

Why the current account matters in a monetary union

Lessons from the financial crisis in the Euro area *

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Revised, September 2, 2010

1 Introduction

The euro was 10 in 2008. To celebrate this important birthday the European Commission produced a 350 pages report (European Commission, 2008) evaluating the EMU experience after a decade, accompanied by a string of research papers on specific aspects. Lights and shades emerged from the careful and thorough analyses of the relevant issues, but the overall conclusion was: "EMU is a resounding success". Though perhaps more soberly, most observers would have subscribed to this view, having shelved as obsolete a number of topics hotly debated when EMU was first launched: the effects of asymmetric shocks when optimum currency area (OCA) conditions are not satisfied, the dangers of uncoordinated fiscal policies, the Walters (1986) critique pointing to the possibility of a single monetary policy being either too expansionary for some members or too restrictive for others.

One of the issues examined in the report, and at first sight somewhat reminiscent of the Walters' analysis, was that of the persistent inflation and especially growth divergence of some countries from the rest of the euro area. Misgivings were expressed here and there on the sustainability of these trends, but on the whole the policy conclusion was broadly reassuring:

“The performance of [Spain, Ireland and Greece] has... shown a satisfactory development overall... The strong performers have been thriving on investment booms spurred by capital inflows attracted by comparatively high rates of return, with the single currency and

*Written for the conference on *The Euro Area and the Financial Crisis*, Bratislava, September 6-8, 2010. We thank Giulia Zane for research assistance and Fabio Panetta and Andrea Nobili for providing us with data on credit growth.

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the integration of financial markets acting as a catalyst. [...] Overall the divergences in growth and inflation have been long-lasting, involving major shifts in intra-euro-area real effective exchange rates. . . This has been reflected in divergent current account positions across countries. Some, but not all, elements of these differences in inflation, growth and external positions can be attributed to structural convergence in living standards. Even so, not all inflation differentials are harmful; some are merely a sign that competitiveness realignment is doing its job.” (p. 21)

At the time of the publication of the report few would have taken exception to these propositions. When however hell broke loose between the end of 2009 and the beginning of this year and the four "cohesion" countries ¹ (the three strong performers as well as stagnant Portugal) came under attack, media and markets practically turned those propositions onto their head as arguments for the prosecution in a trial of the euro. True, the proximate cause of the attack was the sudden discovery that the Greek public accounts had been a pack of lies for years (something of which the Commission had been unaware)². But this was not the case for the other three countries, two of which moreover exhibited a very respectable record of fiscal discipline and relatively moderate debt levels (table 1). Though the size of the deterioration of public finances caused by the crisis was impressive relative to other countries, markets and media were more shocked by the sudden realization that all four cohesion countries had accumulated high levels of foreign indebtedness, as a result of a long succession of current account deficits (table 2), as well as of domestic private debt. It is not as if the relevant data were not available before: they were considered to a large extent the physiological effects of a healthy process of convergence as long as the going was good ³: now instead they were re-read as symptoms of future sovereign insolvency and indicators of the inherent fragility of the whole single currency project.

The current account has always been a neglected variable in the management of the Euro area and in the assessment of its members' performance; so has, as a consequence, the savings-investment balance. In the next sections we shall first recall the economic arguments that not only explain this attitude but also justify, under some conditions and in some cases, the persistence of current account deficits. We shall then examine some peculiar features of the four countries' growth experience under monetary union which do not conform to the conventional convergence pattern. Models establishing the optimality of a succession of current account deficits in a catching-up process implicitly assume

¹So defined because at the time of their accession to the EU they were less developed than other countries (GDP per capita less than .9 of the EU average and large part of their territory with a "less favoured" region status) and were therefore granted additional financial transfers (cohesion funds).

²The Greek general government deficit figures were successively revised from 2.8 to 3.6 to 5.1 per cent for 2007; from 2.1 to 5 to 7.7 per cent for 2008; from 5.1 to 13.6 per cent for 2009. Source: European Commission. Public Finances in EMU, various years and Eurostat.

³See however Jaumotte and Sodsriwiboon (2010).

that the intertemporal budget constraint is satisfied, so that the accumulation of foreign liabilities is matched by future surpluses. In section 3 we first introduce explicitly this constraint in a simple two-period, two-good model and show that its fulfilment requires that growth be driven by an adequate increase of the country's production capacity of traded goods and services. By examining the composition of output and demand we show that this has not been the case in the countries under consideration and argue that monetary union has helped relax the necessary discipline. The common monetary policy moreover did nothing to prevent an extraordinary growth of credit that fed the imbalances in the four countries. The financial crisis of the euro area took the shape of a sovereign debt crisis: in section 4, on the basis of our analysis, we shall consider the proximate causes and the deepest roots of that crisis. In section 5 we shall address some policy issues. As our analysis shows, there are indeed fault lines in the construction of the single currency, which, previously hidden, became visible under the impact of the world financial crisis. We believe that the euro will survive, but fear that it may not be a healthy survival unless institutional changes are introduced to shelter it from recurrent crises.

2 Convergence and external borrowing

The external payments situation of member states has always been disregarded in the conception and implementation of the European monetary union project. It found no place either in the Maastricht convergence criteria or in the Commission's assessments of individual members' performance; the European Central Bank has worried less about current account imbalances and net foreign positions than about the deterioration of some countries' competitiveness. Tellingly, under art. 143 of the Treaty on the functioning of the European Union only member states with a derogation (those which have not adopted the euro) can receive financial assistance to deal with balance of payments problems⁴.

The literature provides sound justifications for this attitude. Ingram (1973, but see also 1962) was perhaps the first to point out that under monetary integration "the traditional concept of a deficit or a surplus in a member nation's balance of payments becomes blurred" even from a conceptual point of view. With a common currency, no individual country can be exposed to speculative attacks. "Payments imbalances among member nations can be financed in the short run through the financial markets, without need for interventions by a monetary authority". Owing moreover to "the great diversity in circumstances of member nations", it is likely that "certain member nations may be chronic borrowers in Community capital markets".

⁴"Where a Member State with a derogation is in difficulties or is seriously threatened with difficulties as regards its balance of payments" and "if the action taken by the Member State... and the measures suggested by the Commission do not prove sufficient... the Commission shall... recommend to the Council the granting of mutual assistance...". On art. 143 and on the implicit assumption that balance of payments problems were expected to disappear in a monetary union, see Marzinotto et al. (2010).

Modern growth theory elaborates on the "diversity in circumstances" of nations and predicts convergence at a speed depending on the distance between actual and potential output levels, where potential output depends on total factor productivity, savings and population growth, as well as on policies—what the literature refers to as "conditional convergence"⁵. Financial integration and lower interest rates due to the elimination of the exchange-rate premium remove obstacles to capital flows providing fuel for the catching-up dynamics and financing the current account deficits. More articulately, Blanchard and Giavazzi (2002), considering the Euro area, use an intertemporal model to show that for a country the optimal level of external borrowing is higher, and hence savings are lower or investment higher, the greater its expected output growth relative to the area average, the lower the wedge between the domestic and the foreign interest rate and the higher the elasticity of substitution between domestic and foreign goods (see the Appendix for a version of this model). Given the initial output differentials, EMU and the single market have increased the optimal level of external borrowing, and hence the excess of investment over savings, by reducing the interest rate wedge and by increasing the elasticity of substitution between domestic and foreign goods. Countries at the periphery of the union, with lower levels of per capita income to start with, are therefore expected to run persistent current deficits as a physiological effect of their catching up process.

Three of the four countries we are considering seem to conform to this model. They have indeed been "chronic borrowers" in the capital markets, but at first sight with good reasons, their higher growth rates being consistent with the excess of their potential growth over that of the euro area (as later documented in table 4). Thus the EMU years "can be characterized as displaying a typical convergence pattern": monetary union contributed to this process "via financial market integration and the elimination of the exchange risk premium" and allowed a smooth financing of the current account deficits caused by higher growth (Commission, 2008). If this were the case, one should conclude that the fears expressed by the markets were misplaced, or at least grossly exaggerated.

A first look at the data shows however that the picture is more complex and not quite consistent with the "typical convergence pattern". Table 3 reports country levels of GDP per capita and of productivity per person employed and per hour worked, relative to the Euro area average and to Germany, in 1998 (2000 for hourly productivity) and 2008. In terms of GDP per capita, we can properly talk of convergence only for Greece and Spain. Portugal has hardly moved. There was upward divergence for Ireland, where per capita income was higher than the average already in 1998, but where potential growth as computed by the Commission, exceeded actual growth, and downward divergence for Italy (where however there was no systematic accumulation of current account deficits). The changes in relative labour productivity are consistent with those of GDP per capita in Greece (upwards), in Portugal (almost flat) and in Italy (downwards). In Ireland GDP per capita grew faster than labour produc-

⁵See for instance Robert Barro and Xavier Sala-i-Martin (2003).

tivity (especially hourly productivity). The case of Spain is interesting: the fast catching up in terms of GDP per capita (eleven points with respect to euro area, ten points with respect to Germany) occurred at an almost unchanged level of relative productivity and appears to be due almost entirely to an increase in employment.

The behavior of labour productivity deserves attention. Two growth accounting exercises — to be found in the 2008 Commission report and in a 2007 ECB study — provide interesting information⁶. Assuming a technology $Y = Af(K, L)$, with A an index of total factor productivity and $L = (N * Hours)$ the input of labour, depending on labour participation and utilization, the growth rate of GDP per head can be decomposed as:

$$(dY/Y - dN/N) = a(dK/K) + (b - 1)(dN/N) + b(dHours/Hours) + dA/A$$

where a and b are the elasticities of output with respect to capital and labour. The first three terms measure the contribution of the factors of production, the fourth that of total factor productivity. In the course of the catching-up process we expect the role of this fourth component in driving faster growth to increase, as the weight of the other components converges to the levels prevailing in the more advanced countries.

Table 4 reports the results of the Commission exercise, showing potential growth rates rising in Greece and Spain in the EMU decade, falling in Portugal and remaining constant at a very high level in Ireland. The Commission notes that the catching-up process was "heavily geared towards a greater use of ... labour and capital". Actually the picture is more complex, and more interesting. The TFP contribution collapses in Portugal and Spain and declines in Ireland. The labour contribution rises in the three countries, particularly in Portugal and Spain. Greece instead displays a performance more in keeping with what a conventional convergence model leads us to expect, with a rising contribution of TFP and a declining relevance of the use of factors.

The results of the ECB (2007) exercise (table 5) are quite consistent with this pattern. The ECB computes, for two five-year periods before and after EMU, the contribution to actual growth of population and labour utilization (lumped together in table 5) and of hourly productivity, depending in turn on capital deepening and on TFP growth. Once more we see that Spanish GDP growth appears to have relied almost entirely on employment growth; the modest role of hourly productivity is due entirely to capital deepening, while the contribution of TFP falls to zero in the second period. Greece, on the contrary, displays a sizeable productivity component, resting on robust and growing TFP developments with declining contribution from labour. Ireland stands in the middle, with declining productivity and TFP contributions. The low growth rate of Portugal relies to a large extent on capital deepening.

⁶ECB (2007), however, cautions against the measurement shortcomings and the theoretical limitations of these exercises.

This evidence does not fit easily into the story narrated by a classical convergence model. There, capital flows towards the catching-up economies attracted by higher expected output growth driven by productivity growth, all the more easily if a single currency eliminates the exchange-rate risk: current account deficits are a manifestation of this healthy process. The decline in the role of TFP in three out of the four countries evidenced by the available data signals instead lower expected growth and hence lower "optimal" current account deficits. Spain earns a distinction for its stagnant labour and total factor productivity; but it is also noteworthy that Irish growth, while export-led and accompanied by hefty current account surpluses in the golden period of the early 1990's, after 1998 was driven by domestic demand growth, with declining TFP and growing current account deficits. Still, with the exception of Portugal, growth remained vigorous until 2007-2008 ⁷, while current account deficits grew fast ⁸.

The convergence model is scarcely compatible in the long run with lackluster performances of TFP and labour productivity, but even so it does not provide sufficient information on the conditions of sustainability of a growth process similar to that of Ireland, Greece and Spain in the EMU years. Filling an obvious gap of that model, as we shall do in a highly simplified fashion in the next section, helps to get a better understanding of what went wrong in the first decade of EMU.

3 The intertemporal budget constraint, the composition of output growth and credit

Ingram (1973) warns that the irrelevance of current account imbalances and of external debt in a monetary union holds only as long as "the proceeds of external borrowing are used for [...] productive purposes" and adds, by way of example, that "to finance unemployment compensations or other income-maintenance programs by external borrowing would be asking for trouble!".

This distinction cannot find a proper place in models where all goods are traded. Still, it points to an old notion. Ingram says that, if foreign borrowing is for "productive purposes", a rise of external debt in absolute terms is sustainable because it is accompanied by a proportional growth of national wealth. This condition, we would say today, implies that borrowing is put to uses such that the intertemporal budget constraint is satisfied, with future (discounted) positive net exports matching today's incurred liabilities. For this to happen the country must use at least some of the resources it borrows to enhance its potential in the production of goods that can be exported.

Consideration of the intertemporal budget constraint thus suggests that it

⁷In Italy instead a very low growth rate was consistent with the dismal performance of TFP and labour productivity.

⁸Between 2000 and 2007 the current account deteriorated by 5.3 points of GDP in Ireland, by 6.7 points in Greece and by 6 points in Spain. There was no decline in the share of the three countries exports on total Euro area exports.

is important to allow for the possibility that foreign borrowing is invested to increase the production of goods that cannot be exported (non-tradables), as well as of exportables (traded goods). A simple model will allow us to understand the relevance of the distribution of borrowed capital between the two sectors.

3.1 Optimal external borrowing in the presence of traded and non-traded goods

The model presented in Blanchard and Giavazzi (2002) (and described in the Appendix), while pointing to three important reasons why Euro membership was accompanied by the build-up of large current account deficits in the relatively poorer members of the monetary union, misses a crucial aspect of what happened. In some countries, Spain for example, external borrowing was (largely) used to finance investment in the non-traded goods sector. In this Section we thus analyze a simple model with external borrowing and both traded and non-traded goods. As we shall see, introducing non-traded goods makes the conditions for the sustainability of external borrowing much more stringent: if a country borrows mostly to finance the production of non-traded goods it will violate its intertemporal budget constraint.

The structure of the model is as follows. Agents consume both traded, T , and non-traded, N , goods. We concentrate on the country's intertemporal budget constraint overlooking – contrary to the model described in the Appendix – agents' optimal consumption decisions.

There are two periods, t and $t + 1$, and the economy can exchange traded goods with the rest of the world in each period. At time t $C_t^N = Y_t^N$, because N goods can not be traded, while C_t^T can be larger or smaller than Y_t^T (we assume Y_t^T exogenously fixed).

Domestic output of traded and non traded goods at time $t + 1$ depends on investment at time t . We make a simple linear assumption: there is no labour and $Y_{t+1}^N = A^N q^N K_t^N$, $Y_{t+1}^T = A^T q^T K_t^T$ where K_t^N and K_t^T are the amounts invested at time t in the non-traded and traded goods sectors respectively, and A^N , A^T denote productivity in the two sectors. q^N and q^T are the relative price (of N and T goods respectively) between time $t + 1$ and time t , so that, for instance, $q^T = p_{t+1}^T/p_t^T$.⁹ Capital used in both sectors is traded. Not only: to make our result more stark we make the extreme assumption that all capital invested at time t is imported. Let K_t denote the amount of capital imported in t : then the amount invested in the T sector is $K_t^T = K_t - K_t^N$. The allocation of a given amount of K between the two sectors is done at home, after capital has been imported. While we do not formally model this allocation decision,

⁹Blanchard (2007 a) also studies optimal external borrowing in a model with traded and non traded goods. In that model, however, there is no capital and labor is the only factor of production. Thus the model cannot address the effects of alternative allocations of imported capital between the traded and non traded good sectors. Introducing labor, however, allows wages to be determined so as to clear the labor market, something we obviously overlook in this model. A complete model should have both capital and labor, something for future work.

we note that it will reflect domestic incentives. For instance a bubble in house prices will raise K_t^N crowding out investment in the T sector. Thus

$$\text{net imports}(t) = (C_t^T - Y_t^T) + K_t$$

$$\text{net imports}(t+1) = (C_{t+1}^T - Y_{t+1}^T)$$

We thus think of the country as importing investment goods (and possibly also traded consumption goods) at time t and paying for them with net exports of traded goods the following period. N goods include domestic real estate, which we think of as an investment producing mostly non-traded services. Some real estate investment, however could produce tradable services, for instance second homes rented to non residents.

The economy's intertemporal budget constraint is

$$(Y_{t+1}^T - C_{t+1}^T) = [(C_t^T - Y_t^T) + K_t] (1 + R)$$

which replacing the production assumptions can be re-written as

$$q^T A^T (K_t - K_t^N) - C_{t+1}^T = (K_t - K_t^N) (1 + R) + \left[(C_t^T - Y_t^T) + p_t \frac{C_{t+1}^N}{q^N A^N} \right] (1 + R)$$

where $p_t = P_t^T / P_t^N$ is the relative price of traded goods. This expression can be re-written as

$$[q^T A^T - (1 + R)] (K_t - K_t^N) - C_{t+1}^T = (C_t^T - Y_t^T) (1 + R) + p_t \frac{C_{t+1}^N}{q^N A^N} (1 + R) \quad (1)$$

$[q^T A^T - (1 + R)]$ is the net product of imported capital goods: it is normal to assume it to be positive. The left hand side of (1) is the current account surplus at time $t+1$. For the intertemporal budget constraint not to be violated, it must match (in present discounted value) the current account deficit at time t , which is the term on the right-hand-side, remembering that $Y_{t+1}^N = q^N A^N K_t^N = C_{t+1}^N$. Equation (1) has a number of interesting implications:

- a low A_t^T , low productivity in the T sector, reduces the net product of capital invested in that sector which means lower production of traded goods in $t+1$ and thus a more stringent intertemporal budget constraint;
- a low A_t^N , low productivity in the N sector, reduces the supply of non-traded goods in $t+1$. For a given demand, *i.e.* a given C_{t+1}^N , a larger amount of K will need to be allocated to the N sector, thus crowding out investment in the T sector and also implying a more stringent intertemporal budget constraint;

- a high q^T , *i.e.* an increase in the relative price of traded goods between t and $t + 1$, raises the net product of capital invested in the T sector. This helps satisfy the budget constraint.

Consider the extreme case $K_t^N = K_t$, which implies $K_t^T = 0$ and $C_{t+1}^N > 0$. The economy at time t invests all the capital it imports in the N sector. In this case

$$-C_{t+1}^T = \left[(C_t^T - Y_t^T) + p_{t+1} \frac{C_{t+1}^N}{q^N A^N} \right] (1 + R)$$

the intertemporal budget constraint is violated even for $C_t^T = Y_t^T$, $C_{t+1}^T = 0$.

In other words, an economy that borrows to invest only in the N sector violates its intertemporal budget constraint – in this case no matter how productive the N sector is, that is independently of A_t^N . For the constraint to be satisfied you need a minimum amount of investment in the T sector, as can be seen rewriting the expression above as

$$K_t^T \succeq \frac{1 + R}{[q^T A^T - (1 + R)]} \left[(C_t^T - Y_t^T) + p_{t+1} \frac{C_{t+1}^N}{q^N A^N} \right] + C_{t+1}^T \quad (2)$$

3.2 What did external borrowing finance?

In Ireland and Spain growth was led by a construction boom. The share of construction in total value added rose sharply in those two countries, (chart 1; charts 2 shows construction as a share of total fixed capital formation), while it declined slightly in Greece and Portugal and remained more or less constant in the euro area. The same happened to construction investment, both as a ratio to GDP and as a share of total investment. The ratio of gross fixed capital formation to GDP increased by some four points in Ireland and Spain while remaining constant in Greece and declining slightly in the euro area: construction explains that rise and housing construction accounts for most of it¹⁰. The boom in construction as well as the phenomenal rise in prices finds its counterpart in the remarkable increase in the household investment rate in the two countries (table 6), which peaked in 2006 together with house prices, construction investment and construction value added.

The housing boom was accompanied by an extraordinary expansion of domestic credit. Table 7 reports the ratios of domestic credit (loans) to the private sector to GDP in the four countries under consideration and in the three major Euro area countries taken as benchmarks. This ratio, which is sometimes taken as a measure of a country's financial development, remained constant in Germany, while in France and in Italy grew slowly towards the German level. It

¹⁰See the analyses in Martinez-Mongay et al.(2007) and Suarez (2010) for Spain and in Kelly (2010) and Honohan (2010) for Ireland.

doubled in Ireland and Spain in eight years, reaching levels which are a multiple of that of Germany. Between 2004 and 2007 loans for housing credit increased by 68 percent, in Ireland and by 65 per cent, in Spain, but only by 32 per cent, in the average of the euro area. Households' debt as a percent. of gross disposable income rose from 107 to 194 in Ireland and from 79 to 130 in Spain between 2002 and 2007. Credit growth was fed by foreign borrowing, as domestic banks would tap the interbank market and issue commercial paper or bonds (Kelly 2010, Suarez 2010). There was instead little direct foreign investment. On the other hand portfolio investment in the two countries rose fast: that from France and Germany into Ireland and Spain increased from 7.6 percent of their total portfolio investment in 2001 to 15.4 in 2008¹¹.

The importance of the construction boom in Ireland and Spain in the EMU years sheds light on two issues. First, it may provide an explanation for the peculiar behavior of TFP in the two countries, insofar as construction is a sector less likely to benefit from productivity enhancing innovations. Second, and perhaps more important, the output of construction – houses - is a largely non traded good. If houses are sold to foreigners, there is an offsetting item under direct investment: we have seen however that direct investment is a small share of the total. Housing services can be a tradable outcome of the construction activity to the extent to which houses are rented to foreigners. It is however unlikely, appropriately weighting for the period of occupancy, that housing services to foreigners represent a significant fraction of the total.

Our simple model above becomes relevant here. Ireland and Spain provide a good example of the use of foreign capital for producing non-tradable goods to an extent incompatible with the intertemporal budget constraint. Viewed in this light, the current account positions of the two countries became unsustainable even within the convergence model. While recognizing that there was a housing price bubble (even more pronounced than in the United States), one may ask why foreign investors did not seem to be aware of the sustainability problems. The answer is that to a large extent there were no foreign investors investing specifically in assets earmarked for the financing of the construction activity¹²: foreign financial institutions would lend to, or purchase financial assets from, domestic financial institutions which would then finance the domestic construction industry.

The case of Greece does not fit into this picture: its productivity performance was not unsatisfactory; credit grew, but more slowly than in Ireland or Spain; there was no comparable construction boom. The violation of the intertemporal budget constraint was at the same time less interesting and more blatant. With a ratio of private investment to GDP near the Euro area average (but lower than in Ireland and Spain), Greece was just not saving enough. Though Greek

¹¹The share on total of portfolio investment from France into the four countries we are considering rose from 10.8 to 18.3 per cent. and that from Germany from 10.8 to 20.3. (Source of the data: IMF).

¹²The circulation of the equivalent of mortgage backed securities, especially in their most sophisticated version, was far less common than in the US.

national accounts seem to be in a state of flux¹³, table 8 provides stark evidence of the Greek problem, which grew worse in 2008. With no personal savings and no public savings, foreign capital was financing Greek consumption: real appreciation was certainly not the major cause of the current account problem¹⁴.

Portugal's imbalances are similar to those of Greece: its consumption rate, though lower, is ten points higher than the euro average. But in the EMU years Portugal, unlike Greece, remained stagnant, with its GDP pro capita hardly growing relative to the European average¹⁵.

4 The roots of the crisis

The 2009-2010 crisis in the euro area was ignited by the discovery of the Greek budget lies, but there were far deeper causes. The current and prospective increase in the supply of public debt by all advanced economies is naturally causing investors to be far more selective within the sovereign asset class, thereby leading to a widening of the spreads. It may justifiably be asked, however, why the weak members of the euro area were singled out, considering that there are other weak countries around the world, with high levels of public debts and deficits or heavy current account positions. The answer is that members of EMU do not have an own central bank which, if need be in troubled times, can support the national Treasury as "market maker of last resort". This seemed to be an obsolete notion, but it was not. Asset managers have always priced in this possibility in assessing probabilities of default. More importantly, the recent "quantitative easing" practices of the Fed and of the Bank of England, which have acquired government securities on their balance sheets (hence not as a result of repo operations), show that possibility is not forgotten. Formally, the Treaty only forbids the ECB from financing governments on the primary market; but its emergency decision in April to intervene on the secondary market to support some countries' sovereign bonds in presence of "dysfunctional market conditions" was severely frowned upon: so heavy were the criticisms that its interventions were small and timid. In sum, the sovereign debt of a member of the euro area, though issued in euros, is from other points of view similar to foreign sovereign debt: weaker debtor countries, while enjoying the advantage of the elimination of the exchange rate risk, are otherwise in a more exposed position than if they had their own currency issued by their own central bank. From this point of view the recent institution of a European Financial Stability Fund helps reducing this inequality.

The countries that came under attack suffered a deterioration of their fiscal position far greater than the euro average: between 2006 and 2009 the general

¹³There are frequent blanks as Eurostat updates the figures and frequent warnings that the figures of the last four or five years are provisional.

¹⁴Also because the real effective exchange rate appreciated in Greece less than in many other countries. In 2008 the index 1999=100 was 107 in Greece, but 136 in Ireland, 118 in Spain, 113 in Portugal, 115 in Italy and 108 in France.

¹⁵See Blanchard (2007 b).

government primary balance worsened by more than 16 points of GDP in Ireland, more than 13 points in Spain and more than 9 in Greece. The fall in revenues played an important role in Ireland, with a decline of about three points, and in Spain, where the fall was of six points. This uncommonly high elasticity to GDP depends to a considerable extent on the construction driven growth pattern in the two countries. Honohan (2010) shows that in Ireland there was a systematic shift towards "fair weather" taxes based on the construction and housing boom. In 2007 Martinez-Mongay et al. argued that the increases in tax revenues recorded in Spain depended on the composition of growth rather than on permanent factors and showed that these composition effects accounted for about $2^{1/4}$ percent of revenues¹⁶. Suarez (2010) reckons that the real estate boom inflated Spanish government revenues by almost 3 percent. It thus turned out that the surprisingly good past records of budget discipline were not a permanent acquisition: a structural loss of revenues may permanently impair fiscal positions.

This leads us to the deepest cause of the crisis: investors suddenly realized that the pattern followed by some countries in the last decade, with growth driven by domestic demand and financed with foreign borrowing, was unsustainable, and that the heavy imbalances which had accumulated were not the unavoidable outcome of healthy convergence processes but signaled the existence of solvency problems. To quote Ingram (1973) once more, under a single currency "the nation's entire stock of financial assets becomes a kind of external reserve asset" pledged against the foreign debt. To serve this purpose, however, those assets must represent, as it were, the capacity of producing flows of goods and services available to serve the debt. We have endeavoured to show that this was not the case in Ireland and Spain, because of the preponderance of construction and housing, nor in Greece or in Portugal, where debt was incurred for consumption purposes.

5 Policy implications

Jaumotte and Sodriwiboon (2010) run regressions to show that specific EMU/euro effects, in the shape of lower savings, explain most of the (abnormal) deterioration in current accounts in the southern euro area. Though the group of countries is heterogeneous and Ireland is missing, the result is interesting and plausible, but leaves unexplained why there is a geographical partition and has no obvious policy implications. Honohan (2009) argues that EMU membership "lulled [Irish] policy makers into a false sense of security", especially because the single currency removed the external constraint and made the exchange rate and the interest rate insensitive to domestic developments. Kelly (2010) thinks that the impact on the Irish construction boom of low interest rates allowed

¹⁶That study was published as a Commission Economic Paper but we find no trace of its results in the Commission's forecasts or in its computations of cyclically adjusted deficits, where there was no correction of aggregate elasticities

by the euro was modest, but Suarez (2010) is convinced that the ECB monetary policy, while consistent with developments in the three bigger countries of the euro area, was unfit for the Spanish conditions of fast output growth and rampant credit expansion. This discussion reminds one of the ancient Walters critique, according to which the project of a single currency for Europe is inherently flawed because of the chronic inability of a common monetary policy to deal with a diversity of cyclical situations in member countries: one size can fit some, but not all. The issue is however more complex and goes deeper than the macroeconomic effects of a common monetary policy on countries in different cyclical situations, arising rather from weaknesses in the way in which EMU was conceived.

The admission criteria to the common currency were the levels of inflation and interest rates with respect to the average and the levels of public deficits (while the public debt criterion was conveniently massaged to fit all applicants). The first two variables were largely endogenous to the existence of a common currency, as short-term interest rates and also, to some extent, inflation are expected to converge as a result of a common monetary policy. After the start of the euro, when assessing a country's situation, the attention of European policy makers, at Commission and Council levels, and also of external observers was exclusively, and at times obsessively, concentrated on public deficits, with the Treaty and the Stability and Growth Pact dictating detailed (and often ineffective) procedures to deal with a violation of the set limit. A number of other variables were instead neglected in the academic and political debate on the construction of EMU and later in the Commission's reporting activity: relative productivity trends; credit and leverage; the savings-investment balance, and hence, as already recalled, the current account, which, though no longer a short-term binding constraint under a common currency, still represents an immediate indicator of the existence of imbalances. It so happened that, whereas the Maastricht variables more or less converged (including the deficit variable, at least until 2007-2008), the situation in the euro area was unsettled by diverging trends of precisely the neglected variables. Thus a lesson of the crisis is that the stability of the monetary union depends on a wider set of conditions for member countries than mere compliance with budgetary discipline – for which Ireland and Spain were widely praised.

The Commission in two communications (2010 a and b) has recognized that this is the case and has proposed to extend surveillance to macroeconomic imbalances as allowed by article 136 of TFEU (on economic policy guidelines for euro member states). It envisages an alert system based on a scoreboard of indicators including “measures of the external position and price or cost competitiveness as well as internal indicators”. When the indicators flash, the Commission would recommend that a Member State be placed in an “excessive imbalances position” and receive policy recommendations by the Council. A “specific enforcement mechanism could be envisaged” if those recommendations are not followed. In the same vein, an ECB document (2010) on Reinforcing economic governance in the euro area adds a "competitiveness framework" and

a "crisis management framework" to the "fiscal policy framework". Its imbalances indicator comprises HICP and ULC measures of competitiveness as well as "external imbalances and indebtedness of the public and private sectors, asset prices and credit booms, degree of convergence". When the indicator flashes the country would be subject to a (lengthy) "intensified procedure" which may lead to financial sanctions.

The approach followed by the Commission and by the ECB is unsatisfactory, being at the same time too ambitious and ineffective. As the current account is not binding in a monetary union, as imbalances do not trigger runs against the currency, it is attempting to organize an artificial political and administrative constraint. First, however, the experience of enforcing the much simpler fiscal rules is far from encouraging. Second, the surveillance and enforcement procedures envisaged by the Commission and the ECB take a long time – enough to let a credit expansion or a domestic asset bubble get out of control. Third, and more importantly, that approach emphasizes correction but does not deal with prevention. Finally, there are cases in which no quick corrective measure is conceivable, or even desirable. Suppose that a current account imbalance is due to a decline in competitiveness caused not so much by excessive wage growth as by a dismal productivity performance (as in Italy and Spain): the restructuring needed to stimulate productivity growth can hardly be imposed by decree.

Is there an alternative? If there is, it should be less ambitious in scope than the Commission or the ECB are proposing, but more effective in prevention and in the enforcement of correction. This last requirement is scarcely compatible, at least in some cases, with the politically charged and time consuming procedure of Council's decisions upon the Commission's proposals.

Recent experience shows that the imbalances that matter, because their persistence would endanger the stability of a monetary union, are either due to fiscal profligacy – as in Greece and to some extent in Portugal – or arise because of asset bubbles or an expansion of the non-traded sector fed by capital inflows and an unchecked credit expansion – as in Ireland and Spain. Declining competitiveness affects a country's growth, but does not per se cause instability, as evidenced by the Italian experience. The case of fiscal imbalances is, or should be, taken care of by an enhanced version of the excessive deficit procedure, possibly complemented by conditions on the level or speed of reduction of debt and by an assessment of the permanent or temporary nature of revenues. We are thus left with the issue of credit¹⁷—a difficult issue in a financially integrated, single-currency area.

Common monetary policy is hardly the appropriate instrument to deal with this. Even supposing that an augmented Taylor rule, as suggested by Giavazzi and Giovannini (2010), is feasible, it hardly can take care of the emergence of divergent credit and leverage positions within the union. Macro-stability rules – regarding for instance reserve requirements – are also insufficient: after all,

¹⁷It is worth recalling that ceilings to total domestic credit used to be a major ingredient of IMF conditionality in the stand-by agreements with countries in need of support because of current account imbalances.

the much praised Spanish rules on dynamic provisioning did nothing to prevent the credit boom. One must therefore turn to the exercise of specific supervisory and regulatory powers (Orphanides, 2010, Bean et al 2010). There can be little doubt that imposing stricter conditions on construction and mortgage lending could have prevented the excesses observed in Ireland and Spain (as they did in other countries).

The next question then is who should be entrusted with these tasks. National authorities cannot always be relied upon, as proved by the Irish, Spanish and UK experience. They may be captured by the regulated (as in Ireland: see Kelly 2010 and Honohan 2010); they may be lenient and complacent; they may hesitate to interrupt a boom; they may not be ready to introduce adequate preventive measures (such as, in the case of mortgages, limits to the loan/equity ratio or to the possibility of re-contracting on the basis of changing prices). In a financially integrated area with a single currency the right solution would be to entrust some supervisory and regulatory powers to a third, supranational body. As we know, however, the ECB is deprived of any such power, left in the hands of national authorities with, so far, only the weakest form of mutual information and coordination; nor has there been any attempt to exploit to the slim possibilities offered by article 127.7 of the TFEU.

The implementation of the proposals of the de Larosière report may provide an interesting opportunity. It has been decided to set up a European systemic risk board (ESRB), and to establish three European Supervisory Authorities (ESA's), replacing the existing committees for banking, for securities and for insurance. European Parliament, Council and Commission are now debating on the supervisory and regulatory powers to be attributed to these new bodies, and especially to the three ESA's. If the ESRB or, better still, the ESA for banking (because the ESRB is an unwieldy organism) were given powers to supervise credit development in individual countries and, if necessary, to set limitations to lending practices, this would represent an important step forward with respect to the current situation and a solution immune of the shortcomings of the available proposals.

There are relevant legal, technical and more important economic and political reasons that will keep the euro alive preventing its dissolution. Mere survival, however, is not an attractive prospect. The first decade of the euro's life deluded policy-makers and observers into thinking that, perhaps unexpectedly, almost all had gone well and was well. The recent crisis showed the fragility of the construction due to the incompleteness of the conception behind it but can also be exploited to introduce the reforms necessary to insure the stability of a single-currency area.

6 References

Barro, Robert J. and Xavier Sala-i-Martin (2003), *Economic Growth*, 2nd Edition MIT Press.

Bean, Charles , Matthias Paustian, Adrian Penalver and Tim Taylor (2010), "Monetary policy after the fall", mimeo Bank of England.

Blanchard, Olivier and Francesco Giavazzi (2002), "Current Account Deficits in the Euro Area: The End of the Feldstein-Horioka Puzzle?", *Brookings Papers on Economic Activity*, 2:2002.

Blanchard, Olivier (2007 a), "Current account deficits in rich countries", *IMF Staff Papers*, Palgrave Macmillan Journals, vol. 54(2), pp.191-219, June.

Blanchard, Olivier (2007 b), "Adjustment within the euro. The difficult case of Portugal", *Portuguese Economic Journal*, vol. 6, no. 1.

European Central Bank (2007), "Output growth differentials in the euro area: sources and implications", in *Economic Bulletin* 04, 2007, April.

European Central Bank (2010) "Reinforcing economic governance in the euro area", 10 June.

European Commission (2008), "EMU@10: Successes and challenges of Economic and Monetary Union", *European Economy*, 2, 2008.

European Commission (2010a) "Reinforcing economic policy coordination" COM(2010)250, 12 May.

European Commission (2010b) "Enhancing economic policy coordination for stability, growth and Jobs – Tools for stronger EU economic governance" COM(2010)367/2, 30 June.

Giavazzi, Francesco and Alberto Giovannini (2010), "Central Banks and the Financial System", *CEPR, Discussion Paper Series*, no. 7944, August.

Jaumotte, Florence and Piyaporn Sodsriwiboon (2010), "Current Account Imbalances in Southern Euro Area", *IMF Working Paper*, WP/10/139, June.

Honohan, Patrick (2009), "What Went Wrong in Ireland?", mimeo., May.

Ingram, James C. (1962), *Regional Payments Mechanisms The Case of Puerto Rico*, Durham N.C., The University of North Carolina Press.

Ingram, James C. (1973), "The Case for European Monetary Integration", *International Finance Section*, Princeton University, *Essays in International Finance*, no. 98, April.

Kelly, Morgan (2010), "Whatever Happened to Ireland", *CEPR, Discussion Paper Series*, no. 7811, May.

Martinez-Mongay, C., L.A. Lasierra and J. Yaniz Igal (2007), "Asset Booms and Tax Receipts: The case of Spain, 1995-2006", *European Economy – Economic Papers*, Number 293, November.

Marzinotto, Benedicta, Jean Pisani-Ferry and André Sapir (2010), "Two crises, two responses", *Bruegel policy brief*, 2010/01, March.

Orphanides, Athanassios (2010), "Monetary Policy Lessons from the Crisis", CEPR, Discussion Paper Series, no. 7891, June.

Suarez, Javier (2010), "The Spanish Crisis: Background and Policy Challenges", CEPR, Discussion Paper Series, no. 7909, July.

Walters, Alan (1986), Britain's Economic Renaissance, Oxford, Oxford University Press.

7 Appendix

Optimal external borrowing in world with only traded goods

In this Appendix, following Blanchard and Giavazzi (2002), we analyze a model that helps identify the factors that could be responsible for the widening of current account imbalances in the Euro area. In this model all goods are traded. As we discuss in Section 3.1 of the paper, this is an important limitation that limits the ability of the model to analyze the effects of external imbalances in some Euro area countries.

Think of a group of n countries trading goods and assets among themselves — the members of the euro area. Each country produces a single good; households, however, are identical throughout the area in the sense that they have the same preferences and consume the same composite good — which is a bundle of the goods produced by all n countries — independently of where they live. In other words there is no home bias in consumption, an assumption which is irrelevant for our results but helps keep the algebra simple, as other assumptions we shall now make. Households live for two periods and maximize expected utility which is given by

$$E_t U(C_t, C_{t+1}) = \log C_t + \log E_t C_{t+1}$$

where E_t denotes expectations as of time t . Consumption in each period is

$$C_t = \left[\frac{1}{n} \sum_{i=1, n} (C_{i,t})^{(\sigma-1)/\sigma} \right]^{\sigma/(\sigma-1)}$$

and σ is the elasticity of substitution among the n goods, assumed > 1 . The intertemporal budget constraint faced by each household is

$$C_t + \frac{E_t C_{t+1}}{(1+x)R} = Y_t P_t + \frac{E_t (Y_{t+1} P_{t+1})}{(1+x)R}$$

P is the price of the single good produced by the country (relative to the composite consumption good) and R is the interest rate, also in terms of consumption goods, in short the consumption interest rate. Production, Y , is exogenous (but not constant) in each country, so that the current account only

reflects saving decisions. The parameter x is a wedge between the world consumption interest rate and the rate at which a country can borrow. (We are considering here a borrower country). It describes the risk premium that some euro area countries were paying prior to joining the monetary union.

With logarithmic preferences, consumption spending in the current period is given by

$$C_t = \frac{1}{2} \left(P_t Y_t + \frac{1}{(1+x)R} E_t (Y_{t+1} P_{t+1}) \right)$$

Define ca the ratio of the current account to national income. Then ca is given by

$$ca_t = \frac{1}{2} \left(1 - \frac{E_t Y_{t+1}}{Y_t} - \frac{1}{(1+x)R} \frac{E_t P_{t+1}}{P_t} \right)$$

The three terms in the expression in brackets on the right explain what determines a country's *optimal* external borrowing:

- *Expected output growth.* The first term is equal to 1 plus the expected rate of growth of domestic output. The higher output is next period relative to this period, the higher optimal external borrowing
- *The interest rate.* The second term gives the effect of the interest rate faced by the country. The higher the consumption interest rate, or the greater the wedge, the more expensive it is to borrow abroad, and thus the smaller the optimal amount of borrowing;
- *The expected rate of change in the terms of trade.* The third term is equal to 1 plus the expected rate of change in the price of the domestic good in terms of consumption ($\frac{E_t P_{t+1}}{P_t} = 1 + \frac{E_t P_{t+1} - P_t}{P_t}$). The larger the expected fall in the price of the domestic good required next period to sell enough domestic goods to pay down the debt, the more expensive it is to borrow, and thus the smaller is optimal borrowing.

This equation provides a starting point to show the effects that joining the Euro area had on the current account of countries that, like Spain, Portugal, Ireland and Greece, which started off poorer than the rest of the area, but were expecting to catch up.

The above equation for the current account can be further simplified, to yield an even more intuitive expression. Assume that n is large, so that we can ignore the contribution of the country itself to euro area variables — an assumption which is not unreasonable, considering that the four countries are a small fraction of euro area GDP. Assume also that all other countries (say Germany and France) are fully integrated, and thus face the same interest rate R (with no wedge). Under these assumptions, sum the first-order conditions for the consumer's problem ($1/C_t = R(1/E_t C_{t+1})$) and use the fact that aggregate consumption is equal to aggregate income to get

$$\frac{1}{R} = \frac{Y_t^*}{Y_{t+1}^*} \left[\frac{1}{1 + g^*} \right]$$

where Y_t^* is the average euro area level of output and g^* is the euro area rate of output growth (overlooking uncertainty about the rate of growth in the rest of the euro area). Noting that the demand for the good produced in a given country is given by

$$P_t = \left(\frac{Y_t}{Y_t^*} \right)^{-1/\sigma}$$

and correspondingly for P_{t+1} , we can express the current account as

$$ca_t = \frac{1}{2} \left[1 - \frac{1}{1+x} \left(\frac{1 + E_t g}{1 + g^*} \right)^{1-1/\sigma} \right]$$

So, three conditions need to be met for borrowing to increase

1. domestic output growth should be expected to exceed output growth in the rest of the euro area, *i.e.* the country should expect to converge,
2. the borrowing wedge x should not be too large,
3. domestic and foreign goods should be relatively close substitutes.

The three factors however would be irrelevant if $E_t g$ did not rise above g^* , *i.e.* if countries didn't expect to catch up. Poorer countries are poorer not only because they have less capital (which they can import from abroad), but also because they have lower total factor productivity. The evidence is that both goods market integration and financial market integration are likely to lead, in particular through higher competition, to an increase in total factor productivity. To the extent that this is the case, it is likely to improve growth prospects in poorer countries and lead to a decrease in saving. The fact that significant external borrowing only started after relatively poorer countries joined the euro, suggests that it was membership in the monetary union what changed expectations about future productivity growth..

Thus the conclusion of this model is that, had the expectations of g rising above g^* been correct, borrowing would have been optimal. As we mentioned at the beginning of this Appendix, however, this conclusion overlooks a potentially important fact: the presence of a non traded goods sector. We analyze a model with non traded goods in Section 3.1.

Table 1 - General Government Balance and Debt, % of GDP

	Average 2000-2007	Balance		Debt	
		2008	2009	2008	2009
Euroarea	-2,3	-2	-6,3	69,7	79
Ireland	-1,0	-7,3	-14,3	43,9	64
Greece	-6,1	-7,7	-13,6	99,2	115,1
Spain	-1,3	-4,1	-11,2	39,7	53,2
Portugal	-4,1	-3,7	-7,1	66,3	76,8
Italy	-3,1	-2,7	-5,3	106,1	115,8

Source: Eurostat

Table 2 - Cumulated current accounts - 1999-2008, % of GDP

Ireland	-19,2	Germany	31,5
Spain	-59	Netherlands	53,7
Greece	-85,1	Finland	59,1
Italy	-13	France	3,1
Portugal	-90,7	Euroarea	22,2

Source: Eurostat

Table 3 - Per capita income and labour productivity

	GDP per capita		Labour productivity per person employed		Labour productivity per hour worked	
	(a)	(b)	(a)	(b)	(a)	(b)
Ireland						
1998	106,1	99,2	108,1	111,4		
2000					94,9	89,0
2008	123,8	116,4	118,7	121,7	104,2	94,7
Greece						
1998	72,8	68,0	78,4	80,7		
2000					64,2	60,2
2008	86,2	81	93,2	95,5	71	64,5
Spain						
1998	83,3	77,9	92,9	95,7		
2000					87,2	81,7
2008	94,5	88,8	94,5	96,9	92,4	84
Portugal						
1998	69,3	64,8	60,4	62,3		
2000					52,9	49,6
2008	71,6	67,2	67,1	68,8	56,2	51,1
Italy						
1998	105,3	98,4	112,2	115,6		
2000					98,5	92,3
2008	93,6	87,9	99,8	102,3	88,8	80,8

(a) Euro-area =100

(b) Germany = 100

Source: Eurostat

Table 4 - Potential growth and its components

	Euroarea	Ireland	Greece	Spain	Portugal
Potential growth rate					
1989-1998	2,3	6,5	2,1	2,9	3,1
1999-2008	2,2	6,5	3,9	3,7	1,9
% contributions to potential growth rate					
- <i>Labour</i>					
1989-1998	8,7	20,0	19,0	34,5	9,7
1999-2008	22,7	29,2	15,4	54,1	36,8
- <i>Capital</i>					
1989-1998	34,8	16,9	38,1	44,8	41,9
1999-2008	36,4	27,7	33,3	43,2	52,6
- <i>TFP</i>					
1989-1998	56,5	58,5	38,1	20,7	45,2
1999-2008	36,4	40,0	48,7	2,7	10,5

Source: European Commission (2008)

Table 5 - Actual growth (1995-2005) and its components

	Euro area	Germany	Italy	Ireland	Greece	Spain	Portugal
Real GDP growth							
1995-1998	2,3	1,7	1,7	10,0	2,9	3,4	4,2
1999-2005	1,9	1,2	1,2	6,8	4,3	3,7	1,6
% contributions to actual GDP growth rate:							
- Labour utilisation and population							
1995-1998	34,8	-23,5	29,4	40,0	34,5	94,1	14,3
1999-2005	36,8	-25,0	66,7	44,1	14,0	86,5	37,5
- Hourly labour productivity							
1995-1998	65,2	123,5	70,6	60,0	65,5	5,9	85,7
1999-2005	63,2	125,0	33,3	55,9	86,0	13,5	62,5
of which:							
<i>TFP</i>							
1995-1998	47,8	82,4	41,2	60,0	48,3	5,9	57,1
1999-2005	36,8	83,3	-8,3	39,7	58,1	0,0	-6,3
<i>Capital deepening</i>							
1995-1998	17,4	41,2	29,4	0,0	17,2	0,0	28,6
1999-2005	26,3	41,7	41,7	16,2	27,9	13,5	68,8

Source: European Central Bank (2007)

Table 6 – Household investment rate
(% of gross disposable income)

	2000	2002	2006	2008
Euroarea	10,28	9,6	10,7	10,4
Ireland	n.a.	16,8	27,2	15,8
Greece	n.a.	n.a.	n.a.	n.a.
Spain	10,9	12,1	15,2	12,9
Portugal	10,7	10,0	7,6	7,6

Source: Eurostat

Table 7 - Domestic credit - ratios to GDP

	Germany	France	Italy	Ireland	Greece	Spain	Portugal
2000	1,06	0,72	0,71	1,00	0,42	0,87	1,10
2004	1,01	0,76	0,78	1,26	0,62	1,11	1,24
2008	0,95	0,95	0,97	2,02	0,85	1,71	1,51

Source: National Central Banks

Table 8 - Greece: Consumption, saving and the government balance

	Greece		Euro area	
	2000	2007	2000	2007
Household Consumption (% GDP)	72,4	71,9	57,6	56,2
Household saving (% disposable income)	3,2	-0,5	11,4	10,9
General government primary balance (% GDP)	3,6	-0,9	3,9	2,3

Source: Eurostat. The figures for Greece are taken from a June release. The row for Greece has since been suppressed

Chart 1 - Value added of construction as % of total value added

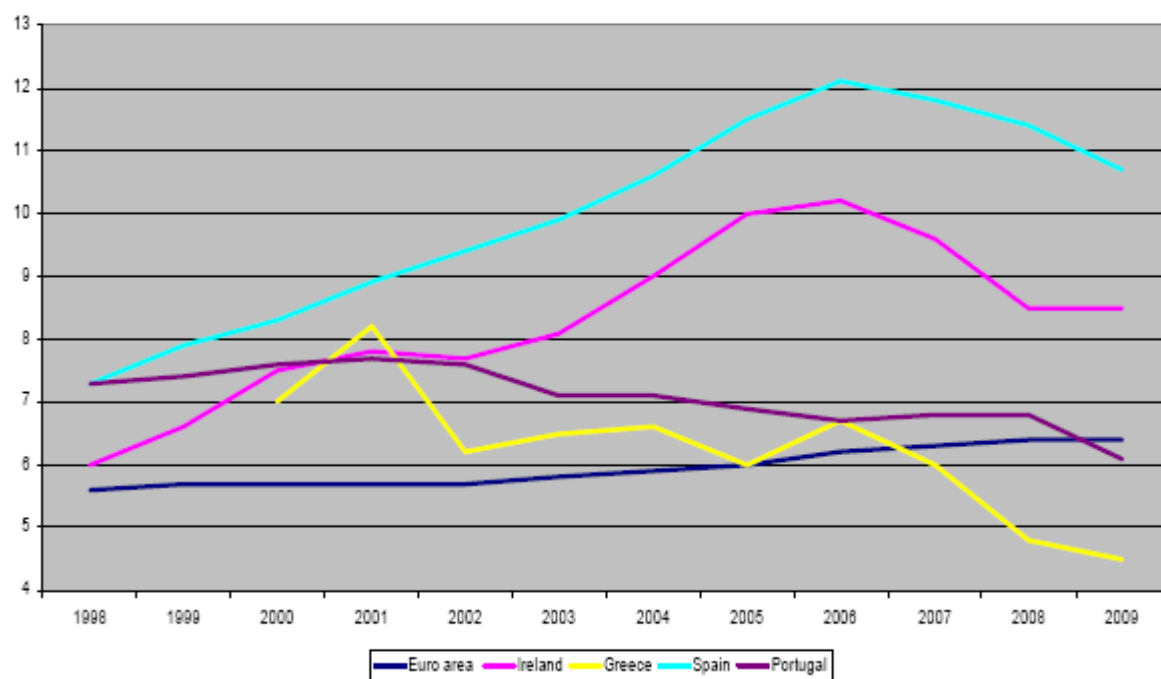


Chart 2 - Housing construction - % share on total gross fixed capital formation

