipp Harms und Matthias Lutz**

   Aid, Governance and Private Foreign Investment. Some Puzzling Findings for the 1990s.
   Sonderdruck aus: The Economic Journal 116, July 2006.

5. **Christian J. Busch**

   Democracy and Economic Development
   How the Interaction of Political Institutions and the Structure
   of Production Influences Policies and Growth. 2007.

6. **Martin Hellwig**

   Wirtschaftspolitik als Rechtsanwendung - Zum Verhältnis von Jurisprudenz und Ökonomie in der Wettbewerbspolitik.
   Walter-Adolf-Jöhr-Vorlesung 2007.

7. **Frode Brevik und Manfred Gärtner**

   Teaching Real Business Cycles to Undergraduates.
   Sonderdruck aus: Journal of Economic Education 38, Spring 2007.

8. **Wolfgang Franz**

   Wirtschaftspolitische Beratung und Wirtschaftspolitik in Deutschland: Eine spannungsreiche Beziehung.
   Walter-Adolf-Jöhr-Vorlesung 2008.

9. **Frode Brevik und Manfred Gärtner**

    Can Tax Evasion Tame Leviathan Governments?
    Sonderdruck aus: Public Choice 136 (July 2008).

10. **Charles Wyplosz**

    Macroeconomics After the Crisis: Dealing with the Tobin Curse
    Walter Adolf Jöhr Lecture 2009.

11. **Silvio Borner**

    Die Finanzkrise von 2008/09 im Lichte der
    "Konjunkturschwankungen" von Walter Adolf Jöhr von 1952
    Walter-Adolf-Jöhr-Vorlesung 2010

12. **Manfred Gärtner und Florian Jung**

    Clothes for the Emperor or Can Research Learn from
    Undergraduate Macroeconomics?
    Sonderdruck aus: Kyklos 64 (Feburary 2011).

13. **Carl Christian von Weizsäcker**

    Staatliches Gewaltmonopol, Staatsverschuldung und
    individuelle Vorsorge
    Walter-Adolf-Jöhr-Vorlesung 2011

14. **Paul De Grauwe**

    The Governance of a Fragile Eurozone
    Walter Adolf Jöhr Lecture 2012