

# 20

## The Eurozone Crisis

### Overview

In this chapter, we learn:

- what economic and monetary union is, and how it relates to the eurozone
- why monetary policy is unable to respond adequately
- why the eurozone was hit by a sovereign debt crisis
- how the debt crisis caused a eurozone-wide recession
- how sovereign debt crises and banking crises are linked
- whether the eurozone problems have been solved

## 20.1 Lead-up to Eurozone

The creation of the euro – formally the completion of Europe’s **Economic and Monetary Union** (EMU) – is the latest step in a long process of politically motivated economic integration. In the wake of World War II, leaders of the main European countries sought to bind the economies of the former antagonists in interdependence. First they established the European Coal and Steel Council, which harmonized trade in these critical commodities. This led to the 1957 creation of the European Economic Community, which, in principle, established a “common market” wherein goods were free to move across borders. This was quite an accomplishment, given that these countries had been at war a few years earlier.

After the breakdown of the fixed exchange rate system of Bretton Woods in 1971, Europeans sought to minimize the variability of intra-Europe exchange rates. Central banks committed to intervening – by buying and selling foreign exchange – to achieve that aim. There was some modest success, especially after the 1979 establishment of the European Monetary System, which linked other European Union (EU) member currencies to each other. After 1985, the system included most EU members and some non-members.

In 1992, EU members agreed to a program of economic and monetary union, the culmination of which would be the creation of a common currency called the euro, managed by the **European Central Bank**. The plan envisioned a multi-stage process toward this single currency. First, there would be a period of tight management by central banks so that currency values did not vary more than 3 percent from target, or “par,” values. Finally, the currency values would, under the careful management of individual central banks, converge toward the final conversion rates, established by common agreement. Along the way, the authorities would have to bring inflation down to a sufficiently low level so that the rates did not diverge substantially. In addition, the agreement required that, as a share of GDP, national budget deficits not exceed 3%, and government debt not exceed 60%.

Despite most countries’ failure to abide by these conditions, most notably during the European Monetary System crises of 1992 and 1993, and despite the UK’s dropping out of the plan completely, the euro came into being on January 1, 1999. The physical currency was rolled out in 2001.

A decade after the beginning of the global crisis, the aggregate GDP of the countries comprising the eurozone has come nowhere near regaining its earlier level, and in fact the countries that share the euro as common currency have repeatedly teetered on the edge of financial crisis or economic downturn. The reasons for this state of affairs seem complex, but in the end, the explanation for why the eurozone fell into, and remains in, crisis are quite straightforward. The eurozone crisis is the result of at least two key weaknesses in the original project of European monetary integration: first, the common currency and its monetary policy were applied to a set of economies very different from one another; and second, investors interpreted the creation of the union as an implicit guarantee of member countries’ government debt.

## 20.2 Economic Motivations for and Challenges of Monetary Union

### *Challenges of a Common Currency*

Having many currencies is bothersome and costly. Trade involving two currencies incurs conversion costs. Moreover, exchange rates can be quite volatile. When one is thinking about long-term projects that involve investing across borders, this volatility brings with it a risk that impedes the flow of goods and

capital across borders. Currency unification therefore encourages trade and financial integration. In the context of the EU's quest for economic integration, a **currency union** appeared to be a logical step.

*However*, a flexible exchange rate allows economies to adjust to changes in economic conditions, as shown in Chapter 15. The exchange rate thus serves as a sort of macroeconomic **shock absorber**. For instance, if demand for American cars decreases, a weakening of the dollar, which makes American cars cheaper for foreigners, can help offset the negative impact on the economy. Fixing one's exchange rate to a certain value or, at the extreme, giving up one's currency, eliminates that shock absorber. A transnational currency requires a nation's government to give up one of the most powerful tools of macroeconomic policy.

When do the benefits of a unified currency outweigh the costs? The answer depends on a many factors. But in broad terms, a unified currency makes sense when one of two things is the case: (1) all users of the currency tend to be subject to the same economic influences, so that when shocks hit, they are **symmetric shocks**, or (2) the users of the currency have shock absorbers besides flexible exchange rates.

One important shock absorber is **fiscal union** in the form of a revenue stream, managed by a central authority, that response to asymmetric shocks by compensating hard-hit economies with automatic transfers from better-performing economies. Within the U.S. fiscal union, for example, if, say, the state of Wisconsin experiences an economic downturn, then federally funded net transfers (unemployment insurance, reduced tax payments) increase, partially offsetting the negative impact. A second shock absorber is labor mobility, which within the United States is fairly high. When economic conditions deteriorate in Wisconsin, out-migration to the rest of the country increases, while in-migration decreases. Unemployment is less volatile with this "escape valve."

The fundamental problem with the eurozone was neither of the above conditions applied: shocks were not sufficiently symmetric, and there was neither a fiscal union nor sufficient labor mobility to absorb asymmetric shocks. In the lingo of economists, the original group of eleven nations – Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain – did not constitute an **optimal currency area**.<sup>1,2</sup>

The argument that the eurozone countries did not constitute an optimal currency area was well known prior to Economic and Monetary Union. Tamim Bayoumi and Barry Eichengreen (1993, 1994) measured the extent to which the shocks hitting the eurozone economies were different; they established that only a few economies could be construed to fit the requirements of symmetric shocks (the Northern European countries, within the eventual eurozone). This point is shown in Table 19.1, which shows the correlation of aggregate supply shocks.<sup>3</sup> The correlation was relatively high for the geographically contiguous countries of Northern and Central Europe (the red triangle), normally above 0.3 and often quite a bit higher. In sharp contrast, the correlations of shocks between, say, Germany on the one hand and Italy, Ireland, and Finland on the other were all well below 0.3—not to mention the *negative* correlation between Germany and Norway. When monetary policy was too tight for Germany, it is likely to be too loose for Norway, and vice versa.

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<sup>1</sup> By 2015, eight more nations had joined: Greece, Slovenia, Cyprus, Malta, Slovakia, Estonia, Latvia and Lithuania.

<sup>2</sup> Mundell (1961), McKinnon (1963) and Kenen (1969) provided the foundation for the optimal currency area literature, laying out the conditions under which having a common currency makes sense for countries, and the conditions under which it doesn't.

<sup>3</sup> Aggregate supply shocks are identified as shocks that have a permanent effect on output and the price level. Such shocks include, for instance, changes in the level of technology. The shocks are estimated over the 1960–1988 period.

Western Europe (1969-89)

	Germany	France	Netherlands	Belgium	Denmark	Austria	Switzerland	Italy	United Kingdom	Spain	Portugal	Ireland	Sweden	Norway	Finland
Germany	1.00														
France	0.52	1.00													
Netherlands	0.54	0.36	1.00												
Belgium	0.62	0.40	0.56	1.00											
Denmark	0.68	0.54	0.56	0.37	1.00										
Austria	0.41	0.28	0.38	0.47	0.49	1.00									
Switzerland	0.38	0.25	0.58	0.47	0.36	0.39	1.00								
Italy	0.21	0.28	0.39	0.00	0.15	0.06	-0.04	1.00							
United Kingdom	0.12	0.12	0.13	0.12	-0.05	-0.25	0.16	0.28	1.00						
Spain	0.33	0.21	0.17	0.23	0.22	0.25	0.07	0.20	0.01	1.00					
Portugal	0.21	0.33	0.11	0.40	-0.04	-0.03	0.13	0.22	0.27	0.51	1.00				
Ireland	0.00	-0.21	0.11	-0.02	-0.32	0.08	0.08	0.14	0.05	-0.15	0.01	1.00			
Sweden	0.31	0.30	0.43	0.06	0.35	0.01	0.44	0.46	0.41	0.20	0.39	0.10	1.00		
Norway	-0.27	-0.11	-0.39	-0.26	-0.37	-0.21	-0.18	0.01	0.27	-0.09	0.26	0.08	0.10	1.00	
Finland	0.22	0.12	-0.25	0.06	0.30	0.11	0.06	-0.32	-0.04	0.07	-0.13	-0.23	-0.10	-0.08	1.00

Sources: Authors's calculations; and Bayoumi and Eichengreen (1994).

**Table 20.1:** Correlation of aggregate supply shocks. Source: Bayoumi and Eichengreen (1993).

The proponents of EMU were not unaware of these concerns. But still, currency union seemed desirable to many as a way of encouraging further integration within Europe; if it had a (perhaps temporary) price, that price might be worth paying. Moreover, groups in the EU strongly favored economic and monetary union because it promised to provide them with powerful benefits — firms and industries with major cross-border economic interests particularly stood to gain. For them, whatever problems economic and monetary union might cause for the EU as a whole were counter-balanced by the positive impact on them.

European Union policymakers therefore sought to make individual economies more flexible and increase cross-country mobility of labor by way of harmonizing regulations and reducing inter-country barriers. Increasing trade integration (which would tend to be one result of reducing exchange rate volatility) would also make the effects of asymmetric shocks less pronounced. But while trade integration increased dramatically in the wake of EMU, labor mobility did not increase sufficiently. While professionals can move without too much difficulty, lower-skilled workers faced considerable impediments to relocation. In addition, cultural and linguistic ties seem to exert a substantial pull, keeping cross border labor flows small, as compared to U.S. levels.

The other problem was the absence of fiscal integration. So long as taxation and government spending decisions were left to the individual sovereign states, there was no mechanism for transfers that would naturally tend to shift financial stress from struggling economies to those in better shape. This brings us to the second problem, namely investors' assumption that when EU member nations got into trouble, case-by-case bailouts would take the place of automatic transfers.

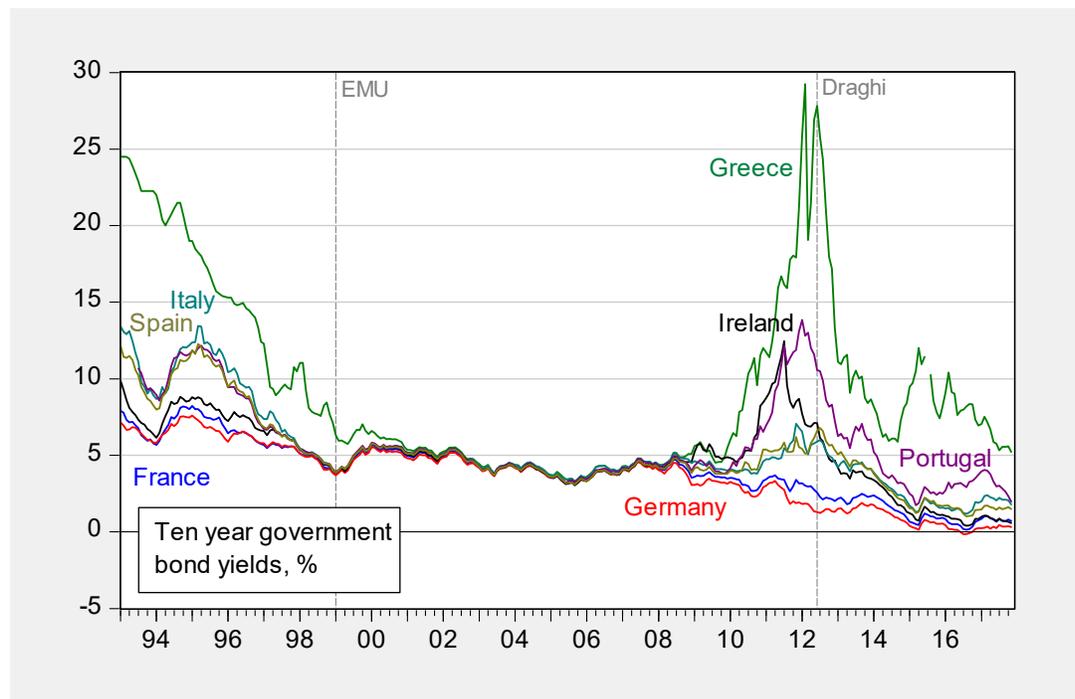
### *Disappearance of Risk*

Investors interpreted the creation of the union as an implicit guarantee of member countries' government debt. It seemed clear that if a serious financial crisis erupted in one eurozone member country, the risks of contagion to the rest of the zone and of a negative effect on the euro would force other countries to bail out the member in crisis. Investors embraced this interpretation even though no such formal guarantees were made. These implicit guarantees were problematic because they pushed interest rates lower, which, in turn, gave governments, businesses and households incentive to borrow more than they would have had they properly understood the risks.

In other words, risk was underpriced due to the perception of an implicit guarantee. The result was that Southern Europe experienced unnaturally low interest rates, borrowed more than was sustainable, and is now suffering from the resulting over-borrowing. And in certain countries, this problem of over-

borrowing is compounded by a long-term problem of public spending on pensions and health care that has exceeded levels supportable by the rate of economic growth.

In the eurozone, investors' belief that a bailout would be forthcoming if a member state got into trouble considerably loosened European borrowing constraints. This is shown in Figure 19.8; the implicit guarantees associated with economic and monetary union drove interest rates down toward German levels – even for the countries, such as Greece, that arguably had poorer fiscal prospects – and encouraged more borrowing, a situation that fed upon itself in a self-reinforcing loop.



**Figure 20.1:** European Sovereign Interest Rates, Ten Year Maturity. Long dashed line at inception of Economic and Monetary Union. Short dashed line at beginning of term of Mario Draghi as European Central Bank chair. Greece enters EMU in 2001. Source: European Central Bank (November 2017).

The credit boom hid the risk problem for the better part of a decade. In this sense, the apparent “disappearance of risk” in the eurozone paralleled a similar phenomenon in the U.S. In the eurozone, the underpricing of risk resulted in excess borrowing by households, firms, and governments and in commensurate capital flows from Northern European countries to Southern European countries. In the U.S., the private sector borrowed excessively, pulling in record capital inflows – manifesting in record current account deficits.

### 20.3 The Euro Sovereign Debt Crisis and Adjustment Deferred

When the global recession of 2008–2009 struck, most eurozone governments went further into deficit, as social welfare and unemployment benefit payments increased and tax revenues collapsed. In some cases, the problem, which the recession aggravated, was a structural deficit associated with overgenerous social spending and insufficient tax collection. This description applied most profoundly to Greece. However, the characterization of excess public spending does not pertain to all the problem eurozone countries.

Ireland, for instance, was a paragon of fiscal rectitude, at least on paper. During a boom in financial and housing markets, the Irish government ran budget surpluses. When the financial crisis hit, however, the government implemented a complete bank deposit guarantee and subsequently bailed out major banks, resulting in massive increases in the government's debt. Similarly, Spain was running a budget surplus until the collapse of its own housing market.

The phenomenon of hidden government liabilities suddenly showing up at the onset of a crisis is not new. In fact, the East Asian crises of the 1990s brought to the fore the concept of "contingent liabilities." A government can appear to be in an enviable fiscal situation, when in fact the government is on the hook for massive debts, because it cannot allow a banking system to become insolvent.

This point highlights the linkage of the banking system debt problem with the sovereign debt problem, when portions of the banking system are insolvent. In the case of the United States, the federal government had the resources to bail out the financial system without seriously endangering its ability to borrow. In the eurozone, because some countries' governments already had high debt loads, the additional borrowing associated with bank bailouts would only make the sovereign debt problem worse.<sup>4</sup>

Once the downturn struck, eurozone governments had the option of allowing natural adjustment processes to play out, eventually leading to recovery of full employment output. Why did they not simply do this? The answer is that it takes an extended period of time for wages and prices to adjust the relative price level, whereas an exchange rate devaluation gets the job done much faster.

To see this, recall the aggregate demand equation, Equation (14.2), and now assume perfect capital mobility, so that  $i=i^*$ :

$$(20.1) \quad Y = \bar{\alpha} [\bar{A} + \bar{E}\bar{X} - \bar{I}\bar{M} + (n + v)q - b\bar{i}^*] \quad \text{<IS curve>}$$

Now, set the nominal exchange rate,  $S$ , to be constant, and assume the foreign price level to be constant, as well:

$$(20.2) \quad Y = \bar{\alpha} \left[ \bar{A} + \bar{E}\bar{X} - \bar{I}\bar{M} + (n + v) \left( \frac{\bar{S} \times \bar{P}^*}{P} \right) - b\bar{i}^* \right] \quad \text{<AD curve>}$$

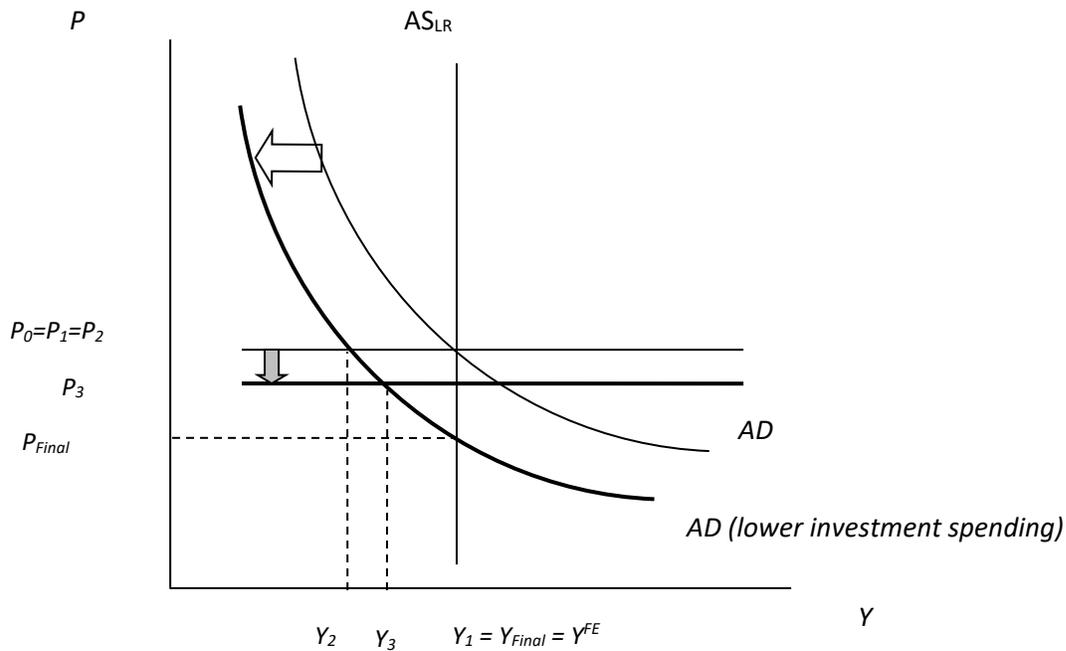
Notice that there is a negative relationship between the price level and output. However, the reason why a higher price level is associated with a lower level of aggregate demand is different from the one described in Section 16.3; instead of a higher price level eroding the real money stock for a given nominal money stock, the higher price level results in an appreciation of the real exchange rate, given a fixed nominal exchange rate.

The way to think about the eurozone is that, with the nominal exchange rate between eurozone countries irrevocably fixed at 1, a lower  $P$  is associated with a higher  $q$ , i.e., the country's production is more competitive against other countries within the currency area.

This adjustment process in the wake of a contractionary shock is shown in Figure 19.9. The contractionary shock is shown as an inward shift of the AD curve in period 2 (the white arrow). Immediately, output declines from  $Y_1$  to  $Y_2$ .

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<sup>4</sup> Shambaugh (2012) provides a review of the self-reinforcing linkages between the euro area sovereign debt crisis, the banking crisis, and the growth crisis.

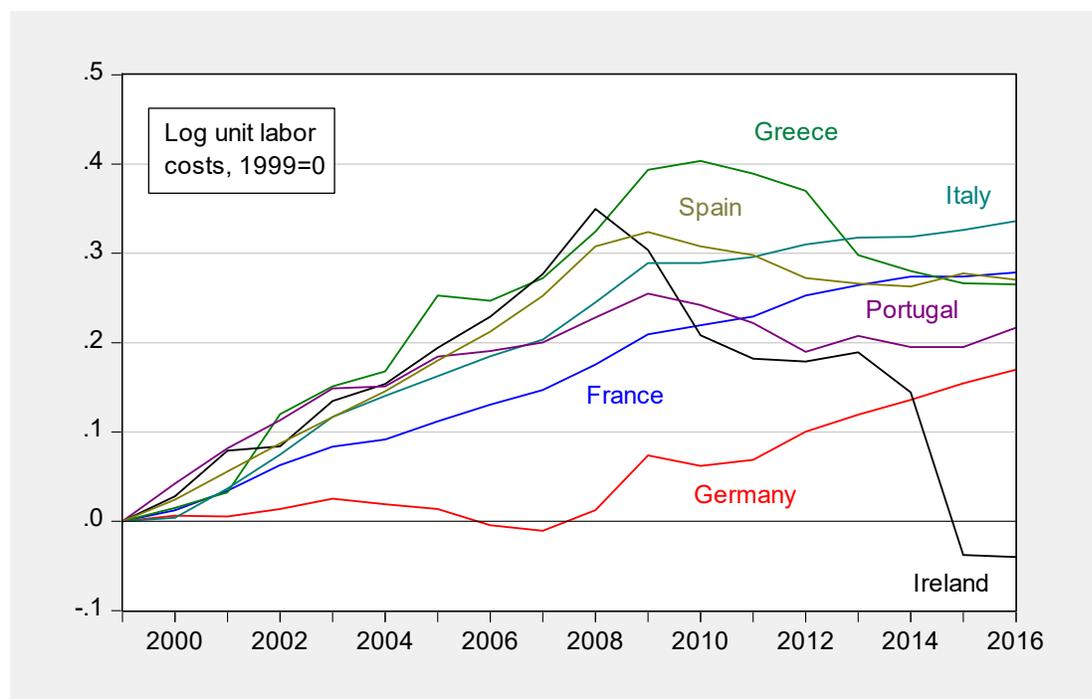


**Figure 20.2** - Adjustment in a currency union.

In period 3, the price level declines because of the slack in the economy in period 2. The lower price level induces an increase in exports and decrease in imports as the real exchange rate depreciates ( $q$  rises). The higher level of net exports means higher aggregate demand, resulting in an increase in output to  $Y_3$ . This process continues as long as the output gap is negative. In the end, the price level declines to  $P_{Final}$ , while the output returns to its starting point:  $Y_1 = Y_{Final} = Y^{FE}$ .

The problem is that the process of driving down prices by way of high unemployment can be very protracted. If there are additional negative shocks to aggregate demand – such as contractionary fiscal policy -- that can prolong the process even further. Certainly, this is a much slower process than what could be achieved by an exchange rate devaluation, as examined in Chapter 14.

Figure 20.3 depicts the labor cost of production in each country, after adjustment for productivity (called **unit labor costs**), relative to the other members of the eurozone. The higher the country's relative unit labor cost, the more costly the goods produced in that country. Unit labor costs decline, exports rise and imports decline.



**Figure 20.3:** Log relative unit labor costs for Germany (red), France (blue) and the so-called GIIPS countries. Source: European Commission.

Notice that with the onset of the crisis, relative unit labor costs dropped, with varying degrees of rapidity. They began falling earliest in Ireland, mostly because of the large shock to the Irish financial system, which was large relative to the size of the Irish economy. Labor costs also fell in Spain, as the massive housing bubble collapsed. But in the country that triggered the crisis, wage adjustment was slow to come: Greek relative unit labor costs only started declining in 2011. The problem was that even with relative labor costs coming down, they weren't coming down fast enough to spur aggregate demand.

In the wake of the 2008 crisis, government debt ballooned, albeit for different reasons, in each country. In the GIIPS countries—Greece, Ireland, Italy, Portugal, Spain, all overburdened by debt as the crisis developed—tax revenues fell, while expenditures for social safety net programs increased. In Ireland, and to a lesser extent Spain, bank bailouts accounted for a big share of the debt accumulation. As worries about the ability to service government debt increased, interest rates spiked, particularly in Greece, Ireland, and Portugal. Higher interest rates meant even faster accumulation of government debt, reinforcing anxieties about debt repayment, and pushing debt yields to even higher levels.

The dynamics of debt accumulation at work can be described by an equation:

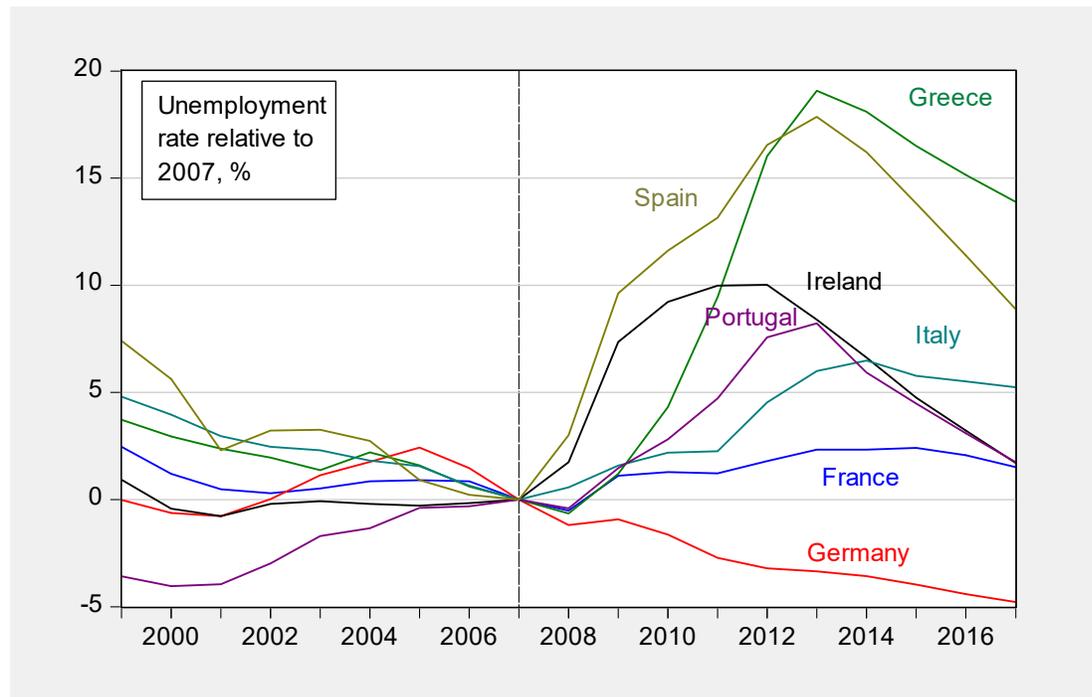
$$(20.3) \quad \underbrace{\frac{B_t}{Y_t} - \frac{B_{t-1}}{Y_{t-1}}}_{\text{change in debt ratio}} = (r - g) \underbrace{\frac{B_{t-1}}{Y_{t-1}}}_{\text{initial debt ratio}} + \underbrace{\frac{G_t - T_t}{Y_t}}_{\text{primary deficit ratio}}$$

$B$  is the stock of government debt,  $r$  is the real interest rate,  $g$  is the growth rate of real GDP,  $G$  is government spending (excluding interest payments) and  $T$  is tax revenue.

This equation states that the *change* in the government debt-to-GDP ratio (on the left hand side) depends on the gap between the real interest rate and the real GDP growth rate ( $r - g$ ), the initial government debt-to-GDP ratio, and the current ratio of the primary budget deficit (the difference between government spending and tax revenue) to GDP. The higher last year's debt load or this year's budget deficit, the more likely the debt ratio is to rise. And the higher interest rate, or the lower the growth rate, the faster the accumulation of debt.

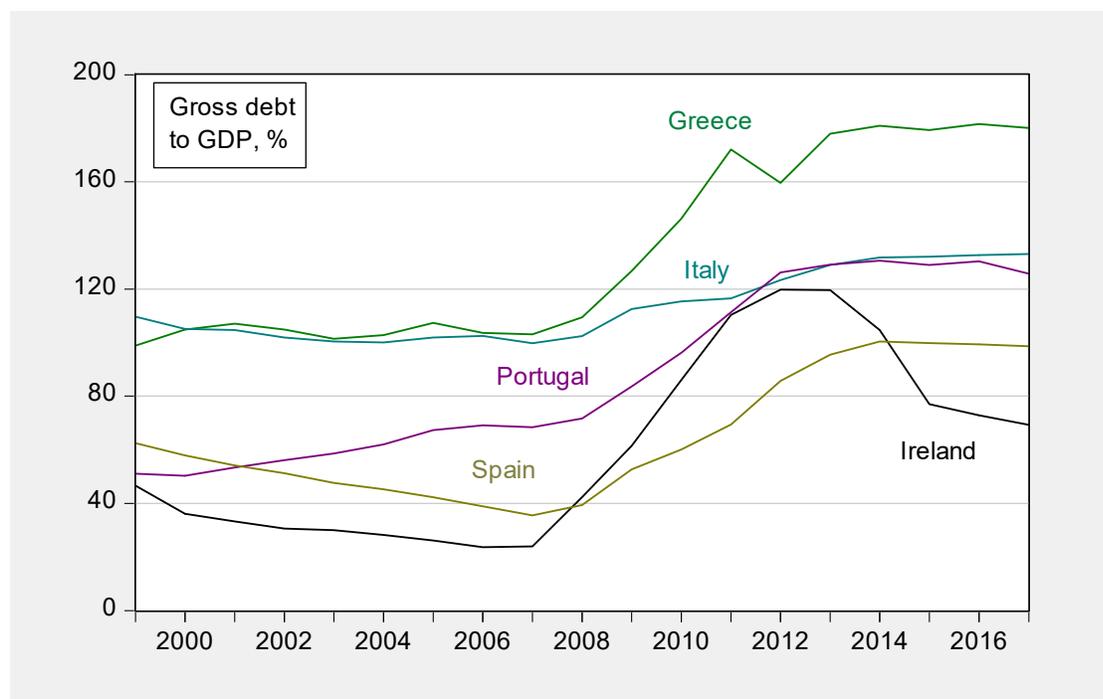
Armed with Equation (20.3), one can examine the implications of the various policy measures implemented over the past six years. First, attempts to reduce government interest rates by embarking upon tight fiscal policy (i.e., increases in tax rates and reductions in government spending), a policy sometimes called **austerity** – proved counterproductive. Rather than instilling confidence that resulted in a decline in borrowing costs, these policies only pushed the economies deeper into recession, driving up budget deficits and driving down  $Y$  (in the denominator of each term), thereby increasing the debt-to-GDP ratio and further exacerbating concerns about the ability of GIIPS governments to repay their debt. Such concerns fed upon themselves, elevating interest costs yet more.

Lower, or even negative, growth rates drove up unemployment rates, as shown in Figure 19.11. Even when GDP growth resumed, unemployment rates remained stubbornly high.



**Figure 20.4:** Unemployment rates relative to 2007 levels, in percentage points. Source: IMF, *World Economic Outlook* (October 2014).

The eurozone crisis continues to this day; a temporary reprieve has been granted by the drastic reduction of borrowing costs for the GIIPS, starting in mid-2012. Expansionary monetary policy, executed by the ECB, is to be credited. At that time, a new ECB chair, Silvio Draghi, committed to additional measures to prevent bond yields from rising. This action stabilized debt dynamics. However, since growth remained stagnant, debt levels remained high, as shown in Figure 19.12. The euro debt crisis is hardly solved.



**Figure 20.5:** Gross government debt to GDP ratio, in percentage points. Source: IMF, *World Economic Outlook* (October 2017).

As of 2018, the eurozone economies have largely recovered, with the exception of Greece. However, growth is not robust, and remains vulnerable to another shock, such as a global recession.

Several problems confront the eurozone. First, there has been little progress on overcoming the impediments to the eurozone constituting an optimal currency zone. For starters, there is little evidence that labor mobility has been enhanced. And the possibility of greater scope for countercyclical fiscal transfers has, if anything, been reduced by the greater debt loads.

Second, the development of a banking union to handle a future eurozone-wide crisis has only begun. The prior crisis entailed bank bailouts by individual countries; the elevated public debt levels in certain countries limits the scope for a repeat.

Should reforms not take place, a complete or partial breakup of the eurozone might occur. However, tremendous uncertainty is associated with this path. Although a breakup would allow for adjustments of exchange rates in a way that would lead to a faster recovery, the resulting chaos associated from litigating all the trillions of euros worth of contracts could far outweigh those benefits. This option has so much downside risk that it has not been contemplated thus far.

## 20.4 Application

## 20.5 Conclusions

In the eurozone crisis, the seeming disappearance of risk, along with an overly loose monetary policy in the GIIPS countries—a policy associated with Economic and Monetary Union—led to overborrowing, and an asset boom and then collapse. The response to the bust was hampered by the fact that the currency

union prevented adjustment by way of nominal devaluation. In both cases, the smooth adjustment to restore full employment was hampered by frictions, either in the financial system, in prices, or both.

### Summary Points

1. The eurozone is a currency union of countries that shares a common currency – the euro.
2. Since there is only one currency, the monetary policy is shared by all the countries of the union, even though different policies might be appropriate to different countries, particularly if the countries differ in their characteristics.
3. This means that no single monetary policy fits all; policy was too loose for some and too tight for others.
4. The creation of the currency union reduced the perceived risk of sovereign default, resulting in lower yields and overborrowing.
5. Banking crises interacted with sovereign debt crises and recession to result in downturn in the eurozone countries of Greece, Ireland, Italy, Portugal and Spain.
6. Since fiscal policy was constrained, adjustment could only occur by real exchange rate depreciation. However, the currency union prevented devaluation so real depreciation could only occur by price deflation, which required elevated unemployment that led to larger deficits and faster debt accumulation.
7. A looser monetary policy in 2012 helped break the debt spiral.
8. The eurozone remains susceptible to another downturn.

### Key Concepts

austerity	optimal currency area
currency union	shock absorber
Economic and Monetary Union	symmetric shocks
European Central Bank	unit labor cost
fiscal union	

### Review Questions

### Exercises

### Worked Exercise

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