A New Crisis Mechanism for the Euro Area

2.1 The European debt crisis

The European debt crisis followed the US financial crisis with a delay of one and a half years. While its first signs were visible in November and December of 2009 when the rating agency Fitch downgraded Ireland and Greece, it culminated on 28 April 2010 when the intra-day interest rate for two-year Greek government bonds peaked at 38 percent. Since then capital markets have been extremely unstable, showing signs of distrust in the creditworthiness of the GIPS countries: Greece, Ireland, Portugal and Spain. The European Union reacted by preparing voluminous rescue plans that, at this writing (January 2011), have been resorted to by Greece and Ireland.

2.1.1 The rescue measures of May 2010

Between 7 and 9 May 2010, the EU countries agreed on an extensive rescue package targeted on fiscally distressed countries in the euro area. At the same time, the ECB, referring to Article 123 TFEU (Treaty on the Functioning of the European Union), began to purchase government bonds of distressed countries. Table 2.1 presents an estimate of total financial commitments, including ECB interventions, disentangling the amounts of liabilities to be borne by Germany and France, the two biggest guarantors of the system.

As part of the European Financial Stability Facility (EFSF), which was set up as a special purpose entity in Luxembourg, credit aid is made available, outside the EU regime, for up to a total of 440 billion euros. Of this amount, Germany and France guarantee up to 147.4 and 110.7 billion euros, respectively. The prerequisite is unanimity in the diagnosis of impending insolvency among the aiding countries and the IMF.

Under Article 122 TFEU (natural disaster paragraph), additional loans for up to 60 billion euros may be granted directly via the European Commission. The German and French contributions to these loans are also included in Table 2.1, on the basis of the contributions by these countries to the total EU budget in 2009.

In addition, the table accounts for the contributions that Germany and France indirectly grant through the IMF, in proportion to their respective ownership shares. Germany, for example, contributes 6 percent or 14.9 billion euros via this channel. Of the partly disbursed loans to Greece, the country bears a share

Table 2.1

Amounts of liability (in billion euros)

	Country alliance	Germany	France
EFSF	440	147.4	110.7
EFSM	60	11.3	11.1
IMF aid (parallel to EFSM und EFSF)	250	14.9	12.3
EU aid Greece	80	22.3	16.8
IMF aid Greece	30	1.8	1.5
ECB government bond Purchases (14 January 2011)	76	20.7	15.5
Total	936	218.5	167.9

Notes: 1st line: ECB capital quotas (euro area without Greece), raised by 20 percent. 2nd line: Share in EU budget 2009. 3rd line: current IMF capital quota (5.98 percent for Germany and 4.94 percent for France). 4th line: ECB capital quota (euro area without Greece). 5th line: like line 3. 6th line: ECB capital share (euro area).

Sources: *EFSF Framework Agreement*, 7 June 2010, www.bundesfinanzministerium.de, 5 July 2010; EU, *The European Stabilization Mechanism*, Council Regulation (EU) No. 407/2010 of 11 May 2010 establishing a European financial stabilisation mechanism, www.eur-lex.europa.eu, 7 July 2010; European Commission, *EU Budget*, 2009 Financial Report (Luxembourg 2010), p. 62; ECB, 1 January 2009 – *Adjustments to the ECB's Capital Subscription Key and the Contribution Paid by Slovakia*, Press release 1 January 2009; ECB, *Consolidated Record of the Eurosystem*, several press releases, www.ecb.int; IMF, *Updated IMF Quota Data – June 2010*, www.imf.org, 5 July 2010. Ifo Institute calculations.

of 28 percent (ECB quota) and 6 percent of the parallel IMF aid for Greece, according to its IMF quota. The corresponding shares for France are 21 percent and 4.9 percent.

By the same token, these two countries participate in the ECB government bond purchases, amounting to 76 billion euros, according to their respective quotas in the ECB capital. These are potential liabilities, for which, if the bonds end up not being serviced, the ECB will suffer write-downs that will reduce the seignorage dividends paid to the finance ministers of the euro-area countries or force the ECB to demand a capital increase.

As a consequence of the decisions of the ECB and the EU countries of 7 to 9 May 2010, by January 2011 Germany's potential liabilities amounted to 218.5 billion euros and France's liabilities to 167.9 billion euros (out of 936 billion euros in total).

As a special purpose entity, the life of the EFSF was initially limited until 30 June 2013. Of course, loans given before June 2013 could have been brought to maturity, de facto extending the effects of the EFSF beyond its initial statutory end-point (the maturity of the EFSF loans is not officially restricted). However, on 17 December the EU countries agreed to extend the EFSF indefinitely under a new name and with new governance rules and not to use the EFSM at all. This will be discussed below in Section 2.5.2.1. Similarly the activities by the ECB have no official time-limit constraint. This will be discussed in Section 2.6.2.

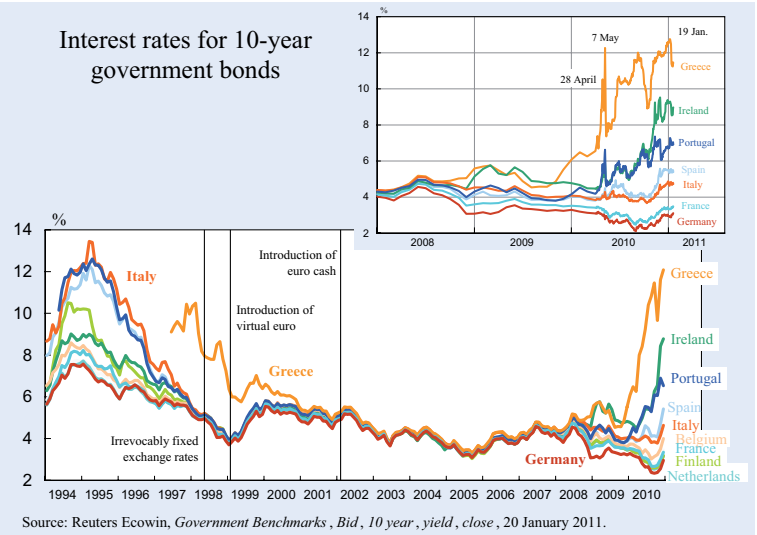
2.1.2 Interest spreads

The extensive rescue measures were caused by rapidly rising interest spreads on government bonds, as shown in Figure 2.1. This figure reports interest rates on 10-year government bonds of several euro-area countries before and after the introduction of the euro. It is evident that interest rates were widely dispersed before the plan to create the euro became completely credible, between 1996 and 1997, at which point they converged rapidly and sharply. Only after 2007, as a result of the financial crisis, have they been again drifting apart, as can be seen on the right-hand edge of the graph. In 1995, the weighted average of the Spanish, Portuguese and Italian bond rates were exactly 5 percent above the German rate, because the buyers of these bonds wanted to be compensated for the combined risk of depreciation and default. The convergence phase began around 1996, when the Stability and Growth Pact was agreed upon, and expectations grew that the euro was imminent and the exchange rate risk would vanish. During this phase, the vanishing depreciation risk was associated with a vast underpricing of default risk. This phase ended in autumn 2008, when after the demise of Lehman Brothers, doubts about the creditworthiness of individual European countries emerged.

Investors recognised that the euro did not (and could not) guarantee that the interest payments promised to investors would actually be paid in full by the debtors, and started to revise their assessment of default risk of bonds issued by different governments. In a well-functioning capital market, of course, default risk must be compensated for with an interest surcharge, since the expected interest payment is below the rate agreed in the loan contract, as a function of the probability and the size of default.

The rescue actions agreed between 7 and 9 May 2010 were initially successful in reducing the interest spreads, but their success was short-lived. The political and institutional context of the rescue could do nothing but feed fundamental doubts about the credibility and the overall extent of the commitment by EU countries. In any case, actions were limited to a three-year intervention

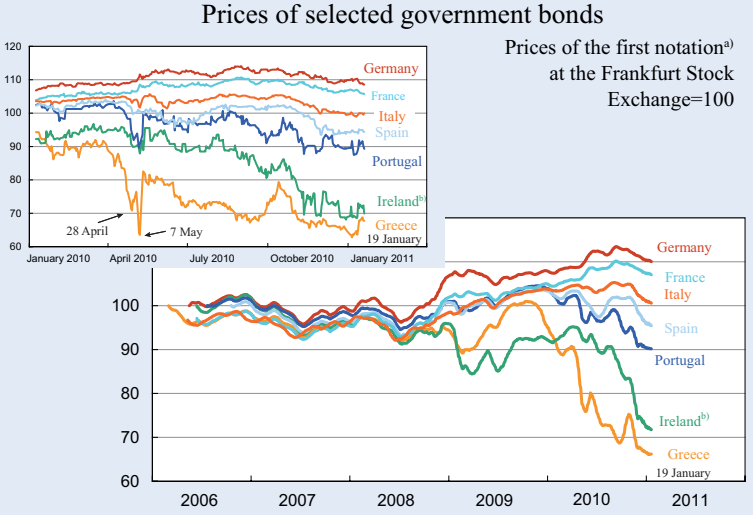
Figure 2.1



Source: Reuters Ecowin, *Government Benchmarks*, *Bid*, *10 year*, *yield*, *close*, 20 January 2011.

horizon. Even if fully credible, they could not really protect 10-year bonds. When investors realised the deficiencies in the rescue plan, spreads increased again and on many days even rose above the level reached before the agreement of the EU countries. On Friday, 7 May 2010, the average interest spread over Germany's for the countries protected by EFSF (all euro-area countries except Greece, weighted by the GDP of the respective country) amounted to 1.08 percentage points. Thereafter, the average spread declined for several weeks, but as early as June it had increased again to 1.10 points. In September it averaged 1.08 points, and in November 1.27 points. These spread levels are way above those experienced during the initial, stable period of the euro. In this initial phase, the average spread was only 0.4 percentage points. Thus, relative to this early benchmark the new spread levels were considered as an ominous crisis.

Figure 2.2



Note: Monthly moving average of daily closing prices of selected government bonds with 10-year maturity and an annual coupon payment from the emissions in 2006 (upper left diagram: daily closing prices without smoothing). Trading place: Frankfurt Stock Exchange. Some datapoints for which no prices could be identified have benn interpolated.
a) for the French bond: emission rate on 7-2-2006=100.
b) 16-year term and issue 2004.

Codes and Sources: Greece: ISIN GR0124028623, Hellenic Republic, Ministry of Finance, www.minfin.gr. Portugal: ISIN PTOTE6OE0006, Portuguese Treasury and Government Debt Agency, www.igcp.pt. Ireland: ISIN IE0034074488, National Treasury Management Agency, www.ntma.ie. Spain: ISIN ES0000012J8, Tesoro Público, www.tesoro.es. Italy: ISIN IT0004019581, Dipartimento del Tesoro, www.dt.tesoro.ti. Germany: ISIN DE0001135309, Bundesrepublik Deutschland, Finanzagentur GmbH, www.deutsche-finanzagentur.de. France: ISIN FR0010288357, Agence France Trésor, www.aft.gouv.fr. Development at stock exchanges Frankfurt: www.ariva.de. Calculations by the Ifo Institute.

However, at no time were the spreads even close to those of 1995, i.e. before the final negotiations on the introduction of the euro. That year the spread over Germany of the countries protected by EFSF had averaged 2.60 percentage points. That was considerably higher than the peak in 2010, and more than double the average spread on 7 May (1.08 points), when the rescue packages were quickly assembled on the grounds that this was the only way to prevent a systemic crisis.

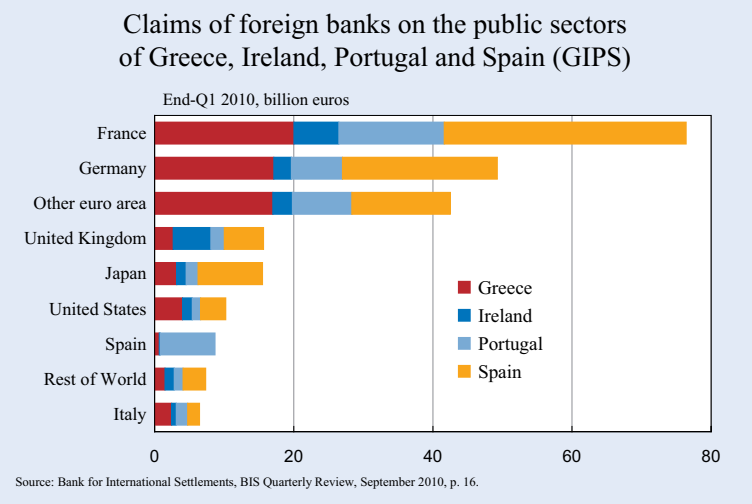
2.1.3 Who was hit and who has been rescued (so far)?

The large and volatile interest spreads emerging in 2010 in the euro area were considered particularly dangerous not only because they sharply raised borrowing costs in many countries but also because a substantial share of the troublesome debt was held by commercial banks in core European countries, which thus found themselves potentially exposed to large losses. As shown in Figure 2.2, the potential magnitude of the write-off losses was quite large. On 7 May 2010 10-year Greek bonds, issued four years before the crisis, were traded at a discount of more than 30 percent; longer-term Portuguese and Irish bonds were traded at discounts of about 10 percent. A few months later, the discounts on the Greek, Portuguese and Irish bonds were substantially higher. By November 2010, the discounts on Irish bonds were approaching 25 percent.

The losses caused Ireland to be the first country to apply for help from the EFSF in November 2010. This was clearly a relief both for commercial banks and for Ireland, as the country could then save on interest payments on newly issued government debt and keep its rescue promises. Against an ongoing market rate of interest between 8.3 percent and 9.4 percent charged by private investors on Irish government bonds with a maturity of 5 to 10 years, towards the end of November Ireland was given the opportunity to borrow funds with a similar maturity from the EFSF at the substantially lower rate of 5.8 percent. It is debatable whether Ireland really was in a crisis that justified the help from the rescue funds. After all, Ireland has very low labour taxes in comparison to other EU countries that it could easily have increased to solve the country's liquidity problems without jeopardizing the country's own "business model" explicitly based on low corporate (not low labour) taxes.

The ownership of government bonds issued by the crisis countries is shown in Figure 2.3, aggregating

Figure 2.3



Source: Bank for International Settlements, BIS Quarterly Review, September 2010, p. 16.

data by banks' nationality. France is clearly leading the league. The French banking system went scot-free through the first wave of the financial crisis because it had invested relatively little in structured US securities. Whereas German banks had lost almost one quarter (23.9 percent) of their equity by 1 February 2010 due to write-downs on financial products, the corresponding loss by French banks amounted to only one tenth (10.5 percent).[1] However, the French banking system was much more exposed to the European debt crisis. Before the rescue operations, the stock of government bonds issued by GIPS countries held by the French banking system was 55 percent bigger than that of German banks when measured in euros. In relation to GDP it was actually 95 percent bigger.

The key question is of course the extent to which the banking systems of countries exposed to the European debt crisis were actually put at risk by the large write-off losses on government bonds. It turns out that the answer to this question is far from obvious. The reason is that commercial banks in core European countries typically hold a large amount of bonds issued by their own governments, which, as an effect of the crisis, generated huge capital gains. During the financial turmoil, in fact, the flight to quality not only raised the spread charged to crisis countries; it also reduced the level of interest rates that markets charged to virtuous countries. As shown in Figure 2.2, capital gains on bonds issued by countries in good fiscal standing were on the order of 10 percent relative to the par values. Unfortunately, detailed information on the banks' holdings of government securities from virtuous countries is not available. However, a back-of-the-envelope calculation based on the information in Figure 2.2 suggests that aggregate capital gains on German and French government bonds were twice as large as the aggregate capital losses on the bonds issued by the GIPS countries – accounting for the fact that the outstanding stock of debt issued by Germany and France is about three times as large.[2]

In addition, it may well be that during the crisis aggressive investors laid the foundations for considerable profits. Whoever purchased bonds of the GIPS countries at very low prices at the peak of the European debt crisis is bound to enjoy considerable capital gains if rescue packages end up offering full protection to their investments. On Greek bonds, for instance, investors' profits could amount up to 50 percent of their investment if the rescue packages of May 2010 are extended indefinitely and unlimited – bringing the prices of these bonds back to the neighbourhood of par.

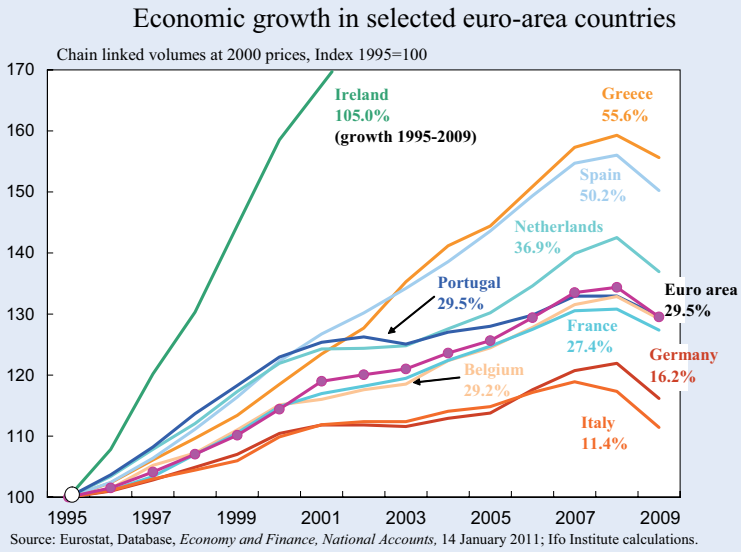
2.2 Monetary unification, capital flows and housing bubbles: an interpretation of the events

To fully understand the nature of the crisis and the implications of alternative rescue strategies, it is important to have a clear picture of how the introduction of the euro affected the economies of the countries that adopted the new currency. With the creation of the euro, for the first time in history there was a true European capital market, freed from the burden of currency risks. By demolishing the barriers between the capital markets, a common currency in a single market allowed capital to flow almost frictionlessly from rich to poor countries. This speeded up the convergence process, boosting the growth of the countries that had previously lagged behind.

[1] Sinn (2010a), p. 177, Figure 8.6.

[2] By the end of 2009 the outstanding stock of German government bonds was 1.76 billion euros, that of France 1.49 billion euros, of Spain 0.56 billion euros, of Greece 0.30 billion euros, of Ireland 0.10 billion euros and of Portugal 0.13 billion euros. If their respective appreciation and depreciation relative to their nominal values was the same as those considered in Figure 2.2 for the end of November 2010, the government bonds of Germany and France had a value of 316.1 billion euros above and those of the GIPS countries a value of 148.6 billion euros below their emissions volumes.

Figure 2.4



Source: Eurostat, Database, *Economy and Finance, National Accounts,* 14 January 2011; Ifo Institute calculations.

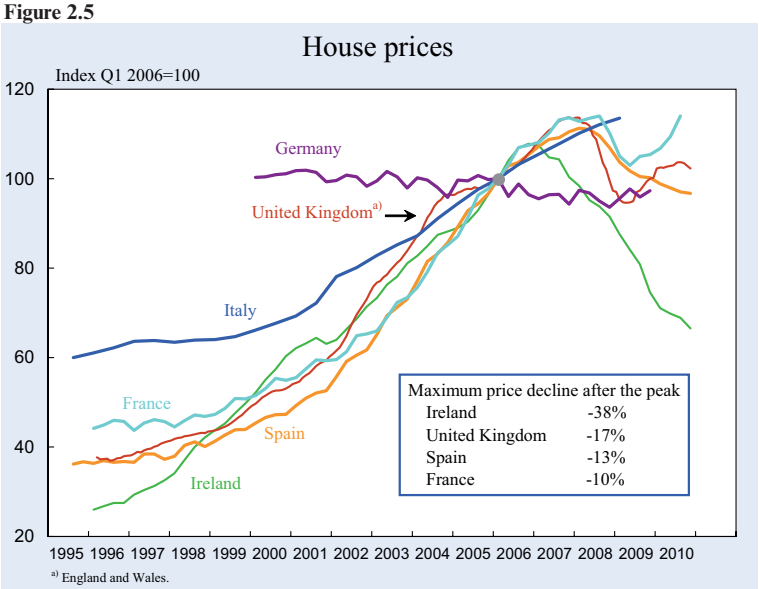
Figure 2.4 shows that from 1995 to 2009 Ireland grew by 105 percent, Greece by 56 percent and Spain by 50 percent, while the euro area on average was growing by 30 percent. Portugal matched the average of the euro area. Germany and Italy, on the other hand, grew only by 16 percent and 11 percent, respectively. The two countries were the laggards not only of the euro area but of Europe as a whole, including all countries up to the Russian border.

The creation of the common capital market not only led to the sharp interest rate convergence shown in Figure 2.1, it also fostered the creation of new segments of the capital market that formerly did not exist. By way of example, in Spain before the euro it was impossible to obtain fixed-rate loans with 20-year maturity. Over long maturities, interest rates were variable and, most importantly, extremely high. With the euro, rather abruptly, long-term loans at fixed interest rates became widely available, at rates that were strikingly lower than before, both in nominal and real terms (see Chapter 4, Figure 4.4) The opportunity to borrow for long durations at low rates fuelled the real estate market, generating a housing boom which in turn created new jobs and raised incomes. Spain went through a period often called the "Golden Decade". In Spain and Ireland the boom was so large that it triggered a wave of immigration which in part relaxed the supply constraint on construction services. At the same time, rising house prices not only made owners of real estate richer; it also provided them with more equity capital against which they could borrow even more. Foreign funds flowed abundantly into these countries to finance new enterprises, within and outside the construction sector.

The sustained rise in house prices, however, also fuelled expectations of persistent appreciation, way beyond what could have been reasonably predicted based on fundamentals. What could have evolved as a healthy convergence process deteriorated into mispricing and turned into a bubble that ultimately burst, leading to the current debt crisis. The development of house prices in selected countries is shown in Figure 2.5. House prices typically grew much faster than GDP (see Chapter 4, Figures 4.5 and 4.6).

Households' expenditure plans were driven by expectations of sustained high real growth, and they kept borrowing under the mistaken belief that their real income would at least keep up with their rising interest bill. Except for Ireland, aggregate savings rates

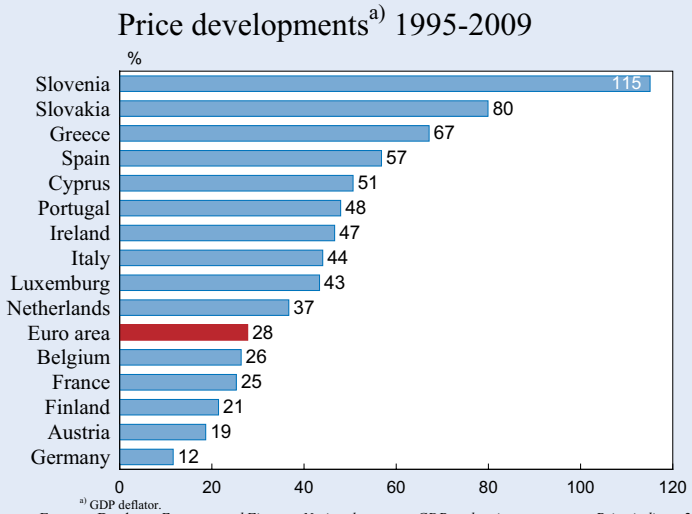
Figure 2.5



[a)] England and Wales.

Source: Land Registry, *House Price Index*; The Economic and Social Research Institute; Irish Economy, *Permanent TSB/ESRI House Price Index*; European Central Bank, *Statistical Data Warehouse - Residential property price indicator*; Federal Statistical Office, *GENESIS database* (Wiesbaden 2010); Banca d'Italia, *Statistical Appendix - Economic Bulletin no. 53*, July 2009; INSEE France, loaded with EcoWin, 20 January 2011.

Figure 2.6



Source: Eurostat, Database, *Economy and Finance, National accounts,GDP and main components - Price indices* , 30 November 2010; Ifo Institute calculations.

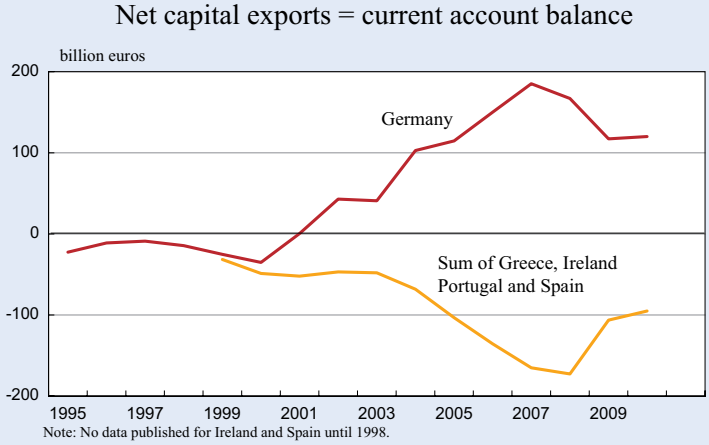
dropped sharply in the GIPS countries, and became even negative in Greece and Portugal, approaching minus 12 percent and minus 8 percent respectively relative to GDP in 2009 (see Chapter 3, Figure 3.11).

As high demand created persistent overheating in these economies, rapidly rising wages and prices soon undermined competitiveness, especially in those countries that had enjoyed the greatest benefits from the interest rate convergence. Figure 2.6 shows the rate of growth of the GDP deflator in selected euro-area countries in the 14 years from 1995 to 2009. It is apparent that Greece, Spain, Ireland and Portugal increased their prices much faster than the average of the euro-area countries. In trade-weighted terms the real appreciation was 23 percent relative to their trading partners. From a foreign trade perspective, had national currencies still been in place, this would be equivalent to a sizeable nominal currency appreciation for unchanged prices.

Conversely, relative to its euro trading partners, Germany underwent an internal real depreciation as large as 18 percent – its domestic price development being compounded by those (with an opposite sign) in the GIPS countries. Relative to the GIPS countries only, indeed, Germany's prices depreciated by 28 percent. Diverging inflation rates gradually improved the competitiveness of the German economy and undermined that of the GIPS countries. Moreover, the stagnation caused by the capital exports that were to a large measure induced by the euro kept imports down. This resulted in growing current account imbalances in the euro area, which, comparing Germany with the GIPS countries, eventually grew to the order of 200 billion euros a year, as shown in Figure 2.7. French finance minister Christine Lagarde and others argued in this context that Germany was taking advantage of the currency union, bearing a substantial responsibility for this development. "It takes two to tango", she said.

While the tango analogy is certainly a correct description of what happened, its moral connotation is misleading as it overlooks the mechanisms that brought the divergences about. Namely, it overlooks the fact that Germany's depreciation was the result of a slump of its economy, making Germany the laggard of Europe, creating mass unemployment and raising the need for far-reaching reforms of the social system.[3] These reforms were aimed at taking away rights of the unemployed, which at that time were perceived as permanent entitlements. They were painful enough to terminate a government and ignite an arduous political discourse, which placed great strains on society. These recent economic and political developments in

Figure 2.7



Note: No data published for Ireland and Spain until 1998.

Source: Eurostat, Database, Economy and Finance, Balance of payments - International transactions, Balance of payments by country, 13 December 2010, Ifo Institute calculations.

[3] See Sinn (2003).

Germany hardly square with the notion of a country that had benefited from the euro more than others. Germany recorded the second-lowest growth rates in Europe and experienced a deflation of the real estate market. A country drawing particular profits from the euro can hardly be expected to fall from the third to the tenth rank in GDP per capita terms, as Germany did in the period from 1995 to 2009.

The tango analogy also overlooks the fact that the current account balance is the mirror of the capital balance. By definition, a current account surplus is a net capital export and a deficit is a net capital import, as capital and goods flows balance out. Both the current account and the capital balance are determined simultaneously in the economy. Sometimes the goods-flows take the lead and determine the capital flows as residuals, as is described in conventional models of the business cycle. Sometimes, however, the capital flows determine the goods flows via supply-side effects. Due to the perceived reduction of uncertainty surrounding the introduction of the euro and the interest convergence this brought about, the capital flows dominated the goods flows in the first few years in the life of the new currency. The interest convergence implied a huge capital export from the German economy into the economies of the GIPS, which overheated the latter and cooled down the former. The overheating reduced the competitiveness of the GIPS countries via a real appreciation, while imports surged in line with real incomes. In Germany, by contrast, the cooling of the economy improved the competitiveness via depreciation, while low growth rates slowed down imports.

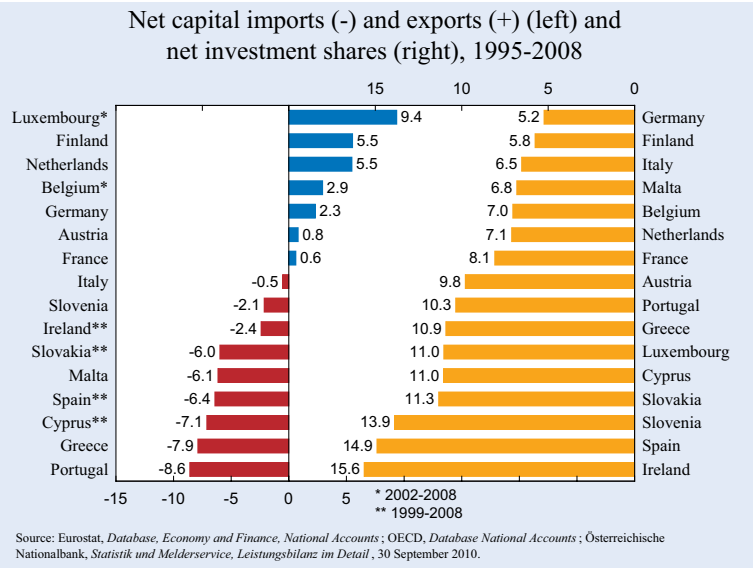
While the interest convergence resulting from the introduction of the euro quickly triggered an investment boom in the GIPS countries, it took, as always, a few years until the current accounts reacted sufficiently to actually result in net capital inflows (J-curve effect). Before imports could rise, the interest-driven expansion of real and nominal incomes had to take place. And export quantities could only react after the rise in export prices, which itself resulted from the wage increases that the economic boom brought about (with ambiguous implications for export values). Nevertheless, the pressure of the desired capital flows eventually opened the current account deficits in a measure necessary to actually allow for net capital inflows. In the years preceding the crisis, all GIPS countries developed sizeable net capital imports. In the years from 2005 to 2008, Greece had a current account deficit of about 12 percent of GDP, Portugal 11 percent, Spain 9 percent and Ireland about 4.5 percent. Only Ireland and Spain have now managed to reduce this deficit significantly.[4]

In line with this interpretation, Figure 2.8 provides an updated picture of capital flows in and out of the euro-area countries along with long-term net investment rates, totalling up both private and public investment. The figure shows that investment is bigger in capital importing countries: obviously these countries had abundant and cheap funds to nourish high investment rates. By contrast, Germany had the lowest rate of all European countries. In fact, in the period from 1995 to 2008 Germany had the lowest net investment share of all OECD countries, while being the world's second largest capital exporter after China. German banks collected domestic savings and invested them elsewhere in the world, including the GIPS countries, the United Kingdom and of course the United States. From 2002 to 2009, Germany had aggregate savings (net savings by households, firms and government) of 1,621 billion euros. While this was the amount of money available for net investment in equipment, buildings, homes, roads and other public infrastructure, in fact only one third – 562 billion euros – was invested at home. Two thirds – 1,058 billion euros – was exported to other countries. Four fifths of this capital export was financial investment and one fifth was direct investment.

While these patterns in principle also characterize a fundamentally stable convergence process,[5] our analysis above suggests reasons to believe that the observed imbalances were ultimately excessive and led to a vast misallocation of resources. Abundance of cheap funds brought a period of "soft budget constraints" to capital-importing countries, to cite a concept that Janós Kornai once used to predict the fall of Communism.[6] The soft budget constraints meant that a credit-fuelled internal boom was spreading from the construction industry to the entire economy, pushing wages, prices and incomes from the provision of non-traded goods above the level sustainable in the long-run, creating the bubble that ultimately resulted in the

[4] While in the case of Greece, Portugal and Spain, the current account deficit went along with substantial trade deficits, Ireland is an exception inasmuch as it always maintained a trade surplus. However, as Ireland had already imported very much capital in earlier years, it had to pay substantial interest and profit income to foreigners, which also needed to be financed with capital imports, primarily with directly "imported" capital in the form of profit retentions of existing foreign firms operating in Ireland.
[5] For a formal analysis and prediction of these developments in the sense of a beneficial convergence process, see Sinn and Koll (2001). A less optimistic analysis of the same theme 10 years later can be found in: Sinn (2010b).
[6] Kornai (1980).

Figure 2.8



Source: Eurostat, *Database, Economy and Finance, National Accounts* ; OECD, *Database National Accounts* ; Österreichische Nationalbank, *Statistik und Melderservice, Leistungsbilanz im Detail* , 30 September 2010.

European debt crisis. By the same token, Germany suffered from overly tight budget constraints as resources were withdrawn, entering a period of low growth rates and near stagnation under the euro, which ended abruptly when the debt crisis suddenly changed risk perceptions.[7]

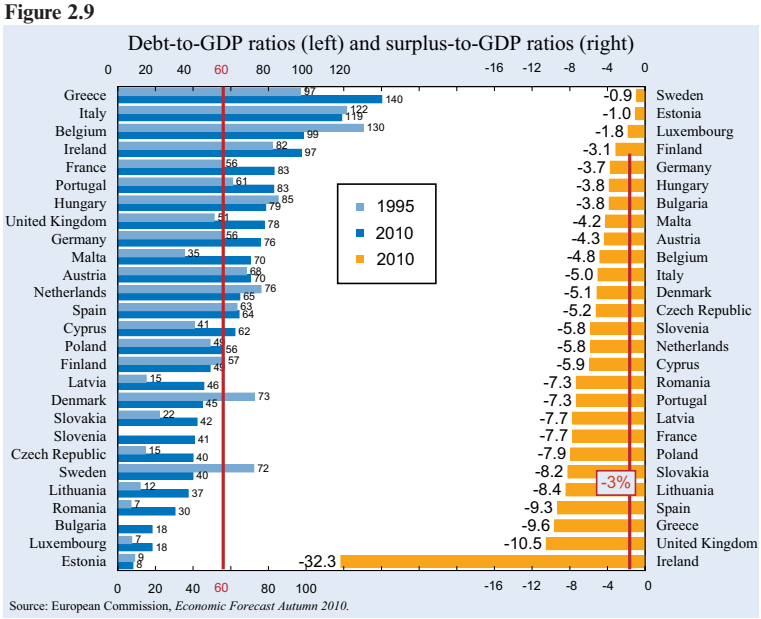
The imbalances in the capital-importing countries do not necessarily take the form of outstanding current account deficits. Even if Ireland had not had a sizeable current account deficit, mispricing and misallocation might have been dangerous for economic stability, if they led to unchecked risk-taking by financial intermediaries. If the government does not supervise and appropriately regulate financial intermediaries ex ante but lets them operate with the expectations of public sector guarantees on their balance sheets, the resulting imbalance may also take the form of excessive risk-taking, which systematically endangers both public and external solvency ex post, when uncertainty about returns is realised. This was indeed the main lesson from the crisis in the East Asian countries in 1997–98. Economies that were apparently sound in regard to their public and external outlook before the crisis, succumbed to large speculative flows against their assets and currencies, driven by the investors' realisation of the large implicit commitment by the public sector.

The Irish case is, however, a reminder of the strict interconnection between external, fiscal and financial imbalances. Each crisis country has its own mix of imbalances in these three dimensions, depending on specific circumstances. For the euro area as a whole, however, the question is to make sure that its institutional system can address potential sources of instability in all of them.

2.3 Excessive public debt despite the Stability and Growth Pact

In countries that benefited from the capital inflows, private budget constraints were soft and financial intermediaries took on too much risk, arguably creating hidden public liabilities. But even independently of hidden liabilities, governments also showed little fiscal discipline under the euro, in spite of the

Figure 2.9



Source: European Commission, *Economic Forecast Autumn 2010.*

[7] Of course these imbalances are not specific to the euro area – large mispricing in the real estate market at the root of the crisis was also experienced in Anglo-Saxon countries, for instance. See Sinn (2010a) and Sinn, Buchen and Wollmershäuser (2010) for a related interpretation. Yet the introduction of the euro in the single market undoubtedly played a key role in determining the magnitude of the imbalances. Moreover, consistent with the constitutional foundations of the euro, as discussed below, one would expect euro-area countries to have used appropriate policies to avoid the imbalances in the first place.

Stability and Growth Pact agreed upon in 1996, which (following the Maastricht Treaty) imposed a 60 percent threshold for the debt-to-GDP ratio and a 3 percent threshold for the deficit-to-GDP ratio.

As Figure 2.9 shows, in nearly all euro-area countries the debt-to-GDP ratio has increased considerably since 1995, and many countries that were below the 60 percent threshold are now above it. Between 1995 and 2010, only 8 out of 27 countries (Sweden, Belgium, Denmark, Netherlands, Finland, Hungary, Italy and Estonia) managed to reduce their debt-to-GDP levels. All other countries, even those that underwent a rapid growth process, have now more debt relative to GDP than when the euro was announced. In 2010, 14 countries had a debt-to-GDP ratio above 60 percent, with the average ratio for all EU countries reaching 79 percent. In the euro area, this average stood at 84 percent.

Despite the signs of recovery in 2010, the fiscal outlook is disturbingly far off the boundaries of the Pact: in 24 of 27 cases, the deficit-to-GDP ratios exceed the 3 percent mark. The Stability and Growth Pact obviously has not been respected.

In fact, the Pact has never been taken seriously. Until 2010, the records for the European Union show 97 (country and year) cases of deficits above 3 percent. Less than one third of these cases (29) coincided with a significantly large domestic recession, hence in principle could even be justified on the basis of the original definition of the Pact.[8] Still, there was no ground for justification in the remaining 68 cases. Member states were ready to "reinterpret and redefine", again and again, to make the conditions softer as to match ex post the fiscal development in some countries with strong bargaining power.

Whatever remains of the Pact, it is generally considered to be toothless.[9] The Pact foresaw severe sanctions for violation of the deficit criterion, involving the breaching contry having to put down a non-interest bearing deposit equal to 0.2 percent of GDP, convertible into a fee if the excess deficit persisted for more than two years.[10] Moreover, it was to pay a variable fee equal to one tenth of the excess deficit-to-GDP ratio, constrained to a maximum of 0.5 percent of GDP.[11] Up to this day no sanction has ever been imposed on any of the EU countries.

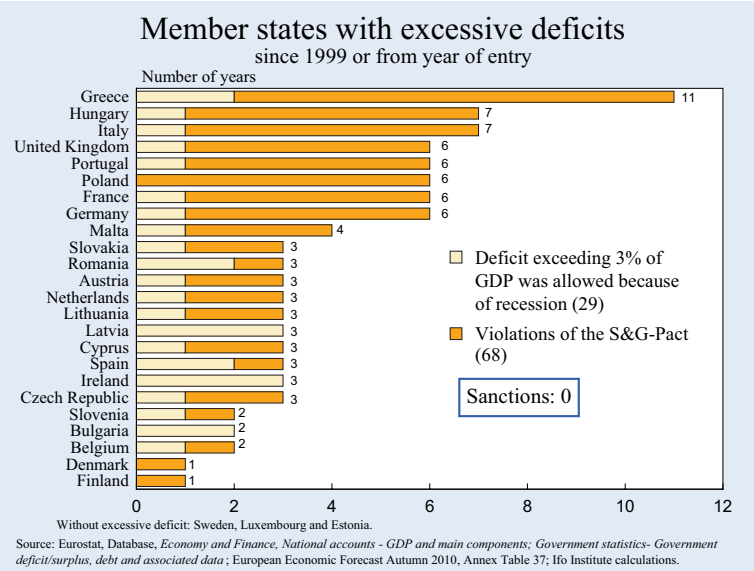
With the widespread failure of surveillance exposed by the Greek crisis, it became clear that the Pact had been ignored in virtually all its dimensions.

2.4 The role of the Basel system

It would be too simplistic to only blame the crisis on the lack of "debt constraints" in the capital-importing countries. After all, similar problems emerged in other areas of the world. Arguably, one of the main drivers of the European sovereign debt crisis was the inefficient and insufficient banking regulation provided by the Basel system, whose rules were actually responsible for many types of distortions, but in particular created strong incentives for banks to lend to the government sector.

In the Basel system, banks must meet minimum equity requirements, above all the so-called Tier 1 ratio, which is defined relative to the sum of risk-weighted assets in the banks' balance sheets. The risk weights in

Figure 2.10



[8] Resolution of the European Council on the Stability and Growth Pact (1997), pp. 1–2. Only during a severe recession or if the deficit is caused by unusual events outside its own control is a country allowed to increase its debt by more than 3 percent of GDP (Council Regulation (EC) No. 1467/97 of 7 July 1997, Article 2).
[9] Council Regulation (EC) No 1056/2005 of 27 June 2005, Article 1.
[10] Council Regulation (EC) No 1467/97 of 7 July 1997, Article 13.
[11] Council Regulation (EC) No 1467/97 of 7 July 1997, Article 12.

this system are, for example, 0.5 for loans to normal firms of the real economy and 0.2 for interbank loans, thus forcing the banks to hold corresponding amounts of equity capital. For government bonds, on the other hand, the risk weights were zero, which meant that there was no constraint at all on the banks' lending operations. Theoretically, banks were allowed to leverage the loans given to the government sector infinitely. There were some exceptions for countries with extremely bad ratings, but these did not apply in Europe. Even for loans to Greece, which had never enjoyed an AAA rating from rating agencies, banks had not been required to hold equity capital before the outbreak of the crisis.

The missing debt constraints were particularly problematic insofar as there were reasons enough for banks to leverage their operations excessively. These reasons range from tax advantages of debt over equity finance to explanations of why holders of bank deposits and bank securities did not punish high leverage by demanding higher interest rates. The latter include the opaqueness of banking operations and the implicit bailout guarantees of governments. Chapter 5 discusses such reasons in more detail.

Small wonder that under these conditions the credit flow from Europe's savers into countries that lacked internal debt constraints expanded rapidly in recent years and that European banks had such an enormous exposure to the sovereign debt of the GIPS countries, which made the rescue measures of May seem inevitable to politicians (recall Figure 2.3).

2.5 A new economic governance system for the euro area

As explained above, the trade and financial imbalances of the euro-area countries followed from excessive capital flows which themselves were the result of soft budget constraints. Arguably, without the euro the extent of misallocation from excessive capital flows would have been more contained. Persistent interest differentials, dictated by the risk of depreciation and default, would have deterred capital flows within the area.

Under the euro the natural constraints of currency premia on excessive capital flows no longer exist. A country cannot inflate its debt away because its bonds are denominated in a common currency whose value cannot be manipulated by national policymakers. Initially, the apparent immunity to a devaluation risk led market investors to virtually eliminate interest spreads, leading to excessive capital flows and trade imbalances, as described above. After the financial crisis that swept from the United States to Europe, it became clear, however, that risk within the euro area was not as small as investors believed, as a rising risk of default was taking the place of depreciation risk.

To be clear, some widening of interest rate spreads relative to the excessively low levels before the crisis is to be welcomed and, as argued below, should be an objective of European economic policy. In a well-functioning capital market, interest spreads are the price of country-specific differences in creditworthiness. When spreads are not adequate, despite different repayment probabilities, mispricing causes countries with lower repayment probabilities to import too much capital (as explained above).

The problem is that in crisis periods the self-correction mechanism through which spreads balance out excessive borrowing and lending may typically come into effect not only too late but also too sharply, with spreads swinging from too low to prohibitively high levels in a matter of weeks – as often described by the literature that stresses the danger of "sudden stops" in international capital flows. Brakes that block the wheels of a car may actually cause accidents instead of preventing them. What Europe needs is an anti-lock braking system for capital flows. This is the goal of a much-needed new economic governance system for the euro area as a whole.

The new economic governance system needs to address the deficiency of the current institutional arrangements. As discussed above, misallocation and mispricing create imbalances in three interconnected dimensions: fiscal, financial and external. The new economic governance needs to address the roots of misallocation and mispricing in all these dimensions.

What is the main deficiency of Europe's current economic constitution? To put it simply, markets found ample reasons to disregard government defaults as a real possibility. Investors knew that, at the end of the day, the euro-area countries would go out of their way to come up with resources to keep a troubled government afloat, disregarding the no-bailout clause of the Maastricht Treaty.

The lack of credibility of the no-bailout principle can be attributed to different factors. Commentaries on the Greek crisis, for instance, often stressed that cred-

itor countries would intervene with rescue packages mainly to guarantee their own banking systems, which were likely to lose money in a debt-restructuring episode.[12] There is also a more general formulation of the same issue.

As already examined in detail in early analyses of the Maastricht Treaty, a key factor systematically undermining the credibility of the no-bailout principle is the fear of contagion and systemic consequences from default.[13] Greece was not abandoned in 2010 because, in the perception of policymakers, Europe (and as a matter of fact, the whole world) could not run the risk of "another Lehman".

Whether an early Greek restructuring would have created another wave of panic at a global level is debatable. Probably the fears were vastly overstated given that bank rescue programmes worth 4,900 billion euros that had been created in the autumn of 2008 after Lehman Brothers to unfreeze the interbank market were still in place. Because of Lehman, a second Lehman was unlikely to happen. Europe's stable countries all had enough reserves to help their banks directly rather than indirectly via a bailout of the unstable ones. Nevertheless, the risk of another breakdown of the interbank market was enough of a political argument to keep default always last in the list of the policy options under consideration.

This is how unchecked fears of contagion can create a deadly chain of events within the euro area. Fears of contagion underlie the too-big-to-fail doctrine: banks and countries are saved because their default may result in a liquidity and credit crisis that could strangle the real economy at a national and international level. Protected by the implicit insurance, then, financial intermediaries take on too much risk, governments issue too much explicit and implicit debt, with the result of raising the likelihood of a crisis and therefore of generalised bailouts.

With fears of contagion, governments feel compelled to insure the liabilities of their banks. Here the issue is complicated by the fact that, at the wholesale level, large financial intermediaries operate cross-border. Before the crisis, the issue of which government would pick up the bill was often discussed. In light of the crisis, we know that, no matter how international the financial intermediaries are, without a proper institutional setting some government will eventually save them. In Europe, international banks were broken up in different institutions along national boundaries, each institution saved by one government. In other cases, some form of war of attrition – with each government waiting for the other to take the lead in bailing out the bank – may have actually exacerbated the crisis, raising the bill to be footed with taxpayers' money.

It is thus the fear of contagion that leads euro-area countries to bail out member states in crisis. A fiscal crisis in one country potentially affects the whole area through different channels. A fundamental channel operates via the exposure of international investors to default risk depending on their portfolio of government bonds and private assets issued by firms and residents in the defaulting country. As is well understood, in case of sovereign default, there are strong spill-over effects from the government to the private sector, apparent in the correlation of risk premia charged by markets to both. Threat of government default in fact raises the riskiness of private firms operating in the jurisdiction, as these may be taxed, and in any case face a disrupted domestic market for goods and credit. The empirical evidence however suggests that the strength of these spill-over effects varies, depending on features of the firm: all else being equal, firms with large export markets appear to be less affected than firms relying heavily on the domestic market. On the other hand, in a panic fundamental risk assessment may be swamped by other, liquidity-related considerations.

Unfortunately, however, with governments intervening to prevent a contagion via the banking system, the bailout itself becomes a channel of contagion. The Irish case demonstrates this clearly. The Irish government, with a stellar fiscal record in previous years, ran into trouble in autumn 2010 and was forced to seek help from the European rescue fund because it had promised to bail out its banking system with guarantees two-and-a-half times the Irish GDP. Because Ireland gave a practically unlimited bailout promise rather than erecting a firewall around its banks, the Irish banking crisis became a crisis of the Irish state. In a similar way, the bailout of endangered European countries may in future spread the risk of insolvency to governments that otherwise would be sound. Intergovernmental bailout systems in Europe risk opening up additional contagion channels through which the crisis of a single country could in the end endanger the euro system as such.

[12] One can also imagine financial help that is linked to political alliances and converging voting strategies on other issues.
[13] Buiter et al. (1993).

This problem is exacerbated insofar as bailouts create the moral hazard effects explained above. The governments of over-indebted countries continue borrowing and creditors continue providing cheap loans recklessly. The interest spreads that would normally limit the incentive to borrow if investors feared a default risk are artificially reduced and hence there are excessive international capital flows, perpetuating the trade imbalances that led to the current crisis.

For Europe, there is no alternative but to create rules and institutions that induce market discipline. Credibility of the no-bailout clause is the essential prerequisite. As we emphasised in our analysis above, Europe cannot afford to abandon market discipline vis-à-vis debtors; this is the cornerstone of its common currency and common market. But this requires setting up rules and institutions that address the fundamental issue of containing the fears and thus the risk of contagion via the banking system.

A plausible system could stand on two pillars. One is an EU-controlled public surveillance and supervision process for public debt and the banking system. The other is a credible crisis mechanism that strengthens market discipline by reducing the implicit bailout guarantee that characterised the previous situation under the euro while protecting the markets against speculative attacks and panic.

To address the danger of excessive capital flows analysed in the first part of this chapter, some political voices in Europe have advocated a strategy of direct controls on trade flows, with sanctions if these flows deviate from politically determined target levels. The idea is that these controls would automatically force countries to adjust their wages (to enhance or reduce competitiveness) and use Keynesian policy measures to boost or dampen aggregate demand, when this is too low or too high. We find such proposals naive and dangerous, because, by attempting to mimic through controls the outcome of market discipline, they are bound to confuse symptoms with causes and direct the attention to policy tools that are entirely inappropriate as remedies against long-term structural deficiencies of market economies. An important lesson from the ongoing crisis is that trade flows resulted from capital flows and there is simply no way to agree on what excessive trade and capital flows actually are.

Other voices advocate eurobonds, i.e. a procedure for jointly borrowing for normal purposes in the capital market by pooling the creditworthiness of the euro-area countries. We can only warn that taking the direction of issuing common eurobonds will exacerbate the problems we see as being at the root of the crisis. Eurobonds could do nothing but strengthen incentives for opportunistic behaviour on the part of debtors and creditors, given that they prevent the emergence of fundamental risk premia, by acting as full-coverage insurance against insolvency. Eurobonds entail an across-the-board equalisation of interest rates regardless of the creditworthiness of each debtor country and, for that reason, would be tantamount to a subsidy to capital flows to those countries. Even if issued in small quantities, Eurobonds would give new debt excesses *carte blanche*, de facto reproducing the problem at the root of the current crisis. The euro area would then surely collapse in a system of soft budget constraints and face a similar destiny as the regimes for which Kornai once made his predictions.

2.5.1 Political debt constraints

The Maastricht Treaty and the Stability and Growth Pact centred around the idea that there would be no bailout and that surveillance and numerical rules could be enforced with pecuniary sanctions to prevent fiscal crises altogether. This approach failed entirely. There was a bailout, and despite 68 violations, sanctions were never imposed.

Despite or because of this frustrating outcome, the euro area has to try again, and now harder than before to overcome the deficiencies. A new Stability and Growth Pact should provide tougher and more rigorous government debt constraints, and in our judgement the proposals of the Van Rompuy Commission are worth pursuing. Some of the measures advocated by the Van Rompuy Commission had indeed already been proposed by the EEAG in an earlier report.[14] Our suggestions for a revised Pact still hold.

- The deficit limit should be modified in accordance with each country's debt-to-GDP ratio, in order to demand more debt discipline early enough from the highly indebted countries. As an example, the limit could be tightened by one percentage point for every ten percentage points that the debt-to-GDP ratio exceeds the 60 percent limit. A country with an 80 percent debt-to-GDP ratio, for instance,

[14] See EEAG (2003), Chapter 2.

would be allowed a maximum deficit of 1 percent of GDP, while a country with a 110 percent debt-to-GDP ratio would be required to have a budget surplus of at least 2 percent.

- Sanctions for exceeding the debt limits must apply automatically, without any further political decisions, once Eurostat has formally ascertained the deficits. The sanctions can be of a pecuniary nature and take the form of covered bonds collateralised with privatisable state assets, and they can also contain non-pecuniary elements such as the withdrawal of voting rights.
- In order to ascertain deficit and debt-to-GDP ratios, Eurostat must be given the right to directly request information from every level of the national statistics offices and to conduct independent controls on site of the data gathering procedures. They should also be held responsible for failure to control.
- In case all the above assistance and control systems fail and insolvency looms, the country in question may be asked to leave the euro area by a majority of the euro-area members.
- A voluntary exit from the euro area must be possible at any time.

2.5.2 A credible crisis mechanism

While we endorse the attempt to rewrite the Stability and Growth Pact, we are much more confident about the discipline that markets would impose on debtor countries. It is true that markets overreacted in this crisis. But unlike the political debt constraints, the market constraints were eventually put in place in the end, limiting abruptly a non-sustainable development course. No political mechanism would have been able to force Greece, for example, to carry out the present austerity measures in a way similar to what has now been enforced by market reactions, even though these reactions were mitigated by political influence.

The challenge to the euro area consists of defining a crisis mechanism in which a credible rescue strategy stringently binds private investors (they need to have to bear some responsibility in case of losses) while at the same time preventing a panic-like aggravation of market turbulences. In addition, this mechanism should contribute to the stabilisation of the banking system in order to avoid a spiral of actual or alleged emergencies, raising the need, or the temptation, for further rescue actions.

In view of the decisions at the EU summit of 16–17 December 2010, we propose a three-stage procedure that distinguishes between different degrees of a crisis: illiquidity, pending insolvency and actual insolvency.

Step 1: A procedure to provide Community loans to a country that faces a temporary liquidity crisis because of dysfunctional markets, assuming this country will soon be able to help itself.

Step 2: A procedure serving the function of a breakwater structure for a country that is threatened by insolvency, though not yet insolvent, giving grounds to hope that it will eventually recover and become solvent again.

Step 3: An insolvency procedure in the full sense of the word.

We place particular emphasis on the breakwater procedure, which we design in a way that comes close to a liquidity help and makes a piecemeal approach to a country's problems possible without it defaulting on its entire outstanding government debt. Given this breakwater procedure, liquidity help according to Step 1 can be provided under very strict limitations, excluding countries that are merely threatened by insolvency.

2.5.2.1 The EU decisions

On 16–17 December 2010 the European Union decided to extend the life of the Luxembourg rescue fund EFSF (European Financial Stability Facility) from the previously foreseen three years to an indefinite length of time and to give this fund a the new name: ESM (European Stability Mechanism).[15] The EFSM (European Financial Stability Mechanism) that allowed the European Union to borrow up to 60 billion euros (see Table 2.1) to fight what was perceived as a systemic crisis of the euro area in May 2010 will no longer be used.

Like its predecessor, the ESM is supposed to borrow internationally at favourable rates, given that it is jointly guaranteed by all countries of the euro area. However, to satisfy the requirements of the German Constitutional Court, which is expected to declare the decisions of May 2010 unconstitutional, a change in the Union treaty is necessary before Germany can actually provide the expected guarantees. The heads

[15] European Council (2010).

of state agreed on the following amendment of Article 136 of the Union Treaty:[16]

"The Member States whose currency is the euro may establish a stability mechanism to be activated if indispensable to safeguard the stability of the euro area as a whole. The granting of any required financial assistance under the mechanism will be made subject to strict conditionality"

An important change relative to the EFSF is that "in order to protect taxpayers' money", the Community loans provided will be senior to any privately held country debt, though junior to IMF claims.[17]

Moreover, unlike the EFSF, a "case-by-case participation of private sector creditors" in line with IMF rules is foreseen, without any more detailed specification being given.

From 2013 onwards all euro-area countries must endow their government bonds with Collective Action Clauses (CACs) that make majority decisions between an insolvent country and its creditors possible, which then become binding for all other creditors.

A country that appears to be insolvent must negotiate a comprehensive restructuring plan with its creditors. The ESM may provide liquidity help during this period if debt sustainability can be reached through these measures.

Decisions about help coming from the ESM must be unanimous, as was the case with EFSF decisions. Given that the use of the EFSM (the 60 billion euros in Table 2.1) which would have been possible after a qualified majority decision has been ruled out by the Council (it probably is illegal), the unanimity rule for the ESM means that in future all help will have to be unanimously decided. A systematic redistribution of funds from minorities to majorities is therefore ruled out.

Assistance will, moreover, only be provided to a troubled member state if the IMF, the European Union and the ECB have come to the conclusion that the state will be solvent again after a stringent internal restructuring programme.

In the following we both interpret as well as modify the EU decision so as to generate a workable economic governance system for the euro area.

[16] European Council (2010), Annex I, Article 1.
[17] For this and the following see European Council (2010), Annex II.

2.5.2.2 Basic requirements for the crisis mechanism

To comply with the above-mentioned goals, a credible crisis mechanism must meet a number of prerequisites:

- It should not mutate into a transfer mechanism.
- It should foster efficient risk pricing by markets, ensuring that adequate interest spreads prevent further distortions in international capital flows.
- It should enable a country in need of help to continue fulfilling its governmental responsibilities and to initiate a reform programme that will return it onto an economically sustainable path.
- It should predetermine and limit investors' maximum losses.

Concretely, we propose the following modifications to and specifications of the Council decisions:[18]

I) Liquidity help

Along the lines of the current operations of the EFSF the new ESM should be able to provide short-term loans to a country that faces a mere liquidity crisis without creditors participating at this stage. As liquidity and impending insolvency cannot easily be distinguished, we propose a strict and short time-limitation for this type of help. By its very definition, a liquidity crisis cannot last forever.

As foreseen in the decision of 17 December 2010, the loans provided by the ESM should be senior to any private claims. In addition the loans could be collateralized with marketable state property. This is a safeguard against the liquidity help turning into a resource transfer. It also makes sure that private creditors continue to bear the default risk so as to show prudence and charge an interest mark-up to cover the risk.

There is no point in having huge or even unlimited credit lines for liquidity funds as is sometimes proposed. What is required are facilities large enough to cover the debt that needs to be replaced in the period under consideration plus possibly an allowance for a limited budget deficit, not more. The funds needed for that purpose are contained. Larger funds would only be necessary if the task of the fund was to support the market value of outstanding government bonds. That,

[18] In doing this we make use of a proposal by Sinn and Carstensen (2010), extended in Sinn, Buchen and Wollmershäuser (2010).

however, cannot be the function of the ESM because it would be effectively equivalent to bailouts.

II) Replacement bonds

The crisis mechanism should help a country that is acutely threatened by insolvency by guarantees of the ESM to continue refinancing itself on the financial markets, albeit at higher rates of interest properly reflecting the country's default risk. Toward this end the concerned country can offer its creditors, after a limited haircut, newly created replacement bonds, to be partially guaranteed by the ESM, in exchange for maturing bonds. The term "haircut" refers to the lowering of the value of a bond and a corresponding relinquishing of claims on the part of the creditor.

Limiting the haircut and partially guaranteeing the replacement bonds will prevent a panic on financial markets without allowing the protection by the ESM to become a full-coverage insurance against insolvency.

III) Modified collective action clauses (CAC) for all government bonds

The guarantees preceding the haircut are not to pertain to the government securities currently in circulation (for which the haircut would be tantamount to a breach of contract), but to all newly issued government securities, including the replacement bonds. All new public debt contracts will include a CAC for this purpose. The receipts from the sale of new securities with CACs is to serve the orderly servicing of the old credits, which may also include loans by the ESM granted under the current or new rescue programmes (EFSF and ESM).

As foreseen by the Council decision of 17 December 2010, the CAC permits a majority agreement of the creditors that will then become generally binding. The creditors will already agree at the time of purchasing their debt claims to subject themselves to a majority rule (e.g. a 75-percent majority) with respect to all securities maturing at the same time.

However, in addition, the new clauses should make it possible for a country to find an agreement with only those creditors whose debt matures at a particular point in time without the owners of debt instruments with other maturities being able to call in their claims prematurely. Correspondingly, the majority rule is to apply only to those creditors whose debt is maturing simultaneously, and of course the decision is only binding for them. Creditors with later maturities will have to cross the bridge when they come to it.

Waiving the right to call in the claims prematurely is indispensable for the crisis mechanism, because it permits solving the payment problems step by step as they emerge. It prevents a temporary payment crisis from becoming a sovereign bankruptcy. A crisis mechanism that defines a procedure that applies only to either a liquidity crisis where no haircut is imposed or a full insolvency where the full outstanding debt is at risk is not credible and therefore as useless as the no-bailout clause of the Maastricht Treaty. Before it applies there will always be new bailout activities to prevent the insolvency from occurring. Creditors will anticipate that and will thus return to the careless lending behaviour that triggered the current crisis. The interest spreads will disappear under such a regime, and the excessive capital flows and trade imbalances that caused this crisis will continue.

We warn the heads of European states not to repeat the fundamental mistake they made when designing the Maastricht Treaty.

Some may fear that these proposals will increase the credit costs of all countries, including those that are relatively creditworthy. But this fear is unfounded. As empirical studies have shown, the introduction of such clauses has only moderate effects on the returns demanded from the financial markets. Interest rates may actually decline for debtors with good credit standing (as they did at the peak of the current crisis). Only debtors with poor credit standing will have to pay higher interest rates, on average; as explained above, this is indispensable for a functioning capital market.[19]

Because of the great importance of CACs for a meaningful design of an effective crisis mechanism, whatever this will eventually look like in detail, the heads of states are advised to agree that new government bonds issued from now on are to be endowed with the new provisions, rather than only from 2013 as is currently planned. Bonds with CACs should actually be issued even ahead of the end of the negotiations on the crisis mechanism. Postponing the issue of CAC bonds to 2013 would be a mistake in view of the fact that these bonds would greatly facilitate the resolution

[19] See Eichengreen et al. (2003).

of any looming fiscal difficulty and that it will take years before they have penetrated the market.

The European countries should take action to enlarge the degree of market penetration for such bonds as quickly as possible. For that purpose they should at least agree that until 2013 only very short-term bonds can be issued.

It is moreover important that not only the euro-area countries but all EU countries immediately switch to the new type of bonds, because all of them have the right to join the euro and all but two are even obliged to do so, the exceptions being Denmark and the United Kingdom.

IV) Help only in a true liquidity or insolvency crisis

A crisis mechanism is meant to strengthen responsibilities and thus reduce the probability of a crisis. Thus, financial help does not have the function of avoiding crises but only serves to solve a crisis when it occurs. It is a separate issue whether new cohesion and stabilisation systems should be implemented that strengthen the performance of weaker economies in general and would thereby make a crisis less probable. Should an expansion be considered, this can be done with the use of EU funds outside the crisis mechanism.

By the same token, financial resources may be essential in stemming financial panics driven by self-fulfilling expectations and illiquidity. However, liquidity assistance during turmoil should be carefully designed so as not to degenerate into a hidden bailout or interest subsidy. This point is important insofar as there is the political risk that by bending the terms under which liquidity help is provided, the crisis mechanism may degenerate into eurobonds, which we have dismissed above because of the disastrous consequences they are likely to have for Europe.

It is debatable, as mentioned above, whether Ireland was really in a liquidity crisis that justified providing funds from the EFSF. The country was neither credit constrained nor did it lack the power to increase its taxes on immobile factors of production to solve its problems on its own. Possibly the country took advantage of the rescuing measures simply because it wanted to borrow at lower interest rates. Such reasons should be rigorously blocked by the rules to be specified.

V) Haircuts ahead of guarantees to ensure a correct pricing of risk (appropriate interest spreads)

The ESM guarantees the replacement bonds to be issued only after the private creditors have waived a substantial part of their claims. After all, one of the main purposes of providing support from the community of states is to reduce the stock of outstanding public liabilities.

In addition, however, the participation of creditors is absolutely necessary to ensure that they use caution in engaging in risky credit transactions and apply appropriate interest mark-ups ahead of time. The interest mark-ups in turn ought to restrain debtors from engaging in excessive borrowing, so as to prevent a new wave of inefficient capital movements and current account imbalances within the euro area.

We stress that in the case of impending insolvency under no circumstance should the countries in the euro area agree to a crisis mechanism that grants aid first and only afterward, when the aid is ineffective or turns out to be insufficient, require private creditors to share losses. For the participation of private creditors to be credible, it must complement official help in a legally binding form. And only if it is credible will the interest mark-up have the desired disciplining effect.

As explained above, this principle should not be violated by a misinterpretation of the Council decision of 17 December 2010. Liquidity help as described in Item I of our set of proposals does not require a haircut, but can only be provided under strict limitation in time and size, especially ruling out that the boundary of liquidity help is not trespassed by political initiative.

One might fear that interest mark-ups would actually translate into a higher, rather than lower, stock of public debt, since some governments will face higher borrowing costs. But it is precisely such a possibility that creates the right incentive for governments to implement fiscal corrections – ensuring that the deterrent effect of higher interest rates dominate over other considerations. In the negative, this is the important lesson to be drawn from the experience of countries like Greece and Portugal, who benefited from the dramatic interest rate reductions accompanying the introduction of the euro. These countries had the chance to contain and reduce their public debt because of the combined effect of lower interest rates and in part vigorous economic booms. But in view of the allure of the low interest rates, governments (and private

agents) took on even more credit instead. Only Ireland reduced its government debt temporarily to a significant degree, although the fall in explicit government debt corresponded to a mounting stock of implicit public liabilities accumulating in the financial sector (of course under the presumption that banks would be rescued).[20]

VI) Limiting the total amount of guarantees

At any time, the total amount of guarantees and liquidity help must be limited to 30 percent of current nominal GDP of the aid-seeking country. If a country exceeds this limit, either because of failure to contain net borrowing (thus enlarging the numerator of the debt-to-GDP ratio) or because of a drop in economic activity (hence reducing its GDP), the ESM should no longer provide its help. Limiting the stock of loans and guarantees is necessary as a way to prevent an uncontrolled expansion of the burden for the guaranteeing countries with possible contagion effects to the whole euro area. It also serves as a threshold, the surpassing of which indicates that the country is in need of deeper and far-reaching measures of debt restructuring – that is, beyond the debt-reduction implicit in the CAC.

VII) Guarantees and liquidity only with collateral or at market rates

Guarantees should be granted against insurance premia at market rates, quoted in CDS prices, for example. Specifically, the interest mark-up charged to the debtor country should be equal to the (GDP-weighted) average interest rate in the euro area during the months before the state of impending insolvency is declared. The premium on the guarantees may be waived if the grantor receives ownership of collateral in the form of marketable state assets. Similarly, any liquidity help must come at normal market conditions for similar risk classes, unless the country offers collateral in exchange.

2.5.2.3 How the crisis mechanism operates

Building on these basic rules, we propose a multi-step crisis mechanism. The mechanism is based on the idea that all the new bonds in the market issued by all EU countries include CACs of the described type, i.e. with the possibility of a piecemeal solution to impending insolvency problems.[21] On the one hand, the CAC bonds make the risk of a haircut in case of threatening insolvency explicit and structured (de facto, all bonds bear the risk of a cut, although unorganised). On the other hand, in case of impending insolvency, these bonds have the advantage of being exchangeable for replacement bonds, guaranteed to a considerable extent (our proposal: 80 percent) by the ESM.

The term "impending insolvency" denotes a state of acute payment difficulty, which may be overcome, however, after a limited waiver of claims and with the help of partially guaranteed replacement bonds. This is to be distinguished from actual insolvency that has far-reaching consequences for the independence of the state and puts the entire government debt outstanding, no matter its maturity, at the creditor's disposal. And it is not the same as a mere liquidity crisis, which does not pose the question of debt sustainability.

The following course of the crisis may be imagined after the CAC securities are in circulation.

Should a state be unable to service the CAC securities that are maturing, in the case of doubt it will first be assumed that it is merely illiquid. The ESM will provide loans of a limited size and for a limited time to countries whose debt-to-GDP level is not yet excessive.

If the loans are insufficient, the time has expired and the country continues to be unable to service its debt or the existing debt is already large, an impending insolvency can be assumed. The country then must negotiate a haircut with the holders of its outstanding state bonds. Net of the haircut, the holders of these bonds can then exchange them for replacement bonds that are partially secured by the ESM.

Securities of the same issuer, which will not mature until later, are not involved in this exchange, because this is what the CACs establish in their bond contract. The question of whether they are to be serviced in the regular way or also be converted may be postponed to their maturity date.

The haircut can be determined based on the discounts, observable in the market, on the nominal

[20] While Ireland even reduced its debt in absolute terms, Spain was able to substantially reduce it relative to GDP, from 63 percent in 1995 to a low point of 36 percent at the end of 2007.

[21] In general, CACs can only be included in newly issued bonds. For this reason, a diminishing percentage of the bonds in the market over time have non-CAC status.

value of the bond during the whole three-month period preceding the announcement of negotiations about restructuring measures subject to maximum and minimum percentage constraints. This provision is aimed at preventing turbulence in financial markets. Since the relevant average for calculating the haircut covers three months, the discount naturally charged by markets at any point in time in anticipation of losses during a possible crisis will be self-stabilising within the limits. This should help prevent panic-driven losses of market values shortly before the expected restructuring or during the negotiations about restructuring.

Should the negotiating country find it impossible to service in time the replacement bonds in accordance with the contract, it must bring itself, in a final step, to negotiate an agreement regarding the entire outstanding debt.

Should it already face difficulties before having issued the CAC securities, it will be saved by the already existing rescue system EFSF, limited to three years, and should be enabled to refinance itself again.

If difficulties beyond a mere liquidity crisis emerge after EFSF has expired and if old securities without CAC clauses become due, the old creditors should be offered attractive restructuring into replacement bonds.

2.5.2.4 The procedure in case of a liquidity crisis and/or impending insolvency

For the case of a liquidity crisis or even an impending insolvency with an exchange of the CAC bonds into replacement bonds, the crisis procedure by nature follows the steps outlined below.

1st step: Liquidity crisis

Suppose a country is unable to service its debt but claims to face only a liquidity crisis. If this is unanimously confirmed by the guarantor states, the ECB and the IMF, a two-year liquidity help in terms of senior short-term loans of a maximum maturity of two years is provided for the debt that needs to be replaced in this period and for a deficit in line with what the renewed Stability and Growth Pact allows. Hopefully the country will again be able to service its debt after the two years, as it should have raised its taxes or cut its expenditure sufficiently in the meantime. If not, it has to declare an impending insolvency and the second step applies.

Should the country be liquid again, it may call on the liquidity help a second time after a break of at least five years. A country that again becomes illiquid earlier or more than twice in 10 years also has to declare its impending insolvency.

A country that claims to be illiquid but has a debt-to-GDP ratio of more than 120 percent is unlikely to be merely illiquid. It also has to claim impending insolvency. According to this definition Greece, which has a debt-to-GDP ratio of 140 percent, is already threatened by insolvency and should therefore not receive the liquidity help.

2nd step: Market solution in the case of impending insolvency

If a country cannot redeem its debt, because it is threatened by insolvency rather than merely illiquidity, it must negotiate a debt relief programme with the corresponding creditors of a particular maturity on the basis of the CAC. Extensions of maturities, reductions of nominal values or reductions of the interest rate (coupon) may be the outcome of such negotiation. During the period of negotiations, which is not to exceed two months, newly emerging funding needs for current government activities (primary and secondary deficits) will be met by the issue of short-term, maximum one-year, cash advances by the ESM. The interest rate on these cash advances will be 5 percentage points above the average interest rate level of the member countries for loans of the same duration. The cash advances are also senior to private credits.

3rd step: Haircut and issue of replacement bonds

If no agreement can be reached at the second step between the debtor country and the creditors of the maturing CAC bond, the third step of the crisis mechanism is activated. The negotiation period is again limited to two months. The funding needs emerging during the negotiation period will again be met by the issue of senior cash advances at the interstate level.

Also participating in the negotiations are now representatives of the ESM, the ECB and the IMF.

There will be an automatic haircut on the nominal value of the redemption amount of the maturing CAC bond.

The size of the haircut will depend on the average market discount of the previous three months before the start of the negotiations with the creditors. It should, however, amount to at least 20 percent. A minimum limit is necessary in order to restrict the chance for strategic measures on the part of big creditors.[22]

The maximum limit on the haircut is 50 percent of the nominal value of the contractually agreed redemption size of the bond. This limit is to guarantee that, while the market correctly anticipates the possibility of a crisis occuring, a true panic of the kind that would ensue if extreme or even total losses seem possible – is avoided. If the ceiling of the losses is defined and limited, the market may adjust to the risks in time.

The par value of bonds net of the haircut will then be exchanged with replacement bonds on a one-to-one basis. The replacement bonds in turn will be guaranteed by the ESM at 80 percent. The detailed design of the replacement bond (coupon, duration) is a subject of the negotiations.

Of course endangered states and their creditors will always argue that the risk of market turbulences is minimal if the haircut approaches zero and the guarantee of the replacement bonds approaches 100 percent. But in that case the incentives for opportunistic behaviour on their part would be correspondingly maximised, undermining the stability of the entire euro system. The conduct of several European countries and their creditors during the years of low interest rates, and the European debt crisis itself, has shown very clearly that the danger of excessive debt should not be disregarded. Otmar Issing, the former chief economist of the ECB, has called the idea that comprehensive insurance packages would increase the stability of the euro area "truly grotesque".[23]

The optimal balance between the goals of the long-term political stability of Europe and the short-term stability of the financial markets consists of neither eliminating all rescue measures nor setting up comprehensive, full-coverage insurance against insolvency free of deductibles. A maximum haircut of 50 percent and the partial guarantee of replacement bonds at 80 percent is a meaningful solution for addressing the trade-off between the two goals. While it imposes a potential loss on the creditors, it limits this loss to 60 percent of the investment volume. Thus, a limited interest surcharge is sufficient to compensate investors for their risk.

If the negotiations between the ESM and the country threatened by insolvency are unsuccessful, i.e. the required 75 percent of the bondholders do not agree to the described exchange into replacement bonds offered by the debtor country and the Community states within the negotiation period, the debtor country on its part must declare a restructuring plan of the concerned bonds. But in this case the guarantees of the ESM are inapplicable.

4th step: Adjustment period

For an adjustment period of up to three years after an impending insolvency, the ESM may also permit the debtor country the issuance of partially secured replacement bonds that are guaranteed at 80 percent for new net borrowing – as long as the state complies with the framework of the (new) Stability and Growth Pact.

The total sum of guarantees granted for the replacement of the outstanding debt and new borrowing (on a net basis) is limited. As already explained, we consider it appropriate to set this limit at half of the debt-to-GDP ratio permitted by the Maastricht Treaty, i.e. at 30 percent of the prior year's GDP. There will be no guarantees beyond this limit.

2.5.2.5 Debt moratorium

The plan described above assumes that a country in crisis, after issuing partially secured replacement bonds and receiving a reduction of the creditors' claims on maturing bonds, will again be able to borrow in the financial markets. It could happen, however, that a state's guarantee limit of 30 percent of GDP is insufficient for the country to overcome its payment difficulties. Or the country may find itself in a situation in which it is no longer able to service the replacement bond, requiring the Community states to step in and pay the guaranteed amount to the creditors.

[22] For smaller discounts on the market value, the crisis mechanism might not be activated anyway.
[23] Issing (2010).

In that event, the debtor country must declare a debt moratorium for its entire outstanding government debt. In this case it can by itself or after negotiations with its creditors restructure the bonds that are in the market. Here the ESM no longer offers protection against losses or risks.

During an adjustment period of up to three years after a comprehensive debt moratorium, the ESM can permit the debtor country to issue replacement bonds, which are guaranteed at 80 percent, for covering the current primary deficit (government expenditures – government receipts). A prerequisite for this is a strict conditionality within the Stability and Growth Pact.

2.5.2.6 The threat of insolvency before CAC bonds have penetrated the markets

The crisis mechanism described above applies to bonds that have a CAC. In the transition period before the new system becomes fully effective, bonds with and without CAC will coexist in variable amounts. The question arises therefore of how to deal with a pending insolvency involving bonds without CAC.

As long as the rescue packages currently valid (Greece and EFSF) are in force, the problem will not arise. But difficulties may occur in an interim phase, during which these rescue packages no longer work and the conversion of the old government debt into CAC securities has not been completed.

If a country defaults because it is unable to repay debt that has become due, nothing prevents owners of standard bonds without CACs that will mature at a later point in time from calling in their loans prematurely, thus exacerbating the crisis and forcing renegotiation of the entire debt. With a unanimity requirement, however, negotiations would be quite complicated.

Nonetheless the plan already provides a workable framework for negotiations between the affected creditors and the ESM. Creditors ought to be offered good terms, in order to reach agreement: it is conceivable that, after a haircut on the order of the market discount within the above-mentioned limits (at least 20 percent, at most 50 percent), for their remaining value bonds are exchanged into replacement bonds that are fully rather than only partially guaranteed by the ESM. This of course without violating the general rule that the sum of all guarantees and ESM loans must not exceed 30 percent of GDP. It is also essential that the principle that the haircut precedes the aid should not be given up, even in this, improbable, special case. Those who do not accept the thus-specified aid offer and call in their loans prematurely may try to recover their claims in court, but receive no guarantee whatsoever from the ESM.

However, the availability of the CAC bonds combined with the partially guaranteed replacement bonds has the possibility to nip a formal default in the bud. After all, these bonds provide endangered countries with a financial instrument that should be attractive to investors, because their maximum potential loss is limited to 60 percent of the investment volume in even the worst of all possible cases. Thus, a limited interest surcharge over safe assets should be sufficient for a country to be able to find the funds it needs.[24] We see it as one of the main advantages of our proposal that it offers a ready-to-use solution to the financial problems currently experienced by a number of euro countries without jeopardising the prospects of reaching a viable long-term solution that would permanently stabilise the euro area. In Chapter 3 we indeed suggest this solution to Greece's foreseeable financing problems after 2013.

While the EU countries agreed in December 2010 to introduce bonds with CAC clauses in 2013, we suggest that any euro country should have the right to introduce such bonds before that date, so as to benefit from the option of converting them into partially guaranteed replacement bonds should it be unable to redeem its debt. One reason for a country to be interested in such an option is that it may whish to carry out a voluntary debt repurchase programme. Market discounts (see Figure 2.2) for some countries are currently substantial. Investors may prefer to sell their bonds now rather than wait to maturity if they fear that the country may default on these bonds because the advantage of being exchanged into partially guaranteed replacement bonds is restricted to CAC bonds.

2.5.2.7 Stabilisation effects

After all old bonds have expired or have been exchanged into CAC bonds, the crisis mechanism is fully operative. It will instil more debt discipline and

[24] With a ten year bond an interest surcharge of 4.8 percent over a market rate of 5 percent would be enough to fully compensate for an overall loss of 60 percent of the assets nominal value.

will help stabilize the markets. The risk of domino effects, like those evoked in May 2010 in order to justify the discretionary rescue programmes amounting to billions of euros, will be effectively minimised. Our optimism rests on the following considerations:

- A strengthening of the Stability and Growth Pact, along the lines proposed by the Van Rompuy Commission and largely accepted by the representatives of the member states, ought to induce at least some countries to reduce their budget deficits and outstanding debt.
- The announcement of the crisis mechanism will induce investors to continue to demand interest spreads when buying new government bonds and to reduce credit granted to less solid countries. Higher interest rates will discourage deficit spending and lead to sounder government finances. This market-driven mechanism will have a stronger effect than all political debt limits.
- The protective shields agreed in Washington and Paris on 11 and 12 October 2008 following the Lehman bankruptcy of a volume of 4,900 billion euros remain intact. That alone makes a breakdown of the interbank market like the one that occurred after the Lehman bankruptcy on 15 September 2008 extremely improbable if not impossible. In Germany, for example, the SoFFin (Financial Market Stabilisation Fund) still has around 50 billion euros of unused capital aid available for a recapitalisation of the banks. Conditions are similar in other countries.
- The fact that a crisis mechanism exists, which in addition limits the maximum losses, helps banks and other investors in planning for a country's payment crisis. This should limit any possible turbulence in the financial markets.
- Since, in the third and decisive step of the crisis mechanism, a haircut is stipulated, which conforms to the average market discount during the last three months preceding the announcement of restructuring measures, the risk of market turbulence is limited. Whenever the prices threaten to diverge from the moving average of the last three months, profitable and stabilising speculation becomes possible that will push the prices back to this average. In addition, strategic purchases or sales will hardly be able to affect the maximum haircut during the negotiation period.
- A divergence of interest rates does not necessarily mean that the banks are losing capital, as in the normal case the interest rates of states with a good credit standing will be pushed down and their bond prices will be pushed up. As shown in Figure 2.2, this was also the case in the current crisis. Holders of government bonds earned about twice as much on German and French bonds than they lost on GIPS bonds.

Related to the last point, we would like to emphasise that the haircut is not in itself a destabilising element of a crisis mechanism, as is sometimes claimed by interested parties. According to our proposed rule, the haircut is engineered such as to exert a stabilising effect, as its size reflects – within the limits set – the discount on the issue price already realised in the market. As shown in Figure 2.2, the discounts on long-term Greek securities amounted to about 30 percent in early November 2010 and also in May 2010. If a haircut had been applied in that month in such a dimension, no market turbulence would have been triggered, because the expectations of the market agents would have come true. In contrast, a continuation and expansion of the comprehensive insurance rescue, which was agreed in May 2010, would have resulted in a sudden increase of prices, speculation profits and a considerable destabilisation of markets. Not only downward swings are destabilising. Upward swings are destabilising, too, because they may create opportunities for opportunistic speculation.

2.6 Supplementary reforms are needed

The introduction of a crisis mechanism, which defines the participation of private investors in a possible restructuring of a euro-area country's bonds in a crisis situation, must be the core of the reforms of the body of EU financial rules. In order to be able to function in the desired way, it should be supplemented by two additional reform measures.

2.6.1 Bank regulation

To date, financial institutions can expect to be rescued by taxpayers in case of crisis, as their insolvency could lead to an undesired domino effect on the financial markets, which would be more costly in the end than the rescue of an individual institution. It therefore makes sense for individual banks to incur high risks, as they can appropriate the high returns in a good state of the world, leaving the possible losses to taxpayers. The potential risks of government bonds of

some south and west European countries may also be underestimated for the same reason.

The willingness to assume high risks when buying government bonds was boosted by the present equity rules of the Basel system. Accordingly, banks did not need to consider any risk weight for government bonds in determining their risk-weighted assets and therefore did not need reserve equity backing for them. This was one of the main reasons why banks invested so heavily in government bonds, and arguably this was one of the main drivers of the European sovereign debt crisis.

In the new Basel III system agreed at the meeting of the heads of government of the G20 countries in Seoul, the situation will be improved to the extent that in future banks must hold equity in relation to the sum of their risk-weighted assets and on the amount of 3 percent of their total assets. Since their stocks of government bonds are part of total assets, there will be the requirement, for the first time, of equity backing of government bonds held by banks. Yet, the risk weight of the government bonds in the risk-weighted assets will, as a rule, still be zero. Only if there is an extreme downgrading of a country's credit standing will higher risk-weights apply, as is already the case today.

It is appropriate to change the risk weights in such a way that lending to countries will also be reflected in the computation of the risk-weighted assets, since in this case the banks will become more circumspect in their lending.

Furthermore, it is necessary to develop a rescue system, funded by the banks themselves, which will come to the aid of a distressed bank by providing additional equity in exchange for stock in the case of crisis. Increasing the equity capital requirements, no matter how high, remains ineffective as long as evading these requirements induces policymakers to grant aid measures in order to prevent a shut-down of the banks (regulation paradox). In order to make sure that the equity capital of a bank can truly be liable without the need to shut down the bank, it is imperative that losses, which push the equity capital below the legal limit, are met by new outside capital. A bank rescue system that rescues the banks but not their stockholders would protect the banking system better against sovereign insolvencies and would thus deflate the argument that was put forth in the crisis of May 2010 in favour of the government rescue systems.

The rescue system can be set up at national level for banks operating locally. However, transnational banks that induce inter-country externalities should become part of international schemes. As the help comes as equity help in exchange for shares that the fund will own, the international redistribution would be limited.

As we have noted earlier (EEAG 2009, Chapter 2), it would also have been wise for the European Union to have set up a common system of deposit insurance for banks with a sufficient scope of international activity, when the risks to be insured had not yet materialised, i.e. before the crisis lifted the veil of ignorance. Some of the problems that, for example, the Irish banking system suffered in this crisis could then have been avoided. The deposit insurance scheme could also have played a role in restructuring (the US model is the FDIC, whose role in restructuring banks has been praised).

Setting up such a scheme after the crisis is difficult and cannot be justified as insurance because of the foreseeable redistribution between countries that this would involve. Nevertheless, when the dust of the crisis has settled and the banking system has been stabilised, a new effort should be made to establish an actuarially fair deposit insurance system for banks with truly transnational business. The fees paid by banks in such a scheme should of course reflect their risk position according to objective measures.

Finally, national governments could also help their respective banks directly, given that no fund has yet been built up. In Chapter 5, we discuss the potential design of fees that would be able to provide the necessary revenue.

2.6.2 Detailing the responsibility of the ECB

Additional supplementary reforms concern the ECB. The crisis mechanism described above will become irrelevant if it is undermined by the ECB. By deciding independently to acquire government bonds, the ECB made its owners liable to rescue states. Acquiring the government bonds was not a monetary policy measure in the true sense, for – as emphasised by the ECB time and again – it sterilises the effects on the money supply by liquidity-absorbing actions. As the ECB even rescinded its earlier announced credit-standing criteria for repurchase agreements, it in fact is now pursuing a policy that potentially violates Article 125 TFEU, according to which one country is not liable for the debts of another country.

If the EU countries agree on a crisis mechanism that aims at the participation of private creditors in the payment crisis of a member state, the responsibilities of the ECB must also be detailed. In the course of negotiations about redesigning the EU Treaties, a change in the distribution of voting rights in accordance with the size of capital shares could be envisaged so as to protect the big European guarantor countries against excessive liability. If policymakers are not willing to go that far, it is at least necessary to supplement Article 123 (1) TFEU in such a way that the ECB may only acquire government bonds in the secondary market for purposes of monetary policy.

In this context it is advisable to look closely at the formulation of the relevant Treaty articles:

"Overdraft facilities or any other type of credit facility with the European Central Bank or with the central banks of the Member States (hereinafter referred to as 'national central banks') in favour of Union institutions, bodies, offices or agencies, central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of Member States shall be prohibited, as shall the purchase directly from them by the European Central Bank or national central banks of debt instruments."[25]

The formulation clearly states that the ECB may not grant direct loans to the states and may not directly acquire government securities. To the layman it sounds like a general clause that precludes misuse in the form of funding a government deficit by printing money. Purchases on the secondary market are not precluded, however. The fact that Greece sold its government bonds to its central bank using the detour via its commercial banks was permitted because it was not prohibited.

To be sure, such purchases may be necessary in given situations to fight a general deflation in the euro area, which is more than merely a remote possibility, as the Japanese example shows. This applies especially if the interest floor of 0 percent has been reached and there is still a direct risk of deflation, measured by the Harmonised Consumer Price Index for the entire euro area. But the ECB should not forget its credit-standing criteria, nor should it try to protect government budgets. Therefore, for a future amendment of the Treaty the last sentence of the cited paragraph should be supplemented with this proviso:

"The indirect purchase of government bonds is limited to securities of high creditworthiness and exclusively permitted for purposes of monetary policy."

In light of our proposal, there is already a lender of last resort providing liquidity help to states; relieving the ECB from responsibilities that are not appropriate for monetary authorities to bear is advisable.

An important issue is whether the ECB should nonetheless play a role in maintaining financial stability for the euro system as a whole. Technically, it makes sense for a central bank to provide liquidity support to financial intermediaries, according to sound principles, as discussed in a previous EEAG report (EEAG 2009, Chapter 2). Yet, in view of the fiscal implications of financial crises, discretion in the provision of liquidity help may be subject to undue political influence, creating a hidden channel of fiscal transfers in contradiction to the goals of the new European fiscal governance system. As the German experience of the early 1920s has shown, direct or indirect access of governments to central bank money would also risk financing government budget deficits with newly issued money, which could result in hyperinflation. Thus we consider it essential to limit such central bank policy strictly to the exceptional purpose of fighting a deflationary risk.

2.7 Concluding remarks

There were good reasons for the founders of the European Monetary Union to include a no-bailout clause in the Treaty. It basically means that the member countries must deal with their fiscal problems themselves and must not expect the help of neighbouring countries and their taxpayers. Knowing this, investors would require a higher risk premium of weaker debtors than for economically stable countries, which would then prevent excessive borrowing, mispricing and bubbles in the euro area. So the idea.

Past events have shown, however, that the no-bailout clause was not sufficiently credible, and that mispricing and bubbles occurred nevertheless. This was due to the fact that systemically important banks could expect to be rescued by their states, and the states in turn by the community of member states, to avoid panic reactions and domino effects. Obviously there

[25] Consolidated Version of the Treaty on the Functioning of the European Union (TFEU), Article 123, Section 1.

was speculation that in case of crisis enough pressure would be built up to induce the EU countries to provide help, even though they were violating the EU Treaty in doing so.

The problematic moral hazard effects that were created by the lack of credibility of the no-bailout clause was enhanced by the Basel system's deficiency of not requiring banks to hold any regulatory equity capital against government bonds. This deficiency is a major explanation of why French, and to some extent also German, banks were so heavily exposed to government bonds in this crisis and why they exerted sufficient pressure on their governments to agree on the rescue measures of May 2010.

The situation was exacerbated further in that the Stability and Growth Pact was never taken seriously. New borrowing by the European countries has exceeded the 3 percent ceiling of the Stability and Growth Pact 97 times. Only in 29 cases could the high deficits be justified by the exemptions provided in the Pact. In 68 cases, sanctions should have been imposed, but in fact, they never were. The rules developed by the European Union to harness government debt proved to be utterly ineffective.

For these reasons, in the initial period under the European Monetary Union, Europe was characterised by what Hungarian economist Janós Kornai once called "soft budget constraints" in making his famous prediction that Communism was doomed to fail. Soft budget constraints always lead to disaster. Although in the present crisis it was not the fall of the entire system, it was a crisis severe enough to threaten confidence in the future of the European Union.

In economic terms the soft budget constraints operated via a rapid interest rate convergence relative to pre-euro times. Before the introduction of the euro there were huge interest spreads, much bigger than today, to compensate for a perceived depreciation risk. With the launch of the euro, the implicit bailout expectations eliminated these spreads, inducing huge and unprecedented capital flows in Europe. The capital basically flowed out of Germany, which became the world's second largest capital exporter after China, and into the countries of Europe's south and western periphery, creating an overheated boom in the periphery and a severe slump in Germany. While in Germany the net investment share in output was pushed to the lowest level in the OECD, real estate prices declined and growth fell to the second lowest level in Europe, the countries in the periphery experienced a housing boom with unprecedented GDP growth rates.

As a result of the slump, Germany's imports grew only little and its product prices stagnated, improving the competitiveness of German exports. Similarly, in the booming countries imports grew quickly, while exports were constrained by rapid price increases that undermined these countries' competitiveness. Via these mechanisms, trade imbalances developed that were large enough to match the capital flows induced by the euro from Germany to the countries in the periphery. As Christine Lagarde pointed out so rightly, EU countries were dancing the tango, but the music was coming from the capital rather than the goods markets.

The capital flows and the resulting trade flows eventually became excessive and unsustainable, triggering a bursting of real estate bubbles and the sovereign debt crisis Europe is now suffering.

Debt discipline only came into effect when, well into the global crisis, financial markets started to charge sizeable interest rates according to the different credit standing of each country. Only then did financial markets activate the debt brake that had been lacking in Europe for private and public debtors. Too late, one may argue.

For this reason alone, no crisis mechanism should be demanded for Europe that eliminates interest spreads again (as happened in the first years of the euro). In particular, the euro area should under no circumstances adopt eurobonds or similarly constructed community loans, as have been advocated by some European politicians. We can only warn that taking the direction of issuing such bonds will exacerbate the problems we see at the root of the crisis. Eurobonds will do nothing but strengthen incentives for opportunistic behaviour on the part of debtors and creditors, given that they prevent the emergence of fundamental risk premia by acting as full-coverage insurance against insolvency. Appropriate pricing of sovereign risk is an essential feature of well-functioning financial markets and this excludes joint liability mechanisms. It induces debtors and creditors not to exaggerate the capital flows and to exercise caution in lending. This is the essential prerequisite of removing the European trade imbalances in the future. Those who want to force artificially a convergence of nominal interest rates across government bonds by political measures, in spite of different probabilities of

redemption, de facto argue in favour of cross-subsidising the flow of capital into relatively unsafe countries. They advocate a policy that would again expose the euro area to periods of relative overheating of the countries with more fragile fiscal and financial foundations, and relative stagnation in the countries with better discipline, which would perpetuate the trade imbalances.

We do not want to be misunderstood, however. We argue neither against the provision of emergency liquidity to address panics, nor against rescue measures to help countries in pursuing their restructuring needs. In our proposal, the mandatory inclusion of collective action clauses (CAC) in all bonds sold by euro-area governments together with the provision of replacement bonds, guaranteed to 80 percent by the Community states and available in case of emergency, will grant considerable protection. The availability of these bonds will allow GIPS countries (or any country facing a looming crisis) to service existing bonds sequentially, as they come due at maturity, by the sale of bonds with CAC and in all likelihood to avoid insolvency. We warn against establishing a full-coverage insurance against insolvency, however, as some EU politicians are apparently contemplating.

The CAC bonds, backed by partially guaranteed replacement bonds, provide a possibility for troubled European countries to address their financing needs immediately. As these bonds define and limit the risk to investors, they provide a key instrument for countries to raise money from the market without having to resort to the funds of the ESM. For instance, issuing these bonds can make it possible for these countries to repurchase debt at today's discounted market values, with the goal of significantly reducing their debt-to-GDP ratios.

For countries that nevertheless face difficulties, we propose a three-stage crisis mechanism that distinguishes between illiquidity, impending insolvency and (full) insolvency. We place most emphasis on the second of these concepts, because it is a breakwater procedure that seeks to avoid full insolvency.

First, if a country cannot service its debt, a mere liquidity crisis will be assumed, i.e. a temporary difficulty due to a surge of mistrust in markets that will soon be overcome. The European Stability Mechanism (ESM) helps overcome a liquidity crisis by providing short-term loans, senior to private loans given to governments, for a maximum of two years in a row. This time period should be long enough for the country to raise its taxes or cut its expenditures so as to convince private creditors to resume lending.

Second, if the payment difficulties persist after the two-year period, an impending insolvency is to be assumed. The ESM now provides help in terms of partially guaranteeing the replacement bonds that the country can offer the creditors whose claims become due, but only under the condition of a haircut for the respective loan maturities. The haircut will see to it that the banks and other owners of government bonds bear part of the risk of their investments. As the haircut will, within limits, be sized on the basis of the discounts already priced in by investors, it will clearly help stabilising markets. Providing financial resources from the community of euro states to investors, without ensuring a haircut as a precondition, in the amount of the actual discounts priced by markets, would be tantamount to shoving profits onto the speculators.

Third, should the country be unable to service the replacement bonds and need to draw on the guarantees from the ESM, full insolvency must be declared for the entire outstanding government debt.

The key prerequisite for maintaining the market discipline ensured by correct interest spreads (and for allowing capital markets to allocate aggregate savings efficiently) is the sequencing and relative size of the haircut and government aid in the case of impending insolvency. Before financial aid in the form of guaranteed replacement bonds may be granted, the creditors must initially offer a partial waiver of their claims. Only this order of events (with defined maximum losses for the investors) can guarantee that the creditors apply caution when granting loans and demand interest mark-ups.

There are reasons to hope that future crises of the euro area will not be as severe as the current one, given that some of the initially huge differences between the European economies have been reduced in the first decade of the euro. Despite their excesses, the recent capital flows within the euro area have indeed fostered the catching-up process in lagging countries. Because of the reduced distance, and the emergence of country risk in financial markets, the catching-up process within the euro area can be expected to be much slower in the future. At the same time, the crisis will necessarily cause real exchange

rate realignment, leading to a sustained rebalancing of trade and capital flows.

Nevertheless, the crisis has revealed severe deficiencies in the Maastricht Treaty and has now paved the way for a new economic governance system, ensuring the long-run stability of the euro area. The new system must address the core issue of complementarity between surveillance, supervision and regulation, on the one hand, and market discipline, on the other. The main mistake of the past, undermining the second pillar, should not be repeated.

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GREECE[1]

3.1 Introduction

As most European countries were coming out of recession at the end of 2009, Greece was entering a tumultuous period. The announcement of the newly elected Greek government in October 2009 that the projected budget deficit for 2009 would be 12.7 percent of GDP[2] (rather than the 5.1 percent projection that appeared in the 2009 Spring Commission forecast), was initially met with shock and opprobrium in Brussels and other euro-area capitals. The initial reaction of policymakers across the European Union was that the risk of contagion was minimal, and that the right way to deal with the situation was to let Greece "swing in the wind".

However, by April 2010 the manifestations of the Greek crisis were perceived as threatening the financial stability of the euro area. In early May 2010 the contagion from the Greek crisis was indeed spreading across Europe. Moreover, the Irish, Portuguese, and Spanish repo bond markets were becoming less liquid, and market participants started paying closer attention to the exposure of different banks to Greek, Portuguese or Spanish sovereign debt (BIS 2010). By this time policymakers had recognised the gravity of the situation, and in addition to the 110 billion euros bailout package offered to Greece by the European Union, the European Central Bank (ECB) and the International Monetary Fund (IMF) – commonly known as the "troika" – they decided on May 10 to set up a rescue package, totalling up to 750 billion euros in an effort to prevent a euro-area confidence crisis.[3] The ECB provided further support through its decision to buy euro-area bonds in the secondary markets.

This chapter discusses whether the bailout package will prove sufficient to place the Greek economy on a sustainable path, i.e. whether after the end of the programme in June 2013 Greece will be able (or the market will perceive it as able and willing) to continue making the large interest payments and roll over its debt without the need for further official assistance.

Any attempt at understanding how Greece reached the brink of default, and whether the current bailout package and attendant policy measures and reforms will succeed in solving Greece's perceived solvency problems, requires that some salient (and unique among the EU countries) features of the Greek economy are brought to attention. We review these features in Section 3.3, immediately after describing the evolution of key macroeconomic aggregates (Section 3.2). We then discuss in Section 3.4 the details of the bailout package and the policies and reforms (including pension reform) undertaken so far. In Section 3.5 we evaluate whether the policies detailed by the Memorandum of Understanding (the official agreement between the Greek government and the European Union, IMF and ECB) will be enough to return Greece's public and external debt to a sustainable path. This section discusses also whether it will prove politically feasible to implement the policies detailed in the Memorandum. Section 3.6 discusses how Greece will deal with the day after the official financing runs out in the second quarter of 2013. Section 3.7 offers some concluding comments.

3.2 Macroeconomic developments

In this section we give a brief overview of the main macroeconomic developments in Greece during the last five decades, but the emphasis will be on the evolution of the Greek economy during the last 15 years. We also focus more on issues of economic structure that differentiate the Greek economy from the rest of the euro area.

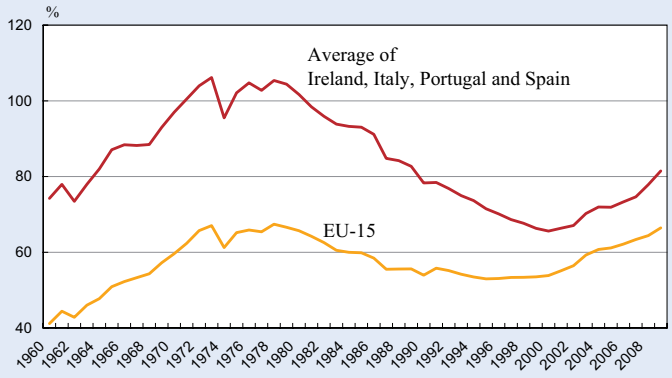
[1] This chapter has been prepared with the partial input of Thomas Moutos. He also kindly allowed the EEAG to use material he has published elsewhere and has assured the EEAG that the editors have given their promission. See Katsimi and Moutos (2010) and Moutos and Tsitsikas (2010).
[2] The 2009 budget deficit turned out to be significantly higher than that. After a revision by Eurostat in April 2010, which placed it at 13.6 percent of GDP, the latest figure (November 2010) announced by Eurostat is 15.4 percent of GDP.
[3] The total of 750 billion euros will consist of up to 500 billion euros provided by euro-area member states, with the IMF providing at least half as much.

3.2.1 Growth performance

Following the end of the three-year civil war in 1949, Greece started its reconstruction period in the 1950s. According to Maddison (1995), Greece had in 1950 the lowest per-capita income among the group of countries that later became the EU-15. Consistent with convergence theories, Greece was the fastest growing economy among this group of countries from 1950 to 1973 and by 1973 its per capita GDP had risen above Ireland's and Portugal's. During the rest of the 1970s Greece's growth rate decelerated, but it was still the highest among the (later to become the) EU-15, and the second highest growth rate among the OECD countries behind only Japan. This development is portrayed in Figure 3.1.

Figure 3.1

Greek GDP per capita relative to EU-15 and the peripheral-4



Source: Ameco: Domestic Product, Gross Domestic Product per Head of Population, at Constant Prices (RVGDP), ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm, data extracted on 11 January 2011; own calculations.

The long period of fast growth came to an abrupt end in the 1980s. During this decade, per capita GDP in Greece grew not only at a slower rate than the peripheral-4 (Ireland, Italy, Portugal and Spain), but also in comparison with the (unweighted) average for the (later to become the) EU-15 and the OECD (2 percent and 2.1 percent, respectively).

The anaemic performance of the economy continued until 1993 (the 1990 to 1993 growth in per capita GDP was minus 0.5 percent per annum), but improved for the rest of the 1990s and accelerated in the first decade of the new millennium. However, as discussed below, the relatively fast growth of the last decade did not have solid foundations, but was based on an unsustainable public and private spending spree.

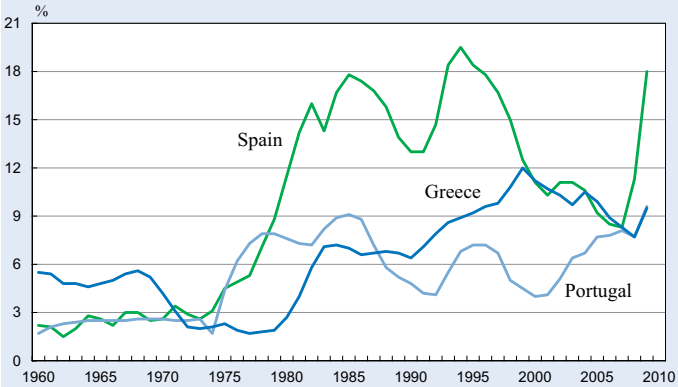
3.2.2 Labour market

The changes in the average growth rates from decade to decade were reflected in changes in the unemployment rate (Figure 3.2). Until 1981, due to fast output growth and emigration, the unemployment rate was kept below 4 percent. By 1984, the unemployment rate had climbed above 7 percent, and it declined slightly up to the end of the decade. During the 1990s the unemployment rate increased gradually to 11.7 percent in 1999, despite the fact that the 1990s were a higher-growth decade than the 1980s. The fast growth during the last decade brought the unemployment rate down to 7.7 percent in 2008, but by 2009 it had climbed to 9.5 percent, reaching even 13.5 percent in October 2010.

The fluctuations in the unemployment rate were not matched by fluctuations in the total employment rate which, following a small decline in the early 1990s, increased steadily, from 55 percent in 1983 to 61 percent in 2008. Unlike other euro-area (EA) countries, the increases in the employment rate in Greece were not accompanied by substantial decreases in hours worked per employed person (Figure 3.3). The average annual hours worked per employed person remain far above the EA-12 average (Greece: 2,160, EA-12: 1,578, in 2009) and are higher than in any other country in the EU-27.

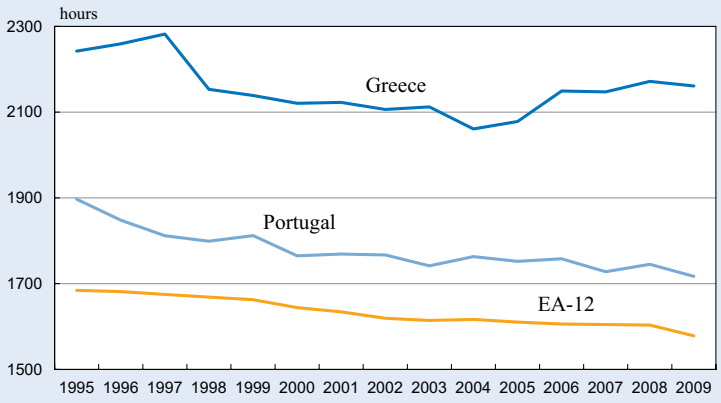
Figure 3.2

Unemployment rates



Source: Ameco: Population and Employment, Unemployment, Percentage of Civilian Labour Force (ZUTN), ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm, data extracted on 11 January 2011.

Figure 3.3



Source: Ameco: Domestic Product, Gross Domestic Product per Hours Worked, Average annual hours worked per person employed (NLHA), ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm, data extracted on 11 January 2011.

An explanation for the high number of hours worked is the importance of self-employment in the Greek economy. The share of self-employment in total employment is the highest among OECD countries (it is about 16 percentage points higher than the EA-12 average).[4] Self-employed people tend to work and report longer hours than dependent employees; for example, it is common for small store owners – and there are many of them in Greece – to work more than 70 hours per week.

A complementary explanation reflects the interaction between the Greek socio-economic structure, an underdeveloped welfare state and employment protection legislation (EPL). Greece had (until the reforms of July 2010) one of the strictest EPL measures among OECD countries (OECD 2004). A high level of EPL implies that employers will try to sort out among job applicants of similar productivity those ones who are more likely to stay with the firm for a long period of time, and offer them a wage-employment package that involves long work hours. Given the Greek family and social welfare structure, these applicants will most likely be prime-aged men. The absence of a well-developed welfare state implies that females face serious constraints in their labour market activity. Both the willingness of employers to hire them will be lower (as employers may wish to avoid future quits induced by childbearing or other family-related care activities that are usually performed by women), and jobs clashing with their responsibilities as homemakers will be less attractive. The efficient course of action for a family in these circumstances is often for the male member to work long hours in market-based activities and the female member to specialize in home production (or to participate in the shadow economy).

Given the expected contraction in aggregate demand for hours of work in the Greek economy due to the consolidation measures of the bailout package, it is important that policy measures are taken that soften the impact on the measured unemployment rate and the incidence of unemployment by inducing some work-sharing (e.g., through facilitating the creation of part-time employment opportunities or temporary reductions in individual work hours).

3.2.3 Public sector

The Greek government is highly centralized. The central government collected almost 67 percent of revenues and accounted for about 55 percent of expenditures in 2007; the relevant figures for the OECD as a whole are 58 percent and 43 percent, respectively (OECD 2009). Local governments represent a very small portion of total revenues and expenditures (Greece: 2.6 percent and 5.6 percent, OECD: 17.6 percent and 32.2 percent, respectively) and receive most of their revenues as grants from the central government (more than 90 percent of their funding). Social security funds account for over 30 percent of revenues and almost 40 percent of expenditures (OECD: 21.4 percent and 24.6 percent, respectively).

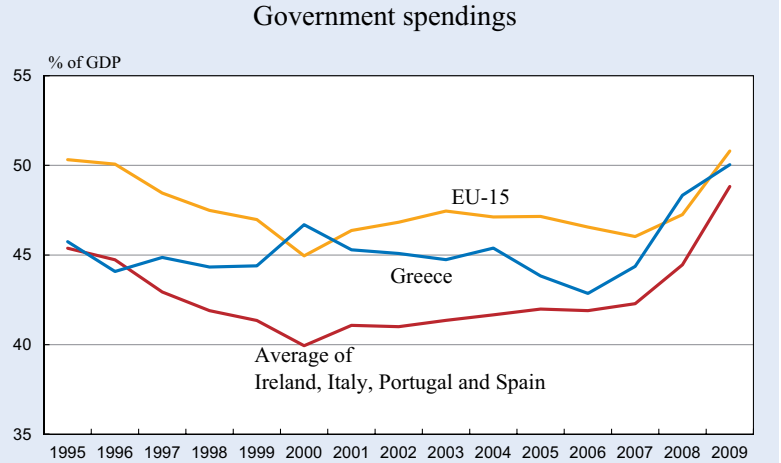
3.2.3.1 Government spending and its components

Up until 1980, government spending in Greece was significantly smaller than the average for the countries which became the initial 12 countries of the euro area (EA-12). In 1970, government spending as a proportion of GDP was 23 percent in Greece and 34 percent in the (later to become the) EA-12, whereas in 1980 the corresponding figures were 30 percent for Greece and 43 percent in the (later to

[4] This is only partly explained by the larger share of agricultural employment in Greece, and it may well be induced by a privately efficient response to the limits on the size of the firm caused by the high employment protection legislation. This arises because firm owners prefer to rely on "flexible" family members to staff the company. The implications are reflected in the very small average size of Greek firms.

become the) EA-12.[5] After a huge expansion of the public sector in Greece in the 1980s, government spending as a proportion of GDP had, by 1990, gone above that of the states that became the EA-12, the relevant figures being 49 percent for Greece and 48 percent for the EA-12 (OECD 2009). Since the increase in spending was not accompanied by corresponding increases in government revenue, the explosion in public debt as well as the prospect of European Monetary Union (EMU) participation forced successive Greek governments in the 1990s to put the brakes on accelerating government spending. By 1999, government spending was down to 44 percent of GDP in Greece compared with 48 percent in the EA-12 states. It appears that after gaining entry in the euro area, Greek policymakers stopped being as vigilant in their efforts to further curb government spending, and by 2008 (before the global crisis hit Greece), government spending stood at 48 percent, climbing to 52 percent of GDP in 2009. Of particular interest is the comparison in the evolution of government spending among the peripheral EU countries. Figure 3.4 shows that by 1997, government spending (as a percentage of GDP) in Greece had surpassed the corresponding figures for the average of Ireland, Italy, Portugal and Spain, whereas by 2008 it had matched the EU-15 average.

Figure 3.4



Source: Ameco: General Government (S13), Expenditure (ESA95), Total expenditure (TE) (UUTG), ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm, data extracted on 11 January 2011; own calculations.

The growth in government spending in Greece is largely accounted for by the growth in social transfers, which rose from 8 percent of GDP in 1970 to 21 percent of GDP in 2009, and in the compensation of public employees (from 8 percent in 1976 to 12.7 percent of GDP in 2009).[6] Of particular interest is the fact that during this period government spending on gross fixed capital formation (excluding capital transfers received) remained practically unchanged, hovering at around 3 percent of GDP.

The most important category among income transfers in Greece is pension benefits. This is the fastest growing category of social spending, and the biggest risk regarding the sustainability of public finances in

[5] The low share of government spending until 1980 is noteworthy given Greece's large military spending, which has been on average 50 percent larger than what the government spends on education. The implications of this allocation of public spending for Greece's long-run growth potential are beyond dispute.
[6] For the earlier data see Ministry of National Economy (1998), whereas the recent data are from the Ameco database.

Table 3.1

Demography-related government expenditure

	Greece			EU-27			Euro area		
	Level 2007 (% of GDP)	Change 2007–2035 (percentage points)	Change 2007–2060 (percentage points)	Level 2007 (% of GDP)	Change 2007–2035 (percentage points)	Change 2007–2060 (percentage points)	Level 2007 (% of GDP)	Change 2007–2035 (percentage points)	Change 2007–2060 (percentage points)
Pensions	11.7	7.7	12.4	10.2	1.7	2.4	11.1	2.1	2.8
Health care	5.0	0.9	1.4	6.7	1.0	1.5	6.7	1.0	1.4
Long-term care	1.4	0.8	2.2	1.2	0.6	1.1	1.3	0.7	1.4
Unemployment benefits	0.3	–0.1	–0.1	0.8	–0.2	–0.2	1.0	–0.2	–0.2
Education	3.7	–0.3	0.0	4.3	–0.3	–0.2	4.2	–0.3	–0.2
Total	22.1	9.1	15.9	23.1	2.7	4.7	24.3	3.2	5.2

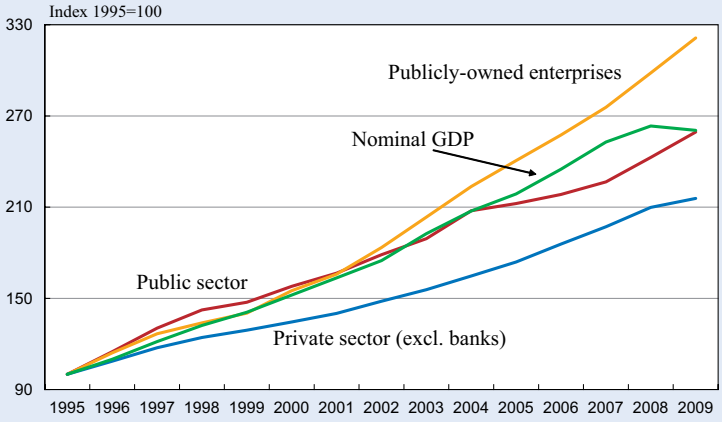
Source: European Commission (2009), p. 26.

Greece. Government spending on pension payments was expected to rise in Greece from 11.7 percent of GDP in 2007 to 19.4 percent in 2035 (for the EU-27 the rise is expected to be only 1.7 percentage points, taking it to 11.9 percent of GDP in 2035).

Table 3.1 provides long-term projections for pension spending as well as for different categories of demography-related expenditures. The sum of all other age-related government expenditures is expected to rise by only 1.4 percentage points until 2035 (in contrast to the 7.7 percentage points for pensions alone); the policy reforms of the pension system adopted in July 2010 as part of the bailout package may go some way towards ensuring that the pension system will not be the cause of recurring fiscal crises like the one the country experienced in 2010.

Figure 3.5

Wages by sector and nominal GDP in Greece



Source: Bank of Greece, Annual Reports (2002, 2005 and 2010); own calculations.

The large growth in general government spending on public employee compensation (from 8.3 percent of GDP in 1976, to 12.7 percent in 2009)[7] is the result of considerable increases in both the number of (general) government employees and in their real wages, especially during the 1980s. While up to 2000, the Greek government was spending less (as a percentage of GDP) than the EA-12 average on wages and salaries, the inexorable rise in government spending on employee compensation has pushed it now higher than the EA-12 average. Between 1976 and the second quarter of 2010, the number of government employees almost tripled (from about 282 thousand to 768 thousand[8]), while private sector employment during the same period increased by about 24 percent (from 2.95 million to 3.66 million); thus, general government employment increased from 8.7 percent of total employment in 1976 to 17.3 percent in the second quarter of 2010.

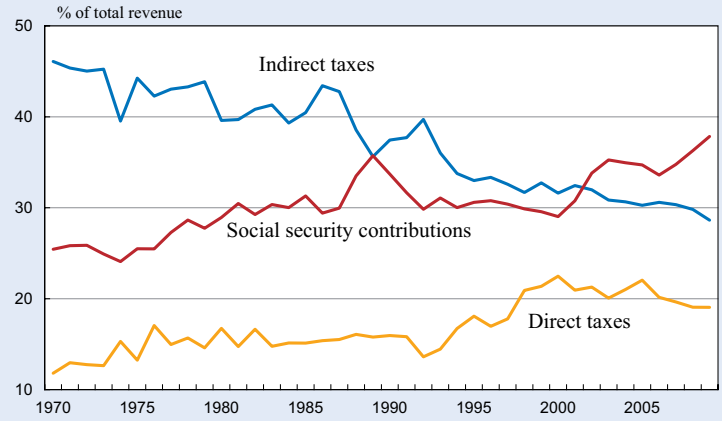
Real wages of civil servants received a very large boost in the 1980s. In 1982 alone, the central government's wage bill increased by 33 percent. The growth in public sector compensation costs continued in the 1990s under different guises. Nominal compensation per employee in public enterprises grew significantly faster than wages in other sectors. We can see from Figure 3.5 that the cumulative increase over the period from 1995 to 2009 in (gross) nominal private sector compensation per employee (excluding the banking sector) was 116 percent, whereas the cumulative increase in the public sector was 159 percent, and in publicly owned enterprises 221 percent.[9] The cumulative increase in nominal GDP during the same period was equal to 160 percent, the same as the increase in public sector compensation per employee. We note that the increase in the economy-wide real compensation per employee was equal to 39 percent during the same period, whereas the increase in GDP per employed person was equal to 35 percent. The increase in the labour share was thus due to profligacy in the wider public sector,[10] a result of the loose budget constraints that had come with the euro in some of Europe's peripheral countries.

The above-described developments in public sector pay and employment reflect the fact that public sector employment has remained a major channel through which political parties in Greece dispense favours to partisan voters, as well a "redistributive" tool in periods of high unemployment (see Demekas and Kontolemis 2000). The relatively large size of employment in the public sector, and the desire of the two contending political parties in Greece to use appoint-

[7] These numbers are calculated using data from the Ministry of National Economy (1998).
[8] The use of the word "about" is intentional. The Ministry of Finance, until June 2010, had no precise idea of the total number of general government employees. This reflects mainly the unwillingness of various ministries to reveal the number of civil servants employed in their core operations and in the public enterprises under their control. A census of civil servants undertaken in July 2010 revealed that their number is 768,009.
[9] See Fotoniata and Moutos (2010).
[10] From 1995 to 2009, the rise in real private sector wages was smaller than the rise in business sector productivity (Fotoniata and Moutos 2010).

ments in the public sector to gain votes, was one of the factors responsible for why the increases in public sector wages were consistently above those awarded in the private sector. The consequence was not only a surge in government spending but also increasing reservation wages for private sector employment, which undermined the competitiveness of the Greek economy. Economists call this phenomenon the Dutch disease after the difficulties the Dutch economy once faced when the natural gas industry absorbed substantial fractions of the workforce from industry by outbidding wages.

Figure 3.7

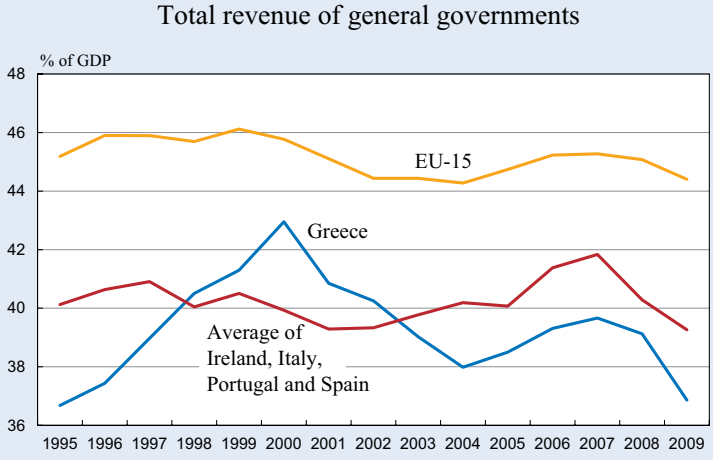


Source: Ameco: General Government (S13), Revenue (ESA95), ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm, data extracted on 11 January 2011; own calculations.

3.2.3.2 Sources of government funding

The rise in government revenue only hesitantly followed the rise in government spending. While government spending relative to GDP rose by 18 percentage points in the 1980s, government revenue rose by only 5 percentage points (from 27 percent in 1980 to 32 percent in 1990). More adjustment in government revenue occurred in the 1990s, when its GDP share rose by 11 percentage points (from 32 percent of GDP in 1990 to 43 percent in 2000). This brought Greece's general government revenue 3 percentage points below the EU-15 average (and above the average for the peripheral-4), but by 2009 government receipts in Greece (at 37 percent of GDP) had again fallen way below the EU-15 (which stood at 44.3 percent) and even the peripheral-4 average (which stood at 39.2 percent) – see Figure 3.6.

Figure 3.6



Source: Ameco: General Government (S13), Revenue (ESA95), Total revenue (TR) (URTG), ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm, data extracted on 11 January 2011; own calculations.

Direct taxes (including social security taxes) contributed the most to the rise in government revenue; whereas in 1976 they were 13 percent of GDP and 47 percent of total government revenue, by 2009 they had risen to 23 percent of GDP and 59 percent of government revenue. As a result, the significance of indirect taxes declined from 46 percent of government revenue in 1976 to 30 percent in 2009. This reduction in the importance of indirect taxes was a result of two forces: first, the harmonisation of indirect taxation in Greece with those of the (then) EEC in 1980 (the year prior to Greece's accession to the EEC) when many indirect taxes were cut or abolished;[11] second, the creation of the Single Market in 1992, when more indirect taxes were abolished. Figure 3.7 depicts the evolution of different sources of tax revenue in total (tax and non-tax) revenue.

Social security contributions, which provided 26 percent of government revenue in 1976, rose

[11] Following Greece's entry in the EEC in 1981, there was a large decrease of tariff revenue; whereas in 1974 tariff revenue contributed 7.5 percent to total tax revenue, by 1982 the share of tariff revenue in total tax revenue had declined to 1.8 percent, and by 1990 had declined to below 0.1 percent.

to form 31 percent of revenue in 1985, and climbed to 38 percent in 2009. This rise in the importance of social security contributions in government revenue came about through large rises in statutory tax rates. In 1981, the rate for employer social security contributions stood at 18.75 percent, whereas the employee rate was 10.25 percent. By 2008, these rates had risen to 28 percent for employers and 16 percent for employees. The relevant figures for the EU-15 average in 2008 were 24 percent and 11.4 percent, respectively (OECD 2008).

The outline of the Greek tax system shows that Greece has significantly lower tax revenue (including social security contributions) than the other EU-15 countries and even lower ones than the other countries in the periphery (with the exception of Ireland). In comparison to the EU-15, the lack of total government revenue, and of tax revenue, relative to GDP has been in the range of 6 to 7 percent of GDP in recent years.

In addition, the Greek tax system is replete with serious drawbacks. (Some of the above-mentioned shortcomings of the tax system have been ameliorated by the 2010 tax reform, which we discuss in Section 3.4). These have arisen as the tax system has been changing frequently in ad-hoc fashion to comply with EU regulations, to generate additional revenue and to reverse (or sometimes foster) real or perceived inequities of the tax system.

Both the issues of equity and efficiency are adversely affected by the main issue bedevilling Greek public finances, namely tax evasion. This issue is particularly pertinent among those owning small businesses and the self-employed (from plumbers and electricians to medical doctors and lawyers), and it is exacerbated by the fact that the share of self-employed in total employment is so high in Greece. That the self-employed are more likely to tax-evade than those on dependent employment is well established in the literature. For example, using US tax audit data, Slemrod and Yitzhaki (2002) calculated that the rate of under-reporting of income from dependent employment was less than 1 percent, whereas the rate at which the self-employed under-reported their income was close to 58 percent. Assuming that the behaviour of the self-employed in Greece regarding tax evasion is similar to that in the United States, the difference in the shares of self-employment in the two countries (Greece: 30 percent, United States: 7 percent) would explain most of the difference (about 20 percentage points) in the estimated size of the shadow economy in the two countries.[12]

The distributional implications of tax evasion in Greece have been found to largely offset some of the progressive elements of the tax system. Matsaganis and Flevotomou (2010) have compared the tax reported incomes of a large sample of income tax returns in 2004/05 with those observed in the household budget survey of that year. They found that tax evasion causes the poverty rate and the poverty gap to rise above what would have been the case under full tax compliance, in spite of the fact that in their calculations the poverty line was allowed to rise to reflect higher disposable incomes with tax evasion.

In the past, Greek governments have tried to deal with tax evasion by inferring an individual's income on the basis of "objective criteria" (i.e. presumptive taxation). This method presumes that a minimum level of income is required for an individual to own assets or consumer durables of various sizes or value (e.g. houses, swimming pools, passenger cars, motor boats) and to pay for household services (e.g. maids, gardeners, drivers, tutors). An individual's tax obligations would then be calculated on the higher of their reported or "objectively calculated" income. Various other methods have also been tried in the past in order to infer the income of self-employed individuals (e.g. in the case of dentists an algorithm based on the years of practice, the geographical location of the surgery, the use of dental assistants, etc.).

Despite the shortcomings of these methods, it is worth noting that they resulted in higher tax obligations for many of the professional classes (e.g. medical doctors, dentists, lawyers, architects), which on average reported incomes below those earned by manufacturing workers. These methods were abandoned a few years ago in the expectation that the reduction in statutory tax rates would increase taxpayer compliance. However, the response of the professional classes was not as expected since they continued to declare ridiculously low incomes.[13] As a result, the current Greek government, forced also by the threat of default, is bringing forward legislation that reinstates

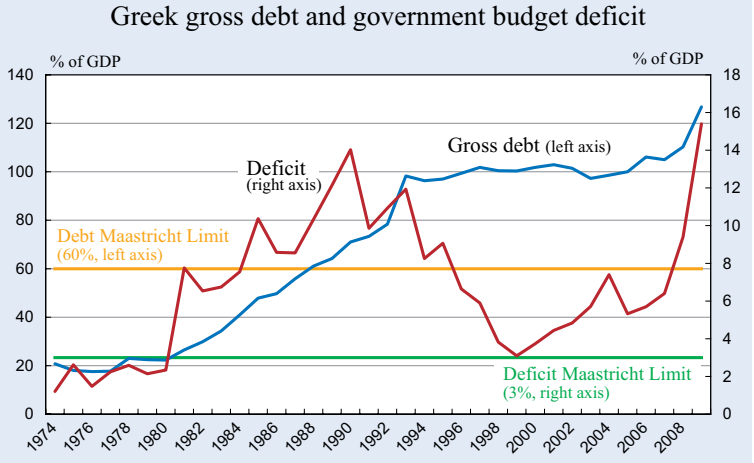
[12] Schneider and Enste (2000) and Schneider (2006) estimate the size of the shadow economy in Greece to be the largest (as a proportion of GDP) among 21 OECD countries. Their estimates hover between 25 and 30 percent of GDP.

[13] For example, according to data released from the Ministry of National Economy (reported in the Greek newspaper *Ta Nea, www.tanea.gr/default.asp?pid=2&artid=4567727&ct=1,* 31 March 2010), among the 151 medical doctors practicing in the most lucrative (for medical professionals) area of Athens, more than 40 percent of them reported annual, before-tax, incomes of less than 20,000 euros in 2008, which is less than the average income for wage earners.

(and in some cases reinforces) the old "objective criteria" for the calculation of minimum taxable income.

In addition to the large rates of income tax evasion, Greece faces very high rates of payroll tax evasion. As is to be expected in such cases, the estimates vary widely. Studies conducted by the Social Insurance Foundation (IKA) estimate that payroll tax evasion has increased through the years; the early 1990s' estimates were around 13 percent of revenues, whereas more recent estimates raise this figure from about 16 percent in 2003 to 20 percent in 2005 (POPOKP 2005). IKA estimated that employers in 10 percent of all firms inspected in 2008 failed to pay social contributions, while 27 percent of all workers remained unregistered (Matsaganis et al. 2010). A weak connection between individual contributions and benefits has created incentives for collusion between employer and employee in order to minimise their social security contributions.

Figure 3.8



Source: Ameco: General Government (S13), Expenditure (ESA95), ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm, data extracted on 11 January 2011; own calculations.

On the face of it, successive Greek governments have tried to implement reforms aimed at increasing the efficiency of tax collection, mainly through efforts to curb tax evasion. For example, from 2004 to 2007 new measures were instituted with the aim of reducing tax evasion. The most important of these measures were: (i) the imposition of VAT on new buildings (aimed at reducing the incidence of informal activity in construction activities), and (ii) the upgrading of the information technology used for the cross-checking of tax data and the restructuring of audit services. In addition, cuts in personal income taxes and measures to broaden the tax base (through the imposition of a 10 percent tax on dividends and capital gains) and to simplify the tax system (through a unique property holding tax) were introduced. Yet, these measures have not had much effect on tax evasion. A reason for this is that the measures are mostly piecemeal and do not take into account all other pieces of existing legislation. Another reason is that recurring tax amnesties have eroded the credibility of the system by providing incentives to taxpayers to delay and eventually evade the payment of taxes. The current Greek government announced another such "settlement" in October 2010. A further incentive for tax-evading behaviour is provided by the existence of deadlines that permit taxpayers to be absolved of their tax obligations if the state has not managed to collect the owed taxes in time. In 2007 alone, around 3.5 billion euros (about 1.5 percent of GDP) in taxes were written off, mainly due to lapses in time for the collection of the owed tax revenue (State Audit Council 2008).

The failures in collecting taxes and in reigning in government spending were reflected in the fast accumulation of public debt. The accumulation of public debt through successive budget deficits is depicted in Figure 3.8 for the period from 1974 to 2009.[14] We note the large deficits of the 1980s and early 1990s which took the debt-to-GDP ratio from 20 percent in 1975 to 100 percent in 1994. The government's focus on the goal of EMU participation led to the fiscal consolidation of 1994 to 2000, but this was reversed after being admitted to the euro area. The onset of the global financial crisis put an end to the perception (held by both politicians and financial markets) that Greek public finances were sustainable, and by the end of 2009 the public debt-to-GDP ratio had risen to 127 percent, and the budget deficit for the year is estimated at 15.4 percent of GDP.

Given the fast growth in nominal (and real) GDP that the Greek economy registered from the mid-1990s until 2008 and the rather moderate (by Greek standards) deficits recorded during the period, how can

[14] From 1953 to 1973 Greek governments were very prudent and, in most years, modest annual budget surpluses were recorded. This fiscal stance was partly a result of the fact that the country could not borrow internationally prior to 1966, when the settlement of the 1930s default was finally completed.

one account for the fact that there was not a decline in the debt-to-GDP ratio?

To answer this question we decompose the well-known identity[15] describing the accumulation of public debt in order to disentangle the relative importance of the following four factors to debt accumulation: (i) over-generous programme spending and lax tax policy (and administration) leading to a primary deficit even if the economy is operating at potential output – we call this the *structural component;* (ii) primary deficits arising as a result of output being below potential – the *cyclical component;* (iii) the (real) interest rate exceeding the GDP growth rate, so that the debt-to-GDP ratio would rise even if programme spending and revenues are equal – the rate component; (iv) various activities undertaken by the government that affect the accumulation of debt but are not reported as deficit – the *stock-flow adjustment.*[16] The details of this decomposition are explained in Box 3.1.

Figure 3.9 presents the annual decomposition of the debt accumulation, whereas Figure 3.10 presents the compound effect of the different components. Starting from 1990, when government debt was 72 percent of GDP, the debt-to-GDP ratio reached

[15] Blanchard (1990), Buiter, Corsetti and Roubini (1993), and Fortin (1996) present various ways of decomposing the public debt accumulation identity.
[16] The data used in this section relate to debt and deficits as reported by Ameco before the November 2010 revision by Eurostat.

Box 3.1

Public debt decomposition

The government budget constraint implies that the stock of public debt at the end of period t, B_t, results from inherited debt at the end of period $t-1$, B_{t-1}, plus the budget deficit during period t, D_t:

$$B_t = D_t + B_{t-1}.$$

Interest payments can be separated from other expenditures, and the accumulation identity can then be rewritten as:

$$B_t = (1 + r_t)B_{t-1} + PD_t, \quad (1)$$

where PD_t is the primary deficit in period t. To account for the effects of growth on the government's ability to borrow, after some simple manipulations we can approximate the evolution of government debt in terms of ratios to GDP (denoted by lowercase letters):

$$b_t - b_{t-1} = (r_t - g_t)b_{t-1} + pd_t, \quad (2)$$

where g_t is the growth rate of real GDP.

An implication of equation (2) is that in order for the debt ratio to be stabilised, the left hand side of (2) must be zero, implying that the primary balance should satisfy

$$pd_t = -(r_t - g_t)b_t. \quad (3)$$

This implies that when the real interest rate is higher than the growth of real GDP and the debt is positive, the government must run a primary surplus ($pd < 0$).

Using equation (2), we can rewrite the debt (-to-GDP ratio) accumulation identity as

$$b_t - b_{t-1} = pd_t^* + (pd_t - pd_t^*) + (r_t - g_t)b_{t-1}, \quad (4)$$

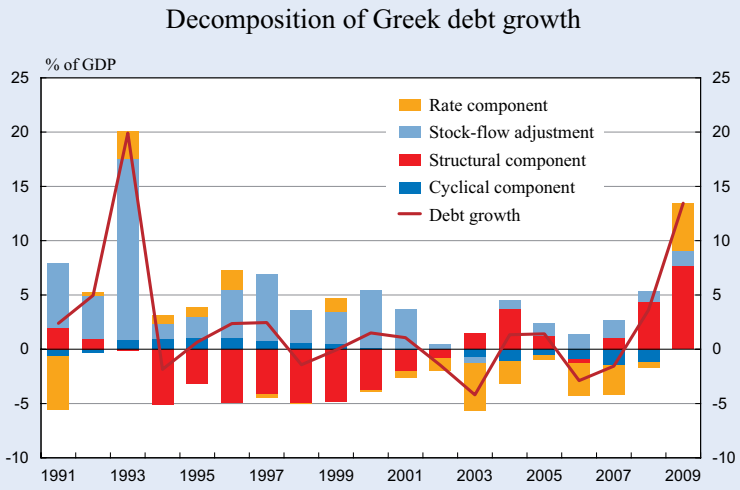
where pd_t^* stands for the primary deficit-to-GDP ratio when GDP is at its potential level. In equation (4) we now have the debt accumulation consisting of three components. The first component is the *structural* component and measures the contribution of the primary deficit to debt accumulation if the economy is operating at full capacity. The second component is the *cyclical* component (this is the second term on the right hand side) and measures the contribution that the *primary deficit* makes to debt accumulation as a result of the economy operating below capacity. Finally, the third component, which has been called the *rate* component, measures the influence of the difference between the (real) interest rate and growth of GDP on the debt-to-GDP ratio.

In order to apply equation (4) in the Greek context, we need to take into account various activities undertaken by the government that affect the accumulation of debt but are not reported as deficit. These activities are subsumed under the term *stock-flow adjustment* (European Commision 2004). Taking into account the stock-flow adjustment term (sf_t), the modified equation (4) reads:

$$b_t - b_{t-1} = pd_t^* + (pd_t - pd_t^*) + (r_t - g_t)b_{t-1} + sf_t. \quad (5)$$

The Ameco database provides estimates for two measures of potential output as well as estimates of the cyclically adjusted deficit for both of these measures. Since the results of using either measure of potential output do not affect, to any significant degree, the contribution of each factor to the evolution of debt, we will present results based on the sustainable GDP measure.

Figure 3.9



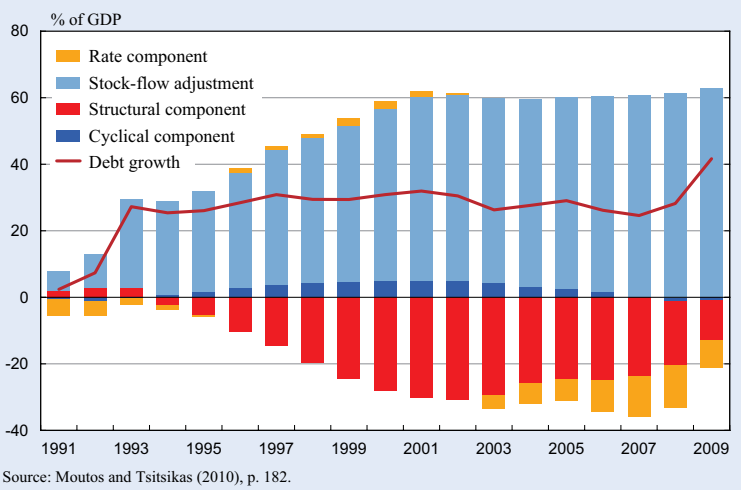
Source: Moutos and Tsitsikas (2010), p. 181.

113 percent at the end of 2009. Figure 3.10 makes clear that the rise in the debt-to-GDP ratio by 41 percentage points from 1990 to 2009 can be wholly attributed to the stock-flow effect, which, in the absence of other forces, would have contributed 62 percentage points to the debt-to-GDP ratio. (We note that this conclusion would most likely remain intact had we used the latest debt and deficit data as revised by Eurostat in November 2010.) The joint, cumulative force of the other three components would have subtracted from the debt-to-GDP ratio 21 percentage points, of which the structural component contributed 12 points, the rate component 8 points and the cyclical component just 1 percentage point.

What government actions (both before and after 1991) were responsible for this huge contribution of stock-flow adjustments to the rise in the debt-to-GDP ratio? The Greek government had accumulated (especially during the 1980s) large implicit liabilities in the form of loan guarantees to "restructured enterprises", which became quasi-public entities. From 1990 to 1993 the government took over the long-standing liabilities of these entities to the banking system – up to that point these liabilities were not recorded in government debt.[17] These liabilities (known as "consolidation loans") amounted to 1.8 trillion drachmas (about 5.3 billion euros), and had by 1992 added 10 percentage points to the debt-to-GDP ratio.

Large stock-flow adjustments were also recorded during the 1994 to 2000 period since the second phase of EMU required a consolidation of government accounts, especially with the central bank. The government had three accounts with the central bank, which were overdrawn to the sum of 3.04 trillion drachmas (about 9 billion euros), all of which had to be transformed into formal debt by the end of 1993 so that Greece could enter the second phase of EMU (see Manessiotis and Reischauer 2001 for more details). This action alone added another 16 percentage points to the debt-to-GDP ratio. In addition to these very large, debt-increasing, stock-flow adjustments, it is worth mentioning that during the consolidation period some (far smaller) debt-reducing adjustments were made. These involved the transfer of Social Security Fund's deposits from the central bank (where they were held in its own name) to the government's accounts, as well as the privatization revenue that was used to retire public debt. It is evident that the effort at budget consolidation that started in 2010 will not be successful if it does not manage to reign in the creation of the off-budget liabilities,

Figure 3.10



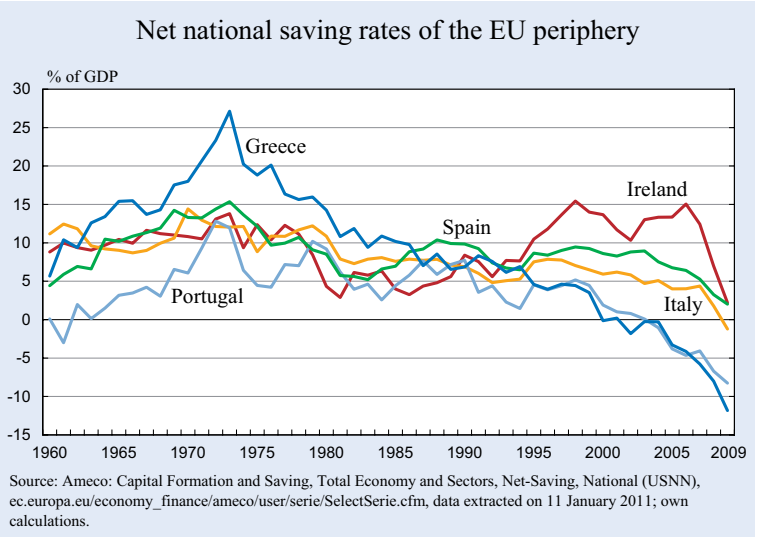
Source: Moutos and Tsitsikas (2010), p. 182.

[17] Large stock-flow adjustments took place in 1982 and in 1985 as well. These resulted from previous loans that the Bank of Greece extended to the government in order for the latter to make off-budget transfers to farmers.

which are still accumulating in some publicly-owned enterprises.

From Figure 3.9 we observe that from 1994 to 2000, the structural component contributed on average about 4 percentage points per annum to debt reduction. This process was reversed gradually from 2001 to 2009; during this period the structural component added on average about 2 percentage points per annum to the increase in the debt-to-GDP ratio. One may be justified in thinking that the efforts of Greek governments to reign in the accumulation of debt were relaxed after the country gained entry into the euro area, given that Greek interest rates fell dramatically (see Chapter 2, Figure 2.1). A more benign interpretation would take into account the steep rise in spending on infrastructure necessitated by the 2004 Athens Olympics and the recent global financial crisis. Nevertheless, the very large debt-to-GDP ratio left the country vulnerable to perturbations in the difference between GDP growth and real interest rates. We note that due to the low interest rate environment in which Greece was operating after entering the EMU and until the onset of the global financial crisis, as well as the fast growth rates it experienced after 1994, the rate component did not contribute to debt accumulation (in fact, it subtracted 8 points[18]).

Figure 3.11



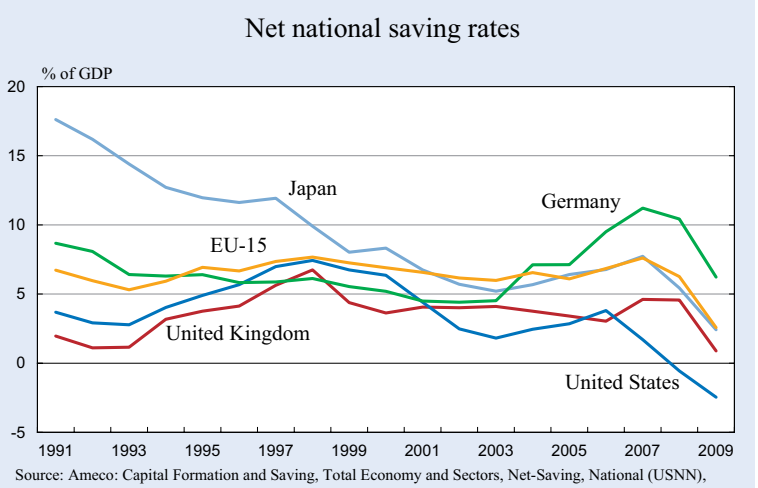
Source: Ameco: Capital Formation and Saving, Total Economy and Sectors, Net-Saving, National (USNN), ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm, data extracted on 11 January 2011; own calculations.

3.2.4 External imbalances

Bringing the government's finances in a sustainable position is a key priority for Greece. Unfortunately, this may not be the main problem; the very high, and rising, net foreign indebtedness may be the bigger problem. The fast growth experienced by the Greek economy after 1950 (identified with the initial stages of its catch-up phase with the advanced OECD economies), was associated with significant increases in both the net and gross saving rate until 1974. For the 35 years since 1974, however, there has been a steady decline in the saving rate, with the net saving rate dropping by about 32 percentage points, from 20 percent to minus 12 percent.[19] This huge drop in the national saving rate has (since 1988) not been associated with a rise in government borrowing, but it is wholly attributable to the decline in the private sector's gross saving rate (from 27 percent in 1988 to 11 percent in 2008; see Moutos and Tsitsikas 2010).

The decline in the Greek national saving rate is larger than in any other EU-15 country. Figure 3.11 shows the net national saving rates for Greece, Ireland, Italy, Portugal and Spain, whereas Figure 3.12 displays the same variable for the EU-15, Germany, Japan, the

Figure 3.12



Source: Ameco: Capital Formation and Saving, Total Economy and Sectors, Net-Saving, National (USNN), ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm, data extracted on 11 January 2011; own calculations.

[18] See Moutos and Tsitsikas (2010) for more details.
[19] See Figure 3.11. The difference between gross and net saving is the depreciation of capital (i.e., capital consumption).

United Kingdom and the United States. Greece and Portugal are the only countries in the euro area for which the net national saving rate turned negative under the euro, long before the onset of the global financial crisis in 2008, another aspect of the soft budget constraints that prevailed.[20]

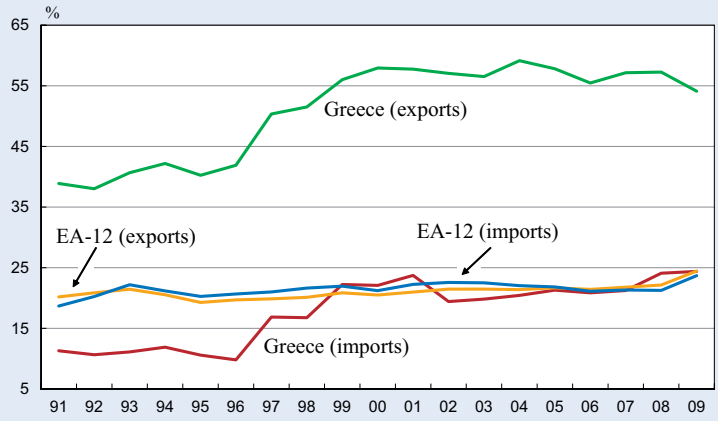
The upshot of the large decline in national saving for Greece has been a gradual widening of the current account deficit and the accumulation of foreign debt (Figure 3.13). During its period of fast growth from 1950 to 1973 (about 7 percent per annum), Greece ran small current account deficits, which were on average about 2 percent of GDP. These small current account deficits were made up of large deficits in the trade balance on goods and services (about 7 percent on average) and significant surpluses (about 5 percent on average) on the income and transfers accounts, mainly reflecting remittances from Greek seamen and emigrants.

Following the first oil crisis and up to Greece's accession to the EEC in 1981, there was a reduction in the growth rate (to still respectable 4 percent per annum), and a marked improvement in the trade balance, which produced a string of current account surpluses. From 1981 onwards, both the income and trade accounts started deteriorating (as emigrants started returning to the home country, and the gradual liberalisation of trade took effect), but there was an improvement in the transfers balance (mainly transfers from the European Union), which, as long as it lasted, prevented a large deterioration of the current account. The current account deteriorated sharply around the year 2000 shortly before Greece was admitted to the euro area. According to Bank of Greece figures, the country's negative net international investment position stood at about 98 percent of GDP by the third quarter of 2010 – a result of the huge current account deficits that were incurred during the last 10 years.[21]

We conclude this section by drawing attention to the overwhelming influence of the service sector in total Greek exports (Figure 3.14). The share of services in total exports increased during the 1990s from an already high level and has, during the last decade, been more than twice as large as the corresponding measure for the EA-12. Before the crisis, in 2008, transportation services (mainly sea transport) contributed 56 percent to the total exports of services,

Figure 3.14

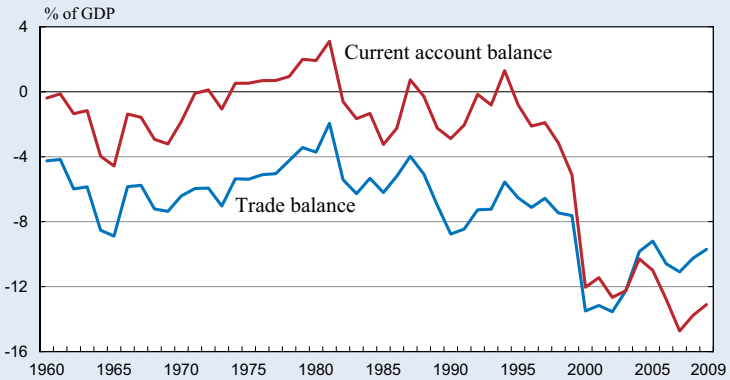
Share of services in total exports and total imports



Source: Ameco: Exports and Imports of Goods and Services, National Accounts, ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm, data extracted on 11 January 2011; own calculations.

Figure 3.13

Greek current account and trade balance



Source: Ameco: Balances with the Rest of the World, National Accounts, Balances with the Rest of the World, National Accounts, Balance on current transactions with the rest of the world (UBCA), ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm, data extracted on 11 January 2011; own calculations.

[20] Among the likely causes of the decline in the saving rate in Greece is the continuous decline of the share of agricultural employment (since farmers face greater income uncertainty than wage earners – especially government employees), and the gradual extension of unfunded pension benefits to a larger part of the population.

[21] See Bank of Greece, Statistics, External Sector, International Investment Position *www.bankofgreece.gr/BogDocumentEn/International_Investment_Position-Data.xls,* data extracted on 23 January 2011, own calculations.

while travel services (mainly tourism) contributed another 34 percent.[22]

During the recent global crisis, the share of services in total exports decreased in Greece by about 4 percentage points from 2008 to 2009, whereas it increased by about 2.5 percentage points in the EA-12. These differential movements reflect the fact that Greece was earning from transportation services in 2008 as much as from its total exports of goods (including ships and oil). The considerable slowdown in world trade in 2009 reduced Greek receipts of transportation services by about 30 percent in 2009 relative to 2008.

3.3 The crisis

The slowdown in global economic activity in 2008, and the recession in OECD countries in 2009 were the prelude, but not the cause, of the Greek crisis. With hindsight we know that Greece had been on an unsustainable path for many years. In fact, it may have been unfortunate for Greece that the global crisis did not come earlier – for, in this case, both the public debt-to-GDP ratio and the net foreign indebtedness-to-GDP ratio would have been smaller, thus making the adjustment less painful, and the probability of default or debt restructuring smaller.

Greece's inability to access private financial markets is related to the fact that a constantly increasing share of its public debt is externally held, which compromises the perceived ability (and willingness) of the country to keep honouring its debt obligations to foreigners. The projected level of net external debt for 2010 is 99 percent of GDP. At the end of 2009 the average net external debt-to-GDP ratio of the GIPS countries (Greece, Ireland, Portugal and Spain) stood at about 82 percent (Cabral 2010).

The current account deficits incurred after 1997 have been responsible for increasing the country's net foreign debt position as a proportion of GDP from 3 percent of GDP in 1997 to 86 percent by the end of 2009 (IMF 2010b). The rise by 83 percentage points in net foreign indebtedness dwarfs the 25 point rise in the public debt-to-GDP ratio during the same period (from 102 percent in 1997 to 127 percent in 2009).

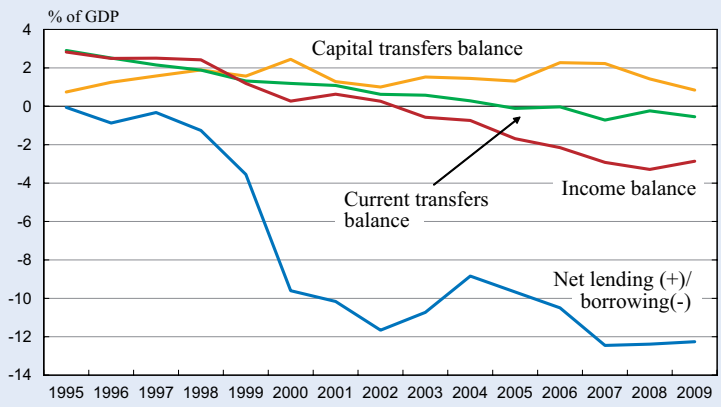
Consistent with these facts, the net borrowing requirements of the Greek economy as a proportion of GDP from 2000 until 2008 were on average 10.6 percent per annum. During the same period, the average budget deficit was 5.9 percent per annum. (according to the data revised by Eurostat in November 2010), implying that the private sector not only was unable to finance the government's budget deficit, but was also an equally significant net contributor to the rise in the country's net foreign indebtedness (Katsimi and Moutos 2010).

In addition to the very large trade deficits, the rise in foreign indebtedness was also fuelled by (i) the gradual decrease in the current and capital transfers, which Greece was receiving (mainly) from the European Union, and (ii) the sharp deterioration in the income account (Figure 3.15). In 1995, the balance on current and capital transfers was equal to 3.6 percent of GDP (2.9 on current transfers, and 0.7 on capital transfers). In 2009, the magnitude for the sum of these transfers had dropped to just 0.3 percent of GDP. The deterioration in net income receipts was even larger; in 1995 there was a surplus of 2.8 percent of GDP, which by 2009 had turned to a deficit of 2.9 percent.

When a large proportion of public debt is held externally and debt interest payments to foreigners are a large proportion of the country's GDP, foreign

Figure 3.15

Greek external balances



Source: Ameco: Balances with the Rest of the World, National Accounts, Balances with the Rest of the World, National Accounts, Balance on current transactions with the rest of the world (UBCA), ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm, data extracted on 11 January 2011; own calculations.

[22] See Bank of Greece, Statistics, External Sector, Balance of Payments, Basic Items, *www.bankofgreece.gr/BogDocumentEn/Basic_data_of_Balance_of_PaymentsAnnual_data.xls,* data extracted on 23 January 2011, own calculations.

investors may start to question the ability (and/or willingness) of the government to generate the resources required for debt service to foreigners. In the case of Greece, the interest payments made to foreigners were 3.8 percent of GDP in 2009. In the first months of 2010, market estimates for this figure had it rising to at least 5 percent of GDP in the near future, under the assumption that interest rates would not rise – not a small figure by historical standards.[23]

3.4 The bailout

In October 2009, the newly elected Greek government announced that the projected budget deficit for 2009 was 12.7 percent of GDP rather than the 2 percent displayed in the Greek 2009 budget (approved by Parliament in December 2008). From this moment until the formal request for assistance on 23 April 2010, the Greek government attempted to "educate" the public about the severity of the brewing crisis and persuade itself that nothing less than the standard IMF bailout package was the only available option. As becomes apparent from the events detailed in Box 3.2, domestic political and economic considerations, including the need to persuade the traditional voters of the governing party as to the necessity of the conditionality-based bailout package, were instrumental in delaying the official recognition of the limited choices available to the country.

The total value of the loans to be disbursed to Greece amounts to 110 billion euros, of which 80 billion are intergovernmental loans pledged by the euro-area countries, and 30 billion offered by the IMF. The projected disbursement of these loans is targeted to meet Greece's financing needs up to the first half of 2013. Table 3.2 provides these details as well as the predicted evolution of government and external debt.

The euro-area loans carry a variable interest rate, calculated as the three-month Euribor rate plus a charge of 300 basis points. For amounts outstanding for more than three years, the charge rises to 400 basis points. To cover operational costs, a one-off service fee of 50 basis points is also charged for each drawing. The euro-area loans are envisaged to carry the same maturities as IMF lending, i.e., a three-year grace period and subsequent repayment of principal in eight equal quarterly tranches. The interest rate for the IMF loan (30 billion euros) is around 3.3 percent.

The European Council Decision of 10 May 2010 requires Greece to adopt a number of measures before the deadlines of end-June 2010, end-September 2010, end-December 2010 and end-March 2011. According to the Memorandum of Understanding (see European Commission 2010a, Attachment II, pp. 59–84) between the Greek government, the European Commission, the ECB and the IMF, the adjustment will be frontloaded and will be based more on permanent expenditure cuts than tax increases. In total, the fiscal consolidation measures[24] will amount to about 20 percent of one year's GDP over the 2010 to 2014 period. The total adjustment of 20 percentage points is planned to be spread over the years, as in Table 3.3. Note that none of these consolidation measures force the Greek government to save and actually reduce its debt. The measures are merely designed so as to reduce the net increase in debt.

The adjustment programme, in addition to cuts in the public sector wage bill and increases in indirect taxation, includes a wide-ranging reform of the pension system and structural reform initiatives aimed to boost the capacity to export and reduce the very large trade deficit. As noted in Section 3.2, reform of the pension system is the most important budget item for fiscal sustainability (see Table 3.1). Projections from the European Commission (2010a) about the growth of the public debt with an unreformed pension system (but with all other consolidation measures in place) raise the debt-to-GDP ratio to more than 250 percent by 2050.[25]

The pension reform adopted by the Greek Parliament on 8 and 15 July 2010 (for the private and public sector, respectively) simplifies the current highly fragmented pension system, enhances transparency and fairness, postpones the retirement age and decreases the generosity of benefits, while preserving an ade-

[23] For example, the interest payments that the Latin American countries had to make to foreigners were on average about 6 percent of GDP during the debt crisis of the 1980s (Agénor and Montiel 1996). The annual reparations that Germany had to make after the initial period of heavy reparations following the end of World War I (1924–1931) were less than 3 percent of GDP (Webb 1988). (This figure does not include the most voluminous reparations, though. Amongst others, most of Germany's trading fleet and all patent rights were transferred, German foreign property was nationalized and substantial territories (e.g., Alsace) were lost, see Webb 1988). On the other hand, even 15 years after unification west German transfers to eastern Germany were about 5 percent of west German GDP (Sinn 2007, p. 149). IMF (2010a) estimates that for a few years Greece will have to transfer as much as 5 percent of its GDP as (net) debt interest payments abroad.

[24] The consolidation measures include the, as yet, unidentified ones as well as those announced by the Greek government before 10 May 2010.

[25] Projections which do not take into account either the consolidation measures or the pension reform of 2010 raise the debt-to-GDP ratio to over 400 percent by 2040 (see Cecchetti et al. 2010).

Box 3.2

Timeline of the Greek sovereign debt crisis

21 October 2009:	The newly elected government notifies Eurostat that the projected government budget deficit for 2009 is 12.5 percent of GDP, instead of the 3.7 percent updated projection reported in April 2009.
22 October 2009:	10-year bond spread (over the German bond) remains unchanged at 134 basis points.
5 November 2009:	Update of government budget reveals an estimated deficit of 12.7 percent of GDP for 2009, more than six times the initial budget (December 2008) estimate.
6 November 2009:	10-year bond spread remains at 139 basis points.
8 November 2009:	Budget draft aims to cut deficit to 8.7 percent of GDP for 2010, and projects public debt to rise to 121 percent of GDP in 2010 from 113.4 percent in 2009.
8 December 2009:	Fitch Ratings cuts Greece's rating to BBB+ from A-, with a negative outlook.
9 December 2009:	10-year bond spread reaches 247 basis points.
16 December 2009:	Standard & Poor's cuts Greece's rating to BBB+ from A-.
22 December 2009:	Moody's cuts Greece's rating to A2 from A1.
23 December 2009:	Parliament adopts the 2010 budget setting a general government deficit target of 9.1 percent of GDP.
1 February 2010:	10-year bond spread reaches 270 basis points.
2 February 2010:	The European Commission adopts (i) a proposal for a Council Decision, in view of the excessive deficit correction in Greece by 2012, (ii) a Draft Council Recommendation with a view to ending the inconsistency with the broad guidelines of the economic policies, and (iii) a Draft Council Opinion on Greece's Stability Programme.
3 February 2010:	Greece announces a set of measures in addition to those announced in the Stability Programme (freezing wages and raising excise taxes with the aim of reducing the government deficit).
11 February 2010:	European Council invites the Economic and Financial Affairs Council (ECOFIN) to adopt these documents, and calls on the European Commission to monitor implementation of the Council decision and recommendation, in liaison with the ECB and drawing on the expertise of the IMF. The euro-area member states declare their readiness to take determined and coordinated action, if needed, to safeguard the financial stability in the euro area as a whole.
16 February 2010:	European Council adopts the above-mentioned documents, after discussion in the Eurogroup.
3 March 2010:	Greece announces new deficit-reducing measures of over 2 percent of GDP, including an increase in the VAT rates and other indirect taxes and a cut in the wage bill (through the reduction in allowances, and partial cancellation of the Easter, summer and Christmas bonuses, of civil servants).
8 March 2010:	Greece submits a report on progress with implementation of the Stability Programme and additional measures.
15 March 2010:	The Eurogroup welcomes the report by Greece, and embraces the European Commission's assessment that the additional measures appear sufficient to safeguard the 2010 budgetary targets, if fully implemented.
25 March 2010:	10-year bond spread drops to 250 basis points.
25 March 2010:	Heads of state and governments of the euro-area countries reaffirm that they fully support the efforts of the Greek government and welcome the additional measures announced on 3 March, which appear sufficient to safeguard the 2010 budgetary targets.
8 April 2010:	10-year bond spread reaches 430 basis points.
11 April 2010:	The Eurogroup reaffirms the readiness by euro-area member states to take determined and coordinated action if needed. It highlights that the objective is not to provide financing at average euro-area interest rates but to safeguard financial stability in the euro area as a whole.
15 April 2010:	Greece requests "discussions with the European Commission, the ECB and the IMF on a multi-year programme of economic policies … that could be supported with financial assistance …, if the Greek authorities were to decide to request such assistance".
22 April 2010:	Eurostat revises its estimate for the 2009 Greek budget deficit to 13.6 percent.
22 April 2010:	10-year bond spread rises to 586 basis points.
23 April 2010:	Greece requests financial assistance from the euro-area member states and the IMF.
27 April 2010:	Standard & Poor's downgrades Greece's debt ratings below investment grade to junk bond status.
27 April 2010:	10-year bond spreads reach 755 basis points.

continued: Box 3.2

3 May 2010:	Greece, the European Commission, the ECB and the IMF announce an agreement on a three-year programme of economic and financial policies (see European Commission 2010a, Attachment II, pp. 59-84). The Eurogroup unanimously agrees to activate stability support to Greece via bilateral loans centrally pooled by the European Commission.
3 May 2010:	ECB announces that it will accept Greek government bonds as collateral no matter what their rating is.
4 May 2010:	The European Commission adopts a Recommendation for a Council Decision according to the Treaty on the Functioning of the European Union (TFEU).[1)] The Draft Decision includes the main conditions to be respected by Greece in the context of the financial assistance programme.
6 May 2010:	The Greek Parliament votes to accept a series of policy measures included in the programme of economic and financial policies, including an increase in VAT and excise taxes, as well as further reductions in public sector wages and pensions.
6 May 2010:	ECB adopts temporary measures relating to the eligibility of marketable debt instruments issued or guaranteed by the Greek government.
7 May 2010:	10-year bond spread reaches 1038 basis points.
7 May 2010:	The European Council adopts a Decision according to the TFEU including the main conditions to be respected by Greece in the context of the financial assistance programme (totalling 110 billion euros).[2)]
9 May 2010:	IMF Executive Board approves the stand-by arrangement (SBA).
10 May 2010:	The European Council and the EU member states endorse a financial stabilisation mechanism.
10 May 2010:	10-year bond spread falls to 458 basis points.
18 May 2010:	The euro-area member states disburse the first instalment (14.5 billion euros) of a pooled loan to Greece.
28 June 2010:	10-year bond spread reaches 811 basis points.
6 July 2010:	10-year bond spread falls to 770 basis points.
6 August 2010:	Greece submits to the European Council and the European Commission a report outlining the policy measures taken to comply with May's bailout package.
19 August 2010:	European Commission determines that Greece has met the conditions for the second instalment of the 110 billion euros rescue loan after making swift progress in its budgetary reform efforts.
8 September 2010:	10-year bond spread reaches 975 points.
15 November 2010:	Eurostat revises upwards its estimate for the 2009 government budget deficit to 15.4 percent of GDP.
14 January 2011:	Fitch Ratings downgrades Greek bonds from BBB- to BB+.

[1)] See Consolidated Version of the Treaty on the Functioning of the European Union (TFEU), Articles 126 (9) and 136.
[2)] Ibid.

Table 3.2

Greek public sector financing requirements and loan disbursements

	2010	2011	2012	2013
	(in billion euros)			
Financing gap	31.5	46.5	24.0	8.0
of which: EU (8/11 of the gap)	21.1	36.6	17.5	5.8
IMF (3/11 of the gap)	10.4	9.9	6.5	2.2
Total government debt	327.4	348.4	363.8	375.4
	(% of GDP)			
Gross external debt	**187.5**	**192.7**	**199.1**	**203.3**
of which: public sector	135.6	137.8	141.8	141.4
private sector	52.0	54.9	57.2	61.9

Source: IMF (2010b), p. 42.

quate pension for the low-middle income earners – see Box 3.3. Some further elements of the pension system are to be reformed in 2011.[26]

Reforms of the tax system were adopted in April 2010. These reforms aim at widening the tax base for household and corporate income taxation; to this purpose, the new law has enacted a progressive tax scale for all sources of income and a horizontally unified treatment of income generated by labour and capital assets. The new law also abrogates all exemptions and autonomous taxation provisions in the tax system, including income from special allowances paid to civil servants. These changes, in combination

[26] In the absence of complete long-term projections, it is not yet possible to have a complete assessment of the pension reform. The main pension parameters will have to be adjusted in the course of 2011 to ensure that the long-term evolution of pension expenditure (2009–2060) does not exceed 2.5 percent of GDP. This adjustment will be based on long-term projections to be provided by the National Actuarial Authority and validated by the EU Economic Policy Committee.

Table 3.3

Consolidation measures and budget accounting

	Million euros		% of GDP	
		cumu-lative measures		cumu-lative measures
2009 deficit	36 150		15.4	
nominal deficit drift in 2010	4 183		1.8	
identified measures	18 000	18 000	7.8	7.8
impact of nominal GDP growth	–		–0.2	
2010 deficit	22 333		9.6	
nominal deficit drift in 2011	9 345		4.1	
identified measures	14 800	32 800	6.5	14.4
impact of nominal GDP growth	–		–0.1	
2011 deficit (target)	16 877		7.4	
nominal deficit drift in 2012	6 198		2.7	
identified measures	5 575	38 375	2.4	16.6
unidentified measures	2 584	2 584	1.1	1.1
impact of nominal GDP growth	–		0.1	
2012 deficit (target)	14 916		6.4	
nominal deficit drift in 2013	1 687		0.7	
identified measures	575	38 950	0.2	16.3
unidentified measures	4 629	7 213	1.9	3.0
impact of nominal GDP growth	–		0.2	
2013 deficit (target)	11 399		4.8	
nominal deficit drift in 2014	–503		–0.2	
identified measures	–1 050	37 900	–0.4	15.4
unidentified measures	5 561	12 774	2.3	5.2
impact of nominal GDP growth	–		0.2	
2014 deficit (target)	6 385		2.6	

Notes: Deficit in a year equals the deficit in the previous year plus deficit drift in the year minus the the sum of identified and unidentified measures (to calculate the ratios, the impact of the measures on nominal GDP growth is also taken into account). Deficit drift measures the increase in the deficit that would take place without the measures, due, for example, to structural increases in pension expenditure and unemployment benefit payments.

Source: European Commission (2010b), p.17.

with a number of administrative actions (e.g. upgrading of software for purposeful auditing and execution of tax audits on the basis of known data, electronic tracking and monitoring of the fuel market for the purposes of combating the black market, verification of the origin of assets for all tax officials and introduction of measures against officials whose assets cannot be justified by their income) are expected to help increase tax compliance and reduce tax evasion. The extra measures undertaken since May 2010 include an increase in the standard VAT rate from 21 to 23 percent and in the reduced rate from 10 to 11 percent, moving lower taxed products such as utilities, restaurants and hotels to the standard VAT rate, and increasing excises on fuel, cigarettes and other tobacco to bring them in line with EU averages. The remaining measures include higher assessment of real estate, a temporary crisis levy on profitable firms, presumptive taxation (for the self-employed), taxes and levies on unauthorized establishments and buildings, and new gaming royalties and license fees.

Similarly, in addition to the expenditure cuts (mainly on wages and bonuses of public sector workers) undertaken before May 2010, the government has decided to reduce the public wage bill by reducing the Easter, summer and Christmas bonuses to civil servants (these are totally eliminated for those earning more than 2,000 euros per month) and to pensioners with pensions above 800 euros per month. Pensioners receiving more than 1,400 euros per month will face a levy of 10 percent on any amount they receive above it. Other expenditure cuts involve public-sector employment reductions, cuts in discretionary and low priority investment spending, untargeted social transfers, consolidation of local governments and lower subsidies to public enterprises.

Beyond fiscal-related issues, important steps forward have also been made with the ambitious broader structural reform agenda. Business environment reforms, measures to accelerate absorption of structural and cohesion funds, and legislation to implement the Services Directive have been instituted. The government also plans to privatize and restructure state-owned companies – in particular in the areas of rail transport and energy. Of particular importance for the bailout package are the new labour market laws that were adopted on 15 July 2010, aimed at reducing the strictness of employment protection legislation and dismantling the obstacles to temporary and part-time employment. These include provisions to reduce the cost to firms of severance payments and facilitate collective dismissals; the new law also reduces the *overtime premium*[27] and introduces a sub-minimum wage to be applied to newly recruited workers younger than 25 years old (84 percent of minimum wage).

[27] This measure will possibly clash with the objective of promoting part-time employment and work-sharing.

Box 3.3

Pension reform (July 2010)

Main elements of the pension reform are:

- Introduction of a new basic pension of 360 euros per month. For those with less of 15 years of contributions, and thus not eligible for the contributory pension, the basic pension is means-tested, and provides an important social safety net.
- Accrual rates (i.e. the rate at which pension rights accumulate for each year of pensionable employment) in the old system varied significantly across pension funds. The new system introduces accrual rates with the same profile for all workers that depend only on the length of the career (ranging from 0.8 to 1.5 percent of earnings). The new accrual rates are significantly lower than those in the old system (ranging from 2 to 3 percent), reducing the system's over-generosity.
- Under the previous rules, retirement was allowed on a full pension at age 60 and in some cases even earlier. The reform increases the statutory retirement age to 65, and the minimum age for retirement is set at 60. If a person retires between 60 and 65 without having a full contributory period, their pension will be reduced by 6 percent per year before reaching 65 years of age.
- The full contributory period will increase from the current 35 years (or even lower, for some categories) to 40 years.
- As from 2021, the minimum and statutory retirement ages will be adjusted in line with changes in life expectancy every three years.
- Equalization of retirement age of men and women in both the private and public sector by 2013. Moreover, the indexation of benefits will not exceed HICP inflation.
- Pensionable earnings will be calculated based on the full-earnings history. In the old system only five years (with the best earnings) of the 10 last years before retirement were used to determine pensionable earnings.
- A substantial revision of the list of heavy and arduous professions, aiming at reducing substantially the coverage to no more than 10 percent of the employees, is underway, and it will apply from 1 July 2011 for all workers.

Further initiatives that are on the agenda include extending probationary periods for new jobs from two months to one year; facilitating the use of temporary and part-time contracts, as well as increasing flexibility in working hours; clarifying the legal framework for collective bargaining to ensure that there is a clear legal framework for firm level agreements, with the aim of allowing firm-level agreements to prevail over other levels; reforming the arbitration system, so as to guarantee non-interference from the government.

The social partners have also recently concluded a national general collective bargaining agreement with a three-year horizon, which foresees a wage freeze for 2010 and wage increases as of July 2011 and July 2012 equal to the HICP for the European Union in 2010 and 2011, respectively. Moreover, new legislation enacted in July 2010 forbids sectoral or enterprise unions from taking to arbitration wage demands that exceed the limits set by the collective agreement, and renders void recently concluded decisions by the arbitration

Table 3.4

Macroeconomic developments

	2009	2010	2011	2012	2013
	Annual percentage change				
GDP	–2.3	–4.3	–3.2	1.1	2.1
Private consumption	–1.8	–4.1	–4.3	0.5	1.1
Public consumption	7.6	–9.0	–8.5	–6.0	–1.0
Gross fixed cap. formation	–10.4	–17.4	–7.5	–2.6	1.1
HICP	1.3	4.7	1.7	0.5	0.7
Unit labour costs total economy	4.1	–0.6	–0.7	0.1	–0.2
Total exports	–20.0	0.6	5.1	6.0	7.4
Total imports	–18.6	–12.0	–6.4	–1.5	1.5
	% of GDP				
Current account balance	–14.0	–10.6	–8.0	– 6.5	–5.2
Net borrowing from the RoW	–12.9	–9.5	–6.7	–5.1	–3.7
General government deficit	–15.4	–9.6	–7.4	–6.4	–4.8
Primary government balance	–10.1	–3.3	–0.8	1.1	3.5
General government gross debt	126.8	141.2	152.6	156.9	157.3
Unemployment rate	9.5	12.4	15.5	15.0	14.6

Source: For GDP growth rate, HICP (inflation), and unemployment rate: EEAG forecast up to 2011. For 2012 and 2013, for the same variables, IMF (2010b, Table 7). For all other variables, European Commission (2010b, Annex 4).

authorities that involve wage increases above those decided by the collective agreement.

The predicted evolution of the main macroeconomic variables is described in Table 3.4. These forecasts indicate that the government is expected to start running primary surpluses from 2012 onwards, thus making it possible for the public debt-to-GDP ratio to start declining after 2013. However, these projections are all based on Greece returning to economic growth, which is dubious for the time being. The question of what is to be done if the Greek government implements all the changes agreed in the Memorandum, yet the macroeconomic outcomes turn out to be significantly worse than the ones assumed in Table 3.4 will be discussed in the following section.

We note the obvious: any projection that has public sector external debt stabilising at around 150 percent of GDP implies that small deviations in the assumed parameters of the simulation exercise (e.g. the assumed growth rate) can delay the actual stabilisation and make lenders jittery about the government's solvency.

3.5 Will the bailout package prove enough?

In this section we examine some factors (both economic and political) that may prove crucial in determining the successful transition of Greece from the official financing of the European Union and the IMF to market financing of its debt.

3.5.1 Economic considerations

In 2009, Greece's (gross) external debt stood at 170 percent of GDP, with the public sector debt (including public enterprises) being equal to 111 percent and private debt at 59 percent of GDP. The net foreign debt was estimated to be about 86 percent of GDP. Table 3.2 reveals that by 2010, the (gross) external debt-to-GDP ratio is expected to rise to 187 percent, with the public sector increasing its debt-to-GDP ratio to 135 percent and the private sector deleveraging to 52 percent. The subsequent evolution of both ratios is expected to reach, in 2013, 141 percent and 62 percent, respectively.

One thing that stands out in the (baseline) predictions of both the European Union and the IMF is their homophony regarding a policy scenario that is full of uncertainties, with the evolution of the global and European economies being of decisive role in this respect. Some predictions are more open to debate than others. Consider, for example, the prediction that GDP is set to contract by 4.2 percent in 2010 and 3 percent in 2011, following a set of fiscal consolidation measures equivalent to about 8 percent of GDP in 2010 and 6.5 percent in 2011. For these GDP forecasts to materialize, global economic recovery and, in particular, world trade recovery must not slow down.

Furthermore, the European Union and the IMF have factored in their projections substantial declines in the spread at which both the government and the private sector borrow, and an easing of the credit crunch.[28] This may or may not come to pass. Given the stringent credit environment for private sector borrowers that existed in Greece in the first half of 2010 and the defensive process of deleveraging in the domestic banking sector, a substantial improvement is required if the credit crunch is not to combine with the fiscal contraction to produce a very large drop in output.

It should be noted that the European Union and IMF predictions apply to the *officially measured* GDP. Reforms aimed at transferring activities from the shadow to the official economy may add 1 to 2 percentage points to *measured* GDP, thus masking a bigger decline in actual GDP than the one predicted.

The development of the unemployment rate may be of critical importance for the political sustainability of the fiscal consolidation programme. The projected increase in the unemployment rate, which is assumed to peak at 15 percent in 2012 and decline to 14 percent in 2014, is very likely an underestimate. Simple estimates of an Okun's law relationship for Greece using different specifications and data periods provide estimates of the path of the unemployment rate that are much higher than the predicted values by the European Union and the IMF, even if the GDP growth projections are taken at face value.

[28] The corporate sector in Greece has, so far, continued to suffer from the credit crunch since non-sovereign bond spreads have followed the rise of the sovereign bond spreads. For example, in November 2009, both the sovereign CDS spread and the CDS spread of the main banks in Greece stood at about 200 basis points. By the end of May 2010, both had risen to about 630 basis points. Very likely this reflects, among other things, the increased correlation between sovereign and banking risks due to the significant holdings of government debt securities by banks in their portfolios. This rise in the costs for banks has been transferred to the non-financial corporate sector.

For the foreign lenders who will be called on to provide the financing after the bailout package expires in the second quarter of 2013, the ability of the country to service its (foreign) debt obligations will be a key concern. According to the European Commission scenario, the country's net borrowing needs in 2013 will be equal to 3,7 percent of GDP. Is it likely that foreign lenders will be willing to step in and provide financing to a public sector whose external debt is about 150 percent of GDP at spreads of only 100 basis points (IMF 2010a), without any implicit guarantees from international institutions such as the European Union and the IMF? (In its latest scenario the IMF (2010b) assumes that spreads will be 300 basis points in 2013.) We are also not convinced that foreign lenders will have such a short memory of the near default in 2010 and that they will not require a higher risk premium to lend to an admittedly reformed country, but whose accumulated debts make it very vulnerable to small deteriorations in the international environment.

The previous paragraph assumes that the predictions of the bailout package regarding the trade and current account deficits will come to pass by the second quarter of 2013. But external accounts data from the first nine months of 2010 suggest that the predicted improvements may not be forthcoming. Consider the (provisional) data for the first nine months of 2010 provided by the Bank of Greece.[29] The level of the current account balance for January to September 2010 shows a very small improvement over the relevant 2009 magnitude; according to these data the drop of the current account deficit relative to GDP is less than 0.3 percentage points. Similarly, net exports of goods and services show an improvement of less than 1 percentage point (over the 2009 figure). The sum of the current account balance and the capital transfers balance (i.e. *net borrowing* in the Ameco nomenclature) shows deterioration!

The above arguments illuminate the very narrow path on which the Greek economy must tread during its adjustment towards fiscal and external sustainability. On the one hand, in order to reduce the budget deficit, slow down the rise in the public debt-to-GDP ratio and quickly place it on a downward trend, it needs the reduction in GDP in 2010 and 2011 to be as small as possible, and rise fast thereafter. On the other hand, given the absence of the exchange rate as an instrument to regain the loss in competitiveness and the slow pace of internal devaluation, any improvements in the current account will have to rely on a sharp internal devaluation with declining prices, wages and a drop in GDP so as to compress imports. Alternatively, all hope for an improvement in the current account will have to rest on fast increases in world income and trade so as to export its way out of the crisis; the current world economic environment is not a good portent in this respect. Our back-of-the-envelope calculation (see Section 3.6.1) suggests that the "required" drop in GDP is probably much larger than what is predicted in the Memorandum.

It would not surprise us if the European Union and the IMF have similar reservations about their baseline scenario, yet are not willing to draw attention to the issue that the probability that Greece will not be able to return to the markets to roll over its debt at default-avoiding spreads is not negligible.

3.5.2 Political considerations

We take it for granted that both the European Union and the IMF have a strong stakeholder interest in the eventual success of the bailout package. The IMF has also learned from previous crises that building a wide albeit lukewarm domestic support for the fiscal consolidation and reform package is key for the political sustainability of the effort.

From the moment the newly elected government appeared to understand the gravity of the situation, a serious effort was made to reverse the widespread belief that an IMF-style programme would be politically infeasible. The government seems, up to this point, to have managed to persuade a large proportion of the population of the inevitability of the austerity measures coming in exchange for the bailout programme. This effort was aided in no small measure by using the media to expose gross cases of tax evasion and public sector corruption (which it promised to prosecute), as well as cases of under-worked and over-paid public sector employees. Some evidence of the acceptance (albeit grudgingly) of the policies implied by the bailout package is provided by the latest Eurobarometer, which reports results of interviews conducted between 7 and 25 May in Greece, when most of the details of the bailout package had already been reported in the press (Eurobarometer 2010). In response to the statement: "In a international financial and economic crisis, is it necessary to increase public deficits to create jobs", more people in Greece

[29] See Bank of Greece, Statistics, External Sector, Balance of Payments, Basic Items, *www.bankofgreece.gr/BogDocumentEn/Basic_data_of_Balance_of_Payments-Annual_data.xls,* data extracted on 23 January 2011, own calculations.

than in any other European country have stated that they disagree (for Greece, 37 percent "agree" and 53 percent "disagree"; for the EU-27, 46 percent "agree" and 36 percent "disagree"). Given that public sector employment has remained a main tool through which political parties in Greece dispense favours to partisan voters, as well a "redistributive" tool in periods of high unemployment, this change in attitudes is an indication that the current government has succeeded in refashioning the public debate about the role of the public sector in the economy.

A crucial determinant of the political feasibility of the bailout package is the response of the trade union movement. Public sector unions are fragmented along party lines. This is a result of the overwhelming penetration of the state bureaucracy by the two political parties (New Democracy and PASOK) that alternated in government since 1974. The absence of a strong and confident bureaucracy in Greece allowed the political parties to have an excessive influence on personnel choice and promotion to potentially lucrative posts. In effect, this meant that able civil servants had to "take sides" and "declare their allegiance" with a particular political party/trade union association, if they wanted to avoid being left behind in their careers while other less able employees were promoted.[30] Currently, the majority, and the president, of the executive council of public sector workers (ADEDY) are trade unionists who are politically affiliated with the governing party, whereas the second largest fraction is affiliated with the Conservative Party.

The close connection between PASOK and the leadership of the trade union movement implies that, on the margin and despite the strong rhetoric against the reforms on which the bailout package is conditioned, the reaction to the so-called "curtailment of the fundamental rights of the working people" will be more restrained than what may have been the case if New Democracy was in power. However, even a friendly trade union leadership may not be able to contain the wishes of the rank and file if unemployment rises steeply and extra tax-raising measures are imposed.

[30] The upshot of these practices has been reflected in the misreporting of data regarding public debt and deficits by the Greek Statistical Service (ESYE). Although ESYE's past officials have claimed that they had no way of verifying the soundness of the data sent to them from various government or quasi-government entities, it is hard to avoid the conclusion that the "capture" of many aspects of public administration by the political parties had affected the diligence with which some of the high-ranking employees of ESYE were carrying their duties (see Moutos and Tsitsikas 2010, for more details about how successive governments could count on the "goodwill" of some ESYE officials).

From the four opposition parties in Parliament, both New Democracy (the main opposition and the party in government during the period from 2004 to 2009), and the parties of the Left, voted in Parliament against the austerity measures. (A populist party with nationalistic overtones voted in favour.) This appears to have influenced voter perceptions about the *relative* suitability of the two main parties to steer Greece through the economic minefield that lies ahead, as reported in a Greek Public Opinion poll released on 30 August 2010.[31] When asked which party's policy they trusted most to resolve the economic crisis, 31 percent said PASOK, 13.4 percent said New Democracy and 39.5 percent said none. Thus, PASOK appears to be trusted more than all other parties put together. Moreover, among New Democracy voters, only 38.4 percent agree with the party's proposals on economic policy. (Among PASOK voters, 62.7 percent agree with the party's – i.e., the government's – economic policy.)

The political dynamics so far seem to indicate that the current government has been able to build sufficient support for the reforms in the bailout package. Yet considerable dangers remain, as the full extent of the economic problems Greece faces has not been revealed to the public. It would not be surprising if the elites switched in favour of default in case they thought that their power to shape policy in Greece could be compromised by policy proposals of the outside actors that go beyond the usual austerity measures or if the economic situation turned much worse than the IMF predicts, as we fear. The elites may also find other allies in this case (in addition to the rising numbers of the unemployed): the small business owners (many of them shopkeepers with either no or just one or two employees) who suffer disproportionately from the drop in consumption spending and have small room for adjustment. The fact that both the left-wing parties and the main right-wing party are opposed to the bailout package suggests that the danger that an "unnatural" coalition may be formed in the medium-term should not be ignored.

3.6 The day after (June 2013)

The arguments of the previous section suggest that it is likely that Greece will not be able to return to the private financial markets at default-avoiding interest rates when the current bailout package expires, even if

[31] See *www.tovima.gr/default.asp?pid=2&artid=351256&ct=32&dt=30/08/2010,* 30 August 2010.

the Memorandum's policies are implemented. Moreover, it may well be the case that Greece's current account situation will not have improved sufficiently with the austerity measures taken, which will force a further downward adjustment of the Greek economy and reduce the chance that the country will be able to redeem its debt even further.

The question is: What will happen if, as we expect, Greece's problems will not be resolved by 2013, in particular if the huge current account deficit is still unsustainable? Apart from a debt moratorium, which we discuss below, there are in principle only three options.

i) Greece returns to the drachma and depreciates (external depreciation)

ii) Greece goes through an equally radical internal depreciation process during which wages and prices fall by the same amount relative to the rest of the euro area as they would have done with an external depreciation.

iii) The European Union finances the Greek current account deficit with ongoing transfer programmes.

The first two of these options are mutually exclusive, but blends of the third and either the first or the second options are possible. We will now discuss these three options in more detail.

3.6.1 External and internal depreciation: the similarities

From a political perspective a policy of exiting from the euro, returning to the drachma and allowing a depreciation to take place looks very different from an austerity programme that tightens Greek budget constraints, as less capital is flowing into the country. However, from an economic perspective the differences are smaller than may appear at first glance. Thus we first point out the similarities before we emphasize the differences.

The two policies have in common that they make Greek exports cheaper internationally and imports more expensive internally, such that, in principle, a boost in exports and a decline in imports can be expected that reduces the trade deficit and the deficit in the current account, which by definition then means a reduction in capital imports.

They also have in common that they both come about because capital is shying away from Greece due to the increased default probability perceived by investors. If the exchange rate is flexible this leads to depreciation, and if it is fixed, the tighter budget constraint for the Greek government means that the public sector has to be scaled down in terms of reducing the number of jobs, lowering salaries and reducing public purchases of privately produced goods, all of which reduces aggregate demand and forces the private sector to cut down wages and prices.

In the case of an external depreciation the change in effective exchange rates comes about overnight as the drachma will immediately lose value. In the case of an austerity programme, there is a more extended period of stagnation, wage and price cuts leading ultimately to the same result.

Both policies will increase the burden of the external debt. As the external debt is defined in terms of euros, the decline in the euro-value of Greek GDP that an external devaluation will bring about will increase the ratio of foreign debt to GDP. The same is true after an internal depreciation, because it also implies a decline in the euro-value of Greek GDP (Corsetti 2010). By the end of 2010 the ratio of net foreign debt to GDP was about 100 percent in Greece. If the country undergoes an internal or external devaluation of, say, a third, this ratio would increase to 150 percent. Thus private and public debt moratoria by which foreign creditors, mostly banks, relinquish some of their claims against Greece will become likely.

While both – internal and external depreciation – can be expected to improve the current account, they will not be able to do so immediately. In fact, it is even likely that there will be an adverse reaction of the current account in the short-run, as import and export quantities will need some time to react, while export prices decline, reducing the export value in terms of euros. Until a normal reaction of the current account and trade balance, which is driven by increasing export and falling import quantities, can be expected, a number of years may pass.

Even then, however, it is doubtful whether export values will go up after a depreciation, as price and quantity effects work in opposite directions. This is particularly obvious for tourism, which is a substantial part of Greek exports. While falling prices will certainly bring more tourists to Greece, it is unclear whether the Greek revenue from tourism will increase, as there

is less revenue per tourist. A similar caveat is appropriate for transportation services (mainly sea transport), which is an even stronger component in Greece's exports. Since the "costs" of producing sea transport services are almost independent of domestic cost developments in Greece, the trade surplus generated by this sector is more or less fixed in euro terms (but dependent on developments in world trade – which are independent of Greek depreciation).

Thus nearly all of the adjustment in the trade balance will have to come via the import side (as well as from any rise in Greek exports due to the increases in world income and world trade). After an external or internal depreciation, Greek income in terms of euros will fall, and hence fewer imports can be afforded.

Fortunately, the declining euro value of Greek incomes does not mean that the living standard falls in proportion, as prices of local goods and services, which are the lion's share of Greek expenditures, will also fall. If the depreciation process is balanced, the prices of goods will fall inversely to their import content, and prices of local services will fall more or less by the same proportion as incomes fall. Thus, for example, restaurants will remain affordable, but cars will often become too expensive.

It is an open question how large the internal or external depreciation will have to be. Some back-of-the-envelope calculation may help to get a feeling for necessary magnitudes. Suppose the income elasticity of Greek imports is 1, then a 1 percent decline in the euro-value of Greek GDP reduces the euro-value of imports by 1 percent, and assume that for the reasons given in the text, the euro-value of exports will not react to a depreciation, and that there will be no increase in Greek exports due to the rebound in world income and world trade. Then, to eliminate a current account deficit of 11 percent one needs a drop in GDP of 11 percent divided by m, where m is the import share of GDP. In Greece the import share is about a third. Thus the reduction in Greek GDP necessary to get rid of the entire current account deficit would be 33 percent.

However, the income elasticity of imports may be a bit above one, given that imports are typically superior goods that decline more than proportionately with incomes. An extreme possibility would be an elasticity of 2, which means that imports decline twice as much as income. In this case a real devaluation and a decline in the euro value of Greek GDP by 16.5 percent is required. (Taking into account the rise in Greek exports due to the rise in world trade would not affect these calculations to a great extent since exports are a low share of GDP in Greece.)

It may be revealing in this context that Latvia underwent a substantial internal devaluation in 2009 that reduced the euro-value of its GDP by 19 percent. Such orders of magnitude should not be considered to be implausible, also for Greece.

The current account deficit will not necessarily have to be eliminated entirely. After all, when GDP increases, so can the net foreign debt position of Greece, without increasing the ratio of foreign debt to GDP. However, the necessary internal or external depreciation means that the euro-value of Greek GDP will have to fall before it will again be able to rise. Thus, envisaging a growth scenario for Greece that could justify aiming at less than the elimination of current account deficit might be a bit optimistic under present circumstance.

3.6.2 The differences between external and internal depreciation

While there are crucial similarities between an internal and external depreciation, the differences should not be overlooked.

As argued above, both kinds of depreciation will be enforced by a shortfall of capital willing to flow to Greece because of a rapidly changed assessment of the default probability on the part of international investors.

In a currency union, the tightening in the public and private budget constraints will lead to a reduction in aggregate demand. This causes a real contraction of the economy with increasing unemployment to the extent that wages and prices are sticky and do not flexibly react to the changed economic conditions. Over time, wages and prices will however have to come down, which helps the economy recover and improve the employment situation.

With flexible exchange rates, by way of contrast, when prices and wages are quoted in drachma, the euro prices and wages will automatically come down when international investors shy away from Greek assets because there is an immediate depreciation. Drachma prices of services and non-traded goods without

import content can remain unchanged, and the drachma prices of other goods will only have to increase in proportion to their respective import content. As prices and wages are usually stickier downward than upward, and fewer price changes will be necessary, the economy finds its new equilibrium faster after an external than after an internal depreciation.

A price and wage decline is the precondition for the economy to regain its competitiveness in both kinds of depreciation. However, while an external depreciation achieves this through a mere exchange rate adjustment, the internal depreciation needs a recession and real economic contraction to bring this same result about.

Keynes argued long ago that this is the crucial distinction between external and internal depreciation. While it is conceivable to orchestrate a price and wage cut that mimics an external depreciation, as tiny Latvia has recently shown, the process is difficult in a comparatively large economy with a large variety of diverging interests, many more prices and a comparatively weak government. The workers who will first be called on to accept a reduction in their nominal wages will not happily acquiesce to it until they are sure that all other workers will also accept a reduction in their wages. Moreover, the workers as a group cannot be certain that their sacrifice will be met with a corresponding fall in the cost of living, since producers may not pass on their reduction in wage costs to prices. The political skill required to effect substantial decreases in thousands of wages *and* millions of prices is considerable. If the process is not well orchestrated politically and only works itself through the economy via the squeezing of public and private budget constraints, it is likely to lead to riots and political destabilisation.

However, an external depreciation also has extremely problematic implications, the most obvious one being a bank run. As soon as the rumour of a possible return to the drachma spreads, people will try to secure their money by emptying their bank accounts, and as no bank has the (base) money it shows on its deposits, banks would quickly become illiquid. Thus, such a policy would need to be supplemented with an appropriate auxiliary programme by the ECB or the European Union, providing Greek banks with the necessary liquidity. If such help is not organised, a Greek exit from the euro area would have all the manifestations of a currency crisis for the new drachma, like the ones we have seen in East Asia and in Latin America since the early 1990s. If badly managed, the currency conversion could have similarly devastating implications for real economic activity as an internal depreciation (see Krugman 1999 and Aghion et al. 2000).

A major difficulty that comes with a depreciation is the mismatch of assets and liabilities in the balance sheets of banks and companies of the real economy, and here again there are substantial differences between an internal and an external depreciation.

After both kinds of depreciation the balance sheets of ordinary companies of the real economy come in disorder, because the euro-values of the real assets, such as real estate property and, to some extent, equipment capital, will fall while the euro-value of liabilities may not fall as much or not fall at all.

The latter is the case after an internal depreciation. As debt contracts are made in nominal euro terms, the liabilities will not be affected, but the general price decline will devalue companies' real assets, driving many of these companies into bankruptcy. This will hurt their creditors, above all the banking system.

After an external depreciation, the euro-value of real assets in normal companies will likewise decline; only the liabilities to foreigners, which typically are of minor importance, will remain fixed. Liabilities to domestic creditors, the banking system in particular, will have been converted to drachma and will therefore decline in euro terms, which is a substantial relief. Thus, in the real economy, the probability of default of normal companies will be smaller after an external depreciation than after an internal one.

Under which kind of regime the financial sector will fare better is not quite clear. At first glance it seems that it will not be affected by an internal devaluation. After all, both its assets and liabilities are determined in euros. By contrast, an external devaluation that follows a conversion of balance sheets into drachma will create substantial disorder, because claims and liabilities to foreigners will remain fixed in euro terms while claims and liabilities to domestic residents are fixed in terms of drachma. As Greek banks are net borrowers abroad and net lenders at home, the external depreciation will probably hurt them by shrinking the euro-value of their assets more than shrinking the euro-value of their liabilities. However, this analysis forgets the additional write-off losses on claims against the companies of the real economy that will be driven

into bankruptcy after an internal depreciation. If these write-off losses are taken into account, it is not clear whether banks fare better after an external depreciation than after an internal one. It is only clear that companies of the real economy will fare better after an external depreciation.

In view of these uncertainties in the analysis, the EEAG has decided not to opt for a particular policy alternative but only to inform policymakers of the relevant arguments. Definitely, there is no alternative that clearly dominates the other in all dimensions. The choice is between two evils.

3.6.3 Transfer union

In 2009 Greece had a current account deficit and net capital import of 11 percent of GDP, an excess of consumption over aggregate income of 12 percent of GDP and a public deficit of 15 percent of GDP. Public debt relative to GDP is estimated to be about 140 percent at the end of 2010, and net foreign debt to GDP about 100 percent. The country lived beyond its means, and capital markets are no longer willing to finance this. They have abruptly tightened the budget constraints, which had long been overly soft. In a painful process of internal or external depreciation Greece will have to lower the euro-value of Greek GDP if not real GDP, unless the missing capital flows are replaced with public transfers from other countries. Basically this means that import goods that Greece can no longer buy on credit have to be given to the country.

It is true that the EU cohesion funds as well as agricultural and other subsidies already contribute to financing the Greek trade deficit. In 2009 Greece paid in 2.4 billion euros and received 5.4 billion, which implied a net gain of about 1.3 percent of Greek GDP in 2009. Much more than this would be needed, however, to make a substantial contribution towards mitigating the problem.

Whether the EU budget should be expanded for this purpose is a distributional question that will have to be decided by the political process. Politicians should not overlook, however, that there is the risk of Greece becoming addicted to the transfers, since it seems to have become addicted to the capital flows of the past. Simply replacing the borrowed funds with gifts will make it even more attractive for Greece to continue living beyond its means and will therefore perpetuate the trade deficit for the simple reason that political constraints will never be as tight as market constraints.

How difficult if not futile it is to accommodate a region's lack of competitiveness with transfers is shown by former East Germany that joined West Germany and the European Union some twenty years ago. Up to 2011 about 1.2 trillion euros of public funds have been pumped into the east German economy without the eastern part of Berlin, and including it possibly about 1.5 trillion euros.[32] While the lion's share of this money has been used to maintain the social system, a perfect public infrastructure has also been built up and all cities have been superbly restored.

Nevertheless, the economy of eastern Germany does not function well. Its growth has been meagre, and even in the last boom, just before the crisis in 2008, its unemployment had not come down to less than 12 percent. The hopelessness of the situation has lead to an ongoing mass emigration. Since the wall came down, the population has shrunk by 2.3 million, from an original 16 million, mostly by emigration to western Germany – 60 percent of this emigration has occurred since 1995.

The mass emigration is the only reason why, over the last 15 years, (1995–2010) GDP per capita on the territory of the former German Democratic Republic (GDR) increased from 60 to 69 percent of the west German level (including the west part of Berlin). With a cumulative rise of 22 percent over the period from 1995 to 2010, GDP in eastern Germany grew nearly exactly as fast as GDP in western Germany (20 percent). And surprisingly, eastern Germany did not participate in the rapid growth process of the GIPS countries, whose GDP grew by 52 percent. Neither was it able to match the average growth of the EU countries, which was 31 percent over the fifteen-year period considered. In per capita terms, the purchasing power of the privately produced GDP in eastern Germany has been surpassed already by that of Slovenia, even though Slovenia joined the European Union 14 years later and had no comparable support from the outside.

Even 20 years after unification, there are no indications that eastern Germany's economic power will, in the foreseeable future, converge to that of western Germany and that the public transfers from west to

[32] See Blum et al. (2009).

east, which are about 60 billion euros per year, will become superfluous.

This disappointing development can be attributed to the above-mentioned Dutch disease. Just as the natural-resource sector in the Netherlands had weakened industry by raising the Dutch wage level, the high wages paid in eastern Germany's government sector and the wage replacement incomes offered by the social system had driven up eastern German wages above the level compatible with a self-sustained growth process. The persistent flow of public funds has in the end helped eastern Germany only a little, if at all. It has made it another European Mezzogiorno – a region stuck in a low-development equilibrium.

The Italian Mezzogiorno has been caught in such an equilibrium for half a century and more. Its GDP per capita is about 60 percent of that of the rest of Italy and does not show any sign of convergence. In Italy, the causes for this situation can be sought in a common wage policy, mainly dictated by the conditions of the North, which has always resulted in wages that were way too high for the South and resulted in persistent mass unemployment. The under-development has forced the state to help out with transfers from the North. These transfers have provided an alternative income source in the South to which the political system and the economy have grown accustomed, perpetuating the situation, as it seems, even more (see Sinn and Westermann 2006).

For these reasons, the EEAG is sceptical about replacing the capital flows with transfers that involve more international redistribution in the European Union or the euro area. Instead it argues for helping out Greece under the general rules specified in Chapter 2.

3.6.4 Necessary tax reforms in Greece

Whichever of the above options are chosen for Greece, the country itself must carry out substantial reforms to improve its competitiveness as quickly as possible. Reforms of the tax system are the most urgent of all, because they would not only help the Greek government reduce its budget deficit but could also improve the competitiveness of the Greek economy, thus mitigating the adjustment problems that accompany with internal or external depreciations.

A notable feature of the Greek economy is that its supply-side structure is tilted towards producing non-traded goods. Adopting the concept of "tradedness" as a proxy for tradability (Kravis and Lipsey 1988), one can construct either "narrow" or "broad" measures of the size of the tradable sector. Engler et al. (2009) find that Greece has one of the lowest shares of traded sector output among the OECD countries when the narrow definition is adopted, and the lowest share of traded sector output if the broader definition is adopted.

We believe that an important explanation for the small traded sector is related to the features of the Greek tax system, and especially the differential incidence of tax evasion between the traded and non-traded sectors. We are convinced that tax evasion, among other things, affects the specialisation of the economy between traded and non-traded sectors and that this negatively influences the aggregate productivity level. The reason for this is that tax evasion is more prevalent in non-traded goods (medical and law services, car repairs, etc.) than in traded goods. It is well known (see e.g. de Paula and Scheinkman 2009) that exporting firms usually transact with other formal-sector firms, like financial intermediaries, and also need the appropriate documentation to export. This certainly limits the possibilities to evade taxation.

The implication of the above is that the effective, after-tax relative price of the traded sector is smaller than can be surmised by simply looking at the market prices of the two sectors. As a result, the traded sector attracts fewer resources than it would attract in the absence of tax evasion. Fighting tax evasion results in a rise in the effective relative price of the traded sector and reduces the attractiveness of non-traded sector activities. Thus, measures to reduce tax evasion may help restore the external balance in the same way as a change in the real exchange rate but without many of the negative side effects. In addition, since formal-sector firms are more productive than informal sector firms, a reduction in tax evasion would raise the economy's overall productivity and also lead to higher government revenues.[33] Thus, fighting tax evasion could be the "mother" of structural reforms for Greece.

However, combating tax evasion is easier said than done in Greece. Nevertheless, if the objective is to

[33] See Rausch (1991) and Moutos (2001).

boost the size of the tradable sector, a rise in VAT rates would go some way towards rebalancing relative prices. The suggestion by Blanchard (2007), with reference to Portugal, to increase VAT rates and reduce social security contributions (payroll tax rates) would be particularly beneficial for Greece given,

- the proclivity of the non-traded sector to evade on the payment of payroll taxes by more than the traded sector,
- that it is difficult to totally evade the payment of VAT given the system of tax credits for the purchase of intermediate inputs, and
- that exporters are not burdened by the rise in VAT.

In effect, the rise in VAT rates combined with the reduction in payroll tax rates mimics the effects of devaluation (but without its costs) since it succeeds in increasing the relative price of imports relative to domestic production and in decreasing the relative price of exports. Clearly, the tax shift has to be substantial in order to have effects as strong as a devaluation.

The usual argument against such a policy is that it may not be politically viable. Unlike the working population, who will not necessarily be hurt by the mix of lower payroll tax rates and higher VAT rates, pensioners will suffer. However, the government can devise supplementary schemes that directly compensate the pensioners for the loss of real purchasing power, and that do not, in tandem with the change in the tax mix, deteriorate the budget balance. This policy is certainly preferable to the standard IMF prescription that the substantial wage reductions in the public sector should be followed by equally substantial reductions in private-sector wages. As Corsetti (2010) has argued, internal depreciation has effects on the debt burden similar to the ones identified with respect to exchange rate devaluation in the "original sin" literature (see Eichengreen and Hausmann 1999). The usual IMF prescription of coordinated wage reductions in both the public and private sectors may provide the government with some savings on its wage bill,[34] but when the stock of public debt is large these savings will be dwarfed by the larger real value of the public debt and the associated rise in the real value of debt servicing.

[34] The reduction in the government's wage bill depends, among other things, on the share of government and private sector employees in total employment, since the saving on the wages of public employees, net of taxes, must be counted against the lower tax receipts from private sector employees.

3.6.5 Greece does not graduate in time – another bailout package in 2013?

We have argued that even if Greek society accepts the policies detailed in the Memorandum, it is by no means certain that by the second quarter of 2013 the Greek government will be able to roll over its debt at default-avoiding interest rates. What will happen in this case?

Let us examine the case that by spring 2013 both the public debt-to-GDP ratio and the foreign debt-to-GDP ratio appear to have stabilized at levels similar or only slightly higher than those predicted by the European Union and the IMF, and that there is a primary budget surplus. If foreign lenders remain unwilling to lend to Greece at default-preventing interest rates (say, because they consider that the smallest shock could derail the planned reduction of the debt ratio), the Greek government, the IMF and the EU countries may or may not be willing to agree on a further bailout programme.

It is important in this context to note that no majority decisions of the European Union will be sufficient for a continuation of the bailout programme. After all, the agreement of the EU countries on 16–17 December 2010 (see Chapter 2 for details) explicitly rules out the use of Community instruments with majority-based decision-making for this purpose, and the intergovernmental help as specified in the decisions of May 2010 were illegal, as French Finance Minister Christine Lagarde has declared, implicitly confirming a rumour that the German Constitutional Court required a treaty change because the decisions were illegal.[35] All will depend on how the envisaged reform of the Community treaty will be designed.

In Chapter 2 we have given our proposals for specifying the decisions of 16–17 December. In principle we foresee a three-step procedure, with liquidity help in the first stage, a breakwater procedure that avoids full insolvency in the second stage and full insolvency.

There is a good chance that Greece will be able to find new funds in the capital market if it is able to offer the new CAC bonds, which offer the privilege of being convertible, after a haircut, into partially secured replacement bonds should Greece not be able to ser-

[35] Lagarde said: "We violated all the rules because we wanted to close ranks and really rescue the euro zone", Reuters, "France's Lagarde: EU rescues "violated" rules: report", *www.reuters.com/articleIdUSTRE6BH0V020101218,* 18 December 2010.

vice them. As this limits the possible loss to investors, it will be possible to sell these bonds in the market if they are endowed with an appropriate and limited interest rate spread over safer assets.

Should Greece nevertheless not be able or willing to issue such bonds, it might have the chance of receiving more liquidity help from the new European Stability Mechanism (ESM) for a limited time span under the rules we have specified.

If not, it will have to reach an agreement with its creditors about restructuring its debt, perhaps using partially secured replacement bonds under the rules we have outlined. The ESM agreed on 16–17 December 2010 could help, as we have pointed out, but only after private creditors have agreed to a haircut.

Politically, the question of whether or not Greece will or should exit from the euro area will depend on which of these choices are made, but from an economic perspective it is a separate issue, as we have argued above. Greece should make this decision based on its judgement of whether or not an internal or external depreciation will bring about less hardship.

3.7 Concluding remarks

We end this chapter with some summary conclusions.

- Without help Greece is not likely to be able to return to market financing at default-avoiding interest rates by the time the current bailout package expires (2013). The chances of this happening have certainly been reduced as a result of the large upward revisions of its budget deficit and debt for 2009, and the consequent upward drift of the corresponding figures for 2010.
- With the new CAC bonds that we have proposed in Chapter 2, Greece would however have access to a new debt instrument that limits the investment risk and with it the necessary interest surcharges over risk-free assets. These bonds would significantly enhance the possibility of a self-sustained recovery.
- If Greece nevertheless is not able or willing to issue the new debt instruments, it will have to seek an agreement with its creditors about a debt rescheduling programme. The European Stability Mechanism could help by offering a limited amount of secured replacement bonds, as specified in Chapter 2.
- To reduce its huge current account deficit, Greece will have to undergo a period of internal or external depreciation, which will lower the euro-value of Greek wages, prices and GDP. We have pointed out the advantages and disadvantages of the two possibilities.
- Although one cannot deny the importance of the planned product market reforms, fighting tax evasion should be the top priority of Greek policymakers. Tax evasion is responsible not only for the Greek budget deficits, but it results in a misallocation of resources away from production of traded goods that the country must reverse if it is to improve its trade balance.

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SPAIN

4.1 Introduction

Spain has suffered a lot from the current crisis and is the first large economy that may find itself in need of fiscal rescue. If this happens it may prove quite damaging to the euro. Yet, since the mid-1990s, Spain was a champion of growth and fiscal stability; its unemployment had fallen rapidly to the levels that prevailed in the rest of the European Union. This chapter discusses the reasons why such a virtuous initial situation deteriorated so sharply since the start of the crisis. Was this just bad luck or were the booming years just a mirage?

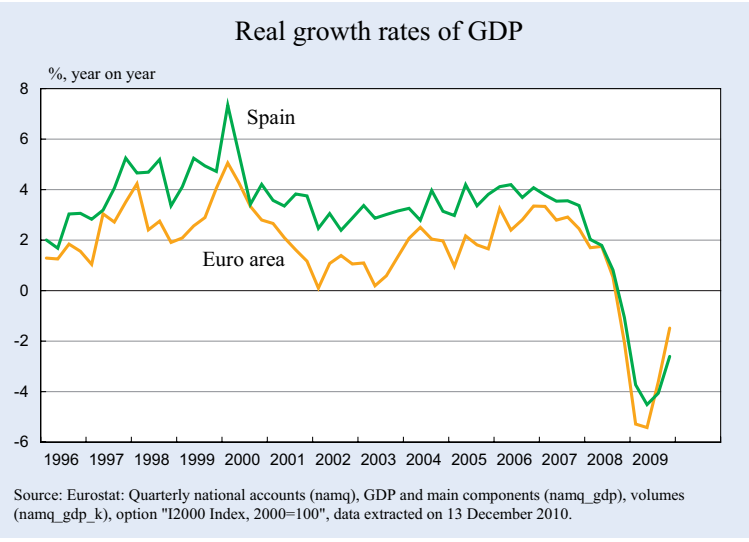
4.2 The Golden Decade, 1995–2007

The 12 years before the financial crisis could be labelled the "Golden Decade" for the Spanish economy, with growth exceeding the European average (see Figure 4.1; see also Chapter 2, Figure 2.1).

Spain had traditionally been a leader in unemployment, its economy had been plagued by restrictions to competition and its growth experience had been chaotic at best. The Golden Decade was a period of strong growth during which unemployment declined from the pathological level of 20 percent to levels much more aligned with the European average. This is illustrated in Figure 4.2, where we see a 14 year fall starting at the end of the 1990 recession and abruptly ending with the current crisis. One out of three jobs created in the EU-15 in the period 2000–2007 was in Spain.

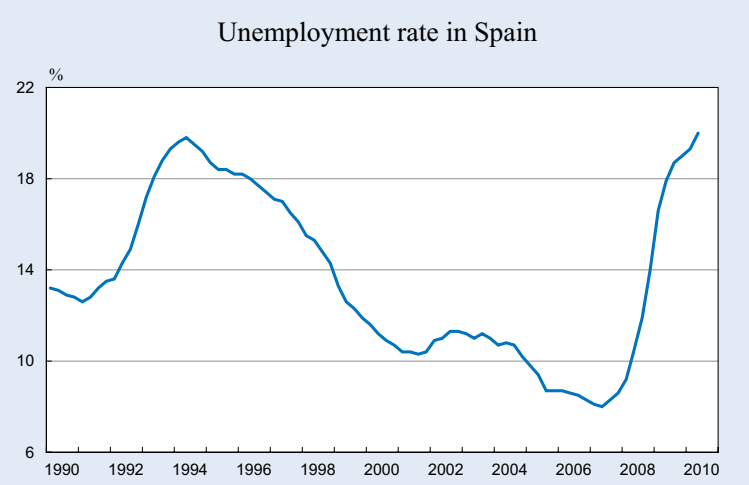
At the end of the 1990s Spain joined the European Monetary Union, which gave it a fiscal windfall in the form of a very rapid convergence of interest rates to the European levels. Like other peripheral countries, Spain benefited from the fact that it no longer had to pay a premium for the inflation and depreciation risk in the form of higher interest rates (see also Chapter 2, Figure 2.1). Moreover it benefited

Figure 4.1



Source: Eurostat: Quarterly national accounts (namq), GDP and main components (namq_gdp), volumes (namq_gdp_k), option "I2000 Index, 2000=100", data extracted on 13 December 2010.

Figure 4.2



Source: OECD: StatExtracts, Labour, Labour Force Statistics, Labour Statistics (MEI), Harmonized Unemployment Rates and Levels (HURS), data extracted on 11 January 2011.

from the euro insofar as a long-term capital market was established on which it was possible to get mortgage loans with a long duration (say 20 years).

Spain has caught up with the European Union, since joining the Community in 1986. However, the catching-up process was not smooth. There were crises between 1992 and 1994 which were dealt with by competitive devaluations. Income per capita (in PPP terms) went from about 80 percent of the EU-15 level in the mid-1990s to more than 90 percent by 2007. The joining of the euro in 1999 implied low interest rates, which were negative in real terms in the period 2002–2005. This contributed to a huge boom in construction and real estate accompanied by the expansion of financial intermediation.

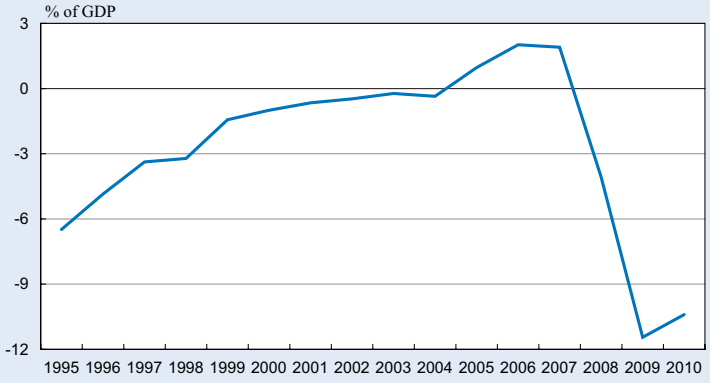
Spain has typically had a more pronounced economic cycle than the European Union on average. Historical reasons were a sectoral composition with a larger (albeit declining) weight on agriculture, low and medium technology industries and tourism, and a more procyclical economic policy until 1994, when a phase of orthodox macro-management was implemented. The latest long boom was driven mainly by construction, with Spain managing to do better than the EU-15 even in periods of economic deceleration. This is set to reverse in the present recession.

Growth, coupled with the reasonable fiscal policy that prevailed during the period, implied that there was no major problem with the public budget. As illustrated in Figure 4.3, Spain entered the Golden Decade with large budget deficits (6 percent in 1995) that were inherited from the sharp recession of the early 1990s and further reinforced by its high unemployment rate; but throughout the Golden Decade it managed to reduce those deficits and eventually run a moderate budget surplus in the mid-2000s, thanks to the strength of the economy and the downward trend in unemployment. As the recent crisis set in, though, the surplus quickly degenerated into an severe deficit, as has happened in other EU countries where the recession has been particularly severe.

Figure 4.4 depicts the evolution of inflation and long-term interest rates over the relevant period. In the early 1990s Spain had to pay a large risk premium for its inflation risk: although inflation was just 6 percent, long-term nominal rates amounted to 14 percent. Thereafter, inflation fell in the context of the convergence criteria of the transition period to the euro and so did nominal interest rates, as markets anticipated that Spain would join the European Monetary Union and that its bonds would be nearly as good as German ones. Nominal rates remained low during the Golden Decade, but inflation picked up somewhat.

Figure 4.3

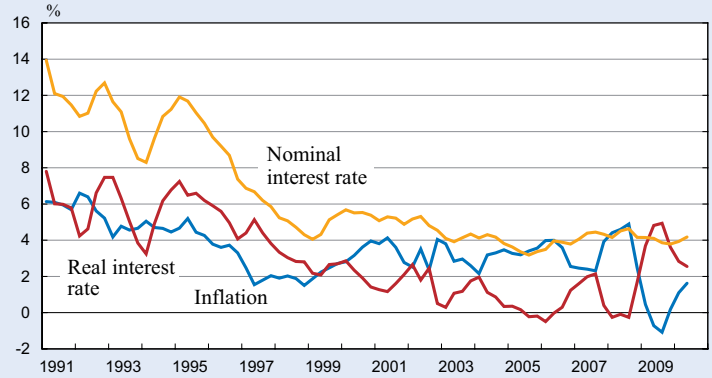
Net government lending in Spain



Source: IMF: General government net lending/borrowing, percent of GDP, World Economic Outlook Database, April 2010, www.imf.org/external/pubs/ft/weo/2010/01/weodata/weorept.aspx?sy=1995&ey=2011&scsm=1&ssd=1&sort=country&ds=.&br=1&pr1.x=53&pr1.y=18&c=184&s=GGXCNL_NGDP&grp=0&a=, data extracted on 11 January 2011.

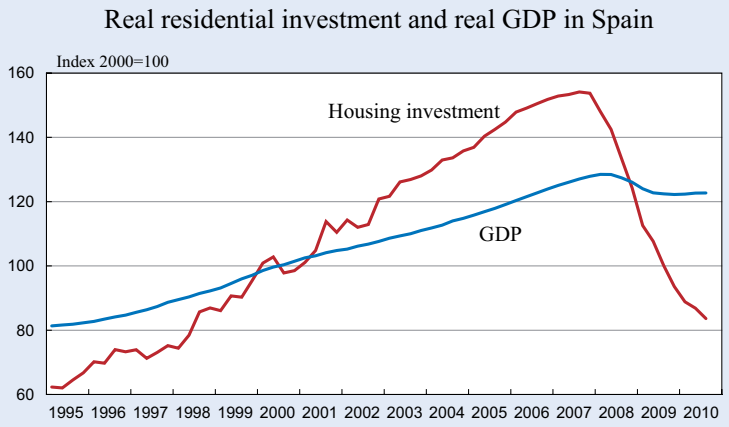
Figure 4.4

10-year real and nominal interest rates and inflation in Spain



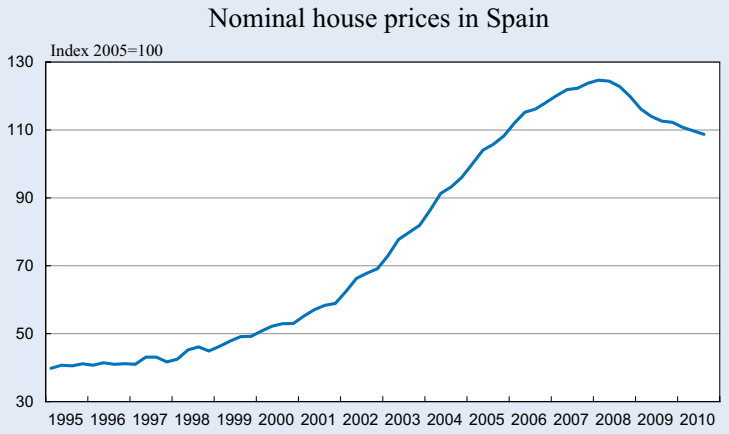
Source: OECD: StatExtracts, Labour, Finance, Financial Indicators (MEI), Financial Indicators, Long-term interest rates, data extracted on 11 January 2011; OECD: StatExtracts, Prices and purchasing power parities, Prices and price indices, Consumer prices (MEI), Consumer price indices (MEI), data extracted on 11 January 2011; own calculations.

Figure 4.5



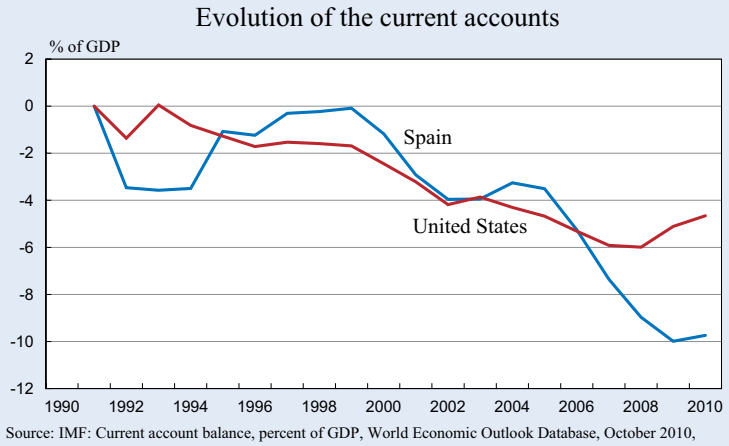
Source: Instituto Nacional de Estadistica (INE), ES CHAIN-TYPE QTY INDEX OF GDP (CONSTANT) VOLA, ESGDP..VE, data extracted on 15 January 2011; Instituto Nacional de Estadistica (INE), ES CHAIN-TYPE QTY INDEX OF GFCF - CONSTRUCION & HOUSING VOLA, ESGFCCHVE, data extracted on 15 January 2011.

Figure 4.6



Source: ECB: Spain, quarterly residential property prices, new and existing dwellings, residential property in good & poor condition, whole country, neither seasonally nor working day adjusted, government agency (other than NSI/NCB), Series Key RPP.Q.ES.N.TD.00.0.00, Unit 2007=100, http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=129.RPP.Q.ES.N.TD.00.0.00, data extracted on 11 January 2011.

Figure 4.7



Source: IMF: Current account balance, percent of GDP, World Economic Outlook Database, October 2010, www.imf.org/external/pubs/ft/weo/2010/02/weodata/weorept.aspx?sy=1990&ey=2010&scsm=1&ssd=1&sort=country&ds=.&br=1&pr1.x=76&pr1.y=7&c=184%2C111&s=BCA_NGDPD&grp=0&a=, data extracted on 18 January 2011.

Where did the strong growth come from? As is well known, an important driving force for the economy was the construction sector. Residential investment was boosted by very strong increases in house prices. As illustrated in Figure 4.5 it rose faster than GDP throughout the Golden Decade, only to experience a brutal fall during the crisis.

As shown in Figure 4.6, house prices trebled during the Golden Decade – and in that respect only a fraction of this rise has been reverted during the crisis. As is well known, this pattern has emerged in other countries as well, but Spain is one of the countries where it has been most salient. (While many analysts interpret this as evidence of an asset bubble, there is in fact a debate about this, to which we return below.) Regardless of whether high asset prices emerge due to their fundamental values or due to rational or irrational speculation, they generally boost investment in those assets; conversely, one expects such investment to collapse should there be a sharp fall in prices, regardless of its cause. It is true, though, that falling prices are more likely to happen if the rise is due to a bubble rather than the fundamentals, since one typically expects that bubbles cannot last forever.

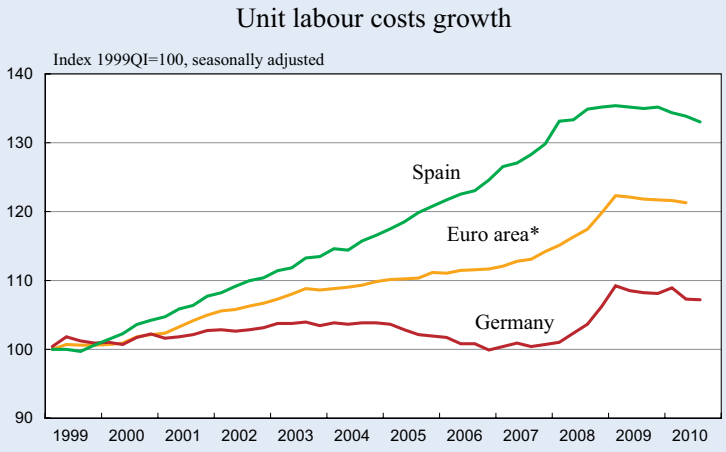
Because of the key role of construction, high growth was associated with a strong demand for goods and services. As a result, the Spanish economy started accumulating current account deficits mainly via rapidly growing imports. The creation of a common capital market that eliminated the interest spreads in the euro area induced a strong capital flow to

Spain which impacted the Spanish economy by facilitating a credit-driven boom in the construction industry and the resulting current account deficit. In the last years of the Golden Decade the current account deficit and capital imports in relation to GDP became extensive, even exceeding those of the United States. This is illustrated in Figure 4.7.[1]

The boom was also accompanied by a persistence of high inflation, which remained consistently higher than the average of the euro area throughout the period (see Chapter 2, Figure 2.6). One possible reason for this is that GDP remained higher than its potential for several consecutive years, which generated upward pressure on prices and led to an accumulating inflation differential between Spain and its main trading partners. As a result, Spain suffered an aggregate loss of competitiveness, which possibly added to the worsening of the trade balance. This is illustrated in Figure 4.8, which shows that unit labour costs in Spain grew faster than the average of the euro area and in particular faster than in stagnating Germany. Reversing this loss of competitiveness through price and wage moderation is likely to prove a painful process in light of the fact that, as discussed below, real wages in Spain are quite rigid. This may be compounded by the fact that inflation may be very low in the average of the euro area as long

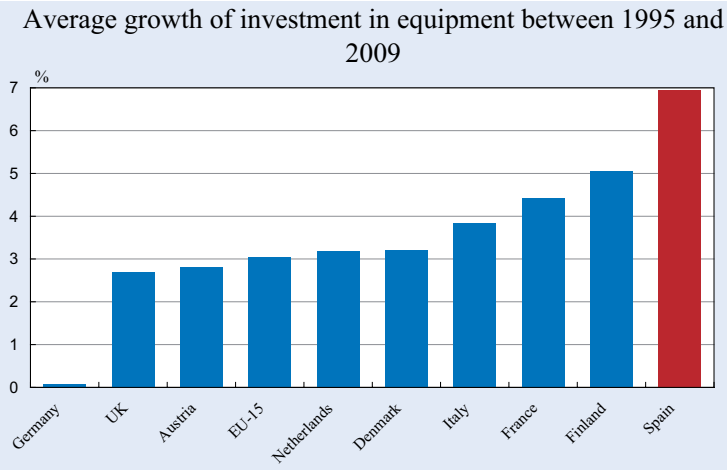
[1] The situation was similar in Greece, Portugal and Ireland, but the exact opposite in Germany, which suffered from strong capital exports leading to export surpluses via a difficult period of real depreciation and economic slump. An overview of this development is given in Chapter 2.

Figure 4.8



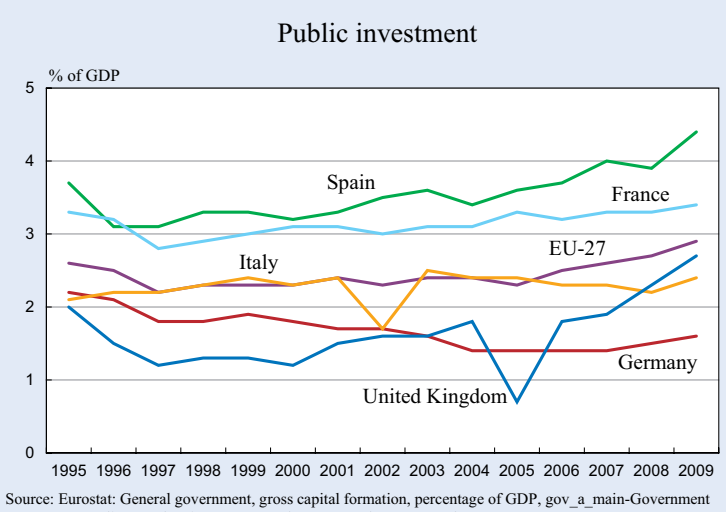
Source: Eurostat: Nominal unit labour cost, seasonally adjusted and adjusted data by working days, namq_aux_ulc-Unit labour cost - quarterly data, data extracted on 13 December 2010.

Figure 4.9



Source: Eurostat: Gross fixed capital formation by private sector, Millions of euro (from 1.1.1999)/Millions of ECU (up to 31.12.1998), nama_gdp_c-GDP and main components - current prices, data extracted on 9 December 2010, own calculations.

Figure 4.10



Source: Eurostat: General government, gross capital formation, percentage of GDP, gov_a_main-Government revenue, expenditure and main aggregates, data extracted on 2 December 2010.

as the recession prevails, so that negative inflation would in principle be needed in Spain to restore its competitiveness.

It must be noted that the expansion period went together with a substantial increase in investment in equipment as well as public investment (see Figures 4.9 and 4.10). The amount of public investment in Spain is remarkable. For example, Spain, in 2010, ranked second only to China in the kilometres planned for the extremely expensive high speed trains. Public infrastructure has improved dramatically but this raises doubts about whether the social cost-benefit analysis' result is positive in many important projects. Nevertheless, these developments contributed positively to productivity and thus mitigated the negative effects of the boom years on competitiveness.

Another important aspect of the Golden Decade has been the surge in immigration. While Spanish fertility rates have been extremely low since the mid-1970s, the country began to attract a large number of immigrants during the Golden Decade, primarily because of many new jobs in construction. As a result, the population rose very rapidly from 40 to 45 million in less than 10 years (see Figure 4.11).

The immigration wave was driven by both push and pull factors; in particular, the strong economy drove up the demand for labour and because of the role of construction and services a large share of that extra demand for labour was for the unskilled. This is illustrated in Table 4.1. In relative terms, immigrants are twice more represented in unskilled occupations than native-born workers, and even more when considering only services to households and construction.

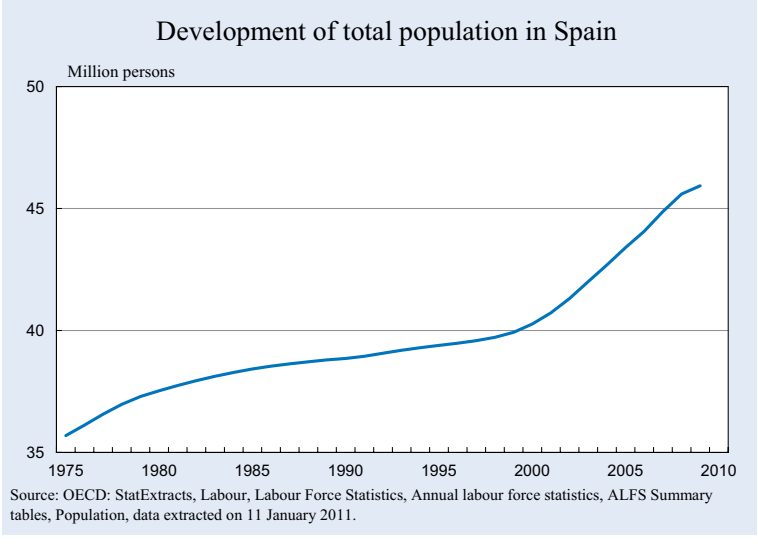
At the same time, and somewhat paradoxically, the country was heavily investing in higher education, and the share of the workforce with university degrees was rising rapidly. This, in spite of the fact that, due to the construction boom, the structure of the Spanish economy was being modified in favour of unskilled-intensive sectors.

Immigration policies were relatively liberal because of the low fertility rates of the natives and because migrants helped to tame wage inflation, which benefited employers and kept CPI inflation under control. It also fuelled the demand for residential investment, but this may have been unfortunate in light of the fact that there was widespread agreement that such large flows would have to subside eventually, implying that the economy would have to reallocate resources towards other sectors.

4.3 The crisis

If one looks at aggregate GDP data, the experience of Spain during the crisis has been similar to that of the rest of Europe; in 2009 Spanish GDP contracted by 3.6 percent. On the other hand, the employment situation has deteriorated considerably more than in the rest of Europe, where it has risen from around 7.5 percent in 2008 to 10 percent (see Chapter 1, Figure 1.10). In Spain, the unemployment rate has, during the same period, risen very rapidly from 11.4 percent to 20 percent, that is, it is back to its pre-Golden Decade pathological level. This evidence suggests that there has been virtually no labour hoarding in Spain during the recent recession: In normal times firms tend to retain their workers during downturns, because it is costly to rehire and retrain them during the following recovery. As a result, the burden of a recession typically does not fall entirely upon employment. Hours worked and work loads tend to decrease as well. The relationship between employment and output over the cycle

Figure 4.11



Source: OECD: StatExtracts, Labour, Labour Force Statistics, Annual labour force statistics, ALFS Summary tables, Population, data extracted on 11 January 2011.

Table 4.1

The occupational composition of native-born and foreign-born in Spain (in %)

		Foreign-born	Native-born
Legislators, senior officials and managers		6.8	8.1
Professionals		9.4	12.4
Technicians and associate professionals		8.3	11.0
Clerks		6.7	9.9
Service workers and shop and market sales workers		16.8	14.7
Skilled agricultural and fishery workers		2.4	3.7
Craft and related trade workers		15.3	17.2
Plant and machine operators and assemblers		7.6	11.0
Elementary occupations		26.3	11.2
	Sales and services elementary occupations	n.a.	n.a.
	Street vendors and related workers	1.3	0.7
	Shoe cleaning and other street services elementary occupations	0.1	0.0
	Domestic and related helpers, cleaners and launderers	11.9	4.1
	Building caretakers, window and related cleaners	0.4	0.5
	Garbage collectors and related labourers	0.3	0.4
	Agricultural, fishery and related labourers	6.0	1.8
	Labourers in mining, construction, manufacturing and transport	n.a.	n.a.
	Mining and construction labourers	4.8	2.0
	Manufacturing labourers	0.6	0.6
	Transport labourers and freight handlers	0.8	0.8
	Elementary occupations, n.e.c.	n.a.	n.a.
Armed forces		0.4	0.7
All occupations		100.0	100.0

Source: OECD: StatExtracts, Demography and Population, Migration Statistics, Database on Immigrants in OECD Countries (DIOC), Immigrants by detailed occupation, data extracted on 11 January 2011.

is usually referred to as Okun's law (see Box 4.1). Okun's law captures the extent of labour hoarding during a typical cycle. In Spain, the fall in employment is under-predicted by Okun's law; instead it is quite well predicted by a standard production function that relates output to the amount of labour and capital input and implicitly assumes that these two factors are entirely employed, or at least that their utilization rate does not vary.

There are presumably two reasons why we do not observe labour hoarding in Spain. First of all, a lot of jobs have been destroyed permanently, as the economy undergoes restructuring away from the construction sector. Firms do not expect these jobs to come back and therefore have no incentives to retain their workers. Second, the two-tier structure of the Spanish labour market where workers who hold temporary contracts are used as a margin of adjustment makes employment more reactive to the cycle (see Box 4.2). While this margin of flexibility allows for rapid job growth during booms, as during the late 1980s and the Golden Decade, it also means that unemployment may go up extremely rapidly as firms stop renewing short-term contracts. This was observed during the recession of the early 1990s and it is even more salient now.

A by-product of the severity of the crisis is the sharp deterioration in public finances that we have documented in Figure 4.3. It is somewhat of a puzzle that budget deficits in Spain are comparable to those in Greece, since the initial situation was much sounder in Spain. It appears that even controlling for the role of GDP growth, the government fiscal balance in Spain is very sensitive to the unemployment rate. Thus, according to our estimates, a 1 percentage point increase in the unemployment rate triggers a deterioration in the government net fiscal balance of 0.8 percent of GDP. Since unemployment has risen by 10 points since 2010, its contribution alone explains 8 points of deficit.

Box 4.1

Spain and Okun's law

Okun's law, often referred to as "Okun's rule of thumb", is used by economists to assess the response of unemployment to output over the business cycle. In its simplest form, it is a mechanical relationship between the change in the unemployment rate and the change in GDP growth:

$$\Delta u = -c(g - v),$$

where Δu is the change in the unemployment rate, g the growth rate of GDP, v the trend growth rate of productivity, and c is called the Okun coefficient. Typical estimates of c range from 0.3 to 0.5. Typical estimates of v range around 2.5 percent, although as we point out in Figure 4.14 total factor productivity growth in Spain has been essentially zero since 2000. With c = 0.5 and v = 1% a contraction of GDP of 4 percent, which is about the cumulated GDP contraction in 2009 and 2010 according to IMF estimates, is associated with a rise in the unemployment rate by 0.5*5 = 2.5 points. Instead, however, unemployment rose from 11.4 (in 2008) to 20.1 percent (in 2010), i.e. an increase of 8.7 points. Thus net job destructions were far higher than predicted by this "law".

Instead, production functions give us a more structural relationship between inputs and outputs. A typical production function used in models is the Cobb-Douglas one:

$$Y = K^{\alpha}(AL)^{1-\alpha},$$

where one can show that the exponents are equal to the share of the corresponding factor in national income, implying that α is about 0.3. Furthermore, A is interpreted as the technological level. The long-term growth rate of GDP per capita would be equal to that of A absent any short-run fluctuations.

Assuming a secular growth rate ($\Delta A/A$) of 1 percent, the above formula implies that if GDP falls by 4 percent (again cumulated 2009 and 2010 figures), then employment should change by

$$\frac{\Delta L}{L} = -\frac{\Delta A}{A} + \frac{1}{1-\alpha}\frac{\Delta Y}{Y} = -1 - \frac{4}{0.7} = -6.7.$$

Relative to Okun's law, the production function approach predicts a relationship between employment and growth instead of unemployment and growth. Furthermore, the response of employment to growth has a coefficient $\frac{1}{1-\alpha}$ which is about 1.4 and thus much larger than the corresponding one in Okun's law.

With an initial unemployment rate of 11.3 percent in 2008 and no change in participation, the change in the unemployment rate, calling $\bar{L}$ the total labour force, is:

$$\Delta u = -\frac{\Delta L}{\bar{L}} = -\frac{\Delta L}{L}\frac{L}{\bar{L}} = 6.7 \cdot (1 - 0.113) = 5.94.$$

This is closer to (but still smaller than) the observed increase of 8.7 points, suggesting there is no labour hoarding in Spain in the current recession.

As a result of these developments, during the crisis the country has suffered from a sharp rise in the spread between its yield on government bonds and German bond yields, as illustrated in Figure 4.12. In that respect it has been lumped with other problematic countries in Europe, such as Greece or Portugal, despite the fact that Spain's fiscal woes are far more recent. The rescue package for Greece implemented in spring 2010 eased the spreads only temporarily and since September 2010 they have been higher than ever before under the euro, though small relative to pre-euro times. This suggests that the markets do not entirely discount a scenario where the deficit remains high for a while and the debt-to-GDP ratio continues to grow to problematic levels such that insolvency cannot be ruled out. This may happen either through a deflationary spiral or a continuation of the recession.

4.4 Was the Golden Decade unsustainable?

At face value, the Golden Decade had a number of features that were unsustainable, at least in the sense that they could not go on forever.

Box 4.2

The two-tier structure of the Spanish labour market

In the aftermath of Franco's death, Spain quickly adopted a system of wage setting institutions similar to those prevailing in the rest of continental Europe. Collective bargaining played a key role in the formation of wages, and the prevalence of sectoral negotiations along with the scope for additional wage increases being agreed upon at the firm level led to a labour market plagued by structural wage inflation and a high equilibrium level of unemployment. At the same time, the generous employment protection provisions that characterized the paternalistic industrial relations of the Franco era were retained. These developments resulted in a very rapid rise in unemployment, which rose from under 5 percent in 1976 to 21 percent in 1985, making Spain the most pathological example of euro sclerosis. In 1984, in a desperate move to exit this situation, the Gonzalez government inaugurated what could be labelled the Southern European path to flexibility. It tackled employment protection legislation (which was decried by employers as a major barrier to job creation) by making it more flexible for new hires, while preserving the conditions of existing contracts. More specifically, the use of temporary labour contracts was liberalized, while employment protection legislation for permanent contracts was left unchanged.[1]

In the second half of the 1980s, this policy appeared to be a success: employment growth picked up, and unemployment fell to 16 percent. In effect, temporary contracts allowed employers to bear the risk of hiring a worker while retaining the option of dismissing him should he prove unproductive or should the firm's economic outlook become unfavourable. Since this logic specifically applies to the new workers being hired, its effect is as large, everything else equal, as if the reform had applied to the whole workforce.[2] Indeed, during this period, as much as 95 percent of new hires were under fixed-term contracts, and the share of existing employees under temporary contracts quickly rose to more than 30 percent of total employment. Thereafter, the Spanish labour market reached a sort of equilibrium: while temporary contracts were much criticized, their conditions of use and their share in employment and hires were basically unchanged.[3]

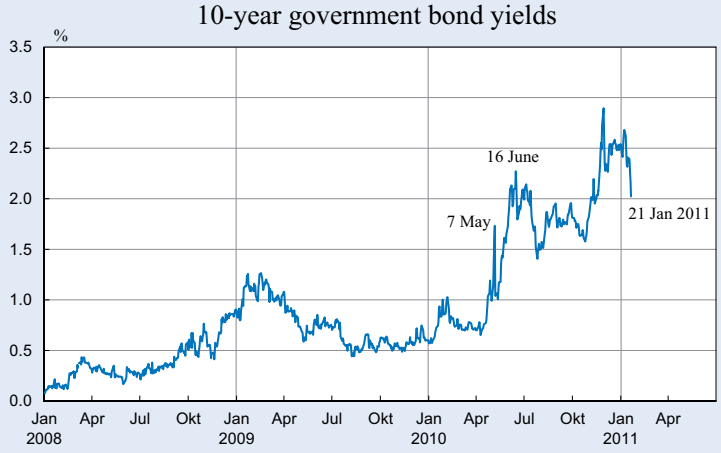
Economists have criticized this model of the labour market on different grounds. First, it is not appealing to treat identical people differently, although the evidence suggests that many temporary workers end up with permanent jobs,[4] more so certainly than the unemployed. Second, it is frequently argued that there is excess turnover, which reduces the employers' incentives to invest in their workers' human capital. Part of the problem is that the legal limits on the use of temporary workers tend to make it impossible to renew a contract on temporary terms, and instead leave the employer with the choice between dismissal and conversion of the contract into a permanent one. Third, the use of temporary contracts may further reduce the exposure of permanent employees to job loss, which leads them to ask for higher wages.[5] This may eventually lead to a higher equilibrium rate of unemployment. Here the issue is that collective bargaining sets the wages for both permanent and temporary workers, while the workers who do negotiate typically are under permanent contracts. The effect would disappear if temporary workers had a different wage from permanent ones.

Despite these shortcomings, the system remains and there seems to be little scope for a reform that would unify the terms of labour contracts throughout the economy. This may be because such a two-tier structure is a stable outcome of the political game played by the various interested parties.[6] For example, consider a single employment contract that would be more flexible than existing permanent ones but less than existing temporary ones. Such a contract would be objected to by both the incumbent "insider" employees who have permanent contracts, and by employers, who rely on temporary contracts at the margin to adjust their workforce.[7]

[1] A precise account of the use of temporary contracts in Spanish labour market reform can be found in Bentolila et al. (2008).
[2] See Bentolila and Saint-Paul (1992).
[3] See Toharia (1999).
[4] See Güell and Petrongolo (2007).
[5] See Bentolila and Dolado (1993).
[6] See Saint-Paul (1993, 2000).
[7] Since temporary workers are dismissed first, the employers would lose more from the greater restrictions on their adjustment margin than they would gain from having more flexible terms for workers that are inframarginal and unlikely to be part of an adjustment.

- The positive inflation differential vis-à-vis the rest of the euro area remained high. Thus competitiveness had been deteriorating over the years.
- House prices grew faster than the economy, suggesting there was an asset bubble, as in the United States.
- High house prices boosted both residential investment and consumption through their effect on household wealth. To the extent that house prices were too large, these two variables were also too high, and the collapse in the housing bubble should lead to a rapid drop in these two components of GDP.
- Very large trade deficits were due to both the persistent lack of competitiveness and the high level of domestic demand. As a result the net foreign

Figure 4.12



Source: Reuters Ecowin, Government Benchmarks, Bid, 10 year, yield, close, 24 January; own calculations.

asset position of the country quickly deteriorated and adjustment had to take place sooner or later. Because of Spain's membership in the European Union and the euro area, these deficits could be financed by capital inflows at low interest rates.

There are two narratives that we may consider to interpret these facts.[2] One considers that the Golden Decade resulted from overly soft budget constraints due to the rapid interest convergence and the associated capital imports, which overheated the economy. The economy was plagued by mispricing and a misallocation of resources, and this was bound to end brutally as the housing bubble burst. The other considers that these developments were transitory, that they were an optimal response of the economy to its fundamentals and that the economy would gradually re-balance itself as it converges to its long-run growth path.[3] Let us develop these two conflicting interpretations.

Both interpretations have in common that Spain enjoyed low interest rates from its participation in the euro area. The low interest rates increased the demand for credit for construction purposes and triggered a housing boom. The housing boom boosted the whole economy via a rise in employment and subsequent consumption of construction workers as well as capital gains that made owners of real estate property richer, providing them with the equity they needed to borrow and invest more in the real economy.

The difference in these interpretations is whether or not this process turned unhealthy. According to the first interpretation, it was mistakenly believed that the observable price and wage increases would continue indefinitely. Consumers and real investors had an incentive to over-borrow, and banks were generously and imprudently providing excessive credit with funds they borrowed abroad. The country enjoyed a period of overly soft budget constraints, which overheated the economy and caused a bubble that ultimately burst. Interest rates were too low in relation to Spain's macroeconomic situation: despite the expansion of capacity via real investment, output remained consistently above potential and as a result inflation was higher than in the core of Europe. Competitiveness was deteriorating and trade deficits kept accumulating boundlessly as the capital inflow seemed to be available forever. The forces for self-correction were weak, because for a given interest rate, the greater the inflation rate, the smaller the real interest rate and the larger the incentives to invest. As the construction sector is more sensitive to interest rates and credit conditions than other types of investment, the high level of activity was especially driven by construction. Low interest rates are also likely to lead to inflated asset values, even in the absence of a bubble. And while the economic conditions that may lead to the emergence of an asset bubble are not well understood, there are reasons to believe that they are more likely to arise, the lower the interest rate. Hence it is plausible that the housing bubble was caused by the inadequate monetary conditions and the excessive capital inflow that necessarily came with the euro. The monetary conditions were appropriate for the euro area as a whole but not for Spain. They could not continue forever; as foreign debt accumulated, consumers had eventually to reduce their expenditures. As competitiveness keeps on deteriorating because of inflation inertia, while the capital flow stalls due to convergence in rates of return and investors becoming aware of a default risk, the economy eventually experiences a slowdown. This process could be gradual but would be much more drastic if it was triggered by the bursting of the bubble. Such a brutal adjustment scenario is indeed consistent with the observed behaviour of the Spanish economy since the onset of the financial crisis.

[2] See Sinn (2010) for a theoretical view of the two interpretations.
[3] See Sinn and Koll (2001).

Under the second scenario, the imbalances would just be a natural feature of Spain's convergence path to the GDP levels of the richer EU countries. Given that before the euro Spain's capital market was separated from the core of Europe by exchange rate risks, there was an abundance of profitable and unexploited investment possibilities in Spain, offering higher rates of return than the projects available in the core when Spain entered the euro area. Thus the capital flow from the European core to Spain was welfare enhancing for Europe as a whole, because it resulted in more GDP in Spain than was lost against the trend in the core. As the capital investment in Spain boosted labour demand and wages, the prices of non-traded goods like construction services, where productivity gains were small, rose rapidly. Given that traded goods had the same price in Spain and elsewhere, this meant that inflation was larger in Spain (the so-called Balassa-Samuelson effect). The price increases of non-traded capital goods such as real estate resulting from this effect were part of the true, own rate of return to capital in Spain that investors correctly foresaw and included in their investment decisions.[4] Furthermore, it was optimal for consumers to anticipate their future income increases by increasing consumption immediately and financing such an increase by borrowing abroad with the aid of their banking system. This explains the large trade deficits of the Golden Decade. Finally, house prices were high not because of a bubble but because of fundamental factors, such as the low interest rates, the strong growth prospects of the economy and the large expected increases in the demand for housing due to the rapid population growth. The construction boom was in turn just the normal reaction of the economy to these forces.[5]

The brutality of the crisis and the unusual magnitude of the net capital import as measured by the current account deficit suggest that the first scenario is more plausible. But the forces described in the second scenario may also have played a role in the initial phase of the Golden Decade. After all, given Spain's initial situation, there was ample room for catching-up in terms of human and physical capital, technology and infrastructure. Given stable market institutions and openness to trade and international capital movements, it was to be expected that Spain would grow faster than the EU average. The issue has more to do with growth being excessive rather than there being growth as such.

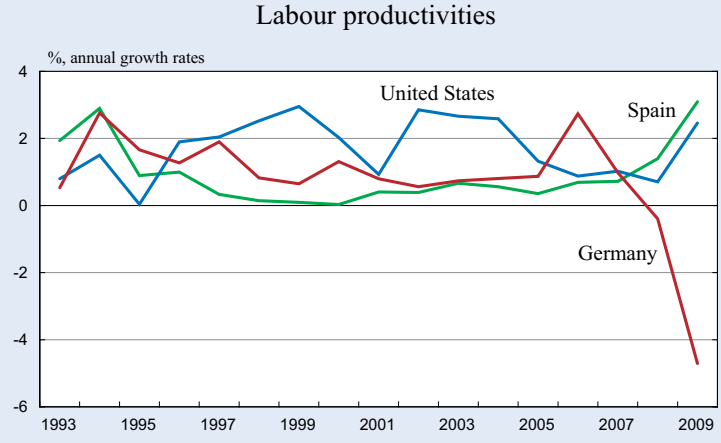
To illustrate the complex interplay between sustainable and unsustainable forces in shaping the aggregate economy, it is instructive to discuss further Spain's competitiveness problem during the boom years. This is what we do in the next section, before returning to the main policy issues facing the country in the current crisis.

4.5 Competitiveness and productivity[6]

The Achilles' heel of Spanish growth has been productivity. Spain has had a consistently positive inflation differential with the euro area, up to the recent recession. As we have seen above, Spain lost competitiveness with respect to the EU-15 as measured by the evolution of unit labour costs. Using that measure, Spain's competitiveness with respect to Germany has deteriorated by 30 percent since 1999, a loss of competitiveness similar to that of Italy.

Since the 1990s European labour productivity growth has been lower than the growth of productivity in the United States, and Spain became a laggard in the European Union. In Spain labour productivity growth was near zero between 1998 and 2000, with

Figure 4.13



Source: AMECO: European Commission, Database "Gross domestic product at 2000 market prices per person employed (RVGDE)", http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm, data extracted on 11 December 2010, own calculations.

[4] According to Dorfman, Samuelson and Solow (1958), the allocation of capital to different countries is efficient if the price change of capital goods plus the marginal value product of capital is the same across all countries.
[5] An illustration of these views can be found in Garriga (2010).
[6] In this section, we draw in part from the results reported in Ghemawat and Vives (2009).

positive rates afterwards but only picking up after the destruction of employment during the crisis (see Figure 4.13).

As illustrated in Figure 4.14, total factor productivity (TFP) – a measure of the technological efficiency of the economy – displays basically negative or zero growth rates from 2001, while increases in TFP have been consistently larger in the euro area (although negative between 2001 and 2003 and after the crisis).

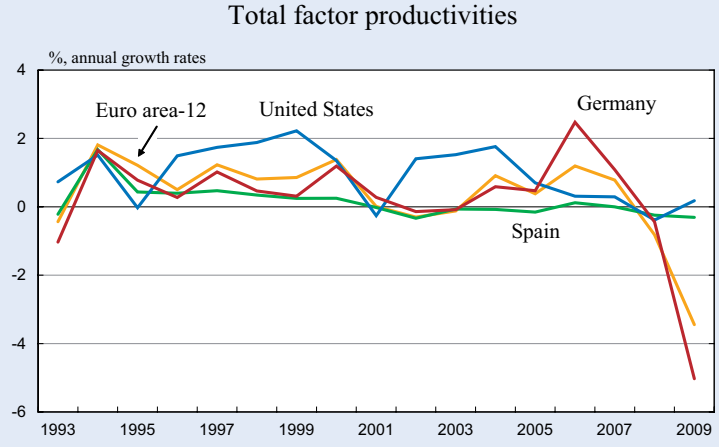
Behind the poor productivity performance of the Spanish economy lie several factors, the central ones being the importance of construction and tourism and an insufficient accumulation of human and technological capital. In other words, the Golden Decade was labour intensive and relied on immigration and on economic sectors with little potential for technological improvements, above all construction. While welfare increased because many unemployed workers found jobs, there was little potential for future welfare gains as Spain attained full employment because of its low productivity growth and its inadequate allocation of economic activity. There may also be other factors behind the poor productivity performance in addition to the structure of economic activity. The level of education in Spain in relation to the EU-27 is low, with a low proportion of high school and vocational training in the economically active population. Spain typically does poorly in the PISA study on secondary education. Somewhat surprisingly, Spain shows a higher proportion of university students but it has a poor performance in terms of the high rate of students quitting – between 30 and 50 percent depending on the field – and with a large number of years required on average to obtain a degree. The university system has improved in its research capabilities but it is highly bureaucratic, universities lack autonomy and have severe problems of governance and financing. In regard to technological capital, R&D spending as part of GDP has shown an increasing tendency, but at 1.35 percent is still well below the EU-15 average at close to 2 percent (2008), not to mention the distance to countries such as the United States, Japan or the Scandinavian countries. Furthermore, R&D policy has tended more to dispersion than to consolidation of critical mass in key areas.

In light of these competitiveness problems and of the country's deteriorating external position during the Golden Decade, it is natural to expect that export performance has been disappointing. In fact, the picture is more complex. Spanish exports to the world have retained their share since the introduction of the euro while, for example, those of France or the United States have fallen (see Figure 4.15). For services, Spain's share in the world market has grown over the past decade, just like Germany's – while again France's, in contrast, fell behind (see Figure 4.16).

What explains this satisfactory performance in a context of aggregate loss of competitiveness? The answer is that there are "pockets" of competitiveness in the export sector, i.e. industries that, for various reasons, have managed to keep productivity growth in line with labour costs, thereby maintaining their positions in international markets.

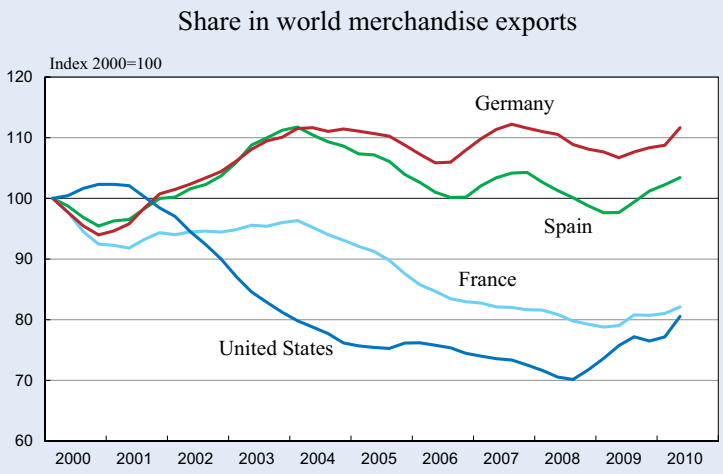
Spain has managed, partially out of the privatization process of state-owned firms in the late 1980s and 1990s, to consolidate outward looking utilities in the energy, transportation and telecommunication sectors, as well as in construction and banking. The financial sector displays two international banks that have come out strengthened from the crisis and at least one strong large savings bank with an ambitious international expansion plan. The competitiveness of Spanish banks, with expansion in Latin America, the European Union, the United States and now also in Asia, derives from the early liberalization process in Spain, which increased competition and fos-

Figure 4.14



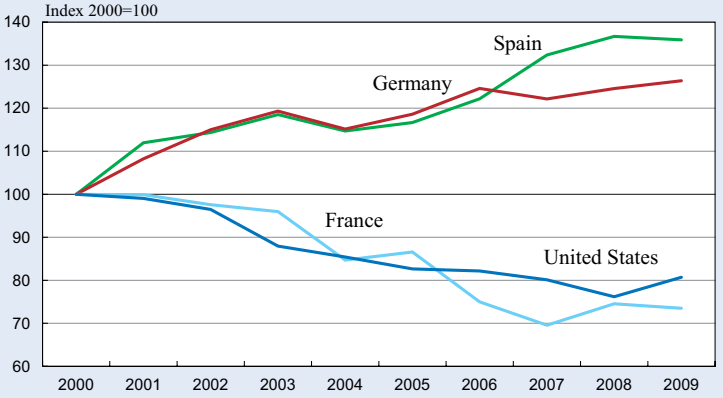
Source: AMECO: European Commission, Database "Total Factor Productivity: total economy (ZVGDF)", ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm, data extracted on 11 December 2010, own calculations.

Figure 4.15



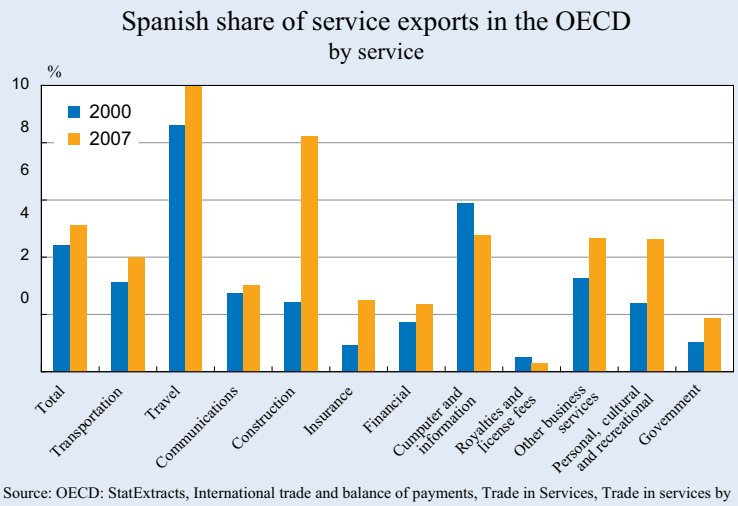
Source: IMF, database accessed through EcoWin Pro, data extracted on 16 December 2010.

Figure 4.16



Source: WTO: Trade in commercial services, Other commercial services (Commercial services - Travel & Transport), Exports, US dollar at current prices (Millions), stat.wto.org/StatisticalProgram/WSDBViewData.aspx?Language=E, data extracted on 11 January 2010, own calculations.

Figure 4.17



Source: OECD: StatExtracts, International trade and balance of payments, Trade in Services, Trade in services by service category, data extracted on 11 January 2011.

tered efficiency in the sector. These large firms in regulated sectors are an asset for the Spanish economy. Overall, Spain has built up a solid reputation in architecture, construction and engineering services as well as financial services and tourism (see Figure 4.17).

Furthermore, a segment of small and medium-sized exporting companies, especially from Catalonia and the Basque country, have proven their international competitiveness in the production of industrial goods and advanced services. Catalonia and the Basque country are regions with a more diversified economic structure with less dependence on the construction sector. For example, Catalonia's export share in world markets has been steady at 0.46 percent from 1995 until 2008 despite the pressures of globalization. Catalonian firms have made efforts to become more competitive in terms of reducing costs, investing in human capital, product differentiation and the adoption of new technologies.

Thus we observe that there is a dynamic export sector which, due to its good productivity performance, has coped well with the trend toward real exchange rate appreciation during the Golden Decade. But this does not imply that competitiveness is adequate: To restore the external balance and create jobs at the same time, the Spanish economy needs to export more, i.e. to become more competitive. This must be achieved by a combination of real depreciation and productivity growth in the export sector. The latter will only prevail if structural reforms are undertaken (see Sections 7 and 8); the greater the improvement in pro-

ductivity obtained thanks to the structural reform, the smaller the real depreciation that is needed to rebalance the economy, and the less painful the adjustment is for workers and consumers.

4.6 Current adjustment issues

In some ways, the adjustment that was necessary in order to offset the imbalances of the Golden Decade is taking place during the current crisis: house prices are falling sharply, although only a fraction of the required adjustment has been achieved; the trade balance is recovering; construction and private consumption have fallen sharply.

Some of these developments are cyclical. For example the improvement in the trade balance is chiefly driven by the sharp fall in consumers' disposable income, which is itself a by-product of the recession. According to the Bank of Spain (2009, chapter 5), the structurally adjusted improvement in the trade balance is much smaller than the actual one. Nevertheless, there is an improvement in the trade balance even adjusting for the cycle, and the resulting improvement in the net asset position of the country (relative to the path that would have been followed in the absence of the crisis) will last beyond the recession and help finance future deficits. Other aspects, like the evolution of asset prices or the reallocation of activity away from consumption, are likely to have longer lasting effects.

This is the structural adjustment that is needed, but in order for it to proceed smoothly the economy must be capable of absorbing it without experiencing a protracted recession. Ideally, the resources that are released from the construction sector should be relocated to the external sector; in order to support such a reallocation, the real exchange rate should depreciate in order for export demand to offset the fall in domestic consumption and residential investment. That is, the competitiveness losses that Spain accumulated during the Golden Decade must be undone.[7]

Given the country's membership in the European Monetary Union, this means that prices and wages have to fall or at least increase at a lower rate than in the rest of the euro area (and the lower the overall inflation in the euro area is, the more this means that deflation has to actually take place in Spain). Spain will have to undergo a painful process of real depreciation which mirrors the process Germany encountered under the euro before the crisis.

It is indeed true that presently inflation rates in Spain are lower than in the rest of the euro area. Therefore, during the crisis, part of the competitiveness deficit that was accumulated during the Golden Decade is being reversed. Presumably, to the extent that there is inflationary inertia, these gains will not be purely cyclical and will persist beyond the recession. More worrying though is the lack of wage moderation, which makes us concerned that the adjustment is going to be even more painful than necessary and that the prospect of a "lost decade" during which growth remains sluggish and unemployment stays above 20 percent should not be discarded. In other words, the (slight) improvement in competitiveness is not being financed by slow wage growth but by productivity gains that are achieved at the expense of employment, as the least productive jobs are destroyed and as a rise in the capital/labour ratio makes each job more productive.

Table 4.2 strikingly illustrates this point: Despite the sharp rise in unemployment, wage inflation remains substantial. In fact these numbers suggest that Spain suffered from a large wage shock in 2008, right at the onset of the recession. This can only be partly explained by the lagged reaction to the surge in inflation in 2007. If one looks at real wage growth by subtracting inflation in the preceding year from nominal wage growth, one also gets an acceleration of real wages instead of the moderation that would have been expected in response to the sharp rise in unemployment (see Table 4.3).

The lack of reaction of wages to labour market conditions has long been noted in the literature on

Table 4.2
The lack of response of wage increases to unemployment

Year	2004	2005	2006	2007	2008	2009
Unemployment rate	11.0	9.2	8.5	8.3	11.3	18.0
% increase in nominal wages	3.0	3.7	4.0	4.5	6.1	3.7

Source: Bank of Spain (2009), Annual Report, Table 1.1, p. 17.

[7] International investors nowadays hesitate to bring their funds to Spain, and if so they require substantial interest surcharges to compensate for the perceived default risk.

Table 4.3
The lack of response of real wage increases to unemployment[a)]

Year	2004	2005	2006	2007	2008	2009
Unemployment rate	11.0	9.2	8.5	8.3	11.3	18.0
% increase in real wages	0.4	0.5	0.3	1.8	1.9	2.3

[a)] Real wage growth is computed as nominal wage growth minus the preceding year's CPI inflation.

Source: Bank of Spain (2009), Annual Report, Table 1.1, p. 17; own calculations.

Spanish unemployment[8] and essentially comes from the rigidity of the labour market. Since most of the adjustment falls on holders of temporary contracts and perhaps on immigrants (including a number of illegal ones), permanent workers are relatively sheltered and continue to demand substantial wage increases despite the poor prevailing economic conditions.

As pointed out by Garicano (2010), this stands in contrast to the experience of other countries, where wages are typically more reactive to labour market conditions. For example, real wage growth in the United Kingdom became negative in the first quarter of 2008, thus showing a quick reaction to the crisis. And as a result of such moderation (and of the fall of the pound sterling), GDP and employment started recovering in the second quarter of 2009.

It is therefore essential, if Spain aims at exiting the crisis on a sustainable growth path, that it implements structural reforms of its labour market so as to increase the sensitivity of wages to unemployment. Otherwise, its economic performance will remain inherently unstable even if growth resumes, since any shock that would need to be absorbed by the labour market, such as a productivity slowdown or a structural shock that would require intersectoral reallocation of labour, may trigger a protracted recession.

While the crisis has partly corrected some of the imbalances of the Golden Decade, it has generated new imbalances, mostly in the area of public finances. These issues have led to a rather quick implementation of reforms that are aimed at restoring the country's fiscal balance. The reason why the government has acted swiftly is that it wanted to prevent a "Greek scenario" under which spreads on government bonds would skyrocket, making the financing of the debt problematic and increasing the likelihood of contagion to the entire euro area. In the extreme case, the government could even find itself incapable of refinancing its debt and would technically be bankrupt. The austerity programme, which is described in Box 4.3, is quite ambitious, and even involves exceptional measures such as a reduction in the wages of civil servants by 5 percent in 2010. According to the Bank of Spain (2010), "the objectives are very ambitious and, in many cases, do not have a precedent, since in the past

Box 4.3
The fiscal austerity package

The aim of fiscal consolidation is to bring back the deficit to 3 percent of GDP in 2013 with an intermediate objective of 6 percent in 2011 from the projected close to 10 percent deficit of 2010. The fiscal measures approved in late 2009 for the fiscal year 2010 seek to reduce expenditures and increase taxes. On the expenditure side, the following are notable:

- a reduction of the rate of hiring in the public sector to 10 percent of the attrition level,
- no hiring of temporary workers in the public sector.

On the tax side, the following was decided:

- elimination of the deduction of 400 euros from the income tax,
- increase in the VAT rate,
- increase in the taxation of personal capital income.

In May 2010, in the middle of the Greek crisis, further austerity measures were decided:

- a temporary reduction of public wages by 5 percent as of July 2010,
- a freezing of public wages in 2011,
- a reduction of public investment by 6 billion euros over the 2010–2011 period,
- a freezing of pension levels in 2011,
- the elimination of a child benefit (paid at birth) in 2011.

In addition there is a phasing out of fiscal incentives (deduction of mortgage payments) for home ownership from 2011 on.

[8] See Blanchard et al. (1995). Recently Bentolila and Folgueroso (2010) have pointed out that wages are generally unreactive to both labour market conditions and productivity.

one only tried to freeze the growth rate of spending. Their fulfillment will require a rigorous implementation and control which should allow the timely identification of possible deviations". A potential cloud on the horizon of fiscal consolidation is the optimistic growth outlook assumed by the Spanish government for 2011, which at 1.3 percent is above the consensus forecast (the IMF predicts a GDP growth of just 0.7 percent).

The emergency implementation of such a fiscal austerity package illustrates the evils of a "stop-and-go" macroeconomic policy. During 2008 and 2009 there was considerable consensus in political and academic circles for implementing large Keynesian stimulus packages while not paying attention to the long-term consequences of such measures. Essentially governments assumed that they could gradually reduce the deficits once the macroeconomic outlook began to improve and revert to a balanced growth path with a stable debt-to-GDP ratio, albeit at a higher level than before the crisis. Under such an ideal scenario the governments would have smoothed the crisis optimally, and a permanently higher (but manageable) debt level would have been the (worthwhile) price to pay for it. This is somewhat in line with the scenarios we envisaged for fiscal adjustment in last year's EEAG report (see EEAG 2010, p. 89), although we pointed out that to stabilize debt at 100 percent, substantial fiscal restraint should be exerted and growth should proceed at a reasonable pace.

The problem is that governments discounted an alternative, less rosy scenario, i.e. that the magnitude of the deficits would lead to people being worried about future fiscal problems, with the twin consequences that the recovery is less than satisfactory due to the economic agents' reluctance to invest and spend, and that asset markets quickly react by imposing a large risk premium on the bond yields of the most exposed governments. It is the emergence of this scenario that has compelled the Spanish government to implement its emergency austerity package. Its timing could not have been worse: both an adverse supply shock (due to the tax hikes) and an adverse demand shock (due to the reduction in public spending) are hitting the economy at a time when it is still in recession and unemployment is very high. In retrospect, it would have been better to have been more cautious in 2008–2009 and to have kept an eye on the long-term sustainability of public finances rather than joining the bandwagon of unbridled spending. This is more or less the strategy Germany adopted (in 2009 the German public deficit ran at 3.9 percent of GDP, versus an average of 6 percent for the EU-27), and it may have played a role in the strong recovery of the German economy in 2010. On the other hand, the compulsory contractionary policies implemented by the Spanish government in 2010 will probably harm its recovery and – given the poor performance of the labour market in absorbing shocks – pave the way for another lost decade. The contractionary policies most likely could have been softened had the Spanish government embarked on a programme of reforms early in the crisis. This would have yielded credibility to Spanish economic policy and implied less financing constraints in international capital markets.

Finally, another issue is that the adjustment in house prices is still incomplete. Some analysts believe they should fall further by some 20 to 30 percent. If this happens, another dip into recession may follow, with further financial problems for banks that may spread to the public sector if these liabilities are bailed out, as was the case in Ireland in 2010.

4.7 The key issue of labour market reform

The most important issue facing Spanish labour markets today is the inability of wages to fall in response to increases in unemployment even when such an increase is massive. Labour market developments in the current crisis suggest that little has changed since the early 1980s, when Spain suffered from very high unemployment and there was no mechanism for it to return to normal levels. The introduction of flexible labour contracts in the 1980s allowed for an increase in employment while being compatible with the political balance of power. But it did nothing to increase the cyclical sensitivity of wages because it did not increase the exposure of incumbent employees to competition from outsiders in the wage-setting process. The key challenge facing policymakers is how to reform the labour market institutions to increase this competition.

To address this challenge, it is necessary to understand the source of the problem. It is widely believed that an important aspect is the inappropriate level at which wage bargaining takes place (that is, the sectoral level), and the low coordination between sectors. An intermediate level of wage-setting along with low coordination delivers high and persistent unemploy-

ment at the aggregate level.[9] One could envisage national wage negotiations that once prevailed in Sweden. However in the end the Swedish approach did not deliver the wage dispersion between sectors needed for an efficient intersectoral allocation of labour and was therefore abandoned. Therefore, the best course seems to be decentralizing wages at the firm level, but this runs into the problem that it is difficult to impede higher level negotiations or to dismantle the current system.

An interesting proposal was made in 2009 by 100 prominent economists (see Abadie et al. 2009). This proposal allows for agreements at the firm level to supersede any sectoral agreement, for example, if the lower level agreement implied lower wage growth than the sectoral one. Thus, sectoral agreements would only define a default option in the case that bargaining does not take place at the firm level.

Another prominent proposal consists in replacing the dual system of employment protection with a unique labour contract under which employment protection would grow progressively with an employee's tenure. It is not obvious to us how this would significantly differ from the current system. It would still be the case, under such a proposal, that workers with low tenure would display a large turnover and would be dismissed before high tenure workers. It is true, though, that temporary workers would not face a deadline at which the employer must either get rid of them or give them full employment protection; but they could still be dismissed preventively in order to avoid the future increases in firing costs. By the same token, if it is the case that the dual employment protection system makes wages more rigid by reducing the exposure to unemployment of the workers who are most influential in wage negotiations, replacing the system with a unique labour contract and progressive employment protection will not change that feature much.

It is impossible to increase wage flexibility without increasing the exposure of insiders to outside competition: this is what a decentralization of wage bargaining to the firm level or a reduction in employment protection for permanent contracts would achieve. This means that there is no politically cheap way to implement such a change. The mid-1980s deregulation of temporary contracts boosted employment at the margin at low political costs, and for this reason it was not able to increase wage flexibility. Nevertheless, such deregulation proceeded in spite of the unions' opposition, who feared its long-term consequences. The reason is that unemployment was very high at that time, which made it easier to extract concessions from the unions. Given the current level of unemployment, there may be an opportunity for a far-reaching reform of the labour market.

Indeed, in July 2010 a labour reform package was approved which goes in the direction of attacking the duality of the labour market but in a timid way, reducing firing costs for firms in poor economic conditions[10] and widening the conditions under which the *contrato de fomento de empleo* (contract of employment promotion; a permanent contract with less generous employment protection provisions) may be used.[11] It also introduces steps towards the "Austrian model" by creating a lifelong individual capitalization fund for workers (the worker will be able to make use of the fund in cases of dismissal, transfer, retirement or for training purposes, to be implemented in 2012). The reform of collective bargaining procedures towards decentralization has started but has basically been left pending for future reform in March 2011.

The reform as it stands is a half-way reform, which depends on judicial review that may compromise its efficiency. It will have to prove its effectiveness when the economy starts growing again. There is some risk that it might be undone if economic conditions improve. Collective bargaining is an unresolved issue that is pending as well as the features of the unemployment subsidy. Efficiency would require having a higher subsidy for a shorter period of time to incentivize job search.[12]

4.8 Other key reforms

Reform of the labour market is key but by itself it will not make the economy grow. Without a series of reforms to improve productivity, Spain will face a pro-

[9] See Calmfors and Driffill (1988).

[10] The reduction is to 20 days per year worked instead of 45 days per year in case of a wrongful dismissal. Nevertheless the new measures are plagued by legal uncertainty since they rely on the discretion of judges in determining the circumstances where they apply. Uncertainty in the implementation of employment protection legislation is viewed by many economists as very harmful to job creation and replacing it by a transparent system of unconditional severance payments has often been advocated.

[11] This contract specifies a severance pay of 33 days per year worked in the case of wrongful dismissal, instead of the usual 45 days.

[12] In the extreme, one could abolish unemployment benefits or reduce them to subsistence levels and have workers rely on their capitalization fund to finance their consumption during unemployment spells.

tracted period of low economic activity and high unemployment. Apart from the labour market, at least four major areas need attention: fiscal consolidation and public sector reform, the banking system, human capital and innovation, and competition and regulation.

The Spanish government denied the need for reforms until the pressure of financial markets and the European Union induced a U-turn in May 2010. From then on a series of limited reforms have been passed, including the labour market and the restructuring of a segment of savings banks. But more are in store, such as the proposal to increase the retirement age from 65 to 67 as well as other possible adjustments such as a tighter indexation of pension benefits to an individual's life-cycle contributions.[13]

Thus far Spanish banks have been resilient to the financial crisis due to a combination of not being involved with US subprime mortgages, dynamic provisions which required extra capital on a forward-looking basis and prudential regulations of the Bank of Spain. The strengths of the banking sector up to the crisis lay in its orientation to retail banking, high apparent productivity, profitability and solvency as well as internationalization of the large entities. The weaknesses are related to its dependence on real estate, which has left some institutions with damaged balance sheets, excess capacity and high dependence on external finance which leaves the sector exposed to refinancing risk. This is especially true for a segment of savings banks. Two small savings banks have failed. Spain performed stress tests on its banking system, which were much more comprehensive and tougher than in other EU countries. The result was that four savings banks, on top of the failed institutions, needed more capital. The Fund for Orderly Banking Restructuring (FROB) was set up to help the restructuring process of the financial entities. It provides support to consolidation processes subject to conditions set by the banking supervisor and provides capital in the form of convertible preference shares with remuneration at market levels. Furthermore, in July 2010 the legal status of savings banks changed to help them raise capital and improve efficiency. Now it is possible for them to operate with a commercial bank (controlled by the savings bank/s) or even become a foundation (as in Italy) that only has a participation in the bank. The result so far is that the number of savings banks has gone down from 45 to 17 groups (of which eight have received FROB help), with five integrations setting up a common bank. The average asset size of savings banks has more than doubled, and drastic reductions in the number of branches and employees are foreseen. In fact, it is expected that the process of consolidation and restructuring among savings banks as well as medium-sized banks will continue. Transparency in the recognition of the losses derived from real estate and a quick adjustment of real estate prices would help in restoring the balance sheet of the financial system and would promote economic recovery. The speedy reform of the financial sector after the adverse real estate shock is crucial to provide credit to the real economy to get out of the crisis.

The pressure of debt markets induced the government in December 2010 to announce the privatization of 49 percent of the Spanish airport operator AENA and of 30 percent of the national lotteries, as well as increasing the taxes on tobacco and lowering the profit tax on small and medium-sized firms. The announced privatization of AENA will mostly maintain the obsolete centralized management of all Spanish airports and most likely will not allow them to compete. This is at odds with most other developed countries. The privatization of AENA also poses the more general question of public-sector reform. In Spain public-sector employees have enjoyed the benefits of a soft budget constraint of governments that preferred to allow generous conditions, at taxpayer expense, rather than face any conflict. A paradigmatic example is the case of air traffic controllers, who with extremely high salaries and lax working requirements brought the country to a halt on December 3 and 4, 2010. The tough, unexpected response of the government may signal a hardening of the public budget constraint. More generally, there is room for dramatic improvement in the efficiency of the public sector, given its maze of different levels of government and the lack of correspondence between expenditure and taxation. Indeed, Spain would benefit from a system of fiscal federalism where regions would have to raise income from their own taxes to cover their expenditures and where large transfers between regions would become explicit and limited. On a related front, the administration of justice is slow and inefficiently organized, inflicting high costs on the operation of firms. Administrative procedures are cumbersome and the cost of doing business is high.[14]

[13] To be determined in January 2011.

[14] Not least because of the complexity and uncertainty surrounding the legal application of employment protection, as pointed out in footnote 19.

Above we have documented Spain's poor performance in total factor productivity. As long as it persists, this means that there is little hope for an improvement in living standards and that the needed adjustment in the external sector must be achieved through a real exchange rate depreciation, which is associated with a reduction in real wages. Furthermore, such a depreciation is long and costly to achieve in the context of European Monetary Union. To exit this conundrum, Spain needs a set of measures to improve productivity and to promote growth and exports. Potential obstacles lie in the organization of the industrial sector: The size distribution of firms is tilted towards small firms with low productivity; a tradition of inter-firm cooperation is lacking; and, most importantly, there are many rigidities in the process of entry and exit in industry which may prove to be an obstacle to overcoming the current crisis. One such rigidity is the malfunctioning of the rental market, which is very narrow because the property rights of owners are not firmly established.

Innovation efforts have been lagging, mostly because of the constraints faced by small firms. Renovation and productivity improvement at small and medium-size enterprises (SMEs) may prove to be the key in getting Spain out of the crisis. A distinction must be made between those firms and segments that are at the world technological frontier, and for which the pressure to innovate is formidable and which need heavy R&D investment, and those that are well inside the frontier, for which a strategy of renovation and adaptation is needed to advance towards the frontier.[15] The crisis may be an opportunity to get rid of the inefficient firms, but for this to happen flexibility is necessary. In the short-term, adjustment will be painful since credit is not flowing to industry due to the financial crisis and lack of solvent demand, and the SME sector is very much dependent on bank credit. This may be a blessing in disguise and provide an impetus for the needed restructuring of the SME sector with renovation and innovation to increase productivity. This restructuring will be successful if no artificial impediments to transfers of resources from declining to emerging sectors are in place. The pressure of lower cost producers combined with the Darwinian selection that the crisis will impose on industrial firms should provide a crucial impetus for the needed productivity improvement. However, protection of declining firms with subsidies may prove to be a barrier to restructuring.[16]

Spain has to privilege brains and not bricks, putting more weight on human capital than on construction and infrastructure. This means fostering human capital formation, openness and internationalization. In education and R&D a change in organization and incentives in the bureaucratic structures is more important than increased public spending. This is the case both in secondary as well as advanced education. In both a culture of excellence should be promoted. Schools need more autonomy to compete for students and teachers with more transparency on performance. In higher education, the universities should have autonomy to select professors and students, with public financing based on results; they must charge fees closer to the real costs and develop a system of fellowships to foster equal opportunity. The university system should move from the bureaucratic mode to an excellence-oriented one. In the crisis period, investment in science and innovation needs to be maintained and special attention should be given to the segment of dynamic firms active in the international market.

Competition should be fostered in services in particular (implementing the EU Services Directive) to lower costs and induce faster adoption of information technology. This may be particularly important in a sector such as retailing. In regulated sectors like energy, an opportunity must be given to the market forces. At present the maze of subsidies and regulations induces an extremely high inefficiency and distorted use of energy sources.[17] Sectoral regulators still have a long way to go to attain the desired independence and technical capability, while the competition authority has shown increasing signs of activism and independence.

The government has taken timid steps to tackle public sector reform and the productivity issue, with some progress on lowering the cost of doing business, education reform and the energy sector. More needs to be done, however.

[15] As discussed in Section 4.5, this distinction explains the paradox that Spain may have competitiveness problems and yet enjoy a dynamic export sector.

[16] See Ghemawat and Vives (2009).

[17] See Ghemawat and Vives (2009), and Federico, Fabra and Vives (2009) and Federico (2010).

4.9 Outlook and conclusions

The bursting of the real state bubble has left its mark in Spain, and the level of indebtedness of the private sector, external in an important proportion, suggests that internal demand that was largely stimulated by capital imports will not be an engine of growth for some time. The reduced capital imports will make it necessary for Spain to improve its competitiveness and boost its export sector. This will have to be achieved by real depreciation, given its rigidity in labour and product markets and its membership in the European Monetary Union, although such depreciation in the absence of structural reform will be a long and painful process. The price to be paid will be stagnant growth and, if wages remain as inflexible as they are, a high level of unemployment for years. To mitigate the harm that undoubtedly will come with this process, structural reforms will be key ingredients of any successful adjustment package. The better and more radical they are, the shorter will be the period of slump that Spain will have to live through. The success of the labour market reforms Germany implemented in 2004 to allow for more downward flexibility of wages when it was caught in a similarly painful real depreciation crisis shows that such reforms eventually pay off.

Wage bargaining must be reformed to make wages more sensitive to economic conditions; employment protection must be tackled so as to reduce the bargaining power of insiders and make it easier to reallocate labour between sectors. These reforms would help restore competitiveness and reallocate resources to the export sector more quickly. Other structural reforms in product markets will improve productivity, especially in traded goods, which will reduce the amount of real depreciation needed for adjustment.

While Spain is in a vulnerable position due its level of private debt and the fiscal crisis, if the programme of reforms is carried out rigorously, productivity could be boosted dramatically and growth could resume above the euro area average in the medium run. The crisis offers a unique opportunity to pass a comprehensive reform package. The only question is whether Spanish society and its politicians will take advantage of this window of opportunity.

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Taxation and Regulation of the Financial Sector

5.1 Introduction

Since the beginning of the financial crisis numerous proposals have been made for the reform of public policies towards banks and other financial companies. Many individual governments have already taken action, and several official international bodies have also been active in considering reform. Reform proposals have taken two forms. One form is for new, or amended, regulations on banks and financial companies. A second is for new taxes on banks and other financial companies.

This chapter analyses options for the taxation and regulation of banks and other financial companies. It compares and contrasts the two alternative approaches of taxation and regulation as a means to achieving various objectives. And it analyses the interaction between regulations and taxation when both are implemented simultaneously.

The aims and objectives of regulations and tax are not identical. Most financial regulatory proposals fall under two distinct objectives. The first is to reduce the probability of default in individual banks or other financial companies, and in particular in systemically important banks. This has been addressed in a number of ways. For example, the Basel Committee for Banking Supervision (BCBS) has proposed significant reform of its system of capital and liquidity requirements as part of a Basel III package (BCBS 2010a). And the US Dodd-Frank Act has introduced many new provisions, including restricting the trading activities of some financial companies.

The second objective is to put in place a resolution mechanism that can adequately deal with cases where banks or other financial companies reach positions of financial distress despite regulations designed to prevent them from doing so. For example, the European Commission has been active in developing a new resolution mechanism within the European Union (European Commission 2010a, b). The aim of the mechanism is "to facilitate the resolution of failing banks in ways which avoid contagion, allow the bank to be wound down in an orderly manner and in a timeframe which avoids the 'fire sale' of assets" (European Commission 2010a).

There are also two distinct objectives for tax policy. The first is simply to raise revenue. This could be for at least two reasons: to reimburse governments for the costs of the last financial crisis, and to build up sufficient funds for them to be able to deal with the next one. The explicit aim of the Financial Responsibility Fee proposed in the United States was the former: "My commitment is to recover every single dime the American people are owed" said President Obama, on January 14, 2010, in a White House press release. In addition, the International Monetary Fund (IMF) was asked by the September 2009 G20 meeting "to prepare a report on how the financial sector could make a 'fair and substantial contribution' to meeting the costs associated with government interventions to repair it" (IMF 2010b). The latter is closely related to the design of a resolution mechanism, and in particular is associated with building a resolution fund that is financed by a tax on the financial sector.

The second objective of tax policy is more closely linked with regulation: namely, Pigouvian taxes could be introduced with the aim of affecting the behaviour of the financial sector in a similar way to regulations. Proposals here include new taxes on bank liabilities, and on bank bonuses. For example, the IMF has proposed a Financial Securities Contribution (FSC), based broadly on liabilities, which might have similar effects as the Basel capital requirements. The choice and interaction between taxation and regulation is particularly important in this area.

This chapter cannot cover all aspects of the taxation and regulation of the financial sector. It therefore limits itself primarily to a discussion of taxation policies, with a particular focus on where these may overlap or conflict with regulation. The chapter

therefore leaves several important issues of regulation aside: it neither discusses the design of a resolution mechanism nor issues of competition within the financial sector such as whether some large banks should be broken up, or whether their activities should be restricted.

The chapter proceeds in the next section by first setting out a summary of the causes of the financial crisis. This is a necessary first step to analysing and understanding the role of alternative policies designed to affect behaviour in the financial sector: effective policy should be targeted towards the underlying causes of the crisis. The chapter then contains a somewhat broad discussion of the relative merits of taxation and regulation as ways of improving the outcome of behaviour in the financial sector for society as a whole. The section also contains a brief summary of the key relevant taxation and regulatory proposals that have been made in response to the financial crisis.

Sections 5.4 and 5.5 address in turn the two objectives of taxation: to raise revenue and to influence behaviour to prevent a subsequent crisis. We discuss the appropriate design of taxation in each case, and particularly in the second case we contrast the options of taxation and regulation, and highlight issues which arise if both forms of intervention are used simultaneously. Section 5.6 concludes.

5.2 Underlying causes of the crisis

There were clearly many elements that contributed to the onset and scale of the financial crisis. In order to identify policies that may help to reduce the probability of future crises, it is useful first to identify some of the more important factors that created the recent crisis. We will do this briefly, since other contributions have already provided a comprehensive analysis of the causes of the crisis.[1]

Two key factors are liquidity and solvency. Banks use short-term debt to provide long-term loans. There are clear benefits from this to society: funds can be pooled to allow investment in long-term illiquid assets, while meeting the expected demands for individuals' short-term liquidity needs. However, as Diamond and Dybvig (1983) demonstrated, in such a situation any cost to the liquidation of long-term assets is likely to result in banks being inherently fragile, and susceptible to demands from short-term debtholders. The existence of deposit insurance reduces such fragility, as deposit holders are protected and hence less likely to create a bank run. By acting as lender of last resort, central banks can have a similar impact, as demonstrated by Rochet and Vives (2004).

However, as King (2010) argues, although in 2007 "everyone thought that the crisis was one of liquidity … it quickly became clear that it was in fact a crisis of solvency" (p. 8). The problem of insolvency was created by excessive leverage and risk. According to Sinn (2010), in 2006 the five largest American investment banks had equity to asset ratios of between 3.2 percent and 4.6 percent (based on European accounting rules, these ratios would have been even lower).

The implication of such low equity ratios is clear. Suppose that the ratio is 4 percent. Then if the value of the assets held by the bank falls by more than 4 percent, the bank would be technically bankrupt: equity holders should be wiped out, and creditors should share what is left. It is clear, then, that both the risk of the bank's assets and the proportion of its assets that are financed by debt are crucial for solvency. This is why regulatory requirements for the capital ratio depend on risk-weighted assets: we discuss below whether existing and proposed regulations and taxes are sufficiently strict.

Several factors may have been involved in creating the situation in which banks held excessively risky assets, given their equity capital. One, highlighted by Sinn (2010) in the context of the present crisis and first analyzed theoretically in Sinn (1980), is the misuse of limited liability. We discuss this in the next subsection, before considering other factors, including preferential taxation.

5.2.1 Limited liability

In the presence of risky investment, limited liability implies that the shareholders of a company gain from risk on the upside, but that their losses on the downside are limited. When debtholders do not react to the banks' risk choices, limited liability creates the incentive both for high leverage and high risk: both of these improve the gamble available to shareholders.

The importance of the response of the debtholders to greater risk on the asset side is illustrated by a simple

[1] See, for example, EEAG (2009, Chapter 2) and Sinn (2010).

example in Appendix 5.A. The first part of the example considers three companies, each undertaking an investment of 100, financed by 20 of equity and 80 of debt. The expected return on each of the investments is 10 percent. The three companies differ in the risk of that return: in particular there are two possible outcomes for each company; in the bad outcome, the total return may be less than the outstanding debt, in which case the company defaults: the shareholders receive nothing, and the debtholders also lose.

Suppose debtholders are able to observe the strategy of the company, and to hold the company to a strategy after the lending has taken place. Suppose also that there are no specific costs associated with bankruptcy. In this case, debtholders will demand a rate of interest that compensates them for greater risk. In particular, as the downside risk to creditors increases, the interest rate charged will increase. Since shareholders have to pay the higher interest rate in the good state, it is straightforward to show that in this case there is no incentive for shareholders to take on extra risk.

This is demonstrated in a more complex differentiated duopoly banking model by Matutes and Vives (2000) or in a competitive banking model by Sinn (2003).[2] In subcases of these models, banks compete for deposits, have limited liability, and choose the risk of their investment, while taking into account that the interest rate charged by the depositors depends on the risk they choose. In these circumstances, for risk-averse investors there is a disincentive to take on extra risk and the choice of risk is optimal from a social perspective.

A similar argument holds with respect to increasing leverage. A second example in the Appendix A compares three companies with the same investment, but with different leverage ratios. As before, if the rate of interest charged by the debtholder accurately reflects her own risk, then there is not a clear case for using additional leverage. In fact, this is simply an example of a fundamental, and possibly the most famous, result of the theory of corporate finance – the theorem of Modigliani-Miller (1958). This states that, given certain conditions, the risk and value of a company does not depend on the way in which it is financed: it depends only on the activities that the firm undertakes. Given the company's activities, a rise in the use of debt and a commensurate decline in the use of equity will increase the risk and required rate of return of both the debt and the remaining equity. But the overall cost of capital of the company will be unaffected.

So the existence of limited liability in itself does not necessarily induce more risky behaviour, nor does it necessarily induce more leverage. However, limited liability does induce excessive risk taking when debtholders or other market partners on whom the actual liability would fall instead of the decision makers do not react to the bank's risk choices.

This is illustrated in Appendix 5.A. If, for example, debtholders simply charge the risk-free rate of interest irrespective of the risk taken by the company, then shareholders have an incentive both to increase leverage and to increase the risk of the company's investment. The reason is the combination of the fixed rate of interest charged by debtholders and limited liability for shareholders. For a given rate of interest, a more risky strategy allows shareholders to gain more on the upside, but not to lose any more on the downside. And this strategy can be more successful the higher the proportion of the investment funds provided by the creditors.

There are various reasons why this latter case of non-reacting interest rates may be relevant in practice. One is that the government bears the losses exceeding the equity capital. This possibility has been analysed in general risk theoretic models by Sinn (1980, 1982) and in an explicit banking model by Dewatripont and Tirole (1994). A second is that in a one-shot game, bondholders are unable to enforce a particular risk policy on the bank, as the lending contract is made before the decision about the risk. This was analysed by Matutes and Vives (2000) in a general banking model. A third is that due to asymmetric information which makes bank bonds and deposits lemon products whose risk-return characteristics are opaque, debtholders cannot distinguish between safe and risky banks and are therefore unable to charge the risky banks higher interest rates. This possibility has been analysed in general terms in Sinn (1980) and in an explicit banking model by Sinn (2003). The lemon interpretation in the context of the opaqueness of derivatives trading is in the centre of Sinn's interpretation of the crisis (Sinn 2010).

These three reasons for why limited liability may result in excessive risk-taking in principle apply to all limited liability firms, and not only to banks.

[2] In Sinn (1980) this borderline case was discussed in term of the Coase theorem, before the discussion moved to asymmetric information and bailout strategies.

However, except for the second reason, they are more relevant for banks than for normal firms.

Unlike normal firms banks have a higher chance of being bailed out by the government because they are considered systemically relevant and "too big to fail". Ueda and Weder di Mauro (2010) have recently used two approaches to estimate the impact of the "too big to fail" subsidy for banks. Their estimates of the benefits to banks are measured in terms of a funding cost advantage, and range from 20 basis points to 65 basis points.

Moreover, the asymmetric information case may be particularly relevant for banks as the banking business is extremely "opaque" due to the use of derivatives, off-balance sheet operations and mutual CDS insurance, as ex-Fed chairman Alan Greenspan has argued. Normal firms that borrow from banks are usually well observed by the banks' risk officers, but the banks themselves, which tend to receive their funds from a dispersed group of individual households, do not face a similarly strong controlling power among their creditors.

The problem of asymmetric information was worsened by what the governor of the Bank of England, Mervyn King, called a "lapse into hubris":

"The real failure was a lapse into hubris – we came to believe that the crises created by massive maturity transformation were problems that no longer applied to modern banking... There was an inability to see through the veil of modern finance to the fact that the balance sheets of too many banks were an accident waiting to happen, with levels of leverage on a scale that could not resist even the slightest tremor to confidence about the uncertain value of bank assets" (King 2010, p. 10).

In this view, the proliferation of financial instruments, together with special investment vehicles, and other factors documented at length elsewhere, simply got out of hand, with buyers of financial instruments having little idea of their underlying risk. Rating agencies – either through deliberate policy determined by their own incentive mechanisms or simply because of miscalculation – were unable to offer appropriate advice.

In this case, the excessive leverage and risk taken by banks was, at least in part, simply a mistake. This would explain the relatively low rates of interest charged by creditors, referred to above. If creditors simply underestimated the risks that they were facing and hence charged rates of interest that were too low, this would create an incentive for banks to undertake excessive leverage and risky lending.

5.2.2 Other factors

So one possible explanation for the excessive leverage and risk of banks prior to the crisis is limited liability, because limited liability means that the banks' risk choices involve negative externalities being imposed on taxpayers or on banks' debtholders. But what about other explanations such as the role of managers that follow their own agenda or the high cost of equity capital, which are often cited in the public debate? The next two sections go into this.

5.2.2.1 Agency problems

The argument that managers disregard the preferences of their shareholders and expose their banks to excessive risks is often made in the public debate. Bank executives, it is said, typically have incentive systems that make them participate asymmetrically in upside and downside risks. In view of this asymmetry they seek excessive risks that jeopardise the future of the bank at the expense of shareholders and society. This would be a problem even if there was no implicit government guarantees to creditors or the inability of debtholders to punish risk-taking with higher interest rates.

While this argument sounds plausible at first glance, the question remains why shareholders would give their executives incentive schemes that imply excessive risk-taking, if this is not in their own interest.

As has been pointed out in Sinn (2010), a plausible answer is simply that the shareholders give their executives asymmetric incentive schemes, because limited liability provides the shareholders with such asymmetric incentives. As the principals (the shareholders) want their banks to gamble, they give their agents (the executives) incentive schemes that turn them into gamblers. Large bonuses in the case of success are then simply an indication of the interests of shareholders and executives being closely aligned. Thus, no principal-agent theory is needed to understand why there was excessive risk-taking and leverage prior to the crisis.

It is nevertheless striking to see how large the bonuses awarded to executives really are. The annual payment of bonuses in the City of London stretches into billions of pounds. As an example, the UK government introduced a one-off tax of 50 percent on bonuses paid by banks in 2009. This raised around 3.5 billion pounds in tax revenue, implying that executives received a further 3.5 billion pounds, the total cost to banks stretching to 7 billion pounds.

These are such enormous rewards to employees that it is hardly conceivable that they reflect the true value to society of their activities. Probably, the remuneration of managers has elements of a remuneration of superstars. The marginal value of a superstar like a singer, a football player or a racing driver can be huge for the company hiring him or her, but this marginal value may largely stem from depriving other participants in the race from their profit and may therefore measure more the advantage from rent-seeking than a true social advantage. Thus, arguably, the executive problem is not that they choose more risks than their shareholders want but that their remuneration is too large, coming to a considerable extent from winning zero sum games at the expense of slightly less sophisticated private investors.

5.2.2.2 Costs of equity finance

Banks typically argue that they leverage their operations so extensively because equity finance is more expensive than debt finance. The implication is that forcing banks to hold more equity would raise their refinancing costs. In turn this would raise the costs of their lending, probably forcing them to cut back on lending to other sectors and hampering economic growth.

There is a substantial economic literature in corporate finance that investigates this issue in a general context, rather than specifically for banks. In considering equity finance, it is necessary to distinguish two sources: retained earnings and new equity issues. It is generally accepted that by far the largest source of finance to the corporate sector in developed economies is internal finance in the shape of retained earnings. Of external finance, debt is used more heavily than new equity.[3]

There are many issues of agency and asymmetric information involved in external finance. Kashyap et al. (2010) usefully distinguish stock and flow concepts of the costs of equity finance. Flow costs relate to issuing new equity. Myers and Majluf (1984) suggested that asymmetry of information between management and external investors would lead to an issue of new equity being interpreted as a negative signal by outsiders, since if managers act in the interests of existing shareholders, then they will sell shares when they believe it to be overvalued. There is evidence that share issues tend to be associated with negative share price effects, compatible with this (for survey evidence see, for example, Graham and Harvey 2001). As a result, managers will be reluctant to use new equity finance in the first place.

Another argument leading in the same direction refers to the double taxation of dividends with corporate and personal taxes that characterizes most OECD tax systems. As was shown by King (1977) the double taxation increases the cost of new share issues over retained earnings and induces firms to prefer internal finance.[4] It is important to note, however, that the relevant shareholders often reside outside the country, in which case domestic personal tax rates are not relevant.[5]

Due to higher costs of equity finance, it is argued that a requirement to raise the capital ratio is more likely to be met in the short-term by shrinking assets than by issuing new equity, even when the assets represent profitable investments. This is perhaps a caution against demanding too rapid a change in capital ratios. On the other hand, a regulation requiring additional equity presents a reason for issuing new equity that is clearly different from the Myers-Majluf argument. Adhering to new regulation by issuing new equity should reasonably not be viewed by the market as a negative signal. However, to the extent that shareholders are liable to personal taxes on dividend payments, the tax argument does suggest that some pressure may be required that forces banks to satisfy additional equity requirements with new issues of shares rather than allow them to wait until enough equity capital has been accumulated by mere profit retentions.

In any case, the long-run costs of using equity finance are much less clear, precisely since companies and

[3] See Mayer (1988) and Tirole (2006).

[4] In fact, an extension of this argument implies that only new and extremely rapidly growing firms would resort to lump-sum issues of new shares, followed by an extended period where firms neither issue new shares nor distribute dividends to grow with their maximum speed until maturity (Sinn 1991).

[5] For example, Bond, Devereux and Klemm (2006, 2007) show that significant reforms to dividend taxation in the United Kingdom in 1997 had no discernible effects on investment, dividend payments or share prices.

banks can build up the stock of equity finance by retained earnings.

Admati et al. (2010) and Hellwig (2010) consider various arguments that have been made to justify high leverage in banks. These arguments include: increased equity will increase funding costs since equity is more risky; increased equity requirements will lower the rate of return earned by banks; increased equity would be costly since debt is necessary for providing market discipline to managers; and increased equity would force banks to cut back on lending. They argue that there is little reason to fear such implications, because they are not very likely and if they occur, would be welfare enhancing, given that they would result from an internalization of external losses imposed on taxpayers and/or creditors. Haldane (2010) demonstrates how leverage has significantly increased over the last few years: current levels are by no means the historic norm.

5.2.3 Tax distortions

A further incentive for excessive use of debt finance is the tax advantage of doing so. In addition, there is arguably an advantage to the financial sector from being exempt from VAT.

5.2.3.1 Tax incentives for debt financing

It is generally the case that corporation taxes are based on profits including interest receipts but net of interest payments. For personal and institutional shareholders of most companies, this deductibility of interest payments creates an incentive to ask their managers to finance the company's activities through debt rather than equity, because the shareholders' tax on interest income is less than the overall tax burden on retained earnings consisting of the corporation income tax and possibly a personal capital gains tax on share appreciation. The same is true for the shareholders of banks. For a given set of loans, there is therefore an incentive for banks to finance their activities by debt rather than equity.

Such forms of corporation and personal taxation are not new: in most countries they have been in place for decades. If anything, there has been a move towards lower taxes on personal interest income and higher capital gains taxes, although these have been offset also by reductions in corporation tax rates and increasing restrictions on interest deductibility at the corporate level to combat tax avoidance. Partly because these forms of taxation have been in place in most countries for some time, this factor is not generally considered to have been a decisive factor in the lead-up to the crisis.[6]

Another reason for this judgement is that the definition of what is "debt" and "interest" tends to be different for tax purposes and regulation (see Devereux and Gerritsen 2010). Some financial instruments may be treated as part of equity capital for the purposes of regulation but as debt for the purposes of tax. Hence what is considered to be equity capital for regulatory purposes may receive favourable tax treatment. This implies that the favourable tax treatment of interest may not induce banks to reduce regulatory capital further.

5.2.3.2 Exemption from VAT

The financial sector is generally exempt from VAT. This means that VAT is not charged on outputs, and VAT paid on inputs cannot be reclaimed. Relative to normal VAT treatment, this implies a higher tax on business-to-business transactions (where VAT at earlier levels of production can be offset against later levels), but a lower tax on business-to-consumer transactions. Broadly, evidence suggests that revenue is lower than would be the case under full VAT treatment.[7] As pointed out by the IMF (2010), this could have contributed to the financial sector becoming larger than would otherwise have been the case.

Exemption is generally used because of the difficulties in identifying value added on margin-based instruments (e.g. borrowing and lending with a spread, but no explicit charge). There is a small optimal tax literature asking whether financial intermediation, as an intermediate good, should be subject to VAT. Lockwood (2010) suggests that in a simple framework, intermediation services should not be taxed, but that there could be a role for a Pigouvian tax (unrelated to the systemic risk issues discussed here).

[6] See, for example, Hemmelgarn and Nicodeme (2010), IMF (2010), Shackelford, Shaviro and Slemrod (2010). In Germany, however, the tax reforms of the Schröder government strongly moved in this direction by introducing a personal capital gains tax for the first time and dramatically reducing the personal tax on interest income. These reforms may therefore have contributed to inducing the banks owned by personal German shareholders to exploit more fully the scope for leverage that the Basel system of bank regulation allowed.
[7] De la Feria and Lockwood (2010).

There is therefore the possibility that the financial sector has been under-taxed, and that it may have gained a larger share of the economy as a result. However, this case should not be overstated.

5.2.4 Why did regulation fail?

Banks and other financial companies have not been free to choose their own leverage and risk positions for many years, but have been subject to regulations especially in the Basel I and II agreements. It is clear that these regulations failed to prevent the crisis. Detailed accounts of why these regulations were insufficient are provided elsewhere.[8] We will not repeat these at length. However, in assessing the reform of these regulations and the possible role of taxation as a replacement or complement to revised regulations, it is useful to identify briefly why they may have failed. The reader is also referred to the section "The role of the Basel system" in Chapter 2.

Over 100 countries signed on to the Basel I agreement, originally set up in 1988. This provided for a minimum capital ratio. Tier 1 capital consists broadly of paid-in capital, accumulated earnings and preferred stock. Tier 2 includes a broader definition of capital, including subordinated debt. Each of these measures is divided by a measure of risk-weighted assets to create the minimum Tier 1 and Tier 2 capital requirements: 4 percent and 8 percent, respectively.

Under Basel I, assets are assigned to broad risk classes, and given weights for use in these ratios. For example, loans to firms were normally given a weight of 0.5, loans to normal banks a weight of 0.2, and sovereign loans a weight of zero. The Basel II accord, implemented in the European Union, Switzerland and some other countries from 2008, introduced a much more flexible system of assigning weights to specific assets. Broadly, following lobbying from the industry, banks were permitted to use their own models to differentiate – in principle, more precisely – the risks associated with different types of lending. Among other things, this permitted banks to hedge their lending with credit default swaps, and replace the risk weight of the debtor with that of the insurer. Overall, as Sinn (2010) demonstrates, the result was that a Tier 1 ratio could easily be four or five times larger than a simple equity asset ratio of Tier 1 capital to total assets. For many banks, the simple equity asset ratio was less than 2 percent while they reported a Tier 1 ratio in the range of 8 percent or 10 percent.

The problems of the system were exacerbated further by the accounting treatment of mark-to-market, which created procyclical effects. In an upswing, asset prices rise, high profits are recorded which increase Tier 1 capital, and vice versa. Consequently, there is an incentive to reduce Tier 1 capital in an upswing, making it more difficult to replace this capital in a downswing. This effect is multiplied at lower equity asset ratios.

A further problem of the system was that significant parts of the financial system were not subject to the Basel regulations, in particular, hedge funds and special purpose vehicles. The latter were vehicles typically set up in tax havens, and whose assets did not appear on the balance sheet of the parent bank, even though in practice the parent was obliged to assume the risks of the special purpose vehicle.

This very brief review serves to highlight two factors: the level and the definition of the required capital ratio. Both factors require attention.

5.3 Tax versus regulation

Historically, policies to deal with negative externalities arising in the financial system have taken the form of regulation rather than taxes. However, since the crisis there has been a growing interest in the possibility of introducing new taxes on banks.[9] The motivation could be to induce less harmful behaviour and so reduce externalities, or to raise additional revenue, or both. In this section we address the basic principles involved in choosing between tax and regulation as a means of reducing externalities. We then briefly summarize recent policies either proposed or already enacted by national and international governments.

5.3.1 Basic principles

There is clearly a case for policymakers to intervene in a market which, left to itself, would generate harmful externalities on the rest of society. The classic exam-

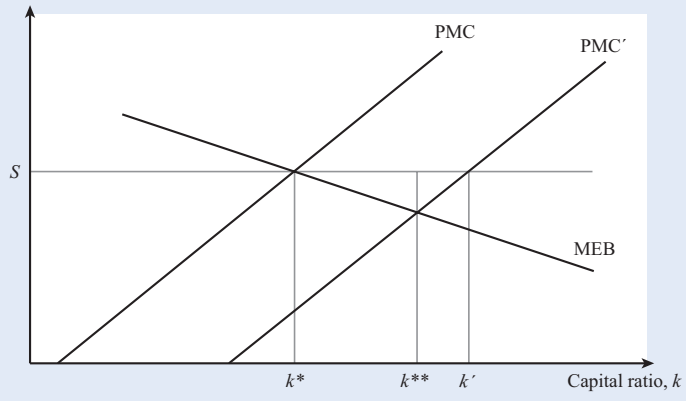
[8] See, for example, Sinn (2010) and Vives (2010a).

[9] Recent theoretical contributions include Bianchi and Mendoza (2010), Jeanne and Korinek (2010) and Perotti and Suarez (2010).

ple of such a market is one that creates pollution. But the need for regulation of banking shows that this is generally also thought to be true in this case as well. In considering intervention in such markets, policymakers have two possible tools, essentially affecting prices or quantities. We can translate this into taxes – affecting prices – or regulation – affecting quantities. Existing regulation of banks through capital requirements is a form of quantity control: banks are given a minimum capital requirement. A tax would follow a different route: by taxing or subsidizing alternative forms of finance, policymakers may induce banks to hold more capital.

Figure 5.1

Illustration of subsidy vs. regulation



The current mainstream view amongst economists about the relative merits of these two approaches stems from a contribution by Weitzman (1974). For example, Stern (2007) and Keen (2010) both apply Weitzman's model to externalities from carbon emissions and from systemic risk in banking, respectively. It is therefore worth briefly presenting this approach before discussing its application in the case of banking.

The approach is illustrated in Figure 5.1, taken from Keen (2010) though also used elsewhere. The upward-sloping lines show the private marginal costs (PMC) facing banks as the proportion of their funding in the form of equity capital, k, rises. The downward-sloping lines represent the marginal net external benefits (MEB) of increasing k. The initial social optimum is at k^*, where the initial PMC line intersects with the MEB line. In the absence of any regulation or taxation the bank would choose the capital ratio for which the private marginal costs are zero.

Keen (2010) discusses the slopes of these lines in terms of a *failure externality* and a *bailout externality*. The failure externality reflects the probability of a bank falling into distress or failure, and the wider social costs if it does so. The greater is the sensitivity of this failure externality to the capital ratio, the steeper is the MEB line. The bailout externality reflects the benefits to banks due to a lower interest rate charged by creditors as a result of creditors expecting to be bailed out in the event of default. A larger bailout externality tends to flatten the PMC line, since it blunts the sensitivity of the cost of raising finance to the capital ratio.

With perfect information, a policymaker could ensure that the social optimum k^* is chosen in the market in two ways. It could subsidise the bank by paying a marginal subsidy of s to offset the banks private marginal costs. Or it could impose k^* as a minimum capital requirement.

However, now suppose that there is a change in the private marginal cost line to PMC'. Alternatively PMC' might also be interpreted as the "true" private marginal cost, known to the bank but not known to the policymaker (who believes that this cost is represented by the original line, PMC).

Under a minimum capital requirement of k^*, there is no change in the capital used by the bank. Even at PMC', the bank would prefer a capital ratio of less than k^*, since at this point private marginal costs are still positive. With a subsidy of s, however, the bank would instead choose a capital ratio of k', where the combination of marginal cost and subsidy remains zero.

Neither of these outcomes is optimal, since the optimal position is at k^{**}. Conventional analysis compares the total welfare cost under each option. This depends on the relative slopes of the PMC and MEB lines. The position shown in the figure is that the distortion is lower with the subsidy, reflecting the fact that the PMC line is steeper than the MEB line. But this need not generally be true.

However, this analysis makes several implicit assumptions. Notably, as pointed out by Kaplow and Shavell (2002), the analysis assumes a linear subsidy schedule: that is, the marginal rate of subsidy is fixed.[10] Suppose instead that a non-linear schedule were possible. We can expect the bank to take into account its private costs, but not the net social benefits, of a higher capital ratio. Then the optimal position could be achieved if the policymaker could set a marginal subsidy schedule equal to the MEB schedule. In effect, this would simply mean that the bank would fully incorporate the MEB schedule into its decision making.

In this case, the policymaker would not need to know anything about private costs or benefits, but only to estimate the MEB schedule, reflecting the net marginal costs to society. Of course, to the extent to which the MEB schedule is measured with error, then the marginal subsidy would also contain error, and the outcome would not be efficient. But this would be the case with any intervention.

Although the analysis has been framed in terms of a subsidy to be paid to banks, it is relatively straightforward to instead consider this in the form of a tax. The MEB schedule has been drawn with positive values, reflecting a reduction in the net social cost of an increase in the capital ratio, k. A tax which falls as k rises would therefore also be consistent with this approach. Note, though, that such a tax would not necessarily yield revenue equal to social costs. This is because the tax would in principle be set to match the marginal social costs, rather than the average social costs. In general, since *marginal* costs are likely to fall with k, then they will be lower than *average* costs. If each bank faced a tax rate based on the marginal cost of its capital ratio, it is therefore likely to be the case that tax revenues would be lower than social costs.

Of course, both regulation and taxes face a problem in translating such macroeconomic analysis into a policy fit for individual banks. This is partly simply a scale problem. For example, if all banks faced the same non-linear schedule, it would be necessary to divide the aggregate marginal external benefit between banks to derive the appropriate schedule for each bank. A similar problem exists for regulation. A more difficult problem is heterogeneity between banks: a bank which creates more systemic risk at the margin should in principle be taxed at a higher rate. But it is very difficult to implement a tax in which each bank faces a different tax rate. Dealing with differences between banks is perhaps less difficult for regulation: although even with regulation typically the same regulations apply to all banks within a jurisdiction.[11]

Finally, this theoretical analysis leaves aside the fact that there is already a system of quantity regulation in place, supported by over 100 countries who have adopted the Basel system. By contrast, proposals for addressing banking externalities through taxes have barely been examined. Taking it as given that some form of regulation will continue along the lines of Basel III, as discussed below, a relevant question is whether there is a role for taxation as a correction mechanism *as well as* regulation. We discuss this further below in the context of specific proposals.

5.3.2 Options for tax and regulation

In this section we briefly summarise proposals for tax and related proposals for regulation that have been made, and already enacted, since the financial crisis began.

5.3.2.1 Tax

Taxes that have been proposed by national and international governments are summarized in Box 5.1.

5.3.2.2 Regulation

Several areas of regulation have been addressed in response to the financial crisis. Here we focus only on changes to capital and liquidity requirements, proposed by the Basel Committee on Banking Supervision (BCBS) as part of the Basel III framework. We therefore leave aside issues relating to the split of financial companies between retail and investment banking, reducing the size of financial companies to prevent them from being too big to fail and the design of resolution mechanisms.[12] All of these issues are important. However, we focus on capital and liq-

[10] Weisbach (2010) also points out that this analysis assumes that policymakers are not able to change the rate of subsidy, or required level of k, in response to new information.

[11] The Financial Securities Contribution (FSC) proposed by the IMF is a tax on liabilities. Imposed at a single rate on the value of liabilities, this would be a linear tax, and subject to the Weitzman analysis above. The IMF does consider the possibility that the rate could reflect the systemic risk of each bank but does not appear to consider a non-linear schedule.

[12] Important proposals for regulation of these factors are contained in European Commission (2010b) and Dodd-Frank Act (2010).

Box 5.1

Alternative forms of taxation

We describe four alternative forms of taxation on banks. This discussion draws on the IMF (2010), and also identifies cases where such taxes have been proposed or enacted.

Financial Securities Contribution (FSC)

Various forms of a tax, or levy, on the liabilities of financial companies have been proposed. The version considered by the IMF (2010) would be paid by all financial institutions, and would initially be levied at a flat rate on a broad measure of the institution's liabilities or assets, excluding capital (Tier 1 for banks), and with a credit in respect of insured liabilities, such as deposits.

This is similar to the Financial Responsibility Fee (FRE) proposed by the United States. This was originally envisaged as a charge of 15 basis points on the liabilities, less Tier 1 capital and insured deposits, of large financial institutions. However, more recent proposals have envisaged it being based on risk-weighted assets. Sweden has introduced a similar stability fee on liabilities of banks at a rate that will rise to 3.6 basis points. The United Kingdom will also introduce a levy, based explicitly on the IMF proposals from 2011. It was originally planned to have a rate of 7 basis points on a broad definition of liabilities. However, the United Kingdom has set a target of raising 2.5 billion pounds in revenue, and plans to adjust the rate to meet this target. France and Germany have also announced their intention to introduce a similar levy.

The motivation for the levy differs. The IMF proposed that it be linked to a resolution mechanism, and that the levy would be intended to pay for any future government support for the sector. In Sweden, the fee is intended to accumulate around 2.5 percent of GDP in a resolution fund. The original US proposal was intended to recover costs already incurred in the crisis. Originally, the UK proposal was "designed to encourage less risky funding and complements the wider agenda to improve regulatory standards and enhance financial stability" (Hoban 2010), but the UK government has more recently emphasised its role as raising revenue. Germany intends to set the rate to reflect systemic risk, and earmark the proceeds for a resolution fund.

Financial Activities Tax (FAT)

The IMF also considered various forms of a Financial Activities Tax. One possibility is to base the tax on profits and all remuneration of financial institutions. If all remuneration is included in the tax base, then the base would effectively be value added, and so could be seen as a substitute for VAT, which is not generally applied to financial activities. However, if the profit element is appropriately designed, and if the remuneration element is restricted to higher levels of remuneration, it could approximate a tax on economic rents earned in the financial sector, given that part of the rent is captured by high-earning executives.

Tax on bonuses

The United Kingdom introduced a temporary tax on bonuses in the financial sector from December 2009 to April 2010 at 50 percent of bonuses above 25,000 pounds. France introduced a temporary bonus tax for the accounting year 2009 at 50 percent of bonuses over 27,500 euros. A tax on bonuses is more difficult to implement on a permanent basis since it would be necessary to identify the proportion of total remuneration which is deemed to be a bonus. Nevertheless, Italy introduced a permanent tax of 10 percent on bonuses and stock options exceeding three times manager's fixed remunerations, from 1 January 2010.

Financial Transactions Tax (FTT)

Popular debate has favoured a financial transactions tax (which has also become known as the "Robin Hood" tax). Many countries already have some form of financial transactions tax. Advocates argue that such a tax could raise substantial revenues from taxing speculative flows that have little social value, and may serve to reduce the incentive to create a cascade of structured securities that were at the heart of the financial crisis. However, the tax would be a relatively blunt instrument for correcting socially costly financial behaviour as it would not be able to distinguish between desirable and undesirable trading. It would not target the key sources of systemic risk, such as the size and interconnectedness of banks. And its burden is likely to fall on the consumers of financial products in the form of lower returns to savings and higher borrowing costs. A comprehensive survey of the case for and against an FTT is provided by Matheson (2010).

uidity requirements because it is in these areas that there is a need to analyse the interaction and choice between taxes and regulation.

The Basel III framework, setting new controls on capital and on liquidity, was announced in September 2010. The minimum limits for "capital" as a percent-

age of risk-weighted assets or the size of the balance sheet, which come into effect by 2019, are shown in Table 5.1.

The counter-cyclical buffer range is intended to be left to national authorities. Also, BCBS announced that "systemically important banks" should have loss-absorbing capacity beyond these standards. The minimum capital asset ratio of 3 percent, which corresponds to a maximum leverage ratio of 33, is new. It avoids the problem of risk-weighting the banks' assets at the cost of not distinguishing between their risk. Its effect is discussed further below. The 3 percent ratio will be tested over a period that begins in 2013.

Note too that countries are able to impose much stricter requirements. For example, Switzerland requires UBS and Credit Suisse to hold total capital equal to 19 percent of their risk-adjusted assets. Nine percentage points is allowed to be held in the form of contingent convertible capital instruments (cocos), which are bonds that convert to equity if a bank's capital ratio falls below a predetermined level.

The Basel III proposals contain two new minimum liquidity requirements, designed to enhance both the ability of banks to repay their liabilities as they fall due and the maturity matching of banks' balance sheets. There is a particular emphasis on moving banks away from relying too heavily on short-term wholesale funding:

- Liquidity coverage – banks must hold sufficient high quality liquid assets (cash, government bonds, covered bonds and highly rated corporate bonds) to enable them to withstand for 30 days the loss of a proportion of their retail deposits and an inability to roll over any corporate and wholesale deposits.
- Net stable funding – banks must hold sufficient stable sources of funding to match their lending of over one year maturity.

In the European Union, these proposals are expected to be implemented through the Commission's Capital Requirements Directive. As with capital, national regulators may set additional standards. For example, the United Kingdom has already implemented new liquidity arrangements which are, in many respects, more restrictive than those proposed by the BCBS and are likely to remain so.

Both the BCBS and national regulators have also emphasised the importance of the boards of banks' understanding liquidity risk, taking a close interest in setting a risk appetite, and satisfying themselves that these risks are properly monitored and controlled; the need for banks to run a range of stress tests, covering both bank-specific and market-wide vulnerabilities; and for banks to have adequate systems, data, reporting and management information to enable continuous management of liquidity.

Basel III is an improvement over Basel II insofar as it requires substantially more equity. The leverage ratio in particular will change banks' behaviour insofar as they now for the first time need to hold equity against government bonds, which are not included in the sum of risk-weighted assets to which the Tier 1 ratio refers.

Nevertheless, a minimum of the capital asset ratio of 3 percent is not yet sufficient as a bank's losses could easily exceed 3 percent of its balance sheet. For example, in the present crisis, the write-off losses of internationally relevant financial institutions such as Wachovia, Washington Mutual, Fannie Mae or Freddie Mac ranged between 13 percent and 16 percent of the respective balance sheets.[13] The failure of these banks would not have been prevented with the Basel III regulation.

Table 5.1

Basel III capital requirements from year 2019

	Common equity	Tier 1 capital	Total capital
Capital-asset ratio*		3.0	
Percentage of risk-weighted assets			
Minimum	4.5	6.0	8.0
Plus conservation buffer	7.0	8.5	10.5
Counter cyclical buffer range	0–2.5		
Basel II		4.0	8.0
* inverse leverage ratio.			

Source: BCBS (2010a).

There is moreover the problem that even the tightest equity regulation will fail to establish more prudence in the banking business if the government sees itself forced to bail out a bank when its equity falls below the regulatory minimum because the bank would otherwise have to be shut down by the regulator (the

[13] See Sinn (2010), Chapter 8, Table 8.1.

regulation paradox). As we argue in Chapter 2, the problem could be removed by bailing out the endangered banks not with gifts but with fresh equity in exchange for company shares. Providing new equity in exchange for shares makes the regulatory equity of the bank liable without having to shut down the bank; it is a method to save the bank without saving its shareholders. It induces the shareholders to opt for cautious business models that reduce the risk of gambling at the expense of the taxpayers.

To be able to recapitalise banks, a fund could be set up that holds enough capital for this purpose. The government could force banks to set up this fund with an appropriate levy, or it could impose a tax on the banking business such as will be discussed in the next section.

5.4 Taxation to raise revenue

The rationale for raising additional tax revenue from banks and other financial companies can be backward-looking or forward-looking.

As noted in the Introduction, the original US proposals for a "Financial Crisis Responsibility Fee" were explicitly related to paying for the bailout costs of the crisis through the Troubled Asset Relief Program (TARP). Laeven and Valencia (2010) provide some evidence on the costs of bailouts to date. As might be expected, these vary considerably between crises and between countries. They also vary depending on what is included in the costs. For example, with respect to the financial crisis of 2007–8, Laeven and Valencia estimate that the direct fiscal costs were on average around 5 percent of GDP. In advanced economies, by the end of 2009, the IMF (2010) suggests that the cost of direct support had amounted to only 2.8 percent of GDP. But Laeven and Valencia point out that the crises led to output losses of 25 percent of GDP, and a consequent increase in public debt of around 24 percent of GDP. How large a tax is needed to cover costs therefore depends critically on exactly what costs are to be covered.

The aim of reimbursing past costs deserves some comments. First, the effective incidence of taxes levied on banks now may not match the effective incidence of prior bailout payments. The implication of President Obama's remarks, cited above, is that individuals that benefited from the US bailouts should be those who repay that money in the form of higher taxes. But it is not enough to say, for example, that bank A received bailout funds, and therefore that bank A should face a tax payment now. First, this is because the benefits of the bailout were shared widely across the economy. Indeed, the point of the bailout was not to protect individual banks but to protect the entire financial system, and beyond that, the entire economy. To that extent, virtually everyone in the economy must have benefited from bailouts.

Second, even from a narrower perspective, it cannot be the bank that ultimately bears the tax burden, but individuals associated with the bank – its shareholders, employees, suppliers and customers. Which of these individuals ultimately bears the tax burden depends on the type of tax levied, and the conditions in the various markets in which the bank operates. What is far from clear, however, is whether any tax levied post-crisis will be borne by the individuals who profited from the bailouts, or from the behaviour of the bank before the bailout.

The instructions from the G20 to the IMF for considering taxes on banks were also based on raising revenue, rather than influencing behaviour: the IMF was charged to consider how the financial sector could make a "fair and substantial contribution" to meeting the costs associated with government interventions. However, this was also interpreted by the IMF as a forward-looking question: how could a tax or levy help meet the costs of future crises? The IMF rightly argues that the financial sector should pay for fiscal support that it may receive in the future. It also points to the need for an effective resolution mechanism in the event that financial support is needed, and believes that taxes could support regulation in addressing externalities arising in the financial sector. We discuss the last point in the next section. Here we consider only the scope of a tax on the financial sector that would be necessary to support an effective resolution mechanism. The size of the revenue necessary is open to question, and is not directly addressed by the IMF. We also leave that aside, though it seems reasonable that revenues should build up over time to a fund that amounts to at least several percent of GDP.

In designing a tax to raise revenue there are two possible routes to consider, even leaving aside (as we do here) the possibility of attempting to modify behaviour to reduce externalities. The first route would be to attempt to design a tax or levy that is like an insurance premium. The second route would be to attempt to design a tax that is as non-distorting as possible.

Following the insurance premium route, the tax should fall more heavily on banks and financial companies that are more likely to require help from a resolution fund, and from those that are likely to require more substantial funds if that event occurs. That is, the tax should fall more heavily on companies that are larger, more fragile, and more systemically connected to the rest of the financial sector.

A tax designed on this basis would go well beyond the simple objective of raising revenue. By targeting companies that are more likely to require financial support, the tax would in turn be likely to have significant behavioural consequences. For example, Matutes and Vives (2000) show how fair, risk-based, deposit insurance induces banks to behave less aggressively when the regulator observes the risk position of the bank. This may have beneficial consequences but raises the issue of the relationship with existing regulations. The proposed tax that comes closest to this is the Financial Securities Contribution (FSC); we discuss this proposal in more detail in the next section.

The alternative approach would be to design a tax that would raise revenue from the financial sector as a whole but would not seek to base the tax liability on actuarially fair insurance premia. Other things being equal, such a tax would not distort the behaviour of the financial sector beyond what is required by regulation. The most obvious way to achieve this would be a tax on economic rent.

This could be implemented in several ways, but perhaps the most straightforward would be something comparable to existing corporation taxes but which also gives relief for the opportunity cost of equity finance, known as an "allowance for corporate equity", or ACE (IFS 1991). This has been proposed in the literature as a replacement for existing tax systems on the grounds that it is neutral with respect to the financing decision (since debt and equity receive equivalent treatment) and the scale of investment (the effective marginal tax rate is zero, since it is a tax only on economic rent).

Note that such a tax could be implemented in addition to conventional, existing corporation taxes. The effect would be that the total marginal tax rate on economic rent would be equal to the sum of the rates of the two taxes, while a lower rate (from existing taxes) would be applied to other capital income. This would not remove the tax advantage to debt finance, but the new tax would not exacerbate that problem. An alternative would be to use such a tax to replace existing corporation taxes. However, in this case raising revenue in excess of what is already raised would require a very high rate, since it would be applied to a narrower tax base.

The IMF instead has proposed a series of taxes that they call a "Financial Activities Tax" (FAT) (see Keen, Krelove and Norregard 2010, for a discussion). At one extreme, this would be approximately the same as a corporation tax with an ACE allowance, plus a tax on very high remuneration. This could also be considered as a tax on economic rent, to the extent that part of the economic rent of the company is captured by the management in the form of high remuneration.

At the other extreme, the IMF proposes a tax on economic rent plus all remuneration, rather than just high remuneration. They point out that this tax base is equivalent to value added, and consider whether it would be appropriate as a tax on the financial sector in place of VAT (which is not generally applied to the output of financial services). There is a reasonable case to be made for raising additional revenue in the form of a tax on value added. However, there are important technical details about how it could be implemented that remain as yet unresolved. The key issue is one of cascading: in the VAT system, VAT paid on inputs can be offset against VAT charged on outputs, which has the net effect that VAT ends up as a tax on sales to the final consumer. But there is no mechanism as yet for introducing something similar for the FAT, which may mean that there are several levels of tax.

Nevertheless, some form of the FAT is a promising way of raising additional tax revenue from the financial sector in a way which should generate relatively small distortions. The choice between a narrower tax base focussed on economic rent, and a broader tax base equivalent to value added, depends to some extent on the need for revenue and the consequent rate at which the tax would be levied. For relatively small tax revenues, the narrower tax base is attractive. However, if larger revenues are needed, then the implied tax rate required could be very high, and the broader tax base would become more attractive.

5.5 Crisis prevention

In the previous section we have discussed the appropriate structure of taxes on the financial sector when

the aim is to raise revenue either as a form of insurance premium, or in a relatively non-distorting way. We now turn to discuss the possibility that taxes may be used as a way of deliberately influencing the behaviour of banks and other financial institutions, in particular to reduce the risk of a future financial crisis. A key issue in considering any form of tax designed for this purpose is its interaction with regulatory requirements. Starting with a blank sheet of paper, it might be possible to design a tax that would make regulation unnecessary; and we discuss this possibility briefly. More realistically though, any new tax would sit alongside existing and new regulations. It is therefore important to consider the impact of such a tax conditional on such regulations being in place.

The main focus of this section is how taxes and regulation can be used to address the solvency of financial companies through capital requirements or taxes on liabilities. However, this cannot be divorced from other aspects of their behaviour. In particular, capital and liquidity regulations and taxes need to be coordinated, together with competition policy.[14]

In the space available we do not aim to be comprehensive in discussing options for regulation and taxation. We therefore do not consider issues of competition; we do not discuss whether investment banking should be split from retail banking, or whether banks should simply be reduced in size. While these are important regulatory issues, they are less relevant for taxation, and we therefore leave them to one side.[15]

5.5.1 Capital adequacy

As described above, there have been considerable recent developments in regulations for capital adequacy through the Basel III proposals. At the same time, some of the taxes proposed in response to the financial crisis have also been designed to target the amount of capital held by banks. In this section we address two main issues. First, we consider the likely effects of a tax on financial liabilities, along the lines of the Financial Services Contribution (FSC) proposed by the IMF, on the financing and lending activities of banks. Second, we summarise evidence on the case for more stringent capital requirements or taxes.

[14] Vives (2010b) shows how liquidity and solvency requirements are substitutable and how they may depend also on the strength of competition.
[15] Vives (2010a) discusses at length the relationship between competition and stability in banking in the aftermath of the crisis.

5.5.1.1 Taxes in the presence of regulation

If taxation is to be used as an element of crisis prevention, then its precise design is important. To illustrate this, consider the FSC, as proposed by the IMF, a form of which has been enacted in Sweden and the United Kingdom. The IMF proposes a levy based on "a broad balance sheet base on the liabilities side, excluding capital ... and possibly including off-balance sheet items, and with a credit for payments in respect of insured liabilities" (IMF 2010a, p. 13).

The IMF proposes this base after considering a levy based on risk-weighted assets. It rejects the former on the grounds that such a levy could duplicate the effects of Basel regulations also targeted at risk on the asset side. This illustrates the problem of attempting to use two instruments. If the tax and the regulation are perfectly in alignment, then it seems likely that the tax would have no effect on behaviour beyond what is required by regulation. But if they are not in perfect alignment, then the form of their interaction could be important.

To prepare for this discussion let us first study the interaction between a regulation based on the Tier 1 capital ratio and one which is in addition based on the capital asset ratio as in the Basel III system. Consider Figure 5.2. The vertical axis shows a bank's sum of risk weighted assets relative to total assets, R, and the horizontal axis the capital ratio, i.e. the ratio of Tier 1 capital to total assets (the inverse leverage ratio), k. The upward sloping line marked Basel II reflects the trade-off permitted in the Basel II regulations between capital and risk-weighted assets. The inverse of the slope of this line is the Tier 1 ratio, i.e. the ratio of capital and risk-weighted assets. That is, a bank that increased the risk of its assets as measured in the Basel system would be required also to hold more capital. The line therefore represents a locus of points that are just acceptable to the regulator. We assume, based on experience and the theoretical explanations for the incentive to gamble under limited liability, that banks would prefer a combination of lower capital and more risk: that is, they would prefer to be located towards the top left part of the diagram. However, given regulation, the bank is forced to choose a desired position either on the Basel II locus, or to the right of the locus.

Let us assume that the bank chooses the point (R_1, k_1). In practice, banks may choose to hold a buffer of additional capital to ensure that they do not easily

cross the threshold due to small movements in asset values; however, we neglect that possibility here.

The increase of the minimum Tier 1 ratio according to Basel III pivots the locus to the right in a clockwise fashion, keeping the origin fixed, because more Tier 1 capital is needed relative to total assets for any given share of risk-weighted assets in total assets. In the absence of further effects, let us suppose that given the new regulations, the bank moves to the point (R_2, k_2).

However, as noted above, the Basel III regulations also introduce a minimum constraint to the capital asset ratio. In the Figure, let us assume that this constraint is binding, at k_3 with $k_3>k_2$. In effect, at the minimum capital asset ratio the maximum share of risk-weighted assets is R_3; above this level, the Tier 1 ratio, as given by the Basel III line, becomes binding. As shown in the figure, as long as the bank continues to prefer to hold less capital and engage in more risky lending, then the effect of the leverage ratio will be likely to shift the bank from (R_2, k_2) not to (R_2, k_3) but to (R_3, k_3). This is still on the locus of acceptable points under the Basel III line. But it does not represent a safer combination of capital and risk as measured by the Tier 1 ratio: rather, since it lies on the Basel III line, these two points represent an equally acceptable trade-off between risk, as ordinarily measured, and capital.

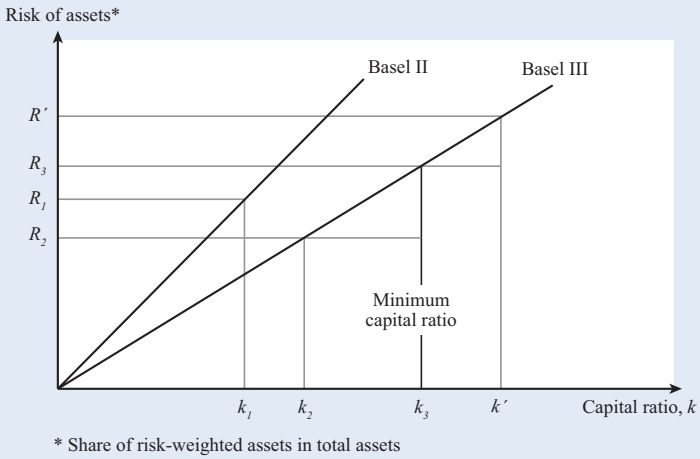
This may seem to imply that the minimum capital ratio does not serve any useful purpose. However, the rationale for the minimum capital asset ratio in Basel III is that there are important deficiencies in the Basel system of risk measurement. As noted above, loans to companies normally have a weight of 0.5, loans to banks have a weight of 0.2, and loans to governments are not counted at all. The financial crisis in general and the sovereign debt crisis in particular have shown how distorted the idea of measuring risk by looking at risk-weighted assets actually is. What seemed as a reasonable concept, in practice has turned out to be a recipe for disaster (see Chapter 2).

The leverage constraint in terms of the minimum capital asset ratio, k_3 in Figure 5.2, was introduced to constrain the assets not included in the concept of risk-weighted assets. If the availability of equity capital is fixed, then a bank has to scale down its balance sheet to meet the higher required capital asset ratio. Doing so by reducing assets not included in the sum of risk-weighted assets, such as the lending to governments, would also raise the average risk of the remaining assets, and help the bank move towards (R_3, k_3). But it would reduce the overall risk, as the volume of assets such as government bonds, which are risky but not included in the sum of risk-weighted assets, is smaller at k_3 than at k_2. Thus, even though the minimum capital requirement does not change the measured risk relative to capital, it does reduce the non-measured risk relative to capital, which could mean lower externalities being imposed on the bank's creditors and on taxpayers.

In addition to the leverage constraint, improvements in the calculation of the sum of risk-weighted assets seem advisable, given that the risk weights have been chosen arbitrarily, reflecting lobbying power more than basic economic rationale. A re-adjustment of these weights seems highly advisable. Such a reform should ensure that the sum of risk-weighted assets across all banks of a country equals or approximates the sum of all assets; this would avoid the Tier 1 ratio being four to six times as large as the capital asset ratio (Sinn 2010, Chapters 7 and 8). Some economists, such as Hellwig, find such endeavours futile as lobbyists will always undermine the effort of re-adjusting risk weights so as to truly reflect risky lending operations (Hellwig 2010). They therefore suggest giving up the idea of risk-weighting assets entirely and basing the regulation only on the leverage ratio.

Figure 5.2

The effects of the FSC, given regulation



* Share of risk-weighted assets in total assets

Consider now the role of the FSC suggested by the IMF, i.e. basically a tax on a bank's balance sheet, net of its capital and augmented by off-shore operations. Suppose we begin at point (R_3, k_3) and introduce the FSC. One possibility is that the new levy would have no effect: the bank would simply accept the additional cost, but that cost would not be sufficient to induce it to increase k.

The other possibility is that the levy is sufficiently high so that the bank chooses to hold more capital than is required by the Basel regulations. As shown in the figure, this could move the bank to (R_3, k'). However, once again, if the bank prefers more risk in the sense of risk-weighted assets, then it can move back onto the Tier 1 Basel III locus by investing in riskier assets, to reach (R', k').

This change therefore has exactly the same effects as that induced by the introduction of the minimum capital ratio. Given equity capital, assets not included in the sum of risk-weighted assets are reduced, raising measured risk to total assets, but to the extent that the released assets have some risk, the ratio of risk to equity is lower.

The beneficiaries of such a tax would be firms of the real economy because their credits have the highest weights in the sum of risk-weighted assets, and governments will suffer, because their credit is part of the non-measured risk that is reduced by the tax. Lower lending rates for firms and higher ones for governments will result. Given the distortions that the financial crisis and the sovereign debt crisis have demonstrated, this would likely contribute to a more solid growth process of the Western world in the future.

5.5.1.2 Empirical evidence to guide regulation or taxation

Irrespective of the choice of policy instrument, to implement appropriate policy it is necessary to estimate the marginal costs and benefits of banks having higher capital. Not surprisingly, social benefits and costs are hard to measure, and estimates differ considerably, at least in part because of the assumptions made in the analysis. In this section we briefly review existing estimates, attempting to make them comparable with each other. In particular, we compare estimates made by the BCBS (2010b), the Bank of England (2010), Kashyap et al. (2010) and Miles (2010).

First, consider the benefits of raising the capital ratio. Table 5.2 presents estimates derived from the BCBS (2010b). The BCBS (2010b) estimates the benefits of raising the capital ratio for one year as the reduction in the probability of a crisis during that year multiplied by the costs of a crisis if it occurs. They specify estimates of the probability of a crisis relative to the ratio of total capital employed to risk-weighted assets.

The BCBS (2010b) estimates the probability of a crisis at 7.2 percent at a capital ratio of 6, falling to 4.6 percent at a ratio of 7 percent, and continuing to fall to 1 percent at a ratio of 11 percent, with further, though smaller falls after that. The estimates shown in the second column of the Table represent the marginal effects of increasing the capital to risk-weighted assets ratio by 1 percentage point. Thus, for example, increasing the ratio from 6 percent to 7 percent reduces the probability of a crisis by 2.6 percentage points. This gain rapidly diminishes as the ratio rises.

The costs of a crisis are particularly difficult to measure. Estimates depend in part on assumptions made about the effects on the long-run steady-state: that is, whether the output of the economy ever catches up to the level it would have achieved in the absence of the crisis. We do not present new estimates here but simply summarise those of the BCBS (2010b). Across all estimates that it analysed, it found that the mean estimate of the cost of a crisis was 106 percent of pre-crisis GDP, with a median of 63 percent. In columns 3 and 4 of Table 5.2 we show the implied marginal benefits of increasing the capital ratio as reduction in the probability of a crisis multiplied by each of these estimates of the cost of a crisis. The results are broadly in line with those of the Bank of England (2010), although their estimates are presented in a rather different way. The marginal benefit from increasing the capital ratio by one percentage point can be as high as 2.76 percent of GDP, although much smaller gains are likely at relatively high capital ratios. Note though, that these estimates are subject to considerable uncertainty.

There is a wide dispersion in estimates of the cost of raising the capital ratio. Columns 5 and 6 present estimates of the marginal costs as estimated by the BCBS (2010b) and the Bank of England (2010). Although these estimates are very similar, there are significant differences in how they are computed. In each case, the estimate is based on the assumption that any rise

in the cost of finance to banks from a higher capital ratio would be passed on to borrowers, leaving the return earned by the bank unchanged. The BCBS (2010b) estimates that an additional 1 percentage point in the capital ratio would raise the bank's lending rate by around 13 basis points, and on their central estimate, this translates into a consequent reduction in output of 0.09 percent. The Bank of England (2010) estimates that the change would raise the lending rate by only 7 basis points, but that this would reduce output by 0.1 percent.

Crucially, both of these estimates assume that the rates of return to the bank's capital owners and creditors are unchanged by changing the capital ratio. As discussed above, however, it seems implausible that there should be no change in these rates of return. These estimates should therefore be interpreted as an upper bound.

Further, both estimates take into account the higher tax that will be due because of a reduction in interest payments as the bank replaces debt with equity capital. We have argued above that the deductibility of interest in combination with different effective tax burdens on retained earnings and interest income of shareholders represents a tax-induced distortion to capital markets, generating an incentive to lower the capital ratio. It does not therefore seem reasonable to treat a reduction in this tax advantage as part of the social cost of reducing bank borrowing.

Two other studies attempt to correct for both of these factors. Kashyap et al. (2010) first examine whether there is evidence that the required return on equity falls as the capital ratio rises, as predicted by theory. They claim that their results "give us some empirical support for using the Modigliani-Miller framework as a basis of our calibrations, particularly for the purposes of a long-run steady-state analysis". Based on the Modigliani-Miller approach, Kashyap et al. (2010) consider two costs arising from raising the capital ratio. One is the tax cost, discussed above. They estimate that a 2 percentage point rise in the capital ratio would increase the lending rate by 5 basis points due to taxation. However, we neglect this in the table, on the grounds that this does not represent a social cost.

Kashyap et al. (2010) also consider other potential costs. One is that additional equity capital might replace short-term debt, which might be more likely in the presence of additional liquidity requirements as well as additional capital requirements. To the extent to which short-term debt has a "money-like" convenience factor, Kashyap et al. (2010) suggest an upper bound on the premium would be 2 basis points for a 2 percentage point difference in the capital ratio. In Table 5.2 we estimate the effect on output of this change. To do so, we use an average of the estimates from the BCBS (2010b) and the Bank of England (2010) of the effect of a 1 basis point change in the lending rate on output. This translates into a marginal reduction in GDP of 0.01 percent.

Finally, Miles (2010) undertakes a similar exercise, using the Bank of England study as a starting point. He too abstracts from the tax effect, and makes a partial adjustment for the required rate of return on equity. He also makes two other adjustments. The result is that he finds the estimated cost is less than 10 percent of that shown in Bank of England (2010). Translating his approach into a comparable cost in our table, we estimate the implied marginal cost to be well under 0.01 percent of GDP. This is shown in the last column of Table 5.2.

While all of the estimates in the table are subject to very large uncertainty, they can form the basis of a rough guide to policy. In terms of a regulatory requirement, the minimum capital ratio should be set where marginal benefits are equal to marginal costs. At the upper bound of estimates of costs, this would imply a minimum capital ratio of around 13 percent to 15 percent, depending on which estimate of the marginal benefit is used. The Basel III requirements currently peak at 13 percent if the ratio for total capital is used, plus the full extent of the counter-cyclical buffer. The estimates in Table 5.2 suggest that this should be considered to be a lower bound for the minimum capital requirement.

Allowing for some reduction in the required return on equity capital, and abstracting from tax advantages, the estimates indicate that marginal benefits clearly exceed marginal costs even at a ratio of 15 percent. This suggests that the optimal ratio could be significantly in excess of 15 percent. Marginal benefits above this are likely to be relatively small, but could easily be as high as 0.1 percent of GDP for each additional percentage point of the capital ratio, though they would decline as the ratio increased.

In principle, the estimates in Table 5.2 could be used as the basis of a Pigouvian tax designed to induce banks to choose the socially optimal capital ratio. To

Table 5.2

Comparison of benefits and costs of raising capital ratios

Capital as % of risk-weighted assets	Marginal reduction in probability of crisis	Implied marginal benefit of increasing capital ratio, % of GDP		Estimated marginal cost of increasing capital ratio, % of GDP			
		Based on mean cost of 106% of GDP	Based on median cost of 63% of GDP	BCBS (2010b), based on median effect	Bank of England (2010)	Kashyap (2010), excluding tax	Miles (2010)
7	2.6	2.76	1.64	0.09	0.1	0.011	0.006
8	1.6	1.70	1.01	0.09	0.1	0.011	0.006
9	1.1	1.17	0.69	0.09	0.1	0.011	0.006
10	0.5	0.53	0.32	0.09	0.1	0.011	0.006
11	0.4	0.42	0.25	0.09	0.1	0.011	0.006
12	0.3	0.32	0.19	0.09	0.1	0.011	0.006
13	0.2	0.21	0.13	0.09	0.1	0.011	0.006
14	0.1	0.11	0.06	0.09	0.1	0.011	0.006
15	0.1	0.11	0.06	0.09	0.1	0.011	0.006

Sources: Columns 2–5, BCBS (2010b); Column 6, Bank of England (2010); Column 7, Kashyap et al. (2010); Column 8, Miles (2010).

begin with, use the BCBS (2010b) estimate of the probability of a crisis at a capital ratio of 7 percent to be 4.6 percent. Evaluating the total expected net cost at this probability based on the mean expected cost of a crisis of 106 percent of GDP, and adjusting for the effects on banks' lending rates, yields a total expected net social cost of just under 5 percent of GDP. This is an indication of the size of the Pigouvian tax that could in principle be levied on the financial sector at this capital ratio. Based on the same approach, the tax would fall to around 3 percent of GDP at a capital ratio of 8 percent, then continue falling to be just under 1 percent of GDP at a capital ratio of 11 percent. In sum, there is a case for a very high Pigouvian tax at low capital ratios. But as capital ratios fall, the optimal Pigouvian tax would fall rapidly.

5.5.2 Other issues

There are of course a number of actual and potential regulations that could be applied to the financial sector. Given the aim of this chapter, we focus briefly on just two related to taxation: liquidity and bonuses. Section 5.2 of this chapter set out arguments in some detail as to whether the financial crisis was caused by either illiquidity of financial companies or by agency problems in that bank executives were not necessarily acting in the interests of shareholders.

It is likely that the real problems causing the crisis were of solvency rather than simply illiquidity. However, even if this is true, then lack of liquidity in the banking system could be an important factor in driving another crisis. Perotti and Suarez (2009a, b) argue that an excessive use of short-term financing imposes an externality on the rest of the financial sector by increasing the risk of fire sales, panics and thus leading to strong crisis propagation mechanisms. As set out above, the Basel III regime will tighten liquidity requirements on banks. But reducing externalities associated with liquidity could in principle also be achieved by a Pigouvian tax. Such a tax has been proposed by Perotti and Suarez (2009a, b), who suggest the introduction of a tax on non-insured liabilities that increase the more liquid the liability is. Very short-term debt financing, being most prone to induce bank-runs, should be taxed the most. Funding from capital and insured retail deposits would, on the other hand, be exempt from the tax.

In principle, liquidity problems could be dealt with *ex post*, by liquidity support from governments or central banks. However, as clearly demonstrated during the latest financial crises, it is very difficult to distinguish liquidity problems from insolvency. In such a case, liquidity support is costly and creates substantial moral hazard problems. Although, the idea to tax short-term financing has a clear merit, it would be necessary to analyse any detailed proposals for such a

tax in the light of detailed proposals for liquidity regulation before judging it.

The extent to which the financial crisis was caused by agency problems, leading bank executives to act in their own interests, is open to question, since the incentives of executives are reasonably closely aligned with those of shareholders, and shareholders may clearly benefit from excessive risk-taking due to the miniscule liability the required capital ratios mean for them. Nevertheless, as noted above, several countries have implemented temporary or permanent taxes on high bonuses paid to bank employees.

We do not favour such taxes. The key reason is that the proportion of an executive's remuneration paid in the form of a bonus can easily be changed. Indeed, there are clear signs in the United Kingdom that the basic remuneration of bank directors is increasing rapidly, as bonuses are expected to decline. A tax on bonuses is therefore likely to distort the incentive package offered to executives. Arguably, this distortion could be in a socially beneficial direction: if executives do not share in the upside gains, then their incentive to undertake risky investment would be diminished. But this could also have a wider effect on the incentives to maximise profit. More generally, high bonuses, and high profits, might reflect a lack of competition in the financial sector. Rather than introducing new taxes on some of the symptoms of this lack of competition, policymakers should consider targeting the fundamental features of the sector that reduce competitive pressures. Extremely high-powered bonuses may reflect shareholders' incentives to take excessive risk rather than an agency problem within banks. Most likely, shareholders will find other ways to induce their executives to gamble if bonuses are taxed.

5.6 Conclusions

This chapter analyses the case for introducing new taxes in the financial sector. Any such taxes would interact with, and possibly conflict with, existing regulations. The chapter therefore deals with both taxes and regulations; it focuses primarily on those regulations which are most closely related to taxation.

There are two broad objectives for introducing a tax in the financial sector. The first is straightforward: to raise revenue. This could be backward-looking – to reimburse governments and society for the cost of the last financial crisis – or forward-looking – to build a resolution fund ready for the next crisis. Indeed we have argued here and in Chapter 2 that such a fund, which provides endangered banks with fresh equity capital in exchange for shares, would be highly useful to overcome the regulation paradox – that no required equity level would prevent a crisis if the regulator shuts down the bank once its equity falls under this level.

From a forward-looking, revenue-raising, perspective, there are various options for the tax base. One is to levy a form of insurance premium, where the tax reflects the risk that an individual company will require support from the resolution fund, and the amount of support it would require. Such a tax would be complex, however, and would almost certainly have repercussions for the efficacy of regulation.

Another option is a FAT, as recently proposed by the IMF, which has two possible forms. In principle, we would favour a narrow base, including economic rents and remuneration of very highly paid employees (which are also akin to economic rents). This would in principle be non-distorting, but may require a relatively high rate depending on the revenue requirements. This tax could be introduced alongside a conventional corporation tax on profits net of interest payments. If so, it would not correct the existing distortion in favour of debt finance, but it would also not worsen it. In principle, the tax could also replace existing corporation taxes. This would be beneficial in that the tax distortion in favour of debt finance would be removed. However, the tax base would be relatively narrow, and to raise the required revenue the implied tax rate may need to be very high.

At the other extreme, another version of the FAT would include all remuneration in the tax base. This would be similar to a tax on value added, and could be seen as a substitute for the lack of VAT in the financial sector. It too could be introduced alongside existing taxes. In this case there are a number of technical details about how the tax could be implemented that remain to be resolved.

A second objective of a new tax in the financial sector could be to help make a future crisis less likely, by inducing banks and other financial companies to reduce leverage or to invest in less risky assets. One option for this objective is the FSC proposed by the IMF. Basically this is a tax on the bank's balance sheet

that exempts the equity capital and insured assets but includes off-balance sheet operations. Several countries have either introduced, or announced that they plan to introduce, such tax. While this tax is partly designed to raise revenue, it is also clearly intended to reduce leverage.

In principle, such a tax could be a meaningful addition to a Tier 1 capital regulation. It could induce a higher ratio of capital relative to all assets including government bonds, which are currently not included in the sum of risk-weighted assets in the Basel system, although the European debt crisis has demonstrated how large the risks associated with such assets really were. However, the FSC, like a minimum capital requirement such as included in Basel III, is independent of the risk of the bank's assets. It is likely that a bank would respond to a higher capital ratio – induced either by the FSC or by the minimum capital ratio – by increasing the risk of its assets, commensurate with Tier 1 capital regulation. The benefit of higher capital would therefore be undermined, at least to some extent, by greater asset risk. After reacting to the tax, the measured risk relative to the capital may be as large as before. Nevertheless, an advantage will remain to the extent that the non-measured risk, including the risk associated with government bonds, is reduced.

In practice, such a tax would be implemented alongside existing regulations. We review evidence on the minimum capital requirements that are necessary to equate marginal social costs and benefits. Based on this evidence, the highest requirement under Basel III, of 13 percent of risk-weighted assets should be seen as a lower bound of what is socially optimal. It is likely that additional social benefits would be achieved by a higher ratio, though these benefits would probably be small, relative to those achieved by raising the ratio to 13 percent.

We propose that these requirements could also continue to be set by regulation, while we are more insecure about the role of a tax. A minimum capital asset ratio is a possibility, but the required ratio should be substantially higher than 3 percent, given that in the financial crisis the write-off losses of the entire US banking system were 4.7 percent of the aggregate balance sheet and quite a number of prominent banks had losses in the range of 14 to 16 percent of their balance sheets.[16]

[16] Sinn (2010, p. 175, Table 8.1).

In sum, additional tax revenue would be useful in establishing a crisis resolution fund. Options for taxation include taxes, such as the FAT, that are intended to raise revenue in a relatively non-distorting way. They also include taxes, such as the FSC, which are intended to supplement regulation. The main case in favour of the latter stems from an attempt to overcome the deficiencies of existing regulation: its value may therefore depend on whether it is instead possible to reform the regulation directly.

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Appendix 5.A
Some simple corporate finance

(a) How does limited liability affect the incentive to undertake risky projects?

Consider the following three companies, A, B and C (see Table 5.A.1). Each company undertakes an investment of 100, financed 80 by debt and 20 by equity. In each case there are two equally probable outcomes, good and bad. The expected return is the same in all cases: 110. However, the risk differs. Firm A has possible outcomes of 90 and 130; B of 70 and 150; and C of 50 and 170. The risk free rate of interest is 5 percent.

(i) Risk neutrality

Suppose, to begin with, that both the creditors and shareholders are risk neutral. This implies that the creditor seeks a total expected return of 84.

For firm A, even the bad outcome yields more than 84, and so the creditor can charge the risk-free interest rate of 5 percent, and receive 84 for certain. The shareholder is left with 6 or 46, an expected return of 26. For firm B, in the bad state the firm goes bankrupt, and the creditor receives 70. To achieve an expected return of 84, he must therefore charge an interest rate, b, which earns 98 in the good outcome. This is $b = 22.5$ percent. The shareholder receives zero in the bad outcome, and 52 in the good outcome, again an expected return of 26. The same happens for firm C. In this case the creditor earns 50 in the bad outcome, and must therefore earn 118 in the good outcome, implying an interest rate of $c = 47.5$ percent. The shareholder again receives zero in the bad outcome, and 52 in the good outcome, with an expected return of 26.

Table 5.A.1

Returns – constant capital ratios

	Company	Investment cost	Bad outcome	Good outcome
Company	A	100	90	130
Shareholder	A	20	6	46
Creditor	A	80	84	84
Company	B	100	70	150
Shareholder	B	20	0	150-80(1+b)
Creditor	B	80	70	80(1+b)
Company	C	100	50	170
Shareholder	C	20	0	170-80(1+c)
Creditor	C	80	50	80(1+c)

In this case, then, both creditors and shareholders are indifferent between the three companies. This is not surprising: both investors are risk neutral, and only difference between the three companies is risk.

(ii) Risk aversion

Now suppose that the creditor is risk averse. Given that the payoff to the creditor falls in the bad state moving from firm A to B to C, the creditor will require a higher expected rate of return. This implies that the interest rate b will exceed 22.5 percent and the interest rate c will exceed 47.5 percent.

In turn, this implies that the shareholder faces a lower expected return moving from A to B to C. That is, if the creditor is risk-averse but receives a risk premium such that she is indifferent between A, B and C, the shareholder will prefer the firm with the less risky projects, even if she is risk neutral. She would have an even stronger preference for the less risky projects if she is also risk averse herself.

(iii) Credit guarantee

Now suppose that the government guarantees a bailout of the creditors, implying that they are guaranteed a return of 84 in the bad state in all firms. Then the interest rate charged will be 5 percent in all three cases.

In this case, the shareholder will receive 6 or 46 in case A, 0 or 66 in case B, and 0 or 86 in case C. The expected return for the shareholder is thus higher the more risky is the project the firm undertakes.

The same incentives hold for shareholders conditional on having negotiated borrowing at a given rate of interest. For example, there is an incentive for the shareholder to borrow at 5 percent to undertake A, but in fact to use the funds to undertake B, or even better, C. That is, for a given borrowing and a fixed interest rate, the shareholder has an incentive to take on more risky projects.

(b) How does the required return on debt and equity vary with the proportion of the firm financed by debt?

(i) Risk neutrality

Now consider the firm undertaking project B, but allow the proportion of debt to vary from 60 to 80 to 100 under the assumption of risk-neutrality (see Table 5.A.2).

We have already analysed the second case: a risk-neutral debtholder would charge an interest rate of 22.5 percent. Where the company is completely debt financed, a risk-neutral debtholder would charge an interest rate of k = 40 percent. This would yield 140 in the good state, with an expected return of 105. When the debtholder invests only 60, then the project is safe from the debtholder's perspective, and the interest rate charged is 5 percent.

The returns to the shareholder are shown in Table 5.A.3.

Table 5.A.2

Returns – different capital ratios

	Project	Investment cost	Bad outcome	Good outcome
Company	B	100	70	150
Shareholder	B	0	0	150-100(1+k)
Creditor	B	100	70	100(1+k)
Company	B	100	70	150
Shareholder	B	20	0	150-80(1+b)
Creditor	B	80	70	80(1+b)
Company	B	100	70	150
Shareholder	B	40	7	87
Creditor	B	60	63	63

Table 5.A.3

Shareholder returns – different capital ratios

Equity investment	Bad outcome	Good outcome
0	0	10
20	0	52
40	7	87

Table 5.A.4

Shareholder returns – credit guarantee

Equity investment	Bad outcome	Good outcome
0	0	45
20	0	66
40	7	87

In this example, there is no clear incentive for the shareholder to use more or less debt. In the case of 100 percent debt financing, the shareholder receives a return of 10 in the good state and nothing otherwise.

Suppose the firm only borrows 80, requiring the shareholder to pay 20. Under the key assumption that the shareholder can borrow under the same conditions as the firm, she could simply borrow the 20 and promise to pay back 0 if the bad state happens and 42 otherwise, giving the required expected return of 5 percent to lenders. Clearly, the shareholder then gets exactly the same cash flows as with full debt financing. The same is true for any other level of debt financing.

More generally, the Modigliani-Miller theorem states that in a world of full information, with no bankruptcy costs, other agency costs or taxes and where shareholders have access to the same borrowing opportunities as the firms, then the value of the company is independent of leverage, while the required rates of return on debt and equity adjust to compensate for different risk associated with different capital structures (Modigliani and Miller 1958).

(ii) Credit guarantee

However, now consider again the case in which the government guarantees the return to the creditor of the firm. If the firm goes bankrupt, the government pays what is required to make the return to creditors equal to 5 percent. No risk premium to be paid in the good state is then required. In this case, the returns to the shareholder are shown in Table 5.A.4.

Compared to the previous case, there is a clear advantage to reducing the equity investment, i.e. using more debt. That is, the outcome for the shareholder is the same with an equity investment of 40. But it is better than before with an equity investment less than 40, and the improvement increases as the equity investment falls. In the case of 20 percent equity financing, the extra benefit to the shareholder is 14 in the good state and zero in the bad with an expected value of 7. In the case of full debt financing, the extra benefit is 35 in the good state and zero in the bad with an expected value of 17.5. Note that these amounts are equal to the expected credit guarantee payments in the two cases. Since these payments increase in the share of debt financing, a credit guarantee provides incentives to maximise leverage.

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