

Preliminary draft

DEBT SUSTAINABILITY INSIDE AND OUTSIDE A MONETARY UNION

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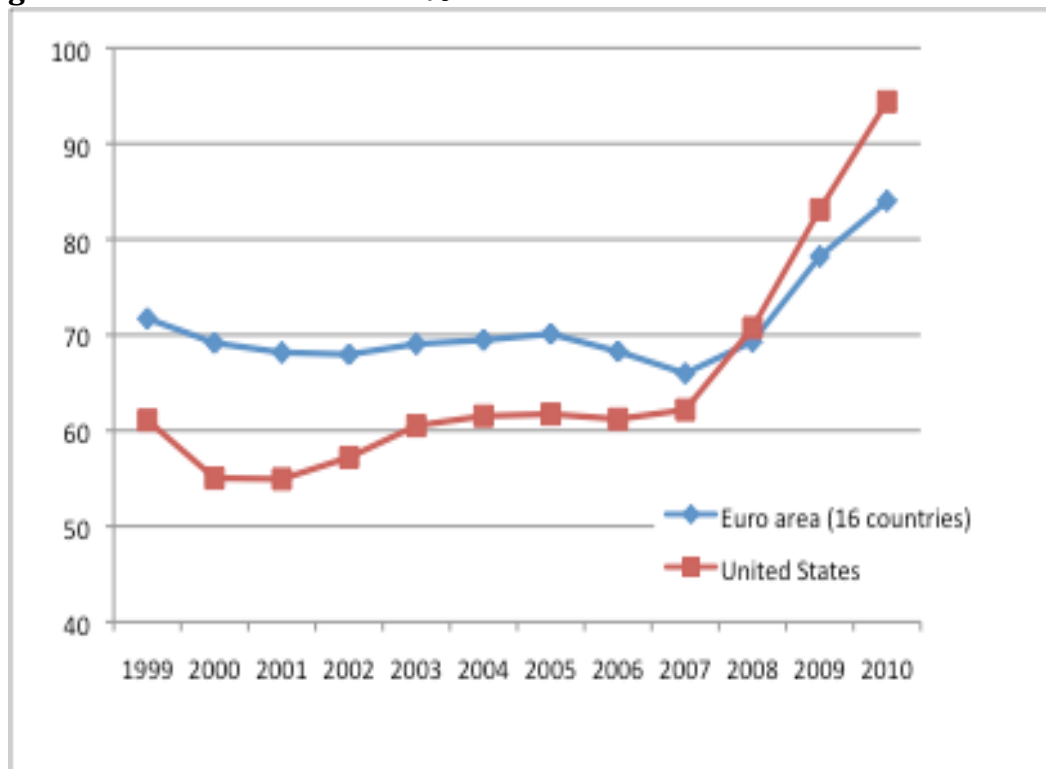
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1. Introduction: two paradoxes

The Eurozone experiences its worst crisis since its inception in 1999. This crisis is such that it has created doubts about the survival of the Eurozone. The resulting existential fears have the effect of destabilizing financial markets, triggering one crisis after the other in the Eurozone without a clear end in sight.

How could this happen? Let me start with a first paradox. The paradox arises from the contrast in the debt to GDP ratios of the Eurozone and the US. I show these in Figure 1. We observe that since 2007 the government debt ratio increased significantly faster in the US than in the Eurozone. The result of this divergent movement is that in 2010 the US government debt ratio stood 10 percentage points higher than the Eurozone government debt ratio.

Figure 1: Government debt as % of GDP in the US and the Eurozone



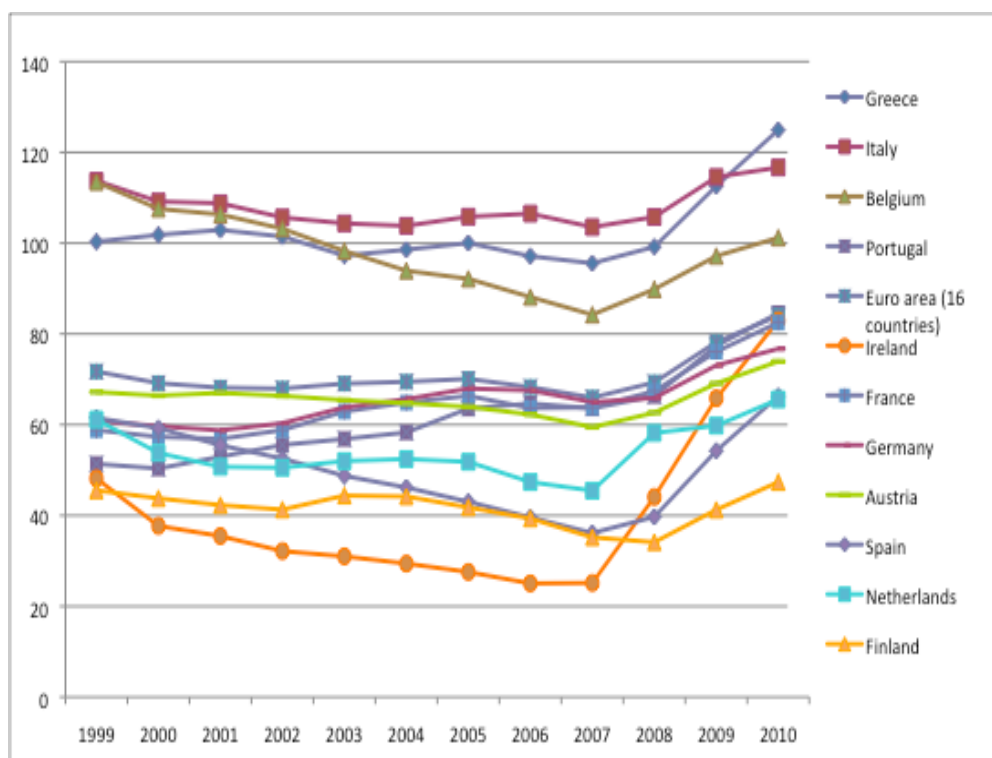
Source: European Commission, Ameco databank

The aggregate Eurozone debt ratio, of course, conceals very large differences between the member countries. Figure 2 shows the trends in the national

government debt ratios in the member states of the Eurozone. The most striking feature of this figure is the wide divergence in the levels of the government debt in the member countries. In addition, we observe that since 2007 the growth of these debt levels varies a great deal. Countries like Ireland and Spain, which prior to the crisis had seen their government debts decline to reach very low levels, suddenly were confronted with an explosion of their government debts. Note also the precarious position of Greece, which exhibits a high level, and a high growth rate of its debt level.

Given the fact that the aggregate state of the public finances of the Eurozone appears to be more favourable than in the US (Figure 1), it should have been possible to tackle the problem of the excessive debt of the Greek government where the crisis started. Yet it turned out that this was not possible.

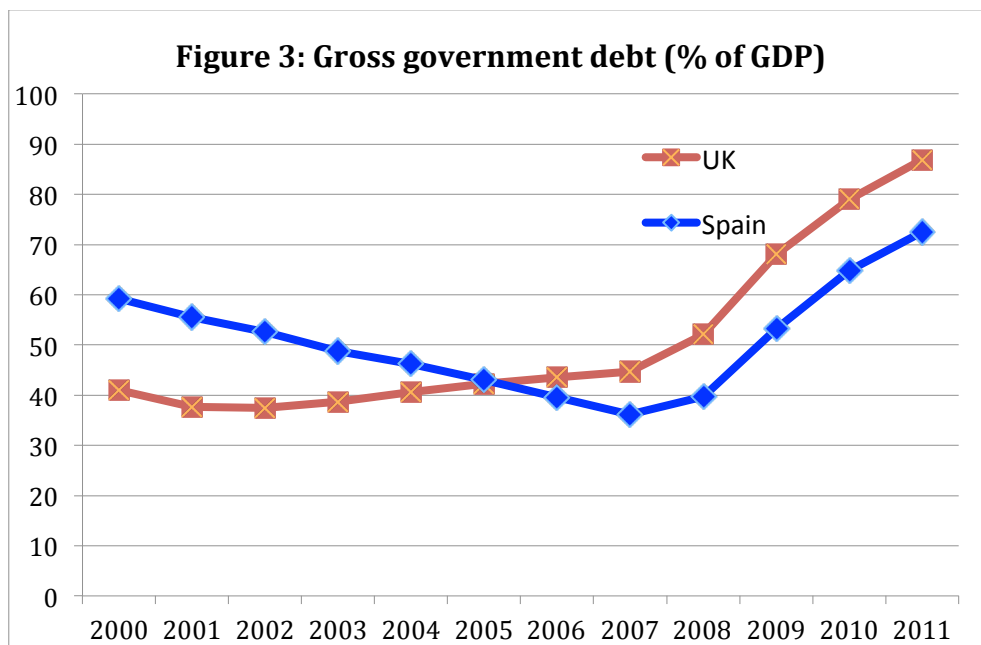
Figure 2: Government debt as % of GDP in the countries of the Eurozone



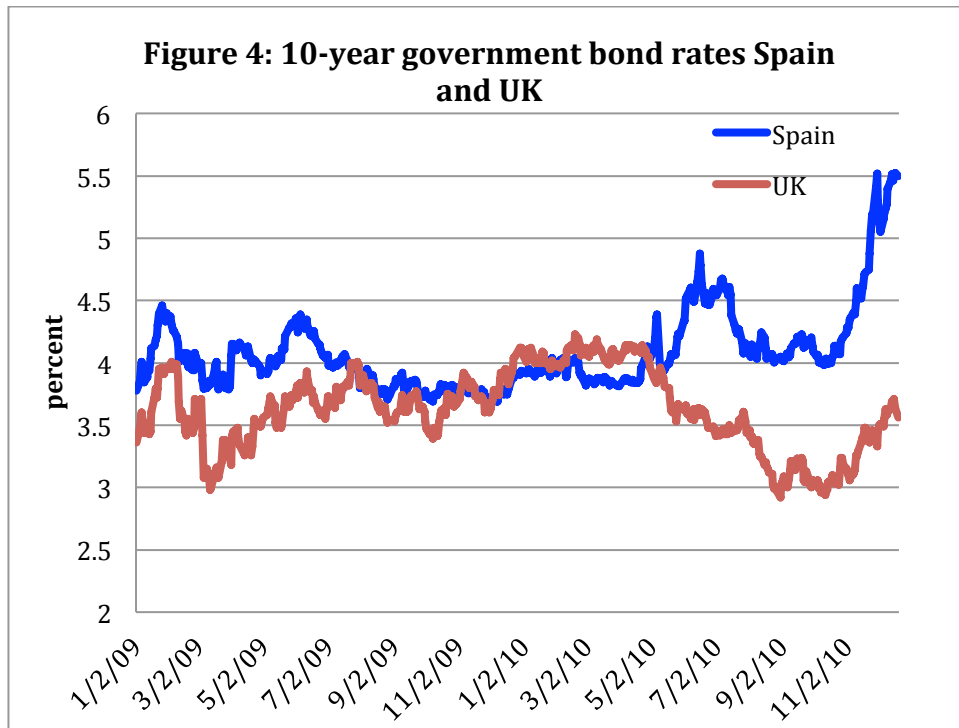
Source: European Commission, AMECO database

The second paradox arises from a comparison of Spain and the United Kingdom (I could have taken the US also). Figure 3 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 4 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, while it appears that the UK faces a less favourable sovereign debt and deficit dynamics?



Source: European Commission, Ameco



Source: Datastream

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

In order to understand the paradoxes described in the previous section we have to turn to the basics about sovereign debt inside and outside 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. It follows that financial markets acquire the power to force default on these countries. 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. These countries cannot easily be forced into default by financial markets.

Let me expand on this by considering in detail what happens when investors start having doubts about the solvency of these two types of countries. I will use the UK as a prototype monetary “stand-alone” country and Spain as a prototype member-country of a monetary union (see Kopf(2011) for an insightful analysis and Winkler(2011) for an interesting comparison with 19th Century US banking system).

The UK scenario

Let's first trace what would happen if investors were to fear that the UK government might be defaulting on its debt. In that case, they would sell their UK government bonds, driving up the interest rate. After selling these bonds, these investors would have pounds that most probably they would want to get rid of by selling them in the foreign exchange market. The price of the pound would drop until somebody else would be willing to buy these pounds. The effect of this mechanism is that the pounds would remain bottled up in the UK money market to be invested in UK assets. Put differently, the UK money stock would remain unchanged. Part of that stock of money would probably be re-invested in UK government securities. But even if that were not the case so that the UK government cannot find the funds to roll over its debt at reasonable interest rates, it would certainly force the Bank of England to buy up the government securities. Thus the UK government is ensured that the liquidity is around to fund its debt. This means that investors cannot precipitate a liquidity crisis in the UK that could force the UK government into default. There is a superior force of last resort, the Bank of England.

The Spanish scenario

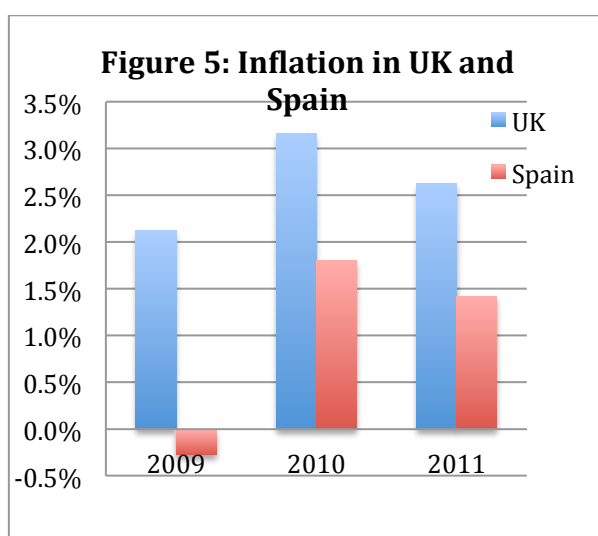
Things are dramatically different for a member of a monetary union, like Spain. Suppose that investors fear a default by the Spanish government. As a result, they sell Spanish government bonds, raising the interest rate. So far, we have the same effects as in the case of the UK. The rest is very different. The investors who have acquired euros are likely to decide to invest these euros elsewhere, say in German government bonds. As a result, the euros leave the Spanish banking system. There is no foreign exchange market, nor a flexible exchange rate to stop this. Thus the total amount of liquidity (money supply) in Spain shrinks. The Spanish government experiences a liquidity crisis, i.e. it cannot obtain funds to roll over its debt at reasonable interest rates. In addition, the Spanish government cannot force the Bank of Spain to buy government debt. The ECB can provide all the liquidity of the world, but the Spanish government does not control that institution. The liquidity crisis, if strong enough, can force the Spanish government into default. Financial markets know this and will test the

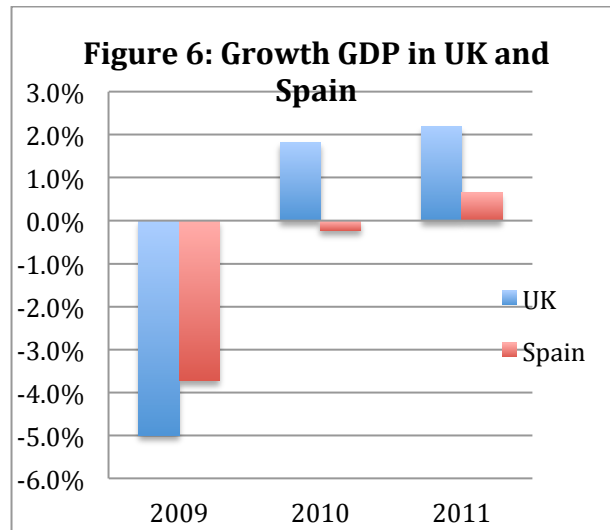
Spanish government when budget deficits deteriorate. Thus, in a monetary union, financial markets acquire tremendous power and can force any member country on its knees.

The situation of Spain is reminiscent of the situation of emerging economies that have to borrow in a foreign currency. These emerging economies face the same problem, i.e. they can suddenly be confronted with a “sudden stop” when capital inflows suddenly stop leading to a liquidity crisis (see Calvo, et al. (2006)).

There is an additional difference in the debt dynamics imposed by financial markets on member and non-member countries of a monetary union. In the UK scenario we have seen that as investors sell the proceeds of their bond sales in the foreign exchange market, the national currency depreciates. This means that the UK economy is given a boost and that UK inflation increases. This mechanism is absent in the Spanish scenario. The proceeds of the bond sales in Spain leave the Spanish money market without changing any relative price.

In Figure 5 and 6 I show how this difference has probably affected GDP growth and inflation in the UK and Spain since the start of the sovereign debt crisis in the Eurozone. It can be seen that since 2010 inflation is almost twice as high in the UK than in Spain (2.9% versus 1.6%). In addition the yearly growth of GDP in the UK averages 2% since 2010 against only 0.2% in Spain. This is certainly not unrelated to the fact that since the start of the financial crisis the pound has depreciated by approximately 25% against the euro.





Source: European Commission, Ameco

This difference in inflation and growth can have a profound effect on how the solvency of the governments of these two countries is perceived. It will be remembered that a necessary condition for solvency is that the primary budget surplus should be at least as high as the difference between the nominal interest rate and the nominal growth rate times the debt ratio¹. I apply this condition and show the numbers in table 1. I assume that Spain and the UK will continue to face the long-term interest rates that the markets have imposed since the last 6 months (on average 3.5% in the UK and 5% in Spain). Applying the average nominal growth rates since 2010 (4.9% in the UK and 1.8% in Spain) we can see that in the UK there is no need to generate a primary surplus in order to stabilize the debt to GDP ratio (and assuming these growth rates will be maintained). In Spain the primary surplus must be more than 2% to achieve this result. Thus, Spain is forced to apply much more austerity than the UK to satisfy the solvency condition. Put differently, Spain could not get away with the UK budgetary policy without being branded as insolvent despite the fact that it has a substantially lower debt level.

¹ The formula is $S \geq (r - g)D$, where S is the primary budget surplus, r is the nominal interest rate on the government debt, g is the nominal growth rate of the economy and D is the government debt to GDP ratio.

Table 1: Primary surplus needed to stabilize debt at 2011 level (percent GDP)	
UK	-1,21
Spain	2,30

The previous analysis illustrates 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.

This interaction between liquidity and solvency is avoided in the “stand-alone” country, where the liquidity is bottled up in the national money markets (there is no “sudden stop”), and where attempts to export it to other markets sets in motion an equilibrating mechanism, produced by the depreciation of the currency. Thus, paradoxically, distrust leads to an equilibrating mechanism in the UK, and to a potentially disequilibrating mechanism in Spain.

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.

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. As mentioned earlier, the 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, et 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.

There is an additional complication in a monetary union. This is that in such a union financial markets become highly integrated. This also implies that

government bonds of member countries are held throughout the union. According to the BIS data, for many Eurozone member countries more than half of government bonds are held outside the country of issue. Thus when a bad equilibrium is forced on some member countries, financial markets and banking sectors in other countries enjoying a good equilibrium are also affected (see Azerki, et al. (2011) who find strong spillover effects in the Eurozone).

These externalities are a strong force of instability that can only be overcome by government action. I will return to this issue when I analyze the governance question of the Eurozone.

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. What kind of governance?

I identified two problems of a monetary union that require government action. First, there is a coordination failure. Financial markets can drive countries into a bad equilibrium that is the result of a self-fulfilling mechanism. This coordination failure can in principle be solved by collective action aimed at steering countries towards a good equilibrium. Second, the Eurozone creates externalities (mainly through contagion). Like with all externalities, government action must consist in internalizing these.

Collective action and internalization 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. In fact this is what happened in the Eurozone during the debt crisis. The ECB bought government bonds of distressed member-countries, either directly, or indirectly by the fact that it accepted these bonds as collateral in its support of the banks from the same distressed countries. In doing so, the ECB rechanneled liquidity to countries hit by a liquidity crisis, and prevented the centrifugal forces created by financial markets from breaking up the Eurozone. It was the right policy for a central bank whose "raison d'être" it is to preserve the monetary union. Yet, the ECB has been severely criticized for saving the Eurozone this way. This criticism, which shows a blatant incomprehension of the fundamentals of a monetary union, has been powerful enough to convince the ECB that it should not be involved in such liquidity operation, and that instead the liquidity support must be done by other institutions, in particular a European Monetary Fund. I return to this issue in the next section.

Collective action and internalization can also be taken at the budgetary level. Ideally, a budgetary union is the instrument of collective action and internalization. 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.