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European economic and monetary integration and the optimum currency area theory

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In May 2008, it will be ten years since the final decision to move to the third and final stage of Economic and Monetary Union (EMU), and the decision on which countries would be the first to introduce the euro. To mark this anniversary, the Commission is undertaking a strategic review of EMU. This paper constitutes part of the research that was either conducted or financed by the Commission as source material for the review.

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European Economic and Monetary Integration, and the Optimum Currency Area Theory

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Abstract:

This essay follows the synergies and complementarities between European Economic and Monetary Union (EMU) and the optimum currency area (OCA) theory. Various advancements in economic theory and econometrics have made it possible to progress from the “early OCA theory” to a “new OCA theory”. The balance of judgements has shifted in favour of monetary union: it is deemed to generate fewer costs and there is more emphasis on benefits. The “endogeneity of OCA” has further strengthened this consideration. Yet there is still no simple OCA test. When EMU made the leap to the Maastricht Treaty, the OCA theory could not deliver clear policy guidance. Plans for EMU went ahead as a follow-up of the Single Market Programme (SMP) with only limited direct input from the OCA theory. The main concern was to remove the risks of destabilising exchange rate volatilities and misalignments that had disrupted the European Monetary System (EMS) on several occasions. While plans for EMU were advancing, it became apparent that several (future) euro area countries were still faring poorly under some OCA properties and concerns about “Eurosclerosis” emerged. The implications for EMU were cautionary. Over the last 10 to 15 years initiatives promoting structural reforms have been at the centre of policy-making (e.g. the Lisbon Agenda). Hence, under the surface the OCA theory was being heeded, and European countries were tackling their structural weaknesses. We can almost talk of an OCA theory in reverse. If we look at the broad governance structure of EMU there may be an “exogeneity of OCA”. So here we are: with the benefit of eight years of hindsight, what can we say about the functioning of EMU thus far? Can we also say something more about its various benefits and costs?

JEL classification: *E42, F15, F33 and F41.*

Keyword: Optimum currency area, economic and monetary integration, international monetary arrangements, EMU

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“EMU will have a very pervasive impact on the working of the economy. Many different mechanisms will come into play and interact.” “One Market, One Money” (1990)

1. Introduction

The call for this conference noted that the “fixing of the irrevocable conversion rates to the euro for the currencies of eleven EU countries on 31 December 1998 created *laboratory conditions* for examining the importance of various concerns about monetary unification, one of which being whether the countries joining in the euro did form an optimum currency area (OCA)”. Furthermore, “early work suggested that the European countries might not have scored very highly on all OCA criteria. Yet, the successful establishment of economic and monetary union (EMU) suggests that the conventional OCA theory may not account fully for the net benefits deriving from currency unions”. A lot runs through these lines.

The analogy of EMU with a laboratory is tempting, and we show that we are dealing with a very busy laboratory. In fact, over the last 50 years diverse forces and processes have been at work. *First*, European monetary integration has been part of the broader process of economic and financial integration. *Second*, European integration is a political process. The importance of the political origins, motivations and consequences of European integration cannot be overemphasised. *Third*, economic, financial and monetary integration has evolved gradually over a long period, and is still evolving. All along, national economies have needed to adjust to the changing market structures but also institutional setting. *Fourth*, the advancement of European integration has proceeded hand in hand with the advancements of economic theory: the synergies and complementarities with the OCA theory are an example.

The essay is organised as follows. *Section 2* revisits the OCA theory and the various OCA properties that would support the launch of a single currency and ensure that the benefits from monetary integration exceed the costs. *Section 3* reviews the path to European monetary integration. Despite the similarity in terms of goal, the issue of establishing EMU is different from the OCA issue. The EMU issue has more dimensions and facets. In *Section 4* we look at various aspects of the functioning of EMU, including: the working of the real interest channel, the risk of pro-cyclicality of fiscal policies, the changes in competitiveness within the euro area, the relationship between EMU and the drive towards structural reforms, the central role played by financial integration for the functioning of monetary unions and the impact of the euro on specialisation. *Section 5* provides some insight into the main benefits and costs of the euro. *Section 6* makes some final remarks.

“The OCA theory is back. Once dismissed as a "dead-end problem" with little practical significance...the issue has been resuscitated and re-thought” George Tavlas (1993)

2. The evolving optimum currency area theory

Almost 50 years have passed since the founding of the optimum currency area (OCA) theory thanks to the seminal contributions of, among others, Mundell (1961), McKinnon (1963) and Kenen (1969). Several other important contributions followed suit highlighting a wide range of OCA properties that are desirable features for economies wanting to share a single currency. All of these properties are still central in the debate on monetary integration. This section presents the main elements of the OCA theory, lays out its main weaknesses and limitations, and outlines some “meta” OCA properties and the “endogeneity of OCA”.

The main elements of the OCA theory

An optimum currency area (OCA) can be defined as the optimal geographical area for a single currency, or for several currencies, whose exchange rates are irrevocably pegged. The single currency, or the pegged currencies, fluctuate jointly vis-à-vis other currencies. The borders of an OCA are defined by the sovereign countries choosing to participate in the currency area. *Optimality* is defined in terms of various *OCA properties*, such as price and wage flexibility, financial integration, etc., as listed in Box 2.1 below. Some other “meta” properties, looking at the similarity of shocks and monetary transmission mechanisms, surfaced later. Sharing these OCA properties reduces the usefulness of nominal exchange rate adjustments within the currency area by lessening the impact of some types of shocks or facilitating their adjustment thereafter. Countries forming a currency area expect benefits to exceed costs (see Section 5).

Box 2.1. The OCA properties (I): the seminal contributions

The literature on the OCA theory came to light in the early 1960s: a period characterised inter alia by the Bretton Woods fixed (but adjustable) exchange rate regime, capital controls in many countries and the incipient process of European integration. Various OCA properties – also called “prerequisites,” “characteristics,” “criterion” or “criteria” by some authors – emerged from the debate on the merits of fixed versus flexible exchange rate regimes, and also the comparison of several features of the US and European economies. They constitute the “early OCA theory”.

a. Price and wage flexibility. When nominal prices and wages are flexible between and within countries contemplating a single currency, the transition towards adjustment following a shock is less likely to be associated with sustained unemployment in one country and/or inflation in another. This will in turn diminish the need for nominal exchange rate adjustments (Friedman (1953)). Alternatively, if nominal prices and wages are downward rigid some measure of real flexibility could be achieved by means of exchange rate adjustments. In this case the loss of direct control over the nominal exchange rate instrument represents a cost (Kawai (1987)).

b. Mobility of factors of production including labour. High factor market integration within a group of partner countries can reduce the need to alter real factor prices and the nominal exchange rate between countries in response to disturbances (Mundell (1961)). Trade theory has long established that the mobility of factors of production enhances both efficiency and welfare. Such mobility is likely to be modest in the very short run and could display its effect over time. The mobility of factors of production is limited by the pace at which direct investment can be generated by one country and absorbed by another. Similarly, labour mobility is likely to be low in the short run, due to significant costs, such as for migration and retraining. Mobility, however, may increase in the medium and long run, easing the adjustment to permanent shocks.

c. Financial market integration. Ingram (1962) noted that financial integration can reduce the need for exchange rate adjustments. It may cushion temporary adverse disturbances through capital inflows – e.g. by borrowing from surplus areas or decumulating net foreign assets that can be reverted when the shock is over. With a high degree of financial integration even modest changes in interest rates would elicit equilibrating capital movements across partner countries. This would reduce differences in long-term interest rates, easing the financing of external imbalances but also fostering an efficient allocation of resources. Financial integration is not a substitute for a permanent adjustment when necessary: in this case, it can only smooth this process. Temporary financial flows may induce a postponement of real adjustment and render it more difficult at a later stage. Some authors also warn that financial integration might lead to destabilising capital movements.

McKinnon (2004) analyses in depth the implications of a second seminal contribution by Mundell (1973) discussing the role of financial integration, in the form of cross-country asset holding, for international risk-sharing. Countries sharing a single currency can mitigate the effects of asymmetric shocks by diversifying their income sources. This can operate through *income insurance* when a country's residents hold claims to dividends, interests and rental revenue from other countries. Such ex ante insurance allows the smoothing of both temporary and permanent shocks as long as output is imperfectly correlated. Country's residents can also *adjust their wealth portfolio* – e.g. in response to income fluctuations -- by buying and selling assets and borrowing and lending on international credit markets: an ex post adjustment.

A corollary of this argument is that similarity of shocks is not a strict prerequisite for sharing a single currency if all members of the currency area are financially integrated and hold claims on each other's output. In many ways some speak of a *Mundell I* versus a *Mundell II* positive and normative approach to EMU. The latter point has important implications for the debate on monetary integration: a new currency could be shared by countries subject to asymmetric shocks as long as they "insure" one another through private financial markets. This explains the emphasis on the need to strengthen financial integration in the subsequent literature.

d. The degree of economic openness. The higher the degree of openness, the more changes in international prices of tradables are likely to be transmitted to the domestic cost of living. This would in turn reduce the potential for money and/or exchange rate illusion by wage earners (McKinnon (1963). Also, a devaluation would be more rapidly transmitted to the price of tradables and the cost of living, negating its intended effects. Hence the nominal exchange rate would be less useful as an adjustment instrument. Economic openness needs to be assessed along several dimensions, including the overall openness of a country to trade with the world; the degree of openness vis-à-vis the countries with which it intends to share a single currency; the share of tradable versus non-tradable goods and services in production and consumption; and the marginal propensity to import. These dimensions of openness overlap but are not synonymous. Later work showed that monetary integration catalyses further openness: i.e., the "endogeneity of OCA".

e. The diversification in production and consumption. High diversification in production and consumption, such as the "portfolio of jobs", and correspondingly in imports and exports, dilutes the possible impact of shocks specific to any particular sector. Therefore, diversification reduces the need for changes in the terms of trade via the nominal exchange rate and provides "insulation" against a variety of disturbances (Kenen (1969). Highly diversified partner countries are more likely to incur reduced costs as a result of forsaking nominal exchange rate changes between them and find a single currency beneficial.

f. Similarities of inflation rates. External imbalances can arise also from persistent differences in national inflation rates resulting from differences in: structural developments, labour market, economic policies, and social preferences (such as inflation aversion). Fleming (1971) notes that when inflation rates between countries are low and similar over time, terms of trade will also remain fairly stable. This will foster more equilibrated current account transactions and trade, reducing the need for nominal exchange rate adjustments.

g. Fiscal integration. Countries sharing a supranational fiscal transfer system to redistribute funds to a member country affected by an adverse asymmetric shock would also be facilitated in the adjustment to such shocks and might require less nominal exchange rate adjustments (Kenen (1969). However, this would require an advanced degree of political integration and willingness to undertake such risk-sharing.

h. Political integration. The political will to integrate is regarded by some as among the most important condition for sharing a single currency (Mintz (1970). Political will fosters compliance with joint commitments, sustains cooperation on various economic policies, and encourages more institutional linkages. Haberler (1970) stresses that a similarity of policy attitudes among partner countries is relevant in turning a group of countries into a successful currency area. Tower and Willett (1976) add that for a successful OCA, policy-makers need to trade-off between objectives.

Weaknesses and limitations of the OCA theory

After the “early OCA theory” was completely mapped out, several weaknesses and limitations started emerging. Others emerged over time and are decades apart. We list them here for presentational convenience.

- a. Robson (1987) notes how several OCA properties are difficult to measure unambiguously.
- b. OCA properties are also difficult to evaluate against each other: i.e. the OCA theory as a whole lacked a unifying framework. One could still end up drawing different borders for a currency area by referring to different OCA properties. Tavlas (1994) calls this the “*problem of inconclusiveness*”, as OCA properties may point in different directions: for example, a country might be quite open in terms of reciprocal trade with a group of partner countries indicating that a fixed exchange rate regime is preferable, or even monetary integration, with its main trading partners. However, the same country might display a low mobility of factors of production, including labour, vis-à-vis these trading partners, suggesting instead that a flexible exchange rate arrangement might be desirable.
- c. Tavlas (1994) also observes that there can be a “*problem of inconsistency*”. For example, small economies, which are generally more open, should preferably adopt a fixed exchange rate, or even integrate monetarily, with their main partners following the openness property. However, the same small economies are more likely to be less differentiated in production than larger ones. In this case they would be better candidates for flexible exchange rates according to the diversification in production property. Conversely, McKinnon (1969) notes that more differentiated economies are generally larger and have smaller trade sectors.
- d. After the seminal contributions on the diverse OCA properties, the analytical framework behind the OCA theory started weakening (see next sub-section): all its main tenets were called into question by new theoretical and empirical advancements. Tavlas (1993) notes that from the mid-1970s until the mid-1980s “the subject [OCA theory] was for years consigned to intellectual limbo”. Economists and policy-makers looking at the OCA theory could not find clear answers to the question as to whether Europe should proceed towards complete monetary integration, and which countries would be fit to join.
- e. The “One Market, One Money” report by Emerson et al. (1992) points out that “there is no ready-to-use theory for assessing the costs and benefits of economic and monetary union”. The OCA theory has, in their view, provided important early insights but offers only a narrow and outdated analytical framework to define the optimum economic and monetary competencies of a given “area” such as the EU: i.e., it is unable to tell which countries should share a single currency. The latter EMU question is more complex than the OCA question.
- f. Studies investigating OCA properties are by necessity backward-looking. They cannot reflect a change in policy preferences, or a switch in policy regime such as monetary unification. Instead, in the second half of the 1990s, several authors started raising the issue of the endogenous effects of monetary integration: i.e., whether sharing a single currency may set in motion forces bringing countries closer together. This is the “endogeneity of OCA” that is discussed in Section 2.5, but also the “exogeneity of OCA” in Section 3.5. The intuition is that a single currency sets in motion some virtuous processes increasing the integration of euro area countries over time, thereby improving the rating of one or more OCA properties.
- g. While most OCA studies are applied to sovereign countries, OCAs may not correspond to national frontiers. Due to non-homogeneities within countries the analysis among groups of countries is not always informative (see Ishiyama (1975) and Alesina, Barro and Tenreyro

(2002) for a more recent discussion). In fact, several OCA properties have also been investigated at the intra-national level, i.e. “regions” within sovereign countries: e.g. the US States, German Länders, Spanish provinces or Italian regions (see Obstfeld and Peri (1998)) and Boldrin and Canova (2001). Such “regions” lack the nominal devaluation option that is a privilege of sovereign countries and have to rely on other adjustment mechanisms.

h. The discussion of the benefits and costs from sharing a single currency by many authors was incomplete at best, and quite vague and hazy at worst. This is a subject with ill-defined contours and boundaries which is perplexing given that after all countries share sovereignty over a single currency and monetary policy in expectation of positive net benefits. We shall mention some of the exceptions later in the essay.

i. With hindsight the early OCA theory could not have predicted the growing importance of services in post-industrialised economies. The services sector is by its nature more diversified, diffused and fragmented. This renders European economies more similar than just looking at their manufacturing sectors.

j. With hindsight the early OCA theory could also not have predicted the pervasive role of institutions in hindering product and labour market flexibility and mobility. We argue later in the paper that it is other institutions that help addressing the areas of weakness of EMU.

k. Perhaps the most important weakness of the "early OCA theory" was the crumbling of its conceptual framework, thus eroding the foundation of the whole edifice (see Box 2.2).

These weaknesses and limitations hampered the normative appeal of the OCA theory for quite some time. At the same time interest in European monetary integration subsided in the 1970s (after the demise of the Bretton Woods arrangement) and re-emerged only in the mid 1980s.

Box 2.2. The long-run ineffectiveness of monetary policy

The "early OCA theory" was embedded in a Keynesian stabilisation framework and the belief that, at least in the short run, monetary policy is an effective policy instrument which could facilitate the adjustment of relative wages and prices in the wake of some types of idiosyncratic shocks: i.e. it could help to undertake business cycle stabilisation. This would provide a less costly adjustment than having to endure some unemployment to facilitate a real adjustment. Buiter (1999) calls the argument that monetary and also fiscal policy could successfully manipulate aggregate demand to offset private sector shocks the “fine-tuning fallacy”. The rational expectations revolution that started in the 1970s, the monetarist critique, and the literature on the inflation bias postulating the long-run ineffectiveness of monetary policy, helped to change this perception. See Kydland and Prescott (1977), Calvo (1978), and Barro and Gordon (1983).

The monetarist critique of the short-term constant Phillips curve, underlying some of the early OCA theory, observes that labour negotiates in terms of real wages rather than nominal wages. Correspondingly, the curve needs to be augmented by expected inflation, and perfectly anticipated policy changes could exert no impact upon real variables (McCallum (1989)). The Phillips Curve was then displaced by the natural rate of unemployment (NRU). Policy-makers have principally a choice of a rate of inflation rather than of a level of desired unemployment and economic activity. Hence, from this standpoint, the cost of losing direct control over national monetary policy to undertake business-cycle stabilisation is modest.

Calvo and Reinhart (2002) raise the issue that to the extent that monetary policy is not properly used as a stabilisation device, the loss of monetary independence is not a substantial cost. Emerson et al. (1992) and several other authors demonstrate that, also in the long run, relatively higher inflation does not yield any macroeconomic benefits in terms of unemployment or growth.

On the contrary, higher inflation is associated with higher unemployment and relatively lower levels of real per capita income. Unanticipated inflation has even stronger adverse economic effects than anticipated inflation through several channels (see Issing, Gaspar, Angeloni and Tristani (2001), and ECB (2001a).

This reassessment has several normative implications. All in all the costs of losing direct control over national monetary policy seem rather low (but subject to the above qualifications vis-à-vis inflation rates within a very narrow and low range). For a country with a track record of relatively higher inflation and a reputation for breaking low inflation promises, a way to immediately gain low inflation credibility is to ‘tie its hands’ by forsaking national monetary sovereignty and establishing a complete monetary union with a low inflation country (Giavazzi and Giovannini (1989)). An important prerequisite is that such an anchor country exists in the envisaged monetary union (Goodhart (1989)) and will not alter its commitment to monetary discipline after establishing monetary union. Hence, similarity of inflation rate could be a feasible outcome of participating in a monetary union but is not a necessary precondition (Gandolfo (1992)). The implication is that the borders of monetary unions could be enlarged provided that a firm “nominal anchor” exists from which other partner countries could borrow “anti-inflation” credibility.

Operationalising the OCA theory and some “meta” OCA properties

When interest in European monetary integration resurfaced, there were also advancements in econometric techniques to sustain empirical studies of the diverse OCA properties. These studies sought to assess why specific groups of countries may form an OCA by analysing and comparing a variety of OCA properties by means of several econometric techniques. Thus they aimed to *operationalise the OCA theory*. We shall refer to several empirical studies of the OCA properties – and also on the effects of the euro – in the next sections. A common denominator across these empirical studies is that their analysis goes deep into the features of the economy, as well as the institutions of each country and the preferences of economic agents (see Mongelli (2005)). Therefore, the assessment of OCA properties has now become more articulated.

Some “meta” OCA properties were put forward in the 1990s. The similarity of shocks and of policy responses to those shocks is almost a “catch all” OCA property capturing the interaction between several properties (see Bayoumi and Eichengreen (1996), Masson and Taylor (1993) and Alesina, Barro and Tenreyro (2002)). The intuition is that if the incidence of supply and demand shocks and the speed with which the economy adjusts – taking into consideration also the policy responses – are similar across partner countries, then the need for policy autonomy is reduced and the cost of losing direct control over the nominal exchange rate falls. Hence, countries exhibiting large co-movements of outputs and prices have the lowest costs of abandoning monetary independence vis-à-vis their partners. For a comprehensive recent study see Demertzis, Hughes and Rummel (2000). These studies also drew some criticism (Tavlas (1994) notes that their results are ambiguous and often conflictive, and there is no concurrence on the theoretical underpinning of the tests).

Another important “meta” OCA property is provided by studies looking at the monetary transmission mechanism (MTM) that can tell us something about the similarity in financial structures. In recent years, several new studies have emerged: see Angeloni, Kashyap, Mojon and Terlizzese (2001). Such studies analyse and compare, inter alia, the financial structures of countries. They show that European countries display significant differences in terms of interest sensitivity of spending, maturity structure of debt, net-worth of firms and household sectors, the legal structure, contract enforcement costs, the bank lending channel and the alternatives to bank financing. Such differences are likely to diminish only gradually over time (see Angeloni and Ehrmann (2003)).

From the endogeneity of OCA to endogeneities of OCA

The hypothesis of an “endogeneity of OCA” permitted a leap forward for the OCA theory. By studying the effects of several monetary unions that occurred in the past, Andrew Rose and Jeffrey Frankel (see Rose (2000 and 2004) and Frankel and Rose (1997 and 2001)) showed that monetary integration leads to a very significant deepening of reciprocal trade. The implication for EMU is that the euro area may turn into an OCA after the launch of monetary union even if it were not an OCA before, or “*countries which join EMU, no matter what their motivation may be, may satisfy OCA properties ex post even if they do not ex ante!*” (Frankel and Rose 1997). Consequently, the borders of new currency unions could be drawn larger in the expectation that trade integration and income correlation will increase once a currency union is created. This has been termed the “endogeneity of OCA”, and it completely turned around the perspective on the OCA theory.¹

What might be so special about monetary unions? With a single currency some pecuniary costs disappear or decline. For example, the introduction of the euro is helping, *inter alia*, to reduce trading costs both directly and indirectly: e.g. by removing exchange rate risks and the cost of currency hedging. Information costs will be reduced as well. The euro is also expected to have a catalysing role for the Single Market Program by enhancing price transparency and discouraging price discrimination. This should help reducing market segmentation and foster competition. A single currency is more efficient than multiple currencies in performing the roles of medium of exchange and unit of account. It can also promote convergence in social conventions with potentially far reaching legal, contractual and accounting implications (Garcia-Herrero et al. (2001)). *These are principally market-based forces.*

But there is more. A common currency among partner countries is seen as “a much more serious and durable commitment” (McCallum (1995)). It precludes future competitive devaluations, facilitates foreign direct investment and the building of long-term relationships, and might over time encourage forms of political integration. This will promote reciprocal trade (productivity shocks might also spill over via trade), economic and financial integration and even foster business cycle synchronisation among the countries sharing a single currency. It also reveals the willingness to commit over time to even broader economic integration “on issues of property rights, non-tariff trade barriers, labour policy, etc.” (Engel and Rogers (2004)). This might in turn boost progress in several OCA properties.

There is a possibility that there might be other sources of “endogeneities of OCA”. Several authors have in fact brought forward concepts similar to the above hypothesis of “endogeneity of OCA” but in areas other than trade. De Grauwe and Mongelli (2005) examine three other sources of endogeneities of OCA and review some similar concepts:

- the endogeneity of financial integration or equivalently of insurance schemes provided by capital markets (see Baele et al. (2004) and Adjaute and Danthine (2003)). For example, Kalemli-Ozcan, Sørensen, Yosha (2003) and other authors have discussed the effects of sharing a single currency on financially-based insurance schemes;
- the endogeneity of symmetry of shocks and (similarly) synchronisation of outputs (see Artis and Zhang (1999), Melitz (2004) and Firdmuc (2003)); and

¹ The endogeneity emerges from two main channels. The first is that the degree of openness – i.e. reciprocal trade between the members of the currency area – is likely to increase after a single currency is launched. This insight is widely accepted. The second channel postulates a positive link between trade integration and income correlation. On this insight there are instead diverging views: i.e. some think that monetary unification would instead spur specialisation and asymmetry of shocks (see Bayoumi and Eichengreen (1996)). Mongelli (2005) illustrates the implications of both views.

- the endogeneity of product and labour market flexibility (see Bertola and Boeri (2004)). For example, Blanchard and Wolfers (2000), Saint Paul and Bentolila (2002), and Saint-Paul (2002) discuss the endogeneity of labour market institutions.

A common thread among these sources of endogeneity of OCA is that monetary integration represents a removal of “borders” (very broadly intended to include also national monies) that contributes to the narrowing of distances and a change in the incentive structure of agents. In any case, this analysis is still relatively new.

Some (final) remarks on the OCA theory

About 50 years have passed since the founding of the OCA theory. Its basic pioneering intuitions were remarkably strong. In fact, we still discuss all OCA properties. However, over recent decades the OCA theory has witnessed several ups and downs. Between the early 60s and mid-1970s, the early OCA theory had been completely mapped out. Several weaknesses and limitations of the analytical framework behind the OCA theory then started to emerge and the theory fell in neglect from the mid-1970s to the mid 1980s. It was difficult to find clear normative implications for the European monetary integration process and the stabilisation framework underlying it started crumbling.

In the second half of the 1980s, the OCA theory missed an important appointment (as the discussion in the next section more clearly illustrates). When monetary integration made the formidable leap forward that ultimately led to the 1988 Delors Report and the 1992 Maastricht Treaty, the OCA theory could not deliver a clear view (Emerson et al. (1992)). In the event, plans for economic and monetary integration along three stages of EMU (with the launch of the euro in 1999) went ahead but the OCA theory had a limited direct input.

In subsequent years, several of the weaknesses and limitations of the OCA theory were addressed. Some significant advancement in econometrics made it possible to “operationalise” several OCA properties and study the transmission of shocks as well as other features of the economy. As a result of this whole reassessment, the balance of judgements shifted in favour of monetary unions. Association to a currency union is now deemed to generate fewer costs in terms of the loss of autonomy of domestic macroeconomic policies. There is now also more emphasis on the benefits of currency areas. A “new OCA theory” starts emerging vis-à-vis the old OCA theory (Tavlas (1993)).

The literature on the endogeneity of the OCA reinvigorated the debate on the OCA theory. There is, by now, compelling empirical evidence that removing “borders” broadly intended as impediments to trade, but also financial flows, as well as sharing a single currency, are a powerful magnet for deeper economic and financial integration. Such endogeneity could also result from deeper financial integration and risk-sharing, increased symmetry of shocks and similarly output synchronisation, and an increased pace of product and labour market reforms to enhance flexibility. Correspondingly, the borders of new currency unions could be drawn larger in the expectation that trade integration and income correlation will augment once a currency union is created. On the other hand, could any set of partner countries form a currency union and just wait for the deeper integration to occur almost automatically and thereby inevitably reap net benefits from a single currency? Could there instead be a critical lower threshold in the mix of OCA properties beyond which the “endogeneity of OCA” types of effects could manifest themselves? Ultimately this is an empirical question.

Over and beyond its many weaknesses and limitations, we think that the OCA theory has great merits as an organising device over all these years and as a catalyst of analysis. Without the OCA theory there may not have been such a systematic scrutiny of so many economic features, which are after all the building bricks of monetary unions. Going back to the analogy

of EMU with a laboratory: this OCA patient has survived but it has been radically transformed over recent decades.

“Policy-makers rushed to negotiate a detailed agreement [the Maastricht Treaty], having no time for detailed economic analysis” Charles Wyplosz (2006)

3. Monetary integration in Europe

Monetary integration in Europe is part of a broader integration process fostering also economic and financial integration (i.e., EMU). We emphasise here the monetary aspects of this process. However, we also make some references to other aspects of EMU. This section is structured as follows. We start by tracing some of the steps leading to monetary cooperation, then the EMS, to EMU, and then the launch of the euro. After presenting an index of institutional integration we discuss the role of the OCA theory in shaping the convergence criteria and the design of EMU governance. We then turn to the institutional forces fostering the OCA properties: i.e., the “exogeneity of OCA”.

Monetary integration steps (1): from Bretton Woods to the end of the EMS

The first formal steps of European monetary integration go almost as far back in time as the OCA theory (see Table 3.1). In October 1962 the Commission issued a memorandum – known as the *Marjolin Memorandum* – that can be considered as the official starting point of monetary integration in Europe.² The memorandum kicked off the discussion on a common currency and prompted several measures in the field of monetary cooperation. The exchange rates of the members of the European Economic Community (EEC) were never directly fixed, although they were all pegged to the US Dollar. At the time exchange rate stability was still secured by the Bretton Woods Arrangement, and there was no urgent need for a new institutional arrangements among European currencies. Under the provisions of the memorandum, a Committee of Governors (CoG) of the national central banks of the EEC was established in 1964 and started meeting in Basel. Over the years the Committee gradually gained in importance as it started developing, and managing, an institutional framework for monetary cooperation. It was this committee that prepared the first draft of the Statute of the ECB in 1990.

One aspect that we can only briefly mention here is that EMU represents also a reconciliation of very different paradigms for European integration, and monetary integration in particular (see Box 3.1).

Box 3.1. The Franco-German EMU controversies: “monetarists” versus “economists”

Maes (2003 and 2007) notes that EMU represents, amongst others, the culmination of a process of reconciliation and understanding among different views about economic policy-making, the function of sovereign states, and (ultimately) monetary integration.³ Different “ideas” and meta-cultural beliefs played an important role in the in the process of integration. The differences among the “tradition republicaine” and centralisation of power prevailing in France,

² However, European monetary integration had been mentioned by others before. In 1929 Gustav Stresemann put forward a proposal for a European currency in the League of Nations. Such a currency should have helped to reduce the economic division following the creation of several new nation states after WWI.

³ See also Wyplosz (2007), European Commission (1991), Begg et al (1991), Bini-Smaghi, Padoa-Schioppa and Papadia (1993), Kenen (1995), Baldwin et al (2001), and Baldwin et al (2004).

and the “ordo-liberalism” and federalist approach prevailing in Germany are among the most significant in shaping integration.

The “*monetarists*” field, championed by France, was in favour of plans for greater exchange rate stability and exchange rate support mechanisms. Monetary integration could have a driving role in the convergence process. Later on in the last 1980s a tenet of the “monetarists” field was that nominal convergence was not indispensable as EMU represents a change in policy regimes. The credibility of the new common central bank (i.e., the ECB) will shape future expectations while past expectations become irrelevant. Such a bank can secure low inflation in all countries, even in those with a track record of higher inflation. The emphasis is then on institution building, while disinflation processes could otherwise be lengthy and costly.

The “*economists*” field, championed by Germany, emphasised instead the coordination of economic policies and advocated a long convergence process to favour an alignment of monetary policies. Hence, the convergence of economic performances is a precondition for EMU. An implication is that a small group of stability-oriented countries could then have proceeded towards monetary integration but at a date to be set. This approach intends to minimise the risks of negative spill-over from high inflation countries sharing a single currency. With an emphasis on stability and convergence, the economist field goal of monetary integration is also referred as the “*coronation theory*”.

By the end of the 1960s, the international environment changed due to persistent current account deficits of the US (the anchor country of the Bretton Woods System) and the emergence of widespread inflationary pressures that were then exacerbated by the first oil-shock. The Bretton Woods System collapsed in August 1971 and the members of the EEC pursued different economic policies that in turn led to exchange rate tensions among them and even threatened to disrupt the customs union and the common agricultural market. In 1969 the Heads of State or Government requested a plan for the realisation of an economic and monetary union. The result was the *Werner Report* published in 1970, and that proposed to achieve economic and monetary union in several stages by 1980.⁴ While the final goal of monetary union was never achieved, as the report turned out to be too advanced for the level of economic and financial integration prevailing at the time, some of its elements could still be implemented. In 1972, after the demise of the Bretton Woods system, the “*currency snake*”, an exchange rate arrangement for European countries, was created.⁵

⁴ The Werner Report (1970) prescribed three main elements for monetary union: **a.** "Within the area of a monetary union, currencies must be fully and irreversibly convertible, fluctuation margins around exchange rates must be eliminated, par values irrevocably fixed, and capital movements completely free." **b.** "It is of primary importance that the main decisions regarding monetary policy be centralized, whether such decisions concern liquidity, interest rates, intervention on the exchange markets, management of reserves, or the fixing of currency parities vis-à-vis the rest of the world." and **c.** "Under such a system, national currencies could be maintained, or a single Community currency could be created. [...], but psychological and political factors weigh the scale in favour of adopting a single currency that would demonstrate the irreversible nature of the undertaking."

⁵ Several EEC countries agreed to prevent exchange rate fluctuations of more than 2.25%. De facto in the late 1970s only the Deutsch Mark, the Benelux currencies and the Danish Krona were still members of the snake. The Pound Sterling, the Irish Pound, the French Franc, and the Italian Lira all entered and exited after shorter time periods.

Table 3.1. Monetary integration steps⁶

1958	Establishment of the Monetary Committee
1962	A proposal for economic and monetary union among the members of the European Economic Community (EEC) is first floated in the <i>Marjolin Memorandum</i> .
1964	A Committee of Governors of the central banks of the Member States of the EEC is formed to institutionalise the cooperation among EEC central banks.
1970	The Werner Report sets out a plan to realise an economic and monetary union in the Community by 1980.
1972	A system (the “snake”) for the progressive narrowing of the margins of fluctuation between the currencies of the Member States of the EEC is established.
1973	The European Monetary Cooperation Fund (EMCF) is set up to ensure the proper operation of the snake.
1974	the ECOFIN Council adopted a Decision to foster the convergence of economic policies and a Directive on stability, growth and full employment.
1979	The European Monetary System (EMS) is created.
1987	Strengthening of the EMS through the Basle-Nyborg Agreement.
1988	The European Council mandates a committee of experts under the chairmanship of Jacques Delors (the “Delors Committee”) to make proposals for the realisation of EMU.
1989	The “Delors Report” is submitted to the European Council.
1989	The European Council agrees on the realisation of EMU in three stages.
1990	Completion of “One Money, One Market” evaluation that had been commissioned in 1988 as an input for the Delors Report.
1990	Stage One of EMU begins in July.
1990	An Intergovernmental Conference to prepare for Stages Two and Three of EMU is launched.
1992	The Treaty on European Union (the “Maastricht Treaty”) is signed in February.
1993	The Treaty on European Union enters into force.
1994	Stage Two of EMU begins and the EMI is established.
1997	The European Council in June agrees on the Stability and Growth Pact.
1998	In May Belgium, Germany, Spain, France, Ireland, Italy, Luxembourg, the Netherlands, Austria, Portugal and Finland are considered to fulfil the necessary conditions for the adoption of the euro as their single currency; the Members of the Executive Board of the ECB are appointed.
1998	The ECB and the ESCB are established in June.
1998	In October the ECB announces the strategy and the operational framework for the single monetary policy it will conduct from 1 January 1999.
1999	In January Stage Three of EMU begins; the euro is launched; conversion rates are fixed irrevocably; a single monetary policy is established for the euro area.
2001	Greece joins the euro area.
2002	The euro cash changeover: euro banknotes and coins are introduced and become sole legal tender in the euro area by the end of February 2002.
2004	In May the national central banks (NCBs) of the ten new EU Member States join the ESCB.
2007	Slovenia joins the euro area.
2008	Cyprus and Malta join the euro area, and Bulgaria and Rumania join the EU and ESCB.

In March 1979 the process of monetary integration was revamped with the founding of the European Monetary System (EMS) whose principal aim was to reduce the disruptive impact of sizeable exchange rate devaluations and regulate changes in parities. The basic elements of the EMS were: the definition of the *European currency unit* (or ECU) as a basket of currencies; and an *Exchange Rate Mechanism* (ERM) based on the concept of fixed currency exchange rate margins, but with variable exchange rates within those margins (see Giavazzi and Giovannini (1995), De Grauwe (2005), and Baldwin and Wyplosz (2005)).

⁶ See EU Commission website, Scheller (2004), and Deutsche Bundesbank (2005).

Exchange rates were based on the ECU, whose value was determined as a weighted average of the participating currencies. A parity grid of bilateral rates was calculated on the basis of these central rates expressed in ECUs, and currency fluctuations had to be contained within a margin of 2.25% on either side of the bilateral rates.

Officially no currency was designated as an *anchor*. However, the Deutsche Mark and the Bundesbank were unquestionably the centre of the EMS: all other currencies followed its lead. Monetary cooperation became closer, and links between NCBs were strengthened. Internal and external monetary stability became important goals. Domestic economic policies were instrumental in achieving exchange rate stability. Countries with relatively high inflation found it easier to pursue disinflation policies. This fostered a downward convergence of inflation rates, reduced excessive exchange rate volatility, and promoted trade and an improvement in overall economic performance. Capital controls were gradually relaxed. However, the lack of fiscal convergence remained a source of tension as some countries ran persistently large budget deficits.

The EMS lasted from 1979 until the launch of the euro in 1999. During these two decades it went through four main phases and several periods of turbulence. 1979-85 represented the *first phase of the EMS* and some countries still maintained capital controls in place and exhibited significant inflation differentials. With fixed nominal exchange rates this resulted in continued misalignments that required frequent adjustment of the official parities. Full nominal convergence had not been established yet. Differentials in budget deficits and public debt were also substantial. The adjustment of official parities often occurred in the wake of financial market turmoil, which periodically brought up questions about the sustainability of the ERM. All in all, during this first phase, there were nine adjustments involving several currencies at the same time (see Baldwin and Wyplosz (2004)).

The *second phase of the EMS* spanned from 1986 to September 1992. Several EMS members, but not all, managed to bring down their inflation rates towards German inflation rates. In this phase the EMS is described by many as a “Deutsche Mark Area” as the monetary policies of all members (except Germany) were *de facto* surrendered: i.e. the Deutsche Mark was effectively the anchor of the EMS. Between early 1986 and January 1987 there were three more adjustments, and then until September 1992 there were no realignments (with the exception of an adjustment of the central parity of the Italian lira). Capital controls were being dismantled and were officially banned as of July 1990. Owing to the impossible trinity proposition (see Box 3.2) all central banks participating in the ERM had *de facto* renounced an independent monetary policy.

This second phase of the EMS bore several fruits from the standpoint of further integration. An opportunity for setting a course towards economic and monetary union opened up after the adoption of the Single European Act in 1986 (that introduced the Single Market as a further objective of the Community). Jacques Delors, President of the Commission, set up a committee to study the feasibility of a monetary union. The resulting report of the Delors Committee was approved in Madrid in 1989. The completion of the Delors Report was accelerated at the time of the break-up of the former Soviet Union and the looming German reunification, i.e. a unique window of opportunity had just opened up. It laid out the blueprint of the Maastricht Treaty that was signed in February 1992. A three-stage process leading to the single currency and on designing the corresponding institutions was completely mapped out at the end of the decade.

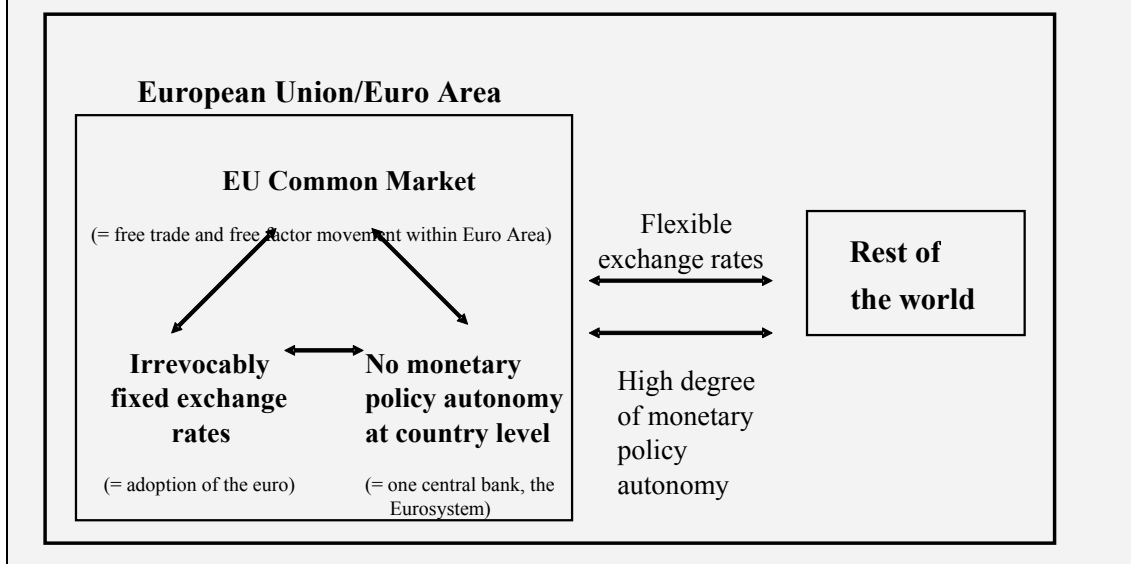
In 1990 a group of economists led by Michael Emerson finalised “*One Money, One Market: An Evaluation of the Potential Benefits and Costs of Forming an Economic and Monetary Union*”. This evaluation had been commissioned in 1988 as an input for the Delors Report. Wyplosz (2006) observed that while “*One Money, One Market*” was completed too late to provide an academic input into the blueprint of the Maastricht Treaty, it drew

researchers back into the study of monetary integration and forestalled a spectacular comeback of the OCA theory.

Box 3.2 The “impossible trinity”

The “impossible trinity” refers to the fact that three desiderata of governments – i.e. free trade and capital mobility, monetary policy autonomy, and fixed exchange rates – cannot be reconciled. Governments must choose. With open markets – i.e. with free trade and free movement of capital – free-floating of the exchange rate is a necessary condition to secure some monetary autonomy (at least in the short run). Conversely, abdicating monetary policy autonomy is necessary to maintain fixed exchange rates (see Padoa-Schioppa (1988 and 1990)). Following Dorrucci (2004), the European way to solve the impossible trinity has entailed a lengthy process that over the last 40-50 years has led to a Common Market for the EU, irrevocably fixed exchange rates for euro area countries, and correspondingly no monetary policy autonomy at the national levels for the countries that have adopted the euro as illustrated in Figure 3.1. At the same time the euro area countries’ exchange rates can fluctuate vis-à-vis the rest of the world.

Figure 3.1. The European way to solve the “impossible trinity”



The *third phase of the EMS*, from September 1992 until March 1993, is marked by the most severe crisis of the whole EMS arrangement. Some countries, which were unable to reduce inflation, gradually overvalued (albeit at a slower pace than in the past). There were several concurring adverse events. Misalignments kept growing, albeit at a slower pace, because inflation differentials, despite their decline, were still significant for some countries. The tight monetary policy pursued by the Bundesbank following reunification and the shock of the Danish electorate voting against the Maastricht Treaty alarmed the exchange markets and prompted speculative attacks on the overvalued currencies. Such attacks were in fact one way bets: the speculations could either win (if the parities were indefensible) or lose nothing. Speculative attacks almost destroyed the EMS in the period between September 1992 and March 1993. The UK and Italy were forced to leave the ERM (Italy then rejoined in 1996) and the fluctuation margins were widened to +/- 15% in March 1993. This implied the end of a tight ERM.

The *fourth phase of the EMS* runs until the launch of the euro, allowing the principle of fixed exchange rates, although much weakened, to be kept alive. The European Monetary

System ceased to function in its original form when 11 EU countries irrevocably fixed their exchange rates in preparation to adopt the euro. The successor of the original arrangement was ERM II, launched on 1 January 1999. In it, the ECU basket is discarded and the euro becomes an anchor for other participating currencies.

Several lessons were learned from the two decades with the EMS. Experience showed that keeping separate currencies with fixed exchange rates among them and full capital mobility leads to tensions: it is unsustainable if monetary authorities intend to pursue different goals and inflation rates still differ. A “corner solution”, such as monetary union, is seen as a solution to this dilemma.

The original intention of the Delors Report was to present the path to monetary union as a natural follow-up of the Single European Act. Fixed exchange rates and full capital mobility prevent an independent monetary policy that represents the impossible trinity principle. Hence, the Delors Report also had a defensive purpose: that exchange rate stability enhances trade while exchange rate volatility and misalignments harm trade; and that even tightly pegged exchange rates cannot impose sufficient discipline on monetary policy. Even a strengthened ERM would not be sufficient.

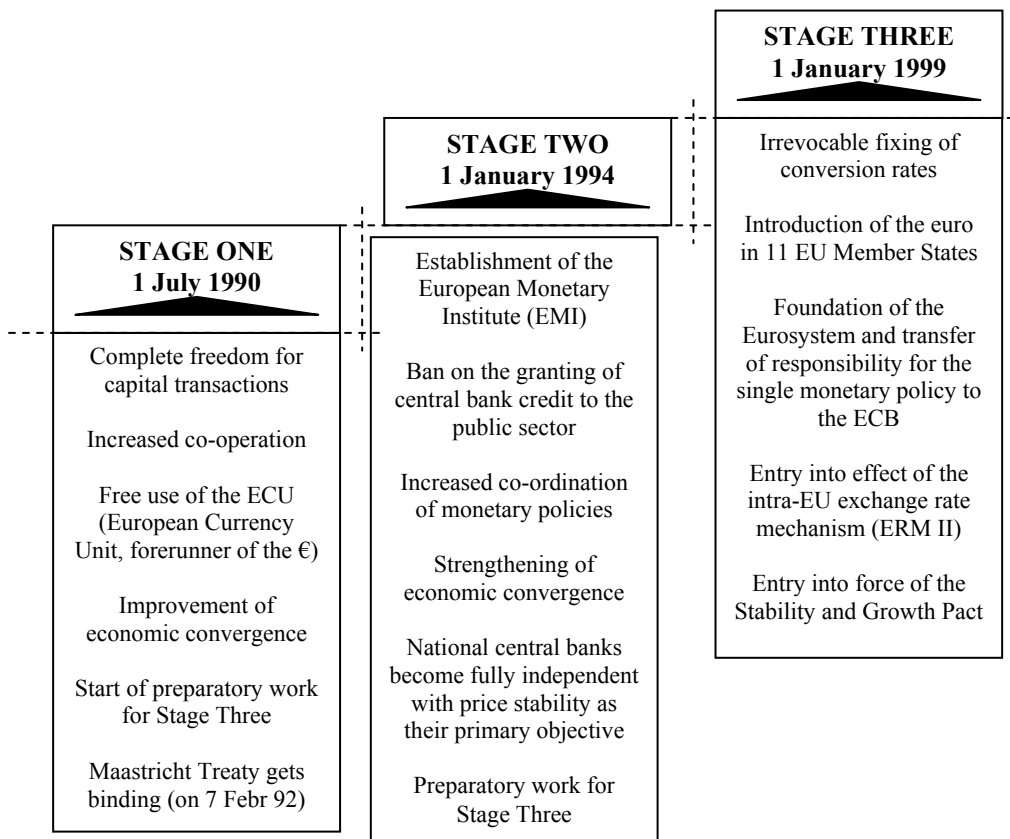
A widely held view was that the Single Market was not expected to be able to exploit its full potential without a single currency. A single currency would ensure greater price transparency for consumers and investors, eliminate exchange rate risks, reduce transaction costs and, as a result, significantly increase economic welfare in the Community. During most of the EMS all countries, except the anchor country, have de facto lost control over monetary policy. Instead a new currency and a common central bank would allow all European countries to share influence over monetary policy decisions. The German government agreed to this plan largely on political grounds.

Monetary integration steps (2): the path to EMU and the euro

Taking all these lessons into consideration, the 12 Member States of the European Economic Community (at the time) decided to relaunch the EMU project. A fresh impulse came when the nature of monetary cooperation in Europe switched to mild forms of coordination of monetary policies. In June 1988 the European Council appointed a Committee chaired by Jacques Delors to propose concrete steps leading to economic and monetary union. The Delors Report then formed the blueprint for the Maastricht Treaty that laid out a timetable along three stages (see Figure 3.1) and the key elements for the Eurosystem.

The **first stage of EMU** coincided with the complete liberalisation of capital movements in Europe. In its blueprint for the ESCB, which took into account the experience of the NCBs and strongly influenced the Maastricht Treaty, the Committee spelled out the main principles for creating a European Central Bank. Member States could only participate in the union if they could show a high degree of lasting convergence confirmed by the fulfilment of four economic criteria (inflation, long-term interest rates, fiscal debt and deficit, and exchange rates). The “Delors Report” also advocated an independent central bank with the primary objective of price stability. Relevant provisions were later included in the Maastricht Treaty. The Eurosystem’s institutional framework for monetary policy took into account the main elements of the existing frameworks of NCBs prior to its establishment, and aimed at implementing best practice.

Figure 3.1. The three stages of Economic and Monetary Union



Source: Adapted from ECB website.

The establishment of the EMI in early 1994 as a transitional institution marked the start of the **second stage of EMU**. Responsibility for the conduct of monetary policy in the EU remained the preserve of the national authorities. The two main tasks of the EMI were (a) to strengthen central bank cooperation and monetary policy coordination (including the assessment of progress in the fields of economic and legal convergence); and (b) to make the preparations required for the establishment of the ESCB, for the conduct of the single monetary policy and for the creation of a single currency in the third stage. At the same time, the blueprint for the Eurosystem also required the EMI to carry out preparatory work on the regulatory, organisational and logistical framework necessary for the ESCB, and on the future monetary and exchange rate relationships between the euro area and other EU countries (see EMI (1995)), including: a. the definition of the concepts and framework for conducting the single monetary policy and the preparation of the ESCB's operational rules and procedures; b. the implementation of a single foreign exchange policy; c. the promotion of efficient cross-border payments; d. the collection and harmonisation, where necessary, of reliable and timely statistics to support the conduct of monetary policy; e. the supervision of the technical planning of the printing and issuing of a European banknote; and f. the harmonisation of accounting rules and standards of the NCBs and the setting-up of an adequate information systems architecture for the ESCB. The EMI Council agreed on a master plan as a guiding instrument to organise, monitor and assess the related activities by various areas involving experts from the EMI and the NCBs.

On 1 January 1999 the **third and final stage of EMU** started with the introduction of the euro in 11 EU Member States, the establishment of the Eurosystem, and the transfer of responsibility for the conduct of monetary policy to the ECB. At the same time, the intra-EU exchange rate mechanism (ERM II) and the Stability and Growth Pact came into force.

Monetary integration and the broader process of European integration

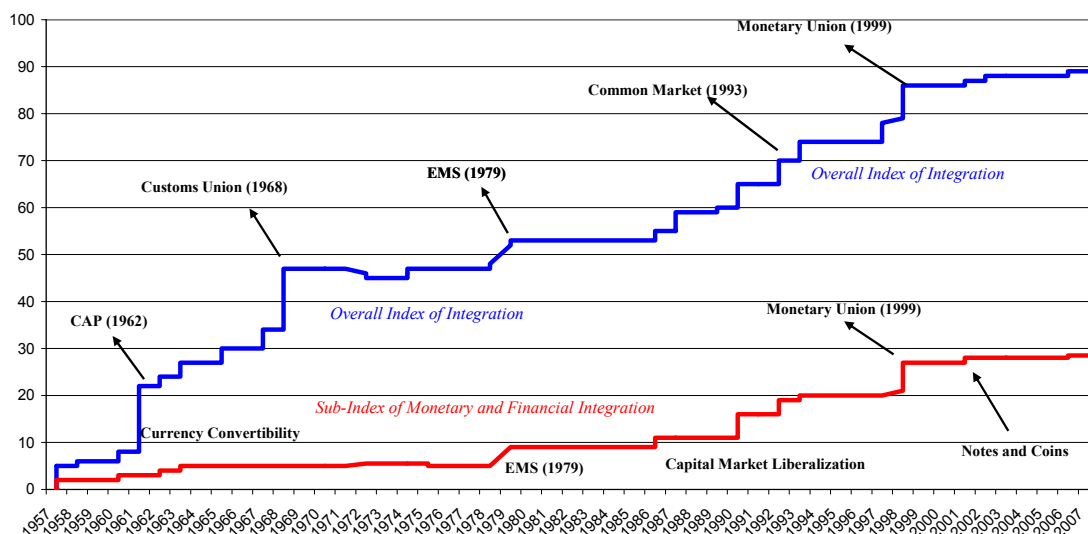
We illustrate here the extent by which monetary integration is part of the broader process of European integration. We do so by means of an index of institutional integration that was first suggested by Balassa (1961). The index identifies five main stages of regional integration, and for convenience we discuss the case of the six founding countries of the European Union (i.e., the EU 6):⁷

- In **Stage 1 the EU 6 formed a Free Trade Area (FTA)**: i.e., an area where tariffs and quotas are abolished for imports from area members, which, however, retain national tariffs and quotas against third countries. Tariffs were actually reduced in three steps starting 1957 and ending 1968;
- In **Stage 2 the EU 6 formed a Customs Union (CU)**: i.e., a free trade area setting up common tariffs and quotas (if any) for trade with non-members. The EU 6 have had a CU since 1968;
- In **Stage 3 the EU 6 formed a Common Market (CM)**: i.e., they abolished non-tariff barriers to trade (i.e., promoting the integration of product and service markets) as well as restrictions on factor movement (i.e., promoting the integration of capital and labour markets). This was the case for the European Community since 1993 (with the launch of the European Single Market). In any case, the CM was already one of the objectives of the Treaty of Rome (i.e., the so-called “four freedoms”, although capital market integration remained low for a long time);
- In **Stage 4 the EU 6 formed an Economic Union (EUN)**: i.e., a common market with a significant degree of co-ordination of national economic policies and/or harmonisation of relevant domestic laws. This is the case for the European Union nowadays; and
- In **Stage 5 the EU 6 pursued Total Economic Integration (TEI)**: i.e., an economic union with all relevant economic policies conducted at the supranational level, in compliance with the principle of subsidiarity. An example of TEI is the euro area with a single monetary policy, which can be currently classified somewhere between a EUN and a TEI. However, some supranational authorities and joint rule making were established already with the Treaty of Rome in 1957, and subsequently enhanced.

Our index is built by assigning “scores” to the level of integration recorded for each of these five stages. In particular, scores from 0 to 25 are assigned to the degree of regional integration achieved over time in the development of, respectively, a Free Trade Area/Customs Union (FTA/CU, considered jointly), a Common Market (CM), an Economic Union (EUN), and an area with Total Economic Integration (TEI). By summing up the scores achieved in each moment in time, an index of institutional regional integration is obtained which can range between 0 (no economic integration at all) and 100 (full economic integration, including monetary and financial integration). The figure below illustrates the evolution of the whole index as well as the evolution of the main steps toward monetary and financial integration.

⁷ See Mongelli et al (2007) for a discussion on the successive EU enlargements. Forming a political union goes beyond these five stages. Scores are assigned when a decision started being actually implemented. Some Balassa stages tend to develop in parallel and overlap.

Index of Institutional Integration for the EU-6 (i.e., BE, DE, FR, LU, IT, NL), 1957 - 2007



The figure shows that institutional integration has gone through the following phases: a rapid early growth driven by “real” economic integration, a period of modest increase over the 1970s and part of the 1980s, and a period of surge driven by monetary and financial integration, and finally a period of modest growth again (see Mongelli, Dorrucchi and Agur (2007), and Dorrucchi, Firpo, Fratzscher, and Mongelli (2005) for a discussion). The sub-index of monetary and financial integration grows instead very gradually (with only a partial reintroduction of capital controls during part of the 1970s) until the launch of the EMS, then after a “EMS leap” remains flat for about a decade, until it starts rising in the early 1990s (due to capital market liberalisation), and displays another leap for the completion of EMU. Box 3.3 discusses the interaction of institutional and economic integration.

Box. 3.3 The links between institutional integration and economic integration.

Ascertaining a systematic relation between institutional integration and economic integration is essential for the discussion of the hypothesis of “exogeneity of OCA” discussed below. For this purpose we undertake a simple test of the relation between the index of institutional integration (II) and economic integration that is proxied by trade deepening for which we compile three types of measures. The first measure is based on the ratio of intra-regional trade to GDP as an indicator of trade openness (TO). The second measure is the degree of regional trade integration as the ratio of intra-regional trade to total trade (TI). The third measure is akin to that presented by Frankel and Rose (1997), which looks at real trade deepening using US dollar-denominated bilateral trade data deflated by the USD Chain price index: i.e., this is deflated trade (DT).

When we undertake a Granger Causality Tests we can see that in 56% of the cases institutional integration Granger causes trade deepening, whereas in 26% of the cases trade deepening Granger causes institutional integration. These preliminary results would appear to indicate that the link from institutional integration to trade deepening is stronger than the reverse link. Nevertheless, the reverse link is still substantial. Not surprisingly the results are even more “pronounced” when we only take the first group of acceding countries that joined the EU in 1973: i.e., the UK, Ireland and Denmark. When we look only at these three countries institutional integration Granger causes trade deepening in 89% of the cases, whereas the reverse only holds for 11% of the cases.

Summary of results from Granger-causality tests.

	<i>For all Trade Variables: Trade deepening Granger causes Inst. Integration</i>	<i>Inst. Integration Granger causes Trade deepening (all variables)</i>
Total	26% Yes	56% Yes
Only early joiners DK, UK, IE	11% Yes	89% Yes

We then apply a Vector Error Correction Model (VECM) to further test the links between institutional integration and trade deepening. Both variables are specified as endogenous (see specifics in Mongelli, Dorrucchi and Itai (2007)). This approach also has another important advantage: it is ideally suited to deal with non-stationary, but cointegrated variables. The specification of the VECM is as follows, starting with the cointegrating equation:

$$CE_i = c + \ln(TO_{t-1,i}^{EUj}) - \theta \ln(II_{t-1,i})$$

Here CE stands for the cointegrating equation; c is a constant; and θ is the parameter for Institutional Integration. The above specification for Trade Openness extends also to the two other trade measures, TI and DT. Then the error-correction specification becomes:

$$\Delta \ln(TO_{t,i}^{EUj}) = \alpha + \beta CE_i + \gamma_1 \Delta \ln(TO_{t-1,i}^{EUj}) + K + \gamma_p^* \Delta \ln(TO_{t-p,i}^{EUj}) + \lambda_1 \Delta \ln(II_{t-1,i}^{EUj}) + K + \lambda_p^* \Delta \ln(II_{t-p,i}^{EUj}) + \varepsilon_{t,i}$$

and, equivalently

$$\Delta \ln(II_{t,i}) = \alpha + \beta CE_i + \gamma_1 \Delta \ln(TO_{t-1,i}^{EUj}) + K + \gamma_p^* \Delta \ln(TO_{t-p,i}^{EUj}) + \lambda_1 \Delta \ln(II_{t-1,i}^{EUj}) + K + \lambda_p^* \Delta \ln(II_{t-p,i}^{EUj}) + \varepsilon_{t,i}$$

Here α is the constant term; β is the parameter of adjustment to the long run relationship; γ and λ are the parameters for the lagged terms (up to the optimal lag length p^*) of Trade Openness and Institutional Integration, respectively; and ε is a white noise error term. Again, the same specification extends also to TI and DT. Of particular interest is the parameter β , as it indicates the speed of adjustment to the long-run cointegrating equation.

What we find is that the expected values for β are as follows: for the ΔTO error-correction equation we expect a negative value for β , because as the CE-term $(TO_{t-1,i}^{EUj} - \theta II_{t-1,i})$ increases (i.e. a “positive” deviation), the growth rate of TO should be negative to return to the long-run equilibrium path; for the ΔII error-correction equation we expect the exact opposite, namely a positive value of β , because if the CE-term increases, II should increase over time in order to undo the deviation. What we find is that in most cases the parameters have the expected signs, although there are a few exceptions. For the $\Delta TO/\Delta TI/\Delta DT$ error-correction equations, all estimated β 's have the expected negative sign. However, for the ΔII error-correction equations only about 70% of the estimated β 's have the expected positive sign. The calculated averages for the three trade variables all have the expected signs for the parameter β .

Now concerning the interpretation of the β parameter. Since all variables are in logs, all parameters are comparable as elasticities. In those cases where β has the expected sign, we can state that a larger value of the coefficient implies a more rapid adjustment to the long-run equation. For example, in the case of trade openness a deviation from the long-run path lasts less long than in the case of trade integration, as the average absolute values of the β 's are higher for the trade openness variable. Therefore, we see that the adjustment speed is greater for shocks running from TO, TI or DT than for those running from II, which seems to corroborate earlier evidence. Also, in terms of adjustment speed TO ranks first, followed by TI and DT.

The role of the OCA theory in shaping EMU governance

What influence did the OCA theory have on the design of EMU? As noted above the arguments underlying the Delors Report, which then formed the blueprint for the Maastricht Treaty, are principally aimed at reducing the risk from destabilising exchange rate volatilities and misalignments. There was a defensive purpose as exchange rate volatility and misalignment were deemed costly. A single currency instead complements the Single Market. Several commentators noted that this argument had no direct links, or very tenuous links at best, with the OCA theory (Bini-Smaghi et al. (1993) and Baldwin and Wyplosz (2004)): i.e. the OCA properties did not figure prominently in the Delors Report. Furthermore, the “One Market, One Money” Report held a critical view of the “early” OCA theory. Section 2 has provided plenty of reasons for such caution and even scepticism. Admittedly, a rigorous application of all OCA properties at the time would have provided some mixed results (we try something of this kind in Boxes 3.3 and 3.4 below). This was not a very attractive proposition from a political standpoint when pushing for a monetary union (as noted by Wyplosz (2007)). Hence, the OCA theory was sidelined.

In this lies a paradox as, at the same time, the “One Market, One Money” Report greatly contributed to revitalising interest in the debate on the OCA theory, brought together many strands of theoretical and empirical literature (directly or indirectly related to the OCA theory), and spurred a vast amount of new research. Another merit of the report was to discuss several desirable features of, and possible implications from, EMU. Gaspar and Mongelli (2003) note that in retrospect it is interesting that “One Market, One Money” did not place much emphasis on the impact of monetary unification on economic integration (i.e. no endogenous effects a-la-Frenkel and Rose were postulated). The empirical studies surveyed did not show strong effects of exchange rate volatility on either trade or international investment flows. This, in turn, justifies that monetary unification was seen as a limiting case of reduction of exchange rate volatility leading to the elimination of exchange rate uncertainty and to reductions in transactions costs and hedging costs.

In the end, the “One Market, One Money” Report came out in clear favour of proceeding towards complete monetary integration in Europe for several EU members. Emerson et al. argue that the many shortcomings of the “old OCA theory” were likely to bias downwards the expected net benefits from monetary integration: EMU is likely to be more beneficial than what can be presumed on the basis of the application of the OCA properties alone. For example, although labour mobility is low in Europe, the mobility of capital is instead quite high and rising. This provides an alternative adjustment channel. In the meantime, the “new OCA theory” was slowly emerging. The hypothesis of the endogeneity of the OCA did the rest in terms of revitalising the debate on OCAs and played an important role in the policy debate during the 1990s.

If we recall the juxtaposition between those advocating a long convergence process to favour an alignment of monetary policies (i.e., the “economists” field) and those for whom full nominal convergence was not indispensable prior to EMU (i.e., the “monetarists” field); the economists field secured the following set of convergence criteria that were cast in the Maastricht Treaty, while the monetarist field obtained a final date by which Stage Three would start (i.e. 1 January 1999):

- the price stability criterion, implying that the inflation rate of any country could not exceed a reference value calculated as the unweighted arithmetic average of the rate of HICP inflation in the three countries with the lowest inflation plus 1.5 percentage points;
- sustainable fiscal policies, requiring that the government budget deficit cannot exceed 3% of GDP in normal circumstances, and the government public debt should not exceed 60% of GDP or, when above this threshold, should steadily “move in that direction”;
- exchange rate stability and ERM membership for two years prior to the adoption of the single currency without any devaluation; and

- long-term interest rates should not exceed the average interest rate in the three lowest inflation countries by more than 2 percentage points.

A lot of emphasis has been given to all convergence criteria, but in the end, the criterion that has been subject to most discussion has been that about the sustainability of fiscal policy and avoidance of excessive deficits. The Stability and Growth Pact was then added in 1997 to clarify the functioning of the excessive deficit procedure in the Maastricht Treaty and laid down the procedures for multilateral surveillance. We shall discuss this criterion in Section 4.

With the launch of the euro in January 1999, responsibility for the single monetary policy in the euro area was transferred to a supranational central banking system: the Eurosystem. The latter comprises the ECB and the NCBs of those countries that have adopted the euro which make up the euro area. It is led by the Governing Council of the ECB, which is in charge of formulating the monetary policy of the euro area and sets the necessary guidelines for the implementation of its decisions. There is a vast body of literature examining the monetary policy framework of the ECB and the workings of the Eurosystem.⁸

There are two noteworthy features that should be mentioned here. While the OCA theory was primarily concerned with the positive aspects of the process of monetary integration, the implementation and management of a currency union is primarily a normative subject.

The *first noteworthy feature* is that over the last 30-35 years there was also a rich debate concerning the exchange rate arrangements and institutional settings of monetary unions: what later blossomed into the ECB and the Eurosystem was only one of such arrangements (see for example, Kenen (1969 and 1992), Ingram (1970), and Allen (1976)). W. Max Corden (1972) analyses the pros and cons of two extreme exchange rate arrangements, a “pseudo exchange rate union” and a “complete exchange rate union”. The first arrangement is conceptually a precursor of the European Monetary System (EMS), while the second arrangement has affinities with EMU.

A complete exchange rate unions, according to Corden, might go as far as implementing a single currency issued by a common central bank which also manages the foreign exchange reserves of the union. The common central bank may be assigned the role of ensuring price stability and fix the parities with outside currencies. Domestic monetary targets may be set autonomously and in a fashion that might not be optimal for each country or region at all times. At that point it was not clear which degree of budgetary independence might be consistent with a monetary union. One can foresee some unpleasant but not unlikely circumstances in which uncalled for redistributive processes take place across countries and the reputation of the common bank be left at stake. Hence, these issues raised by Corden (1972) tried to bridge between the positive and normative viewpoint.

The *second noteworthy feature* is that building a new supranational central banking system made it necessary to agree upon its (future) working arrangements. From an organisational and administrative viewpoint the Eurosystem brings to completion a process to institutionalise the monetary cooperation among European central banks that started in 1958 with the creation of a Monetary Committee and in 1964 with the creation of the Committee of Governors of the central banks of the Member States of the (then) European Economic Community. The arrangement that had been set up since the establishment of the Committee of Governors proved very effective and were built upon. For this purpose, the Committee of Governors and its subcommittees prepared in 1990 a first draft of the Statute of the ECB for

⁸ See amongst others, Issing et al (2001), Eijffinger and De Haan (2000), Baldwin and Wyplosz (2005), (ECB (2004), Gerdesmeier et al (2007), ECB (2004), and Moutot, Jung and Mongelli (2007).

the future Maastricht Treaty. After the treaty was ratified and the European Monetary Institute (EMI) established in 1994, links between NCBs became more systematic.⁹

“Eurosclerosis” and the role of institutions and structural rigidities

Let us now briefly return to the analogy of the laboratory. What would an “OCA scientist” have found by looking at some crucial OCA properties for the functioning of the soon to be born EMU? She or he would have had to report some encouraging aspects such as a high degree of openness and diversification in production and consumption, similar (low) inflation rates, and the acceptance of a joint governance structure. She or he would have had to report also some less encouraging aspects such as modest overall price and wage flexibility, and low labour mobility (see Box 3.4). Financial market integration was also low but rising (see Box 3.5). But there was more to raise some serious concerns. In the early 1980s a debate on the causes of high and persistent unemployment took roots in the UK (see Layard, Nickell & Jackman (1991)). A few years later, when economic performance deteriorated in continental Europe as well, this debate became mainstream in the policy debates during the times of the Thorn Commission, and academic agendas: the term “Eurosclerosis” was coined to describe a pattern of high unemployment, slow job creation, low participation to the labour force and weakening overall economic growth during the 1980s and most of the 1990s (see Bentolila and Saint-Paul (2001)). Eurosclerosis contrasted with the more dynamic experience of the United States where economic expansion was accompanied by high job growth.

What is remarkable is that over the last two decades academics, applied researchers and several international organisations (with a leading role by the OECD) made tremendous progress in understanding the roots and causes of the dismal performance. A rich literature ensued illustrating the role of labour market institutions, product market regulations, social preferences and conventions, and other economic features.¹⁰ The normative implications for EMU were cautionary. It also became clear that a poor performance under these OCA properties would have hampered the dynamic adjustment of euro area economies vis-à-vis economic shocks. *Ceteris paribus*, the costs from sharing a single currency would have been higher. In order to promote some remedies the nature and depth of such product, labour and financial market rigidities had to be addressed by means of policy initiatives.

Box 3.4 Old view (1): low price and wage flexibility, and modest labour mobility

Several studies using data from the 1980s onwards show that – despite some progresses – price and wage flexibility is still low among European countries, albeit with notable differences. There is also a significantly slower speed of adjustment of real wages to economic shocks in continental Europe (OECD (1999) and Boeri et alii (2001)). Unemployment eventually puts some downward pressure on real wages in Europe, but a large share of the adjustment is borne by employment. Several labour market institutions (that are discussed in the next section) help to explain low wage flexibility. Low wage flexibility also contributes to the lack of price flexibility.

⁹ The EMI Council, as the main decision-making body of the EMI, while supported by the own staff, decided to continue the organisational structure that had been established under the Committee of Governors and completed the preparatory work for the ESCB (see Moutot, Jung and Mongelli (2007)).

¹⁰ It is impossible to do justice to such a vast literature. We tentatively list the following contributions as a general source of reference: Duval and Elmeskov (2006), Fagan, Mongelli and Morgan (2003), Baldwin and Wyplosz (2004), Elmeskov et al (1998), Nickell (1997), Barrell, Morgan and Pain (1997), Morgan and Mourougane (2001), Bertola (1990), and Blanchard and Wolfers (2000).

Several studies establish a significant link between the functioning of product and wage markets: countries with more stringent product market regulations tend to have more restrictive employment protection legislation (Jean and Nicoletti (2002), Duval and Elmeskov (2006) and Blanchard and Giavazzi (2003)). Differences in labour market institutions could lead to divergent developments in wages and prices even in the presence of similar shocks. Therefore, countries with differences in labour market institutions may find it costly to form a monetary union.

Labour market integration has been investigated in terms of geographical and occupational mobility. Several studies have found that geographical mobility is two to three times higher in the US than in Europe (OECD (1999)). OECD (1999) reports that only 5.5 million European Union citizens reside in another Member State out of 370 million (or about 1.5% of the population, and half of that number for non-EU citizens). This ratio was actually higher in the 1950s and 60s when ten million people migrated from Southern to Northern Europe. Hence, in some sense labour mobility has fallen in Europe (Bertola (2000)). Bertola also observes that quantity and price dimensions of labour market rigidity are interrelated and that lack of employment flexibility and wage rigidity reinforce each other. The variation of unemployment in Europe is also considerably higher than in the US (as for its dispersion).¹¹ The OECD also noted that cross-country migration is an unlikely response to economic shocks in the euro area, and is instead motivated by other permanent factors. The economic incentives to move have weakened even further due to high overall levels of unemployment, income convergence linked also to economic catching-up, and reduced wage differentials across countries. Differences in relative unemployment rates between regions are more persistent in Europe than in the US.¹²

Box 3.5 Old view (2): modest financial market integration

Several studies using data from the 1980s and 1990s show that financial market integration has risen in Europe but is still lower than among US States. Giovannini (2002) remarks that European financial markets are still a *juxtaposition* of national markets. Money markets were still separate, reflecting the existence of national currencies and still fragmented payment systems. The repo segment, where market participants exchange short-run liquidity against collateral, was even less well integrated (Berg, Grande and Mongelli (2005)).

Bond markets were also fragmented into national currencies, although their integration started well before Stage III of Economic and Monetary Union. Yield differentials among euro area government bonds converged markedly since 1996 (see Gaspar and Mongelli (2003)) and Adjaoute, Danthine and Isakov (2003) for some qualifications). Equity risk premium were also substantial and displayed substantially different country risks (Adjaoute, Danthine and Isakov (2003)) which had an impact on the domestic cost of capital. The average European investor was not very financially diversified. All in all, European financial markets were seriously undiversified (see also Galati and Tsetsaronis (2001)).

¹¹ In the US unemployment shocks resulting from a fall in demand for goods and services produced in a particular region are not persistent due to a high degree of interregional migration of the labour force. In Europe, however, changes in the unemployment rate tend to be persistent due to a low mobility of the labour force across countries. Bentolilla (1997) found that the probability of moving is not (or only weakly) responsive to relative unemployment.

¹² There are also social, cultural and administrative determinants behind the low geographical mobility in Europe. Braunerhjelm et al (2000) noted inefficiencies in the interregional job matching process as well as high mobility costs. Blanchard and Wolfers (2000) question whether the cultural and language barriers can ever disappear. Also, there are significant barriers in the housing markets across the EU. A panel of experts set up by the European Commission in 1996 attributes low labour mobility to a combination of institutional and administrative factors, including limited cross-border portability of social protection and supplementary pension rights; administrative difficulties and the high costs of gaining legal resident status; lack of comparability and reciprocal recognition of professional qualifications; and restrictions on public sector employment.

Sørensen and Yosha (2000) and Arreaza (1998) carried out cross-country variance decompositions of shocks to GDP and point to negligible risk-sharing through cross-country ownership of assets (i.e. they document a “home bias” in portfolio holdings). However, Adam, Jappelli, Menichini, Padula and Pagano (2002) find that the share of funds managed with a Europe-wide investment strategy increases for money market and bond market funds. Both types of funds show a significant progress during the first months of 1999 for almost every country.

Concerning the similarity in financial structures, early studies of the monetary transmission mechanism (MTM) across euro area countries (see Angeloni, Kashyap, Mojon and Terlizzese (2001) and references therein) show that European countries display significant differences in terms of, amongst others, interest sensitivity of spending, maturity structure of debt, net-worth of firms and household sectors, the legal structure, contract enforcement costs, the bank lending channel and the alternatives to bank financing.

The diagnosis about the causes of structural rigidities in product and labour markets and low financial integration were intimidating. We briefly list some of the main points.

Among the main *labour market institutions* that are recognised as having an impact on the functioning of the labour market are the influence of wage bargaining systems, trade unions, unemployment benefits (social security at large), employment protection legislation, mismatch between job seekers and vacancies, the minimum wage, taxes on labour, and other factors driving a wedge between the wage paid by employers and the wage received by employees.¹³ The importance of active labour market measures (ALMMs) aimed at improving the search effectiveness of the unemployed and hence increasing their downward pressure on wage formation has also come to the fore (see Calmfors (1994)). Blanchard and Wolfers (2000) have clearly illustrated how rigid labour market institutions, when the economy is hit by adverse shocks, generate a “ratcheting effect” on unemployment. This helps to explain the persistence of European unemployment and the high share of long-term unemployed.¹⁴

The need for structural reforms as well as the difficulty of undertaking them has become quite apparent. Duval and Elmeskov (2006) argue that reforms are not Pareto improving and those whose rents or benefits are reduced by reforms oppose them strenuously. Bertola (2000) argues that institutions serve purposes that were clear at the time of their creation (for example protecting labour market participants): removing the various sources of labour market rigidity may be neither easy nor rational in a piecemeal fashion (see also EU Commission (2004)). The strive towards labour market reforms has been very high on the European policy agenda since the mid-1990s and has led to the Lisbon Agenda (see next sub-section). The effect of EMU on structural reforms is discussed in Section 4.5.

Product market regulations were also examined. Price flexibility is hampered, albeit by different degrees across the euro area, by the slow implementation of the SMP and by a slow dismantling of some non-tariff internal and external trade barriers (see EU Commission (2004)). For example, there is relatively low market competition and monopolistic tendencies in sectors with a high concentration of state owned enterprises or of previous state monopolies: i.e. “network industries” (such as public utilities and energy companies). The work on a set of

¹³ Such a wedge is composed of two parts: the terms of trade and indirect tax effect (the GDP deflator divided by the consumption deflator) and the direct tax wedge. The first effect takes into account the fact that workers are likely to have an objective for the real wage in terms of consumer prices, while the output deflator is more relevant for firms. The two deflators may exhibit divergent evolutions when an exogenous shock – for instance an oil price shock – hits the economy (see Fagan, Mongelli and Morgan (2003), and Morgan and Mourougane (2001)).

¹⁴ There is also a debate on collective policy choices and social models that has acquired great prominence in recent years. Early on there were references to a European social model, and later a qualification was made among four main models: the Continental model, the Nordic model, the Anglo-Saxon model and the Southern European model.

product and labour market indicators – first pioneered by the OECD (see OECD Jobs Study (1995) and several other OECD publications) – provided a remarkable impulse to these studies. All of the above factors hampering product and labour market flexibility – i.e. weakening these OCA property – could then be examined in detail.

Concerning *financial market integration*, or the lack thereof, there was also a flourishing of studies and analyses. Emerson et al. (1992) and the Giovannini Group¹⁵ identified various inefficiencies in EU financial markets and proposed practical solutions to foster financial market integration in its four reports: on the impact of the introduction of the euro on capital markets (July 1997); on EU repo markets (October 1999); on the coordinated issuance of public debt in the euro area (November 2000); and on EU cross-border clearing and settlement arrangements.

What these comprehensive and articulated studies concerning product, labour and financial markets show is that these OCA properties can now be discussed in great detail. Countries exhibit, or do not exhibit, price and wage flexibility, labour mobility and financial integration due to a variety of factors. If we were to wear a “OCA theory hat” our task would become more challenging: we would now have to tell with some precision to what extent and why certain OCA properties are shared, or are not shared, by partner countries.

The fact that we can tell which countries underperform under some OCA properties, and why, opens up a whole new perspective: that countries performing modestly under *some* OCA properties (but not all) could share efforts to improve their performance. This would be equivalent to an “OCA theory in reverse”. The various international studies, comparisons and benchmarking would chart the route for the countries needing to reform. The context of EMU and the need to gain flexibility and adaptability should provide an added incentive for structural reforms. We shall return to this aspect in Section 4 when we ask whether EMU is playing a catalysing role in strengthening reforms. Hence, some of us interested in structural reforms and their analysis and implementation are partly employed by the OCA theory.

Institutional forces fostering OCA properties: the “exogeneity of OCA”

The rich literature on the endogeneity of OCA that was pioneered by Rose and Frankel argues that there is something special about monetary unions. Sharing a single currency is associated with more reciprocal trade. We argued in Section 2.5 that a new single currency might also improve the *OCA rating* of the euro area through other channels: for example by fostering financial integration and greater business cycle synchronisation. Hence, from our standpoint we will want to see evidence of *diverse market-based forces* bringing euro area countries closer together.

But there are also *institutional forces at play*. Initiatives to promote structural reforms have been at the centre of policy-making in the EU over the last decade (and we will provide several examples of this). This is true for all the areas in which the “OCA theory in reverse” holds. The execution of the three stages of EMU – and in particular the run-up to the launch of the euro – intensified ongoing structural reforms, such as those fostered and monitored by the European Commission, the OECD and other organisations.

All of these forces and institutional processes might be generating an “**exogeneity of OCA**”, i.e. countries that score below others (or below a certain benchmark) for some OCA criteria could experience more peer pressure to undertake structural reforms in order to improve their performance. Such pressure would come from the European Commission, the

¹⁵ The Giovannini Group, formed in 1996, was a group of independent financial market participants with the task of advising the European Commission on financial market issues.

ECB and the OECD, as well as the governance framework of economic policy coordination in the EU, which includes the reviews by the Ecofin Council and the Eurogroup.

The previous discussion in Section 3.3 and the concise summary of the links between institutional integration and economic integration are an illustration of such a causality at work: institutional integration “causes” trade deepening, while at the same time trade deepening also “causes” institutional integration (but with a lower intensity).

Institutional arrangement and exogenous commitments are only part of the story, however. There are two other aspects to consider. The first aspect is that *there is now a broadly shared analytical apparatus* – based on the various established indicators and academic research previously mentioned – that fosters an understanding of the adverse effects of not reforming, and the favourable effects of sharing best practices. Hence, member countries are aware that reforms are needed. The second aspect is that *there are more incentives for “peer-pressure”*, because countries that are more integrated have a bigger stake in the wellbeing of the others.

a. Concerning product and labour markets reforms, recent initiatives have been the SMP, the 1994 OECD Jobs Strategy, the 2000 Lisbon Agenda (and its review in 2005), and other institutional initiatives and processes. A list of historical steps is provided in Table 3.2. Section 4.5 discusses the links between monetary integration and labour market reforms.

Table 3.2. Main steps of European product and labour market integration

1957	Treaty of Rome
1959	Start of transition period for internal tariffs (which are gradually eliminated)
1962	Commission acquires powers for competition policy. Start of Common Agricultural Policy (CAP). Commission action programme for transport policy.
1968	Customs union completed. Workers entitled to accept job offers within internal market.
1974	European Court of Justice starts process of removing non-tariffs trade barriers (<i>Dassonville case</i>).
1979	European Court of Justice asserts the country of origin principle about freedom of movements of goods (<i>Cassis de Dijon case</i>).
1985	Commission launches Single Market Programme (EC 1992 White Paper Programme)
1986	Single European Act
1989	Directive on mutual recognition of higher education diplomas
1993	Establishment of European Single Market: restrictions on factor movements and non-tariff barriers are abolished (e.g. on market access, competitive conditions and market functioning).
1994	Launch of the OECD Jobs Strategy
1997	Commission action plan for free movement of workers
1998	Schengen agreement on the removal of border controls (initially agreed in 1985) comes into force).
2006	Adoption of the Directive on Services in the Internal Market. ¹⁶

In the late 1980s the OECD launched a study of the factors underlying the high and persistent unemployment and poorly functioning product and labour markets in many OECD countries. This study was published in 1994 as the *OECD Jobs Strategy*, and proposed a wide-ranging set of policy recommendations for its constituency. These recommendations covered several policy areas, including macroeconomic policy, creation and diffusion of

¹⁶ The aim of this directive is the completion of the single market for services within the EU: and rendering it similar to the single market for goods. It is based on three pillars: the freedom of establishment, the country of origin principle, and mutual assistance.

innovation, entrepreneurial climate, labour force skills, competences and education, as well as various other aspects concerning labour market policies and institutions. In 1995 the recommendations were expanded to also cover policies related to product market competition (see OECD (1999), Brandt, Burniaux and Duval (2005), and Duval and Elmeskov (2006)). The strength of the Jobs Strategy lies in a careful compilation of harmonised product and labour market indicators across its constituency. There is also a collection of data on past policies and efforts at reform. This wealth of information makes it possible, among other things, to: rank countries according to their product and labour market conditions and performance, review and compare their past reform efforts, and recommend some benchmarking concerning the reform gap of each OECD member. A host of studies and analyses on “what works and what doesn’t work” have been rendered possible by the OECD Jobs Strategy.

The Lisbon Agenda is one of the clearest examples of the exogeneity of OCA. It was first adopted by the European Council in Lisbon in March 2000, and sets out a strategy which aims at addressing the issues of low productivity and stagnation of economic growth in the EU over a ten-year period. The purpose of the Agenda is to make the EU the world's most dynamic and competitive economy by 2010: a goal that is to be achieved by transforming Europe into the world's largest knowledge-based economy. The initiatives in the Agenda are organised under three pillars: an economic pillar, a social pillar, and an environmental pillar.¹⁷ This postulates that enhancing knowledge generates direct and indirect benefits. The belief is that various high-technology businesses, especially computer software, telecommunications and virtual services, as well as educational and research institutions and other aspects of an “information society” can contribute to boosting creativity and innovation, enhancing productivity, and propping up the economy (as shown by New Zealand).¹⁸

In March 2005 the European Council completed the mid-term review of the Lisbon Agenda, based on an independent review by a High Level Group headed by Wim Kok and on the Spring Report by the European Commission. The review illustrated that little/modest progress had been made over the first five years of implementation, and recommended refocusing the agenda on the economic pillar, and particularly on growth and employment. Both reports also proposed an overhaul of the governance of the strategy and underlined the need for real ownership by the Member States in which the reforms were necessary. Four areas were identified as fundamental for re-launching the Lisbon Agenda: 1. improving knowledge and innovation; 2. making the EU an attractive area in which to invest and work; 3. fostering growth and employment, thereby also contributing to social cohesion; and 4. promoting sustainable development and human capital. The various original targets were toned down (but were not explicitly abandoned).

The European Council also endorsed a new governance framework streamlining the open method of coordination and preparing an EU Annual Progress Report with a set of Integrated Guidelines (IGs), a package including the Broad Economic Policies Guidelines (BEPGs) and Employment Guidelines (EGs). Member States prepare National Reform Programmes (NRPs) that have a three-year span but are updated annually. There is a “Partnership for Growth and Jobs”, which is supported by an action plan at European Union level, and the NRPs allow the implementation of both of these to be monitored. Member States and social partners were also

¹⁷ Several targets of the Agenda have acquired great prominence and in retrospect proved overly ambitious for some countries, including achieving an employment rate of 70% (60% for women) and investing 3% of GDP in research and development.

¹⁸ The knowledge economy displays several new characteristics and challenges. Unlike most resources that get depleted when used, knowledge (and information at large) can be shared, and is subject to network externalities: it grows through diffusion and wider use. For some activities the effect of location is less important (e.g., when virtual organisations can be created that are faster, flexible and more adaptable to changing circumstances).

encouraged to take “ownership” of the reform process, and bring it into national political debates. National stakeholders, such as national parliaments, are consulted on NRPs that also need to be consistent with national Stability and Convergence Programmes (SCPs). A “Mr or Ms Lisbon” was appointed at government level in the Member States.

These various reports and guidelines are provided as part of an annual coordination cycle. Early in the year, Ecofin (or another European Council body) provides input for the Guidelines, and the Spring European Council takes note of the EU Annual Progress Report and endorses the Integrated Guidelines. Around May, the European Parliament provides a resolution on the BEPGs and opinions on EGs. After the European Council (Ecofin or another Council body) adopts the Integrated Guidelines Package, the European Commission holds bilateral meetings with Member States to discuss the respective NRPs, which are then officially submitted in the autumn (i.e. at the same time as the national Stability and Convergence Programmes (SCPs) that are linked to national budget cycles). Towards the end of the year, the European Commission reviews the implementation of NRPs and the European Council (Economic and Financial Committee/Economic Policy Committee) conducts multilateral surveillance and provides reaction to NRPs.

Concerning financial market integration, we can mention the Financial Services Action Plan (FSAP); the Lamfalussy Report and its follow-ups; the Giovannini Report and its follow-ups; and other initiatives listed in the European Commission Scoreboard.

Table 4. Main steps of European financial integration	
1957	Treaty of Rome
1958	Restoration of currency convertibility
1960	Directive promoting liberalisation of certain capital flows
1962	Directive widening scope of liberalisation of capital flows (some restrictions were reintroduced in 1972)
1964	Directive on the freedom of establishment in reinsurance
1973	Directive on the freedom of establishment for credit institutions First coordinating directive on direct non-life insurance
1976	Directive on the freedom of establishment in direct insurance
1977	First Banking Directive
1979	Coordinating Directive on direct life insurance Directive coordinating the conditions for the admission of securities to official stock exchanges
1980	Directive coordinating the requirements of the listing particulars to be published for the admission of securities to official stock exchange listing
1983	Commission White Paper on financial integration
1986	Single European Act
1988	Council Directive on the liberation of capital movements. Second Coordinating Directive on direct non-life insurance
1989	Second Banking Directive. Became effective in 1993 and introduced “single passport”
1992	Treaty on European Union (“Maastricht Treaty”), with three stages
1993	Official completion of the internal market
1996	Giovannini Report
1999	Start of monetary union, launch of the euro, and start of Financial Services Action Plan (FSAP)
2002	Introduction of euro notes and coins. Agreement on EUREPO rates.
2005	Completion of EU-level legislative phase of FSAP. “White Paper – Financial Services Policy 2005-10”
2008	Launch of Target2 and Single European Payment Area (SEPA to be completed by 2010)

Source: ECB (2007), IMF (2007), Dorrucchi et alii (2007), Molle (2006), and Vanthoor (1999).

3.7 Some (final) remarks on monetary integration

Monetary integration among European countries was originally discussed as a very concrete policy project at the time when the 1970 Werner Report was being prepared. Although the implementation of the report was abandoned at a relatively early stage, some of its elements resurfaced later and were useful for the blueprint of EMU. A coherent and viable plan for full monetary union emerged with the Delors Report of 1989, which in turn led to the signing of the Maastricht Treaty in 1992. EMU was to be achieved during three stages similar to those formulated in the Werner Report.

On the surface the OCA theory played only a modest role in the preparation of the Delors Report and then the Maastricht Treaty. The Report and the Treaty are principally concerned with reducing the risk from destabilising exchange rate volatilities and misalignments. A “corner solution” such as monetary union is seen as a way of combating this risk. Hence, EMU has a defensive purpose. This reflects several lessons from the two decades with the EMS, when it was clearly seen that keeping separate currencies with fixed exchange rates between them and with full capital mobility can lead to tensions. The path to monetary union is therefore a natural follow-up to the Single European Act and the single market. The view became widely held that the single market could not be expected to exploit its full potential without a single currency.

At the same time as the debate on EMU was taking place, a pattern of high unemployment, slow job creation, low participation in the labour force, and weakening overall economic growth emerged: these malaises are grouped together in the term “*Eurosclerosis*”. A wide range of literature ensued, illustrating the role of labour market institutions, product market regulations, social preferences and conventions, and other economic features. The normative implications for EMU were cautionary. Initiatives to promote structural reforms have been at the centre of policy-making in the EU over the last 10-15 years. The Lisbon Agenda is an example that we have already discussed in depth.

This illustrates that, under the surface, the OCA theory was being heeded. European countries were de facto tackling their structural weaknesses. We can talk of an OCA theory in reverse in the area of (tight) product market regulations, labour market rigidities, and modest financial integration. Rose and Frankel have argued that there is something special about monetary unions, and pioneered a rich literature on the “endogeneity of OCA”. Perhaps, if we look at the broad governance of EMU, there may be an exogeneity of OCA as well.

“Yet the most important issue of all is whether, macroeconomically, the new Europe will function well or badly.”
Chris Allsop and David Vines (1998)

4. The actual functioning of EMU

In the run-up to the launch of the euro, two broad themes received considerable attention. The first theme related to the actual challenge of introducing a new single currency and payment infrastructure, as well as establishing a new common monetary policy, between 11 countries (Greece then joined in 2001 and Slovenia in 2007). There was concern that a single monetary and operational framework – within a new macroeconomic policy framework –

would not be successful for so many countries that were still quite diverse in terms of several economic and financial features. These concerns have been answered: a single monetary policy framework has been successfully introduced for all euro area countries. A stability-oriented monetary framework, with low expected inflation and low interest rates, has also been secured. Macroeconomic volatility in the euro area is also low in historical terms, and comparable to volatility in other currency areas such as the US.

A second theme that has also received attention pertains to the actual effects of the euro, in the medium and longer term, on economic and financial structures, institutions and performance. How is the euro area working and what type of changes is the euro fostering? Is it catalysing further economic and financial integration and spurring structural reforms? This section is organised around this second theme. *Supporters of EMU* and *EMU sceptics* often cast their arguments by taking different views on some of these issues and concerns.

We visit here a series of issues and concerns that were widely discussed in the run-up to the launch of the euro.¹⁹ Section 4.1 looks at inflation differentials and the anchoring of short-term and long-term inflation expectations. Section 4.2 looks at the working of the real interest channel. Section 4.3 looks at the risk of pro-cyclicality of fiscal policies. Section 4.4 looks at the changes in competitiveness within the euro area, in particular the lack of sufficient flexibility in real exchange rates once variations in nominal exchange rates are ruled out in the monetary union. Section 4.5 looks at the relation between EMU and the drive towards structural reforms. Section 4.6 looks at the crucial role played by financial integration for the functioning of monetary unions. Section 4.7 looks at the impact of the euro on specialisation.

The evidence below has also direct implications on the discussion on the costs and benefits. Declining dispersion, fewer asymmetries, more smoothing and better shock absorption, and overall deeper integration: reduce the costs and enhance the benefits from EMU. Several caveats are justified and the views below have to be interpreted with caution.²⁰

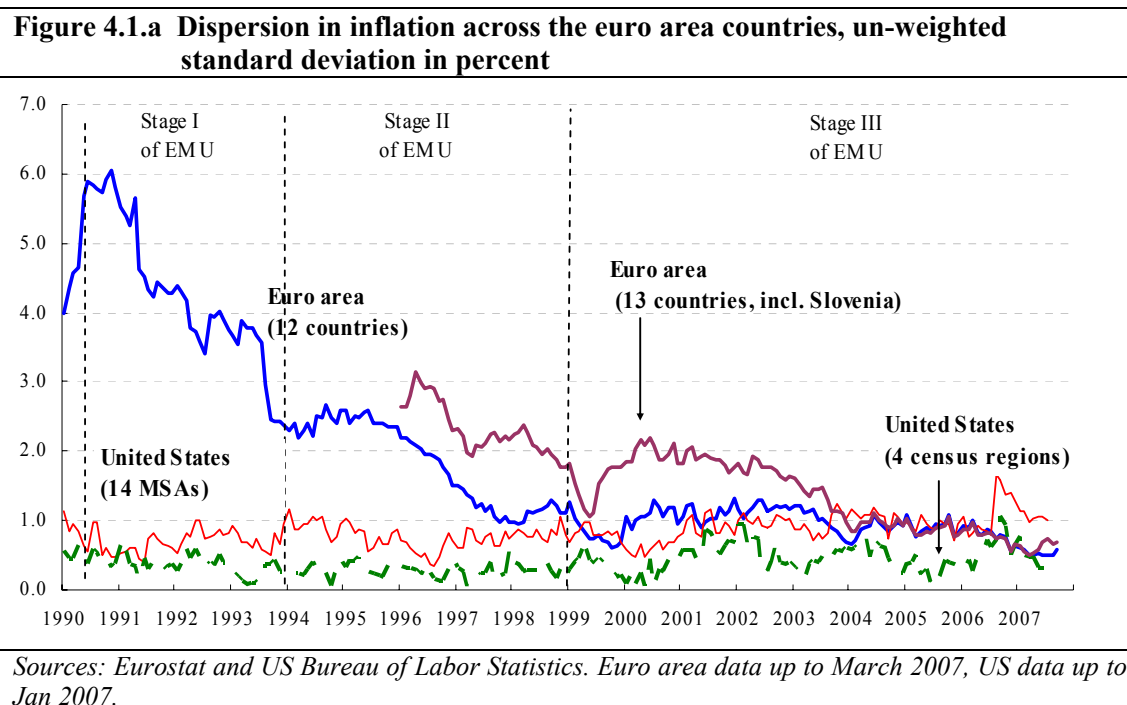
Inflation dynamics and the anchoring of inflation expectations²¹

Inflation dispersion among euro area countries has broadly stabilised at extremely low historical levels and has been on a par with levels in the United States (see Figure 4.1.a).

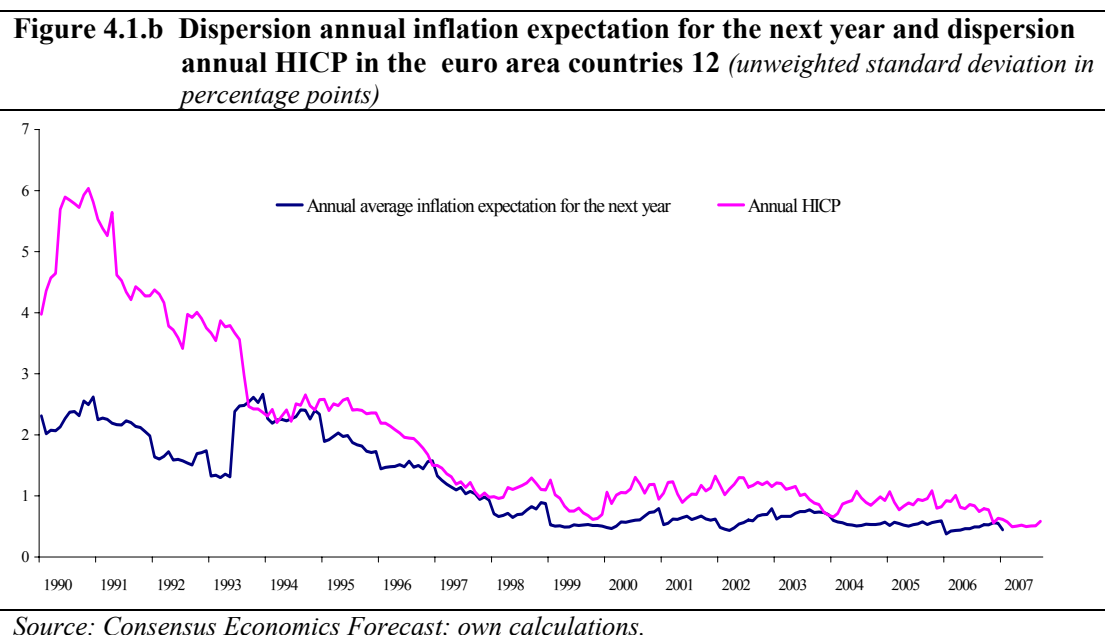
¹⁹ Several assessments of the broad impact of EMU, and the launch of the euro, have already appeared (e.g., European Commission (2006 and 2004), Mongelli and Vega (2006), Baldwin, Bertola and Seabright (2003), ECB Working Paper nrs 594-599 issued in 2006, and OECD (2000).

²⁰ The launch of the euro still represents a recent regime shift whose effects may require more time to unfold. With few datapoints it is also difficult to disentangle the EMU effects from other developments such as the liberalisation of international capital movements, financial deregulation, globalisation, the low inflation environment, and the advancement in information and communication technology. Furthermore, differences in economic performance among euro area countries can also be explained by factors not related to European integration and EMU, including: demographic trends, differences in productivity growth that in turn reflect national differences in industry characteristics, investment in research and development, and innovation.

²¹ This section benefited from the support of Lina Bukeviciute, Malin Andersson and Tobias Blattner.



The decline in inflation dispersion is even more remarkable if we look at short-term and long-term inflation expectations (see Figures 4.1.b and 4.1.c).



However, euro area inflation differentials are quite persistent over long periods. In this respect, the euro area differs from the United States. In fact, inflation in most euro area countries displays significant inertia, with many countries exhibiting inflation rates above the euro area average for relatively long periods. This is mirrored in a similar persistence in the low-inflation countries. We know that such persistent differentials reflect structural rigidities: in most countries it takes time to adjust price and wage-setting behaviour to changing labour and product market conditions (see ECB (2005)). In any case, for the euro area as a whole, inflation has been lower since 1999 than during the period 1991-1998. Since 1999, inflation

has only increased in a few countries. Volatility, measured in terms of standard deviation, was lower in the period 1999-2006 compared to 1991-1998 in most of the euro area.

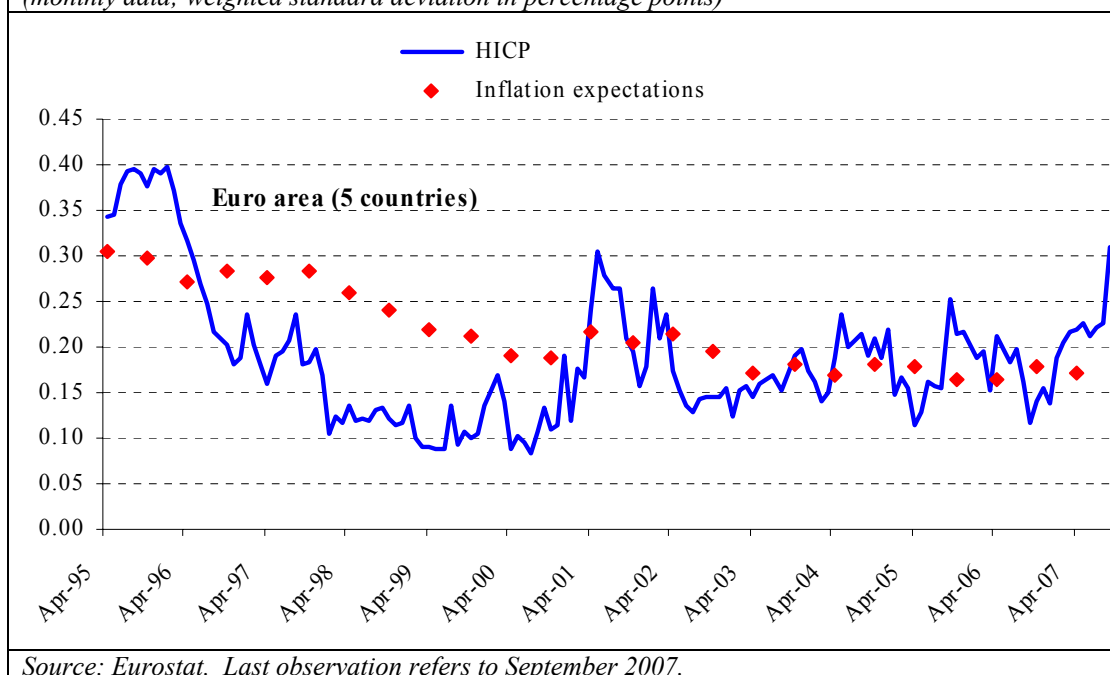
CPI/HICP inflation across euro area countries*

	Average inflation rates **		Volatility***	
	1990-1998	1999-2007	1990-1998	1999-2007
Belgium	2.1	2.0	0.9	0.5
Germany	2.4	1.6	1.2	0.5
Ireland	2.4	3.4	0.8	1.1
Greece	12.0	3.2	5.9	0.5
Spain	4.4	3.1	1.7	0.5
France	2.1	1.8	0.9	0.5
Italy	4.4	2.3	1.6	0.4
Luxembourg	2.4	2.7	1.1	0.9
Netherlands	2.1	2.4	0.6	1.3
Austria	2.3	1.7	1.0	0.5
Portugal	6.2	2.9	4.1	0.8
Finland	2.5	1.6	1.8	0.9
Euro area	3.0	2.0	1.3	0.4
Unweighted std.deviation	2.8	0.6		
memo item: United States	3.1	2.7	1.1	0.6

Source: Eurostat and European Commission (Ameco database); own calculations. Data for 2007 are a partial forecast from the European Commission, November 2007. * Data refer to CPI inflation before 1992 for Belgium, before 1996 for Germany, before 1995 for Ireland and Greece, before 1993 for Spain and before 1996 for Luxembourg. ** Annual perc. changes. *** Measured by standard deviation.

Figure 4.1.c The dispersion of HICP inflation across euro area countries

(monthly data; weighted standard deviation in percentage points)

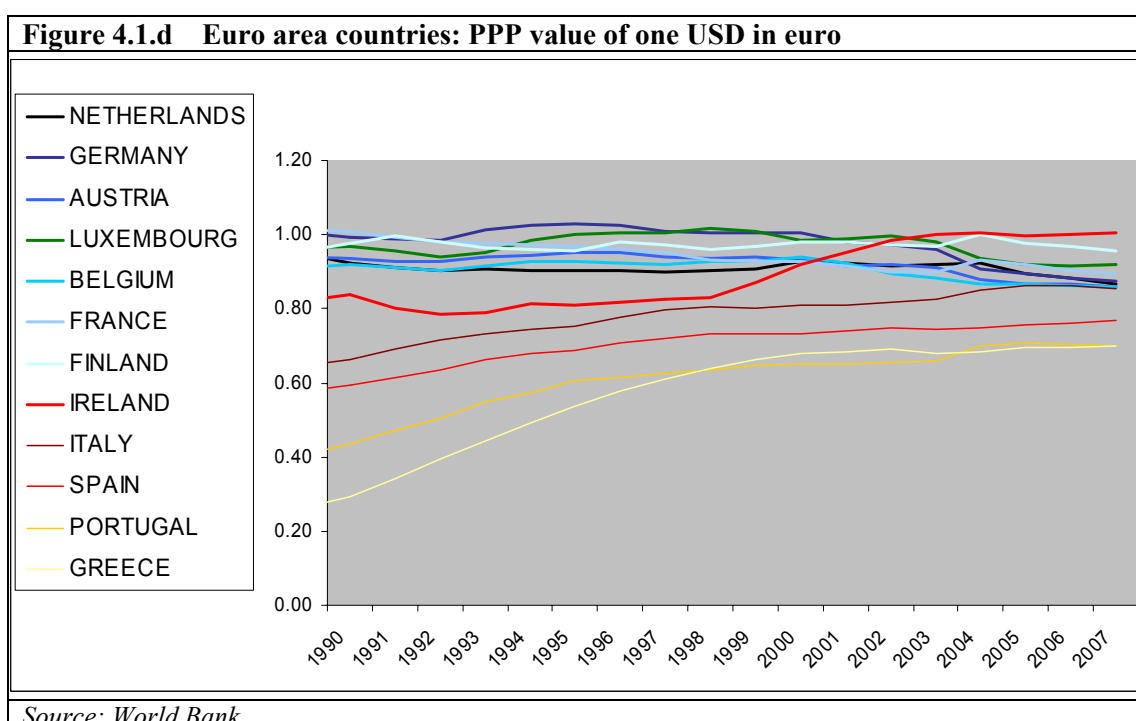


Source: Eurostat. Last observation refers to September 2007.

According to some current figures, the difference in the cumulated growth of unit labour costs for the total economy between the “highest increase” and “lowest increase” countries was between 20% and 25% during the period 1999-2005. Changes in competitiveness can have various origins: some benign as with a catching-up process, and some less benign. Unit labour costs are increasing at a relatively faster pace in those euro area economies that started with a significantly lower level of GDP per capita. In most, if not all, cases this phenomenon

is being driven by the Balassa-Samuelson effect. The latter occurs during a process of catching-up to higher living standards, and might thus be justified to the extent that it reflects convergence towards a new equilibrium (see Figure 4.1.d).

Another way of looking at inflation developments is to cast a long term look at a price indicator based on purchasing power parity (PPP) values of one US Dollar in terms of euro. This indicator is compiled by the World Bank together with the OECD and Eurostat. Purchasing Power Parities (PPPs) are currency conversion rates that both convert to a common currency and equalise the purchasing power of different currencies. In other words, they eliminate the differences in price levels between countries in the process of conversion. The PPP rates of euro area members show that over almost two decades there has been some substantial catching up to higher purchasing power by countries that had a lower level of GDP per capita. This increase in purchasing power has broadly corresponded in an increase in real GDP per capita. Hence, to some extent persistence in inflation, when starting off at rather different price levels, can reflect convergence towards a new equilibrium characterised by price convergence as living standards equalise (see Figure 4.1.d).



The real interest rate as an asymmetric transmission channel ²²

The working of the *real interest channel* was extensively debated before the launch of EMU, under what was known as the “Walters Critique”. The argument of the critique runs as follows: since in a monetary union nominal interest rates are harmonised across countries, those enduring a higher inflation rate will also bear relatively lower real interest rates. If the relatively higher inflation rate stems from an overheating of the domestic economy, then the associated lower real interest rate might have a pro-cyclical impact and foster a cyclical decoupling from the rest of the union. A single monetary policy would be unable to tackle this asymmetry, since it can only target the average inflation rates for the whole monetary union, and could conceivably foster economic divergence within the union.²³

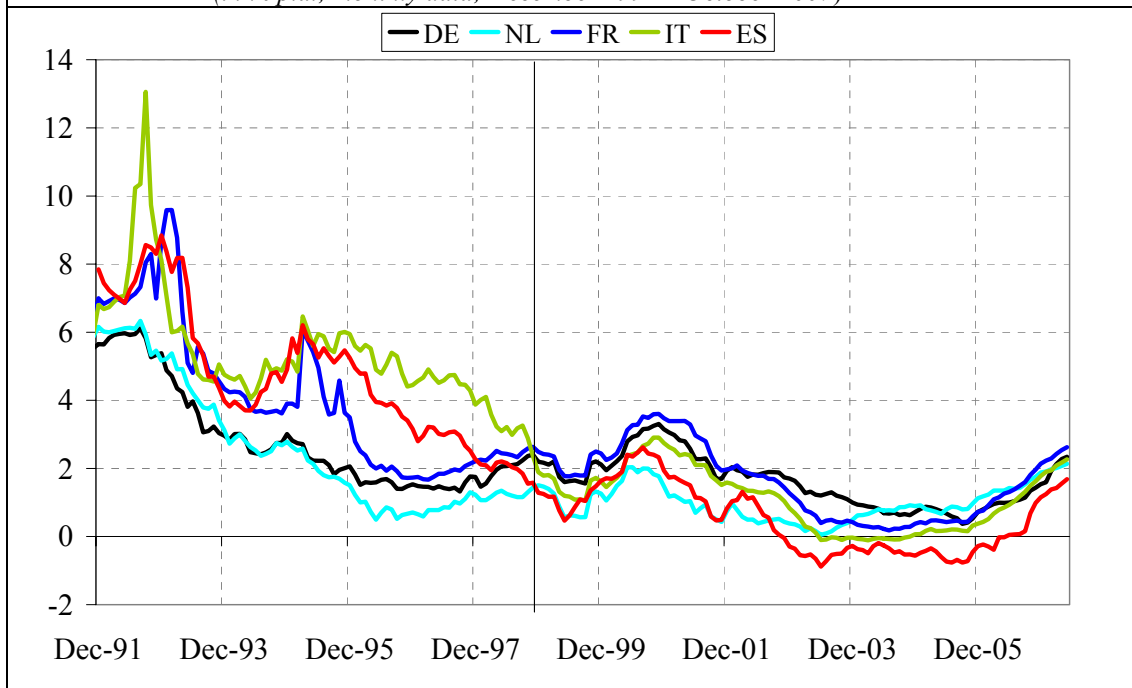
²² This section was jointly drafted with Manfred Kremer.

²³ Real interest rate differentials should not be looked at in isolation. When domestic inflation exceed the area average, the pro-cyclical effect arising from the common nominal interest rate might be

The empirical evidence on the real interest rate channel thus far points to the fact that real interest rates have fallen across the whole euro area since the early 1990s and, in particular during the run-up to the launch of the euro. ECB (2004) suggests that the natural real interest rates is likely to have declined in the euro area (as a whole) over the last decade and may be lying in the range of 2% to 3%.²⁴ Compared with the euro area average, the reduction was particularly important in Ireland, Spain, Portugal, Italy, Greece, and also the Netherlands. After the sharp decline in the 1990s and particularly in the run-up to EMU, real interest rates changes were more modest. Hence, the real interest channel *per se* seemed to have played a relatively small role after the launch of the euro as an asymmetric transmission channel leading to growth and inflation divergences, except Ireland (European Commission (2006)).

In Figure 4.2.a we provide some new perspective by presenting ex-ante real short-term interest rates for the five largest euro area countries. We are looking at three-months money market rates less one-year-ahead inflation expectations from Consensus Forecasts (such data is only available for this time period and for this sub-set of countries). Overall ex-ante real short-term interest rates seem to be moving in relatively similar steps and dip into negative territory for very short periods in Spain and also in Italy for a very short period.

Figure 4.2.a Ex-ante real short-term interest rates in largest euro area countries
(in % p.a.; monthly data; December 1991 – October 2007)



Sources: Reuters, Consensus Economics and ECB calculations.

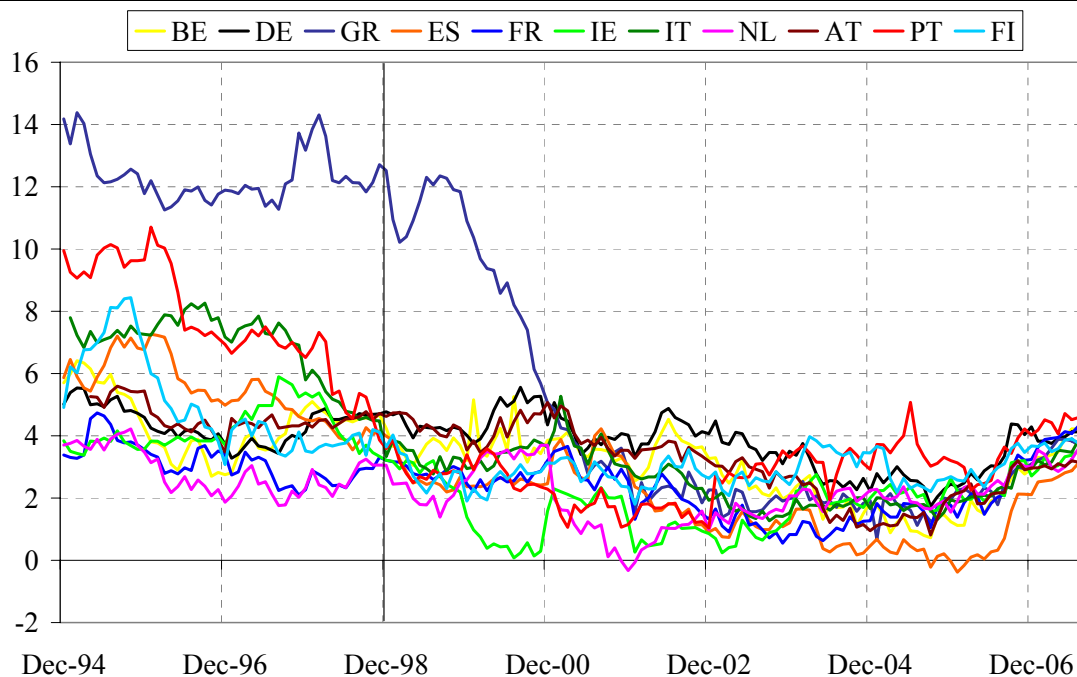
Notes: Three-month money market rates less one-year-ahead inflation expectations from Consensus Forecasts.

The picture changes somewhat when we look at real short-term bank lending rate to non-financial corporations (this time the data is for all euro area countries). Figure 4.2.b shows that these real rates faced by the corporate clientele are above the rates in Figure 4.2.a.

partly compensated by the anti-cyclical effect produced by the rigidity of the nominal exchange rate: i.e., this country would be losing competitiveness. Hence, while an asymmetric inflation shock is accommodated by the common interest rate, it is instead counteracted by the loss of competitiveness.

²⁴ In the long run the natural real interest rate is determined by factors such as the rate of productivity growth, demographics, consumers' time preferences, and diverse risk premia.

Figure 4.2.b Real short-term bank lending rate to NFC in euro area countries
(in % p.a.; monthly data; December 1994 – August 2007)

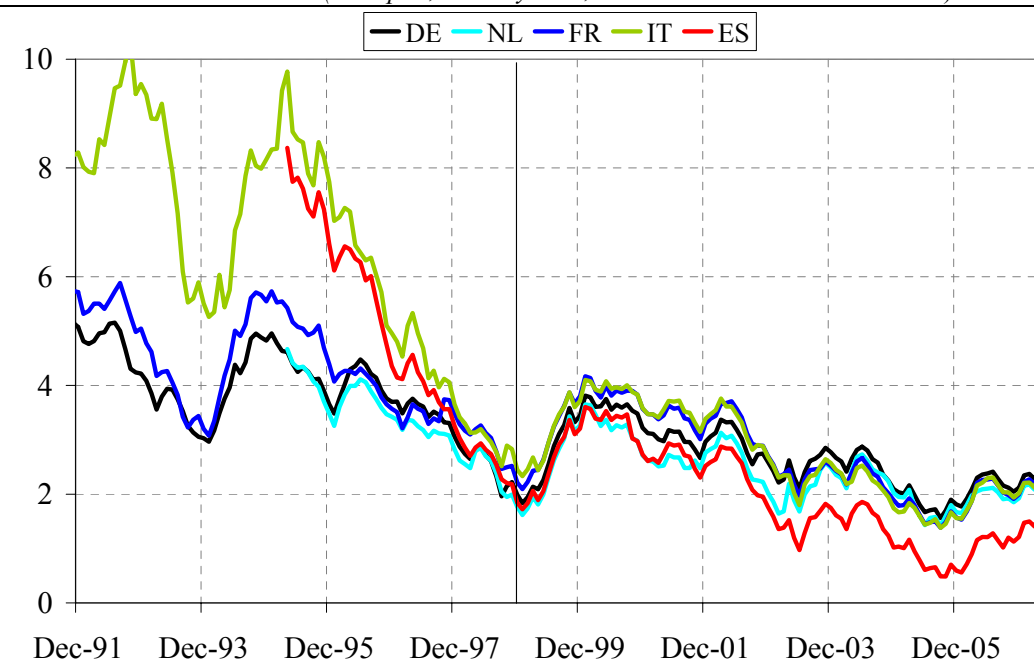


Sources: ECB calculations.

Notes: Loans to non-financial corporations up to an amount of EUR 1 million with floating rate and up to 1 year initial rate fixation, less annual actual consumer price inflation.

In Figure 4.2.c we provide yet another perspective that might be relevant for long-term financial choices by economic agents.

Figure 4.2.c Ex ante real long-term interest rates in the biggest five euro area countries
(in % p.a.; monthly data; December 1991 – October 2007)



Sources: Reuters, Consensus Economics and ECB calculations. 10-year government bond yields less long-term inflation expectations from Consensus Forecasts.

Long-term nominal interest rate differentials are now quite low and rather stable. Such differentials reflect in particular differences in liquidity and credit ratings. We assess ex-ante real long-term interest rates for the five largest euro area countries by means of 10-year government bond yields less long-term inflation expectations from Consensus Forecasts. Most rates have been fairly synchronised already since the run-up to the euro, with a few exceptions of Spain where in the very recent sub-period long-term inflation expectations must have exceeded those of the rest of the euro area.

To sum up, given that nominal long-term interest rate differentials are now quite low and rather stable, the degree of persistence of these real interest rate differentials that we observe hinges mainly on the persistence of such (expected) inflation differentials. Overall the real ex-ante interest rates that we surveyed have been moving in relatively similar steps and only briefly dipped into negative territory for very short periods in Spain and also in Italy. It is difficult that strong asymmetric impulses might have originated from this price side.

This evidence is only partly reassuring and one must look also at the quantity side. What we know is that for some countries lower interest rates have combined with financial liberalisation and competition and easier access, to credit markets by domestic households and firms. This in turn has provided a significant economic impulse in several euro area countries (European Commission (2006)). Hence, the main asymmetric aspect of the common monetary policy has been linked to the transition from previously higher inflation in some countries to a lower inflation regime, and also to enhanced financial liberalisation and competition: such a change in regime has affected the behaviour of economic agents and the functioning of domestic institutions and markets. This influence should work its way through.

Are real interest rate differentials within the euro area in any case correlated with growth differentials? Standard growth and interest rate theory suggests that there should be, at least at lower frequencies, a positive correlation between real rates and economic growth across different countries. However, this tenet does not apply to a cross-country comparison within the EMU since in a monetary union, nominal rates can not reflect anymore differentials in expected inflation. In contrast, one could expect that within a monetary union, real rate differentials are negatively correlated with growth differentials at least over business cycle frequencies if economic growth tends to be higher in countries with higher inflation.

Figure 4.2.d Average ex-ante real short and long-term interest rates vis-à-vis average economic growth in the biggest five euro area countries
(in % p.a.; averages of monthly and quarterly data; 1999 to 2007)

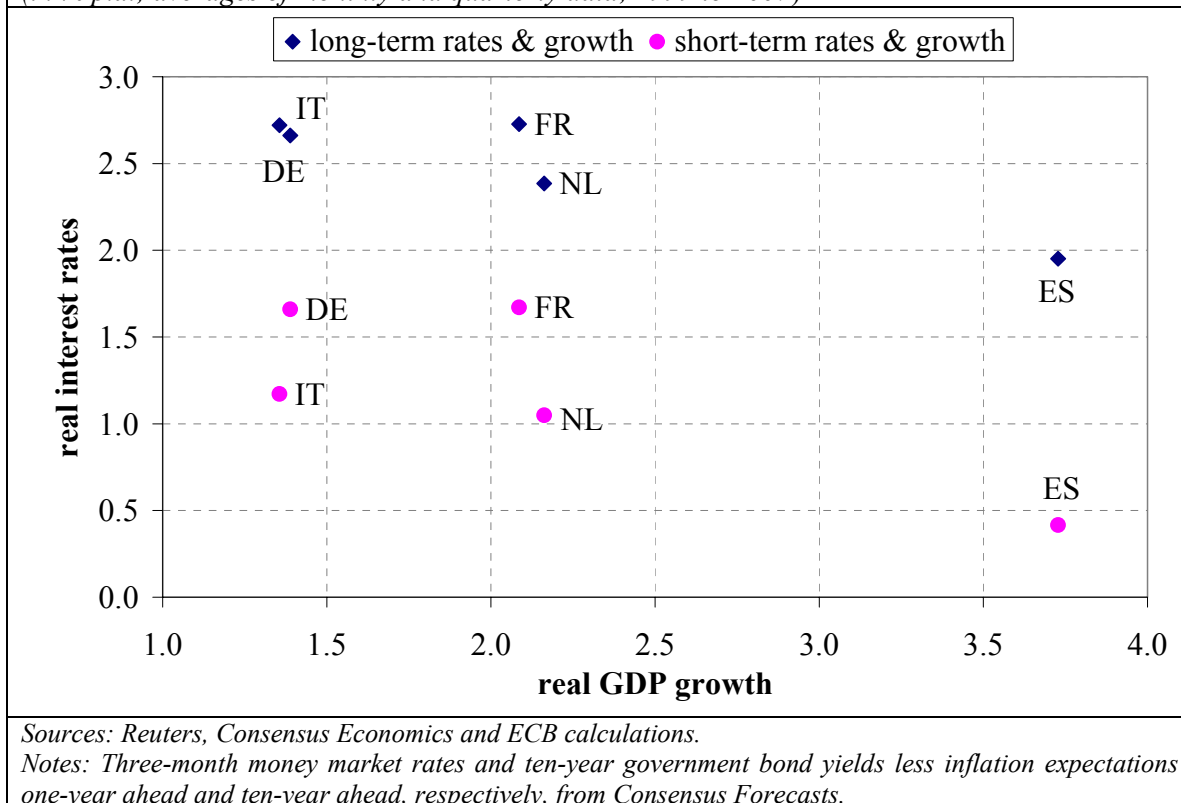


Figure 4.2.d presents a scatter plot for average real long-term and short-term rates, respectively, against average real GDP growth during EMU for the five biggest euro area countries (those with Consensus Economics inflation expectations data available). Real rates are calculated by subtracting 6-10 year ahead and 1 year ahead inflation expectations, respectively, from corresponding nominal interest rates. No clear correlation pattern emerges, with the exception of Spain: i.e., the country with highest growth rate over the 1999-2007 period also had the lowest real rate, both for long-term and short-term rates.

Pro-cyclical fiscal policies as an asymmetric transmission channel ²⁵

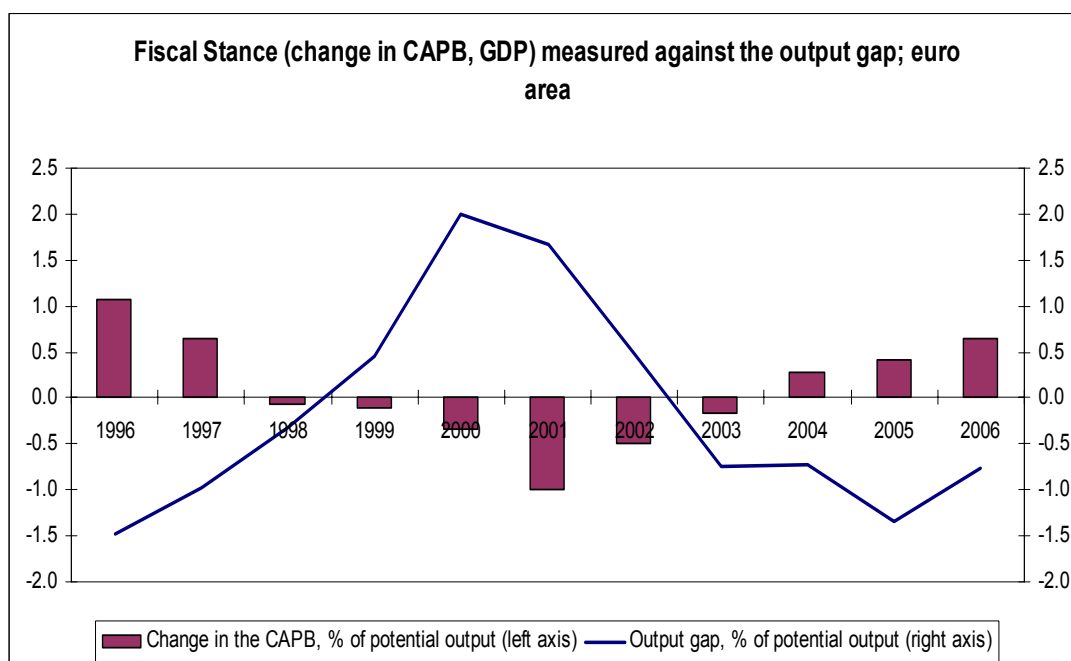
This issue concerns the risk of pro-cyclicality of fiscal policies during cyclical downturns. In a monetary union discretionary fiscal policy should generally be neutral over the cycle, while automatic stabilisers operate to help smooth out economic fluctuations. The argument is that if a government is unable to achieve a sound budgetary position during “good times”(i.e. close to balance or in surplus) it may be unable to let automatic stabilisers display their effects when the economy slows down, due to the risk of breaching the 3% deficit ceiling.

There is evidence that fiscal policies were generally pro-cyclical in several European countries for most of the 1970s and 1980s. The run-up to EMU coincided with a tight fiscal stance irrespective of the cyclical position, so that pro-cyclicality mostly concerned fiscal tightening in “bad times”. The empirical evidence for the period following the introduction of the euro is mixed. Directly after the introduction of the euro, fiscal policy was loosened in some countries as the economy recovered, thus leading to a continuation of pro-cyclical behaviour in good times. The worsening of budgetary balances in the following downturn

²⁵

This section benefited from input from Luca Onorante.

brought these countries into excessive deficits during the years 2003-2005, therefore requiring corrective actions in bad times which again entailed a pro-cyclical stance. As this tendency to pro-cyclicality was particularly evident in some of the big euro area economies, it is also reflected in the euro area aggregate reported in the figure.



However, if one takes a longer historical perspective, there is no evidence that – as some feared at that time – pro-cyclicality increased with the introduction of the European fiscal framework. In sufficiently large samples encompassing information over different time periods and across different countries, the relation between the change in the cyclically-adjusted primary budget balance and the output gap seems to point to a pro-cyclical fiscal stance in good times and a cyclically broadly neutral stance in bad times (see European Commission (2006)). Furthermore, there is no full agreement across different empirical studies.²⁶

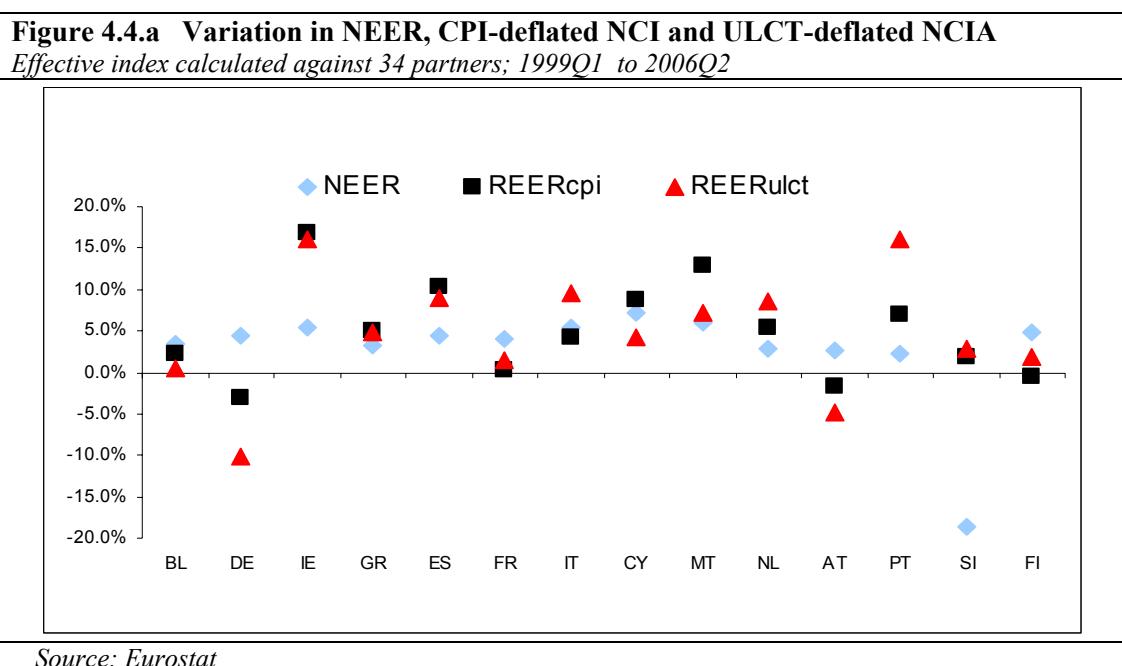
Some critics argued that the euro and the ongoing process of financial integration would have eliminated the capacity of financial markets to discriminate among the quality of fiscal policies. Prima facie, since 1999, interest rate spreads of euro area government bond markets vis-à-vis the benchmark have been declining, reaching record low levels in the last couple of years. However, Manganelli and Wolswijk (2006) argue that market discipline is still working, albeit on a narrower range. Both liquidity and default risks are still priced in the euro area government bond market, and therefore neither the euro nor the ongoing process of financial integration have eliminated market discipline. From the available data, two facts emerge. First, countries with lower rating (such as Italy and Greece) pay, on average, higher yields. Second, spreads strongly co-move with the level of short term interest rates.

²⁶ In the future there will be the additional challenge of making provisions for the fiscal implications of an ageing population. In line with the so-called three-pronged strategy agreed at the EU level to cope with the ageing-induced burden, several national governments will need to reduce public debt levels in addition to reforming pension systems and increasing employment rates.

Will real exchange rates be responsive even without nominal exchange rate changes?²⁷

One of the concerns expressed by some economists before the launch of the monetary union was that the elimination of nominal exchange rate changes within the monetary union (i.e., from 31st December 1998) would unduly limit the flexibility of relative prices – i.e., real exchange rate changes -- in reaction, for example, to idiosyncratic shocks. Instead, the empirical evidence thus far is that since the launch of the euro we have witnessed some quite significant changes in real exchange rates. Protracted changes in relative unit labour costs and inflation differentials have led to some significant changes in cost and price competitiveness.²⁸

To some extent, more changes in competitiveness have occurred than perhaps was anticipated by most before the launch of the euro, given the removal of nominal exchange rate adjustments. In Figure 4.4.a we illustrate three national competitiveness indicators (NCI): i.e., the Nominal Effective Exchange Rate (NEER), the Real Effective Exchange Rate based on the CPI price index (REERcpi), and the Real Effective Exchange Rate based on the development of unit labour costs in the total economy (REERulct). These indices are based on the actual trade structure of each country vis-à-vis European partners as well as non-European countries. Two noteworthy features are the wide range developments in the NCIs across countries from the beginning of 1999 to 2006Q2, and in general the consistency in sign (but not in magnitude) of these developments.



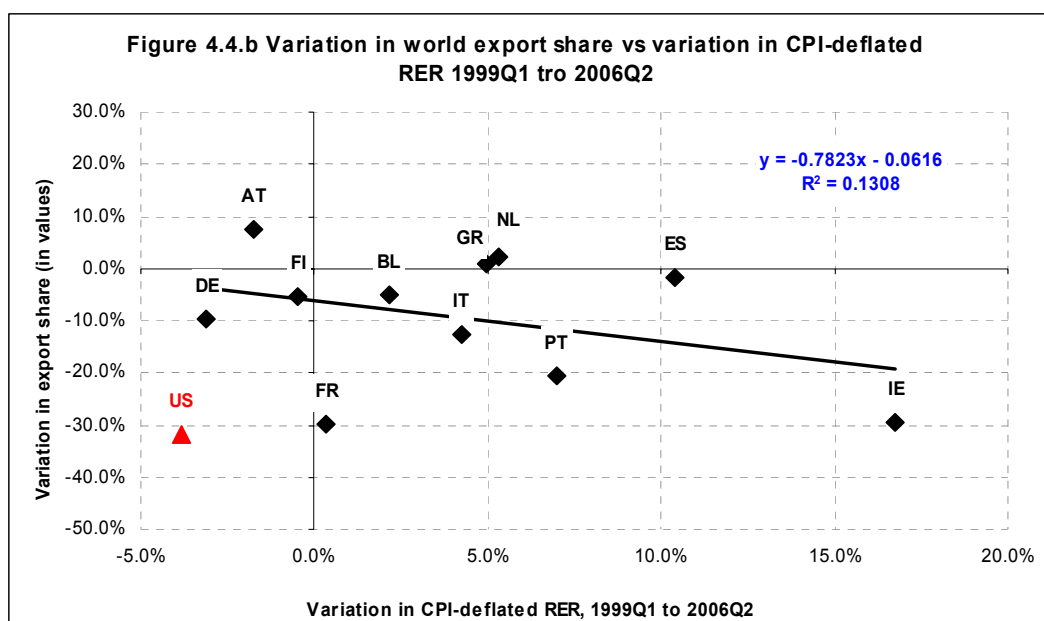
Changes in the nominal effective exchange rates come about due to the different trade shares of the various partners considered in each euro area country, and their dispersion is minimal. Changes in national competitiveness based on the REERcpi range between low negative values and a loss of competitiveness by about 10%. Changes in national

²⁷ This section was jointly drafted with Chiara Osbat.

²⁸ In order to contribute to this monitoring, the ECB has recently started publishing some Harmonised Competitiveness Indicators (see February 2007 ECB Monthly Bulletin). Over the period 1999 to 2006, most euro area countries recorded an increase in the HCIs, indicating an overall deterioration in price competitiveness for the euro area. However, the changes in competitiveness differed substantially across countries pointing to a change in relative competitiveness.

competitiveness based on the REERulct exhibit broader variation and range between a depreciation by about 10% in Germany and an appreciation in most other countries. All in all, the dispersion of these changes in competitiveness indicates that despite the adoption of a common currency, divergences in price and cost competitiveness can still occur, mostly based on the flexibility and productivity of national market structures.

We now pose a different question: what is the impact of changes in competitiveness on actual trade flows and trade shares? Figure 4.4.b shows that overall appreciations of the REERcpi has led to losses in export shares (relative to the country-specific share). Better (or worse) performance by some countries, relative to their competitiveness loss or gain, can partly be explained by their trade orientation in terms of product specialisation, e.g. in a period when world demand for investment goods has been growing particularly fast, countries with a relative specialisation in those goods have tended to fare better.



This brief analysis shows that there is room for real exchange rate adjustments processes in a monetary union. For example, since the launch of the euro Germany has posted very low inflation and moderate growth in unit labour costs. Over this extended period this has led to an increase in German competitiveness. The Netherlands instead adopted the euro with a relatively high level of competitiveness. However, the cumulative increase in nominal unit labour costs between 1998 and 2003 resulted in losses in competitiveness. Thereafter, significant wage restraint, together with fiscal consolidation, dampened domestic demand and competitiveness began to be restored from 2003 onwards. Some other euro area countries have displayed a combination of weak labour productivity growth and strong increases in nominal wages and salaries for a sustained period (not shown in this paper). This has pushed up their unit labour costs to levels persistently higher than the average for the euro area, hampering growth and job creation. More analysis is still needed on the above mechanisms. A broad lesson is that wage and costs developments need to be consistent with productivity developments. To regain the lost competitiveness, some euro area countries may have to undertake a similar adjustment in their unit labour costs to the one conducted in Germany over the last years. This can take place both via increases in productivity and more “painfully” via wage containment.

Does the euro encourage or hinder structural reforms?

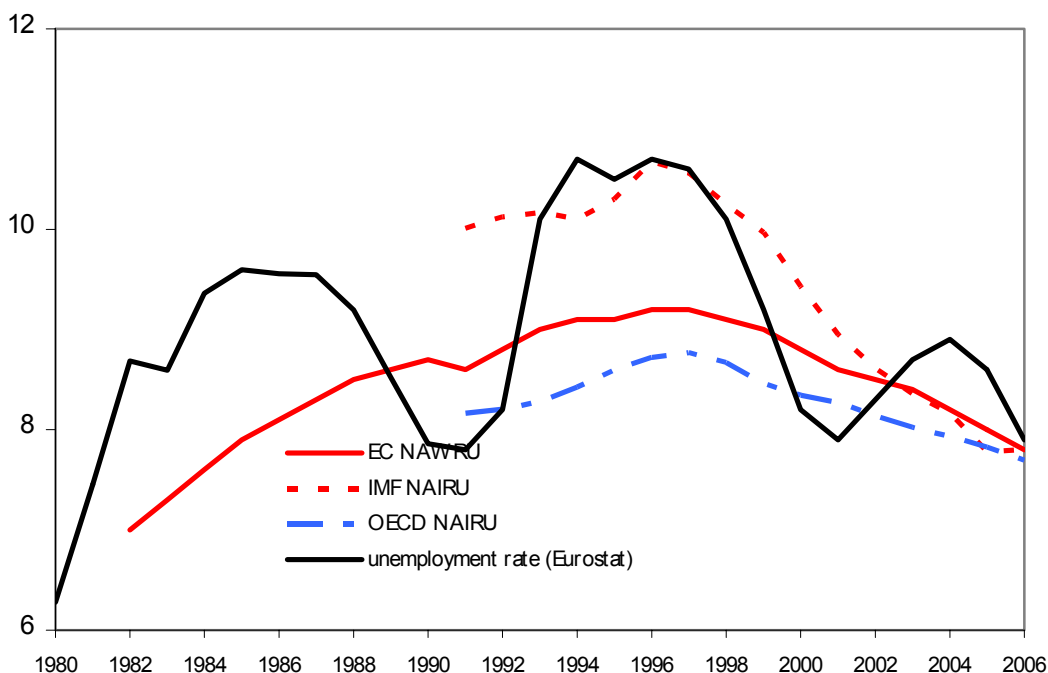
In recent years the political economy of structural reforms – and the debate on whether EMU may encourage or hinder product and labour market reforms – has received considerable attention. Thus far no consensus has emerged. One *optimistic view* is that EMU strengthens the incentives for structural reforms simply because *There Is No Alternative* (hence the TINA acronym): having lost direct control over national monetary policy, euro area countries have to strengthen market-based adjustment mechanisms in order to cope with adverse shocks (Bean (1998)). Another viewpoint is that enhanced price transparency for goods and services (in addition to product market deregulation) enhances competition, reducing the rents to be shared. The incentives for workers to appropriate such rents would then decrease, making labour unions weaker, reducing insider power and leading to labour market deregulation (Blanchard and Giavazzi (2003)).

One *pessimistic view* is that monetary union might raise the up-front costs of structural reforms by precluding a “two-handed” approach by which an expansionary monetary policy could support domestic demand and “crowd-in” the added supply capacity.²⁹ There is also the view that the “deterrence argument” is no longer valid, so that incentives towards real wage restraints may therefore be weakened after the launch of the euro. A *cautious view is that even if* the incentives to undertake large-scale reform are reduced, EMU increases the likelihood of gradual reforms and coordination of reform across countries (Saint-Paul and Bentolila (2000)). Duval and Elmeskov (2006) observe that the impact of EMU on the political economy of structural reforms is likely to be less important than solving the long-standing bottlenecks of growth and sources of “Eurosclerosis” in many European economies.

Concerning the actual structural reforms, the cautious view seems to be prevailing overall. There have probably been more reforms than are usually credited, but the reform gap is still quite large in most euro area countries. The limited empirical evidence thus far is that improvements in the functioning of the euro area labour markets as a whole started to emerge in the second half of the 1990s. The fall in the unemployment rate and the increase in participation were accompanied by a decline in the non-accelerating inflation rate of unemployment (NAIRU), thereby suggesting that improvements are structural.

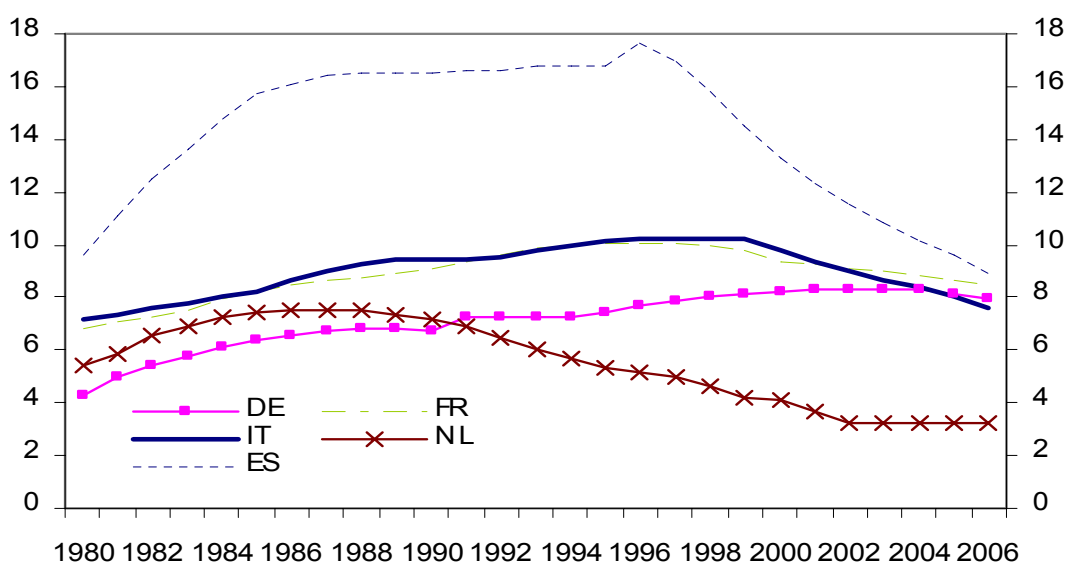
²⁹ For an illustration see OECD (1997), Bean (1998), Calmfors (2001), Sibert and Sutherland (2000), Soskice and Iversen (2001), Cukiermann and Lippi (2001), and Saint-Paul and Bentolila (2002).

Average NAIRU/NAWRU estimates for the euro area
(percentage of the labour force)



Sources: European Commission, IMF, OECD, and Eurostat.

Average NAIRU/NAWRU estimates for the larger five euro area countries
(percentage of the labour force)



Sources: European Commission, Eurostat, IMF, OECD, and ECB Monthly Bulletin January 2007.

A visible phenomenon of recent years has been the stabilisation of wages in the run-up to EMU and since the launch of the euro. A large part of this stabilisation is concurrent with the decline in inflation observed during the same period. The resurgence of national bargaining coordination through national income policies, social pacts and longer contract periods in some countries (lowering negotiation costs and raising the predictability of real wages) might be linked to the monetary discipline imposed by a common currency (see Calmfors (2001)

and Pichelmann (2003)). Calmfors (2001) cautions that wage moderation may represent a transitional phase that might be exhausted over the next 10-15 years. There is instead a shift towards decentralised bargaining in the long run. In any case, the view that the “deterrence argument” is no longer valid, which also formed part of the pessimistic view, is disproved by the evidence thus far.

The type of reform matters. There is evidence of structural reforms aimed at rewarding work effort, but less at enhancing the flexibility that is needed to facilitate dynamic adjustment. The types of structural reforms that have taken place in labour and product markets in recent years are not always those that enhance the process of adjustment. They have often been at the margin, leading sometimes to a dual labour market characterised by fixed-term and unstable jobs on one side, and permanent, highly protected jobs on the other. *The sequence of reform also matters.* Structural reforms may start with product market reforms, because it is possible that they suffer less from the EMU problem than labour market reforms. Nickell (2006) argues that such reforms should aim at increasing the intensity of product market competition. Overall prices would then tend to be lower and real wages would tend to be higher (except for those workers who were originally able to capture monopoly rents). Profits would also tend to be lower. The consequence of this shift, Nickell adds, could easily be a short-term increase in real expenditure, because the short-term propensity to spend is probably more a result of wages than of profits. Therefore output and employment may well rise even without any relaxation of monetary policy.

There is some evidence of a slowdown in the pace of reform, especially among the larger euro area countries (Boeri (2005) and Boeri, Bertola, and Nicoletti (2001)). Duval and Elmeskov (2006) observe that on average, the intensity of structural reforms between 1994 and 2004 was greater in the euro area than in the rest of the OECD countries, and that the pace of reform was fastest in the small EMU countries. Reforms have also been typically deeper and more comprehensive in the euro area. However, reform intensity has not been greater in EMU than in non-EMU EU countries since the launch of the euro. For euro area countries reform intensity was lower over 1999-2004 than during 1994-1998. No such slowdown was observed in non-EMU EU countries. There is also an asymmetry: larger euro area countries have thus far been slower than others in securing structural reforms. This is restricting their adjustment mechanisms, hindering their ability to cope with economic events and reducing the net benefits to be gained from EMU for all euro area countries.³⁰

Most euro area countries still need to counter pervasive price rigidities and reduce imperfect competition in several important sectors such as regulated sectors and network industries. Significant reforms to enhance labour market flexibility are still needed in several euro area countries. The euro area governance and the revamped Lisbon Agenda might provide an important impulse in this respect.³¹ The revamped Lisbon Strategy, which is also called the Partnership for Growth and Jobs, will allow the commitments to national reform programmes to be monitored.³²

³⁰ Concerning the deceleration in the process of reform in (large) euro area countries, Jimeno (2006) notes that if reforms follow a gradual process and there are complementarities that make one reform the origin of future reforms, it may be too early to make a call. There is also a puzzle: Spain has witnessed a very significant decline in unemployment without having pursued major structural reforms.

³¹ Various feasible goals have been set in order to, among other things: a. enhance the flexibility and adaptability of labour markets; b. raise competition in the markets for goods and services; c. increase employment; d. promote innovation; and e. strengthen growth and employment rates in each participating country. The revamped Lisbon Strategy, which is also called the Partnership for Growth and Jobs, will allow the commitments to national reform programmes to be monitored.

³² There are other outside factors putting pressure on the pace of reforms. Despite the reforms that have taken place in euro area labour and product markets, the evidence available from the Fraser Institute of Economic Freedom World Index illustrates that the euro area is losing ground, and other world competitors are catching up.

The crucial role played by financial integration

Monetary integration fosters financial integration, which in turn plays a central role in the functioning of monetary unions. During the run-up to EMU, two main views on the possible effects of the euro on financial integration existed. According to the *first view*, financial integration should foster an improved allocation of capital, higher efficiency and higher economic growth. Financial markets can provide a significant source of insurance against asymmetric shocks (this is also known as the “Mundell II” argument; see Mundell (1973)). If monetary unification enhances financial integration, it will endogenously improve insurance against asymmetric shocks, thereby reducing the costs of forsaking direct control over the exchange rate.³³ According to the *second view*, higher financial integration renders specialisation in production more attractive, therefore making macroeconomic fluctuations less symmetric. This specific phenomenon is addressed in the next sub-section. What is the evidence thus far concerning financial integration?

a. Euro area evidence (1): effects on financial prices, interest rates and equity returns

The euro has already had a significant impact on several segments of European financial markets (see Baele et al. (2004)). Money markets integrated almost immediately after the introduction of the euro, particularly the unsecured deposit market. The repo segment, where market participants exchange short-term liquidity against collateral, is less well integrated (see Berg et al. (2005)). In bond and equity markets a process of structural change and increasing integration is unfolding. Concerning bond markets, it is clear that the integration of financial markets in the euro area started well before Stage Three of EMU. Yield differentials among euro area government bonds have converged markedly since 1996. This convergence accelerated further after the pre-announcement of the irrevocable fixing of parities in May 1998 (see Cappiello, Engle and Shephard (2003)). Since May 1998 yield differentials have only rarely exceeded 40-50 basis points, whereas in the early 1990s, spreads of more than 500 basis points – mostly reflecting inflation differentials – were not uncommon. There are diverse explanations for this phenomenon: institutional investors have, to some extent, seized the opportunities opened by the disappearance of relevant currency-matching restrictions.³⁴

Cappiello et al. (2006) apply new models of return linkages between different asset markets, and argue that co-movements among stock markets and government bond markets increased noticeably around the changeover. Interestingly, however, the increase in integration is much more pronounced among a set of larger countries with larger stock markets, whereas changes in integration are rather limited or insignificant among a group of smaller countries. These facts could be explained either by the more limited trade relationships among some of those countries, or by patterns in the investment management industry that tend to concentrate investments in larger and more liquid markets. The greater

³³ Asdrubai et al. (1996) looked at channels of inter-State risk in the US and found that 39% of the shocks to gross state product (the equivalent to our GDP), is smoothed out by the US capital markets, 23% by the credit channel, and 13% by the federal government. 25% of these shocks is not smoothed out at all. Hence, in the US, financial markets and financial institutions contribute 62% to the absorption of state idiosyncratic shocks. The effect is substantially higher than that of the federal budget. In perspective, higher financial integration in Europe will enhance financial-based adjustment and partly compensate for the absence of a pan-European “federal budget” – akin to the US federal budget. A similar analysis by Marinheiro (2003) finds considerably lower smoothing by the capital markets across the euro area. In Europe smoothing occurs through the budgets of the national governments, and has an intertemporal character, instead of an interregional one.

³⁴ However, Adjaoute, Danthine and Isakov (2003) discern no obvious pattern in the dispersion of ex-post real yields pre and post-EMU. But there is still a considerable decrease in the volatility of real yields. The scale of the euro-denominated corporate bond market has grown rapidly and many equity investors now treat the euro area as a single entity.

integration associated with the euro also led to an increase in the stability of government bond markets in the euro area. This fact benefits European sovereigns, because funding risks are softened, investors, because this market becomes a more secure “safe haven”, and corporations, which experience, *ceteris paribus*, a decrease in the cost of capital.³⁵

Angeloni and Ehrmann (2003) seek evidence of euro area-wide banking integration and the degree of interest rate pass-through using post-1999 data. Banks are, in fact, likely to rapidly internalise the changes stemming from EMU. They show that the pass-through of changes in money market rates is not only faster and more complete, but also increasingly homogenous across the euro area. Bank retail rate spreads have also fallen steadily. However, the integration of the European banking sector has been slower overall than that of the securities markets. Xavier Vives (2006) recalls a CEPR Report (i.e. Danthine, J.P, F. Giavazzi, E.L. von Thadden and X. Vives (1999)) which argued that European financial markets are still fundamentally segmented. Concentration in the banking sector in the various European national markets has increased since then, but mostly because of domestic mergers. These have dominated because they have helped to cut costs, reduced branching overlaps, and allowed to increase or maintain market power, to prevent hostile takeovers, or to form financial conglomerates.³⁶

b. Euro area evidence (2): the effects on financial flows

Much attention has been attracted by the substantial increase in direct and portfolio investment flows *between the euro area and abroad* since the end of the 1990s. However, there has also been a less well-documented increase in direct and portfolio investment flows *within the euro area*. Intra-euro area Foreign Direct Investments (FDIs) have grown considerably since the launch of the euro. They are now catching up with extra-euro area FDIs. Between 1998 and 2004, total FDIs grew by about 180% in nominal terms, while cumulated total FDIs now account for around 24% of euro area GDP. Intra-euro area FDIs grew by over 240% and now account for a little less than half of total FDIs. Such FDIs – which also include mergers and acquisitions (M&A) activity – accumulate over time and contribute to reshaping Europe.

There has also been an increase in bond issuance both by non-financial corporations and by monetary and financial institutions (MFIs) – see Baele et al. (2004). The increased access of non-financial corporations to market finance reflects, in part, stronger competition within the European financial sector. Banks are under pressure to use their balance sheets more efficiently in order to increase their return on equity, and are therefore increasingly facilitating the access of corporations to capital markets. A particularly significant development in this context is the very fast growth of issuances by smaller and less well-established firms. A look at the assets side of the balance sheet of the MFIs in the euro area – and more specifically at the loans of the MFIs – provides some indication of progress in integration in financial services. In fact, loans represent the most important asset in the balance sheet of the MFIs. After 1998, the gross stock of loans to euro area residents versus non-euro area residents rose very significantly, but then retrenched somewhat after 2000.

³⁵ Adjaoute, Danthine and Isakov (2003) had found some evidence that the equity risk premium may have decreased in Europe, reducing the cost of capital. The structure of equity returns has also changed in Europe: country factors now appear to be dominated by the factors associated with industries or sectors.

³⁶ Cross-border banking mergers in Europe have been less common until recently, because they face some obstacles that are not present, say, in the US market, including: more limited economies of international diversification, the existence of labour market rigidities, differences in language, regulations and corporate cultures, and political interference to foster national champions.

Adam, Jappelli, Menichini, Padula and Pagano (2002) find that the share of funds managed with a Europe-wide investment strategy increases for money market and bond market funds. Both types of funds show significant progress during the first months of 1999 for almost every country. Galati and Tsatsaronis (2001) observe a significant acceleration in German investor purchases of euro area securities, ahead of EMU in 1998, with intensification in 1999 and 2000. Similarly, the share of euro area bonds in the overall bond portfolio of Italian neutral funds increased from 8% in 1995 to 23% in 2000. Recently, Gérard (2006) noted that the euro has already had a visible impact on international portfolio choices. There is evidence of euro area investors having assigned a higher weight to portfolio investment in euro area countries, even after taking into account the effect of a large set of variables borrowed from the finance literature and adjusting for valuation changes (see De Santis and Gérard (2006)). The increase in the weights – on top of the world average portfolio weight increase in euro area assets – amounts to 12.5 and 21.7 percentage points for equity and bonds and notes holdings respectively.

Capriello et al. (2006), Gerard (2006), and De Santis and Gérard (2006) also address the relative importance of country and industry factors as determinants of international equity returns. Although industry and country-based portfolios are indistinguishable in terms of mean-variance efficiency, there is a remarkable change in the structure of euro area equity returns that they find. Whereas country returns were more volatile but less correlated than industry returns in the early 1990s, the opposite is true for the late 1990s and the beginning of the twenty-first century. Furthermore, the striking increase in industry idiosyncratic risk caused a near doubling of the average gains from optimal regional cross-industry diversification. In terms of risk reduction, the average gains have more than doubled in the period since the introduction of the euro. Even within a group of closely linked economies like the euro area, broader diversification, across countries and industries, remains essential.

c. Euro area evidence (3): aggregate macro-effects

All in all, financial integration is not fostering economic divergence and seems to be actually helping to reduce the impact of idiosyncratic shocks. Over time, greater financial integration and modernisation will make it easier for households to insure against idiosyncratic risk through borrowing and lending and cross-country ownership of financial assets, which will allow for more income-smoothing. Furthermore, greater financial integration and modernisation are associated with more sustained economic growth.

Direct evidence on financial based risk-sharing is modest thus far. Giannone and Reichlin (2006) show that, since the early 1990s, the possibilities of hedging consumption against country-specific shocks (i.e. risk-sharing) have increased in the euro area, thereby reducing the welfare cost of heterogeneous economic activity. Whilst the percentage of GDP variance that euro area countries have smoothed out through capital markets, credit markets and other transfers has increased, the level of risk-sharing remains below that of the US regions. Policy can further support cross-border risk-sharing by removing any remaining obstacles to financial market integration.

d. Euro area evidence (4): initiatives to foster financial integration

Further financial integration is being promoted through several initiatives, including:

- The European Commission's Green Paper on Mortgage Credit in the EU as a whole (not only the euro area) at the end of 2005. This is an important segment of the banking and retail markets, as there is an outstanding volume of residential mortgage debt in the EU.
- The launch of TARGET2 – the new payment platform for the financial system – is planned for the end of 2007.

- The Short-Term European Paper (STEP) initiative to promote the convergence of better market standards and practices in the European short-term securities markets.
- The project for a Single European Payment Area under which all banking transactions conducted across the euro area will incur the same charges as a domestic transaction. This will be a powerful engine for the further integration of financial markets.
- A new initiative was recently launched: TARGET2 securities. This will align cross border transaction costs in the security market with domestic costs.

In summary, based on the limited evidence reported here, one can deduce that some progress has been made towards greater financial integration in the euro area. There is no doubt that some of this progress, especially in the money and bond markets, was associated with the introduction of the euro. But there are also some areas in which financial market integration has not yet had a significant effect. For example, the integration of the European banking system is still incipient and has thus far been slower than that – for example – of the securities and bond markets. However, recent events since the latter part of 2005 have brought some novelties here, as there have been more cross-border banking mergers and acquisitions. While the euro area is still not operating as a unified financial market, a series of policy initiatives are likely to have an impact in the near future.

The specialisation paradigm and the exposure to asymmetric shocks

There is a view that higher financial integration renders specialisation in production more attractive, making macroeconomic fluctuations less symmetric, and exposing countries to more asymmetric shocks. This “specialisation paradigm” is countered by another view that monetary integration leads instead to a scattering of production and less regional concentrations of industrial activity. We review here some empirical evidence on changes in specialisation and the relevance of asymmetric shocks.

Giannone and Reichlin (2006) examine growth trends and business cycles in euro area countries (and the euro area as a whole) since 1970. They ask themselves how much heterogeneity is really present and to what extent we should worry about it. Their answer is: “*not much and we should not worry, at least not yet*”. They present a wealth of stylised facts on growth differentials and business cycle synchronisation among euro area countries. They also compare empirical findings with those obtained for regions in the US, a mature monetary union. They show that output levels are not converging in Europe, with the exception of the remarkable catch-up of Ireland's output. However, they are clearly not diverging either.³⁷ US regions display a similar pattern. Furthermore, cyclical asymmetries among euro area countries are relatively small and similar to those among US regions. Statistical tests are unable to detect signs of significant structural change in this respect. Hence, for instance, turning points in national business cycles have shown a remarkable degree of simultaneity since 1970. In the same vein, co-movements within the euro area are shown to be larger than between the euro area and the rest of the world.

This suggests in turn that euro area countries are “close enough” for area-wide aggregates to capture the bulk of national features. That is consistent with the views expressed by Altavilla (2004), Bergmann (2004), Mansour (2003) and Del Negro and Ottrok (2003), who argue that a European business cycle exists. Other authors – notably Artis (2005), Lumsdaine and Prasad (2003), and Canova, Ciccarelli and Ortega (2003) – emphasise instead the

³⁷ Sørensen (2006) questions why output convergence seems to have come to a halt in the EU as well as among US States. Such convergence was, however, occurring in Europe and in the US before the 1980s. He points to the decline in output volatility which, if permanent, would reduce the role of international risk-sharing (at least while the low level of asymmetry persists). Sørensen then observes that income is not output, as Giannone and Reichlin (2006) implicitly assume when they compare US income convergence with European output convergence.

existence of a “world business cycle”. In connection with this debate, Camacho, Pérez-Quirós and Sáiz (2004) have developed indicators of the distance between national business cycles. They show that – although the existence of a euro area business cycle proper, different from the world business cycle, can be formally rejected – bilateral distances corresponding to euro area countries tend to cluster together, which suggests that the business cycles of euro area countries have much more in common with one another than with other countries. Giannone and Reichlin (2006) also show that common shocks account for the bulk of output fluctuations in euro area countries. Country-specific shocks in turn have small but persistent effects: they are mainly responsible for existing asymmetries among euro area countries.³⁸

McCarthy (2006) also finds no conclusive evidence that EMU has increased business cycle synchronisation across euro area countries, even when the pre-EMU “convergence phase” is included. The findings depend on diverse factors, including the data used (e.g. monthly industrial productions data or quarterly GDP data) as well as the cycle-dating algorithms employed to isolate the stylised facts on business cycles (classical or growth-deviation identification of the cycles) and the various techniques used to evaluate the degree of synchronicity of cycles. Furthermore, where increased synchronisation of cycles among euro area countries appears to be supported by the analysis, it is not clear whether this is due to a specifically euro area business cycle or due to globalisation. Another aspect is the cyclical symmetry across euro area countries: although cyclical dispersion has remained quite low in the past few years in the euro area as whole, disparities in cyclical positions between the countries have increased steadily. Hence, a more detailed analysis is needed.

As previously mentioned, Kalemli-Ozcan et al. (2003) argue that risk-sharing tends to increase in a currency union, bolstering the case for higher specialisation in production. The peculiarity of this channel is that any resulting asymmetries in GDP fluctuations would not translate to income volatility because ownership is diversified. This essentially will help to smooth consumption across countries and, therefore, limit the welfare cost of GDP fluctuations. There are no recent studies concerning the effects of the single currency on the nature of shocks.

Using pre-euro data, Demertzis, Hughes and Rummel (2000) find some evidence of overall symmetry of shocks between European countries. However, the correlation of shocks is stronger within a core group (Austria, France, Germany, Belgium, the Netherlands, Denmark and Luxembourg) and a periphery group (UK, Greece, Ireland, Portugal, Spain, Italy, Finland and Sweden). Furthermore, there is greater symmetry on the demand side, due largely to policy interventions, than on the supply side or for the “monetary shocks.” The authors also find that few policies have been directed to the supply side and that country-specific shocks have dissimilar sizes. The observed symmetry is largely attributable to demand policies – rather than to a convergence in the underlying economic structures. Hence, “EMU” seems to be held together largely by policy-makers.

“...participating in a currency union ...if the pros outweigh the cons from the viewpoint of national self-interest and welfare...” Yoshida Ishiyama (1975)

5. The benefits and costs from participating in EMU

During the elaboration of the OCA theory, the analysis of the costs and benefits from monetary integration also acquired more structure and depth. After all, the prospect of a

³⁸ This pattern is not different from the US case, although the size of idiosyncratic shocks turns out to be more homogeneous across US regions than it is for euro area countries.

positive balance between benefits and costs is the principal reason for forming a currency area. A few authors even distinguish between the analysis of OCA properties, which may be rather inconclusive and is subject to the weaknesses listed above, and the analysis of the main benefits and costs, which has its own merits irrespective of the OCA theory (Ishiyama (1975).

Despite its importance and merits, such analysis remained always far less developed and vague than the analysis of the OCA properties. A hurdle is that the diverse benefits and costs can be quite diverse in nature and complex to ascertain and compute. Some of the benefits and costs can even be less than tangible. The OCA literature and the broader literature on monetary integration and exchange rate arrangements have considered diverse types of benefits and costs from participating in a currency area.³⁹

Some are one-offs and others are permanent. Several benefits and costs cannot be judged statically as they can take different profiles over time – i.e. in the early stages of a currency area vis-à-vis a stage when the new single currency can fully display its benefits both domestically and internationally. The latter type of benefit would also be conditional on the soundness of the new institutional framework and in particular on the credibility of the newly centralised monetary policy framework. Most benefits and costs can also take a different profile across participating countries – e.g. in small and large countries, or in countries with a track record of relatively high inflation in the past. Hence, such an analysis should ideally be conducted on a country-by-country basis.⁴⁰

The rest of this section reviews some of the already visible benefits and costs from EMU, as well as those for which some studies and estimates already exist. We refer here broadly to the costs and benefits from EMU, rather than only from the single currency. Therefore, some of the evidence greater links between euro area countries cited in Section 4 will aid us a bit. The same caveats as above apply. Both Andrew Rose and Jeffrey Frankel expect the effects of the euro to display themselves only after 20-30 years. Hence, we should not draw excessive conclusions based on just a few years of euro data and information.

5.1 Some of the benefits from the euro and EMU

We list here some of the benefits and costs about which something could be said or for which some estimates exist. An important source of several direct and indirect benefits stems from the **successful implementation of the monetary policy framework** of the ECB and the Eurosystem. The credibility of the ECB is in turn reflected in well-anchored inflation expectations – even looking far into the future. This has been instrumental in securing the lowest interest rates on a 2, 5, 10 or even 50-year basis. For many euro area countries this represents a very significant benefit (e.g. by lowering public debt servicing and supporting investment and growth). The decline in real interest rate illustrated in Section 4.2 is a testimony of that.

We also have some **measurable effects of the euro and EMU in the area of trade deepening and financial integration**. Following the seminal contributions on the literature

³⁹ Admittedly, the perspective taken here is “euro-centric”. However, several of these arguments can be cast for possible currency areas in other regions. Perhaps the most extensive examination of the benefits and costs of monetary integration is made in “*One Market, One Money*” by Emerson et al (1992). Several benefits and costs are discussed by De Grauwe (2005), Baldwin and Wyplosz (2004), Corden (1972, 1985 and 1993), Ishiyama (1975), Tower and Willet (1976), Tavlas (1993 and 1997), Masson and Taylor (1993), Artis (1991), Eichengreen (1994), Fratianni and Von Hagen (1990), Buiters (2000), Portes (1993 and 2000), Dowd and Greenaway (1993), Alesina, Barro and Tenreyro (2002), and Canzoneri, Vallés and Viñals (1996), among others.

⁴⁰ Ishiyama (1975) recognises the limitations of defining optimum currency area based on any single OCA property and postulates instead that each country should evaluate the costs versus the benefits of participating in a currency area from the point of view of its own self-interest and welfare.

on “endogeneity of OCA” launched by Frenkel and Rose, some studies followed using European data. Using the gravity model Micco, Stein and Ordóñez (2003) found that bilateral trade among euro-area countries rose 5 to 20 per cent compared with the bilateral trade between countries that had not adopted the euro. Bun and Klaassen (2007) reduced the estimated effect of monetary union on euro area trade to about 3 per cent. Baldwin (2006), and Baldwin, Skudelny and Taglioni (2005) point out that the euro probably did already boost intra-euro area trade by something like 5-10 percent on average: however, the estimated size of this effect is likely to change as new data becomes available.⁴¹

The discussion in Section 4.6 bears witness of **several advancements in the integration of several financial segments (and some slow advancements as well)**. One area that has seen a remarkable surge is that EMU has witnessed an increase in FDI flows and cross-border mergers and acquisitions (M&As) of the manufacturing sector among EMU member states. According to Petroulas (2007), the EMU effect – which has been isolated by controlling for GDP and development in stock markets in the acquirer and target countries, being part of EU, as well by controlling for the world investment in EMU, etc. – on FDI flows is estimated to be equal to 7%. According to Coeurdacier, De Santis and Aviat (2007), the “EMU effect” of the manufacturing sector is estimated to be on average equal to 50% (e.g. if annual M&As between Germany and France amounted to EUR 1 before 1999, they increased to EUR 1.5 after 1999 only due to EMU). Specifically, EMU has facilitated cross-border M&As within the euro area, which aimed at restructuring capital within the same sector of activity, rather than boosting the formation of conglomerate activities.

Conversely, **the service industry has not yet fully benefited** from European financial integration. Existing barriers to trade in services could also have undermined M&As decisions of entrepreneurs.

The estimated impact of further financial integration on the costs of financing could be quite remarkable for every EU Member State. London Economics (2002) suggests that the cost of equity capital could fall by about 50 basis points on average. The cost of bond financing could decline by about 40 basis points and, together with an increase in volumes of bond financing, could also lead to notable savings. It is also expected that the cost of bank finance will fall by about 20 basis points on account of increased efficiency and competition. On the basis of some further assumptions and extensive surveys of market participants, London Economics postulates that further (and full) financial integration could boost GDP by between 0.9% and 1.2% in the majority of EU Member States.

More integrated financial markets and diversified portfolios are gradually reducing the extent to which firms’ and households’ saving and spending decisions are dependent on economic and financial developments in a specific country, region or sector. To some extent, credit and risk-sharing channels are increasingly helping to attenuate the impact of shocks in a specific euro area country or sector. This implies that consumption does not need to follow movements in regional output. But there is another important (future) benefit: it weakens the argument against the euro that there is an absence of a significant federal budget to absorb asymmetric shocks at the level of the different member countries.⁴²

⁴¹ These figures must be seen in perspective: European trade has risen unabated over the last 50 years. Mongelli, Dorrucchi and Agur (2007) show that the increases in real trade values for the 6 founders of the European Union is in the range of 1200-1400 percent: this is four- or five-folds increase with respect to the initial estimates of the endogeneity of OCA by Rose (2000) and Frankel and Rose (1997). Remarkably, there is also no “fortress Europe”. There is clear evidence that extra-euro area trade has grown by more than intra-euro area trade: i.e., the euro has stimulated trade not only across the euro area, but also with the rest of the world.

⁴² According to Asdrubali et al. (1996), financial markets allow 62% of idiosyncratic shocks in the US to be absorbed: an effect much larger than that of the federal budget. The European Union does not have a federal budget akin to the US federal budget. However, as overall financial integration deepens, financial market-based risk-sharing also has the potential to increase over the coming years.

The **euro area has greater resilience to external developments (and shocks)** than its individual Member States ever had before the launch of the euro. National economic policies have become better coordinated, and of course the risk of possible speculative attacks on national currencies has been removed. For example, prior to the launch of the euro, the impact of movements by the Deutsche Mark against the US dollar was often aggravated by similar movements between the currencies that have now merged to form the euro. This can no longer happen. This increasing resilience is illustrated by the fact that the major shocks of the last ten years have not played an important role in the dispersion of output growth and have not contributed to economic divergence. However, greater resilience does not imply insulation!

Several benefits stem from the international role of the euro, such as the seigniorage and the lower costs of conducting international transactions.⁴³ In the case of the euro, its international role is determined by the investment decisions of private agents and public authorities outside the euro area, whereas the ECB has a neutral policy position, neither encouraging nor hindering the international use of the euro (see Papademos (2006)). Since its launch in 1999 the euro has become increasingly attractive as a vehicle currency in international trade, in particular in the countries close to the euro area (lowering the cost of conducting international transactions for euro area residents), for financing and investment purposes, and as a reserve currency, with its share initially surging above the sum of the shares of the euro legacy currencies and stabilising in recent years (see ECB (2005)).⁴⁴

Some important expected benefits have not yet fully materialised. With the euro we would expect greater price transparency to reduce price discrimination and decrease market segmentation, therefore fostering competition across the euro area. This effect is still missing in several markets for goods and services (for example, we still don't have a full convergence of car prices). The impact of internet-based providers that can sell and ship their merchandise across countries is also still modest. To put this differently, the service industry has not yet reaped the full possible benefits from EMU. There are various estimates concerning the benefits expected from the Services Directive. The consultants Copenhagen Economics estimates a 0.3% increase in GDP and a 0.7% increase in employment. The European Commission estimates a 1.8% increase in GDP and 2.5 million new jobs.

5.2 Some of the costs from the euro and EMU

There are also some **costs occurring as a result of relinquishing direct control over the domestic currency and the exchange rate**. The discussion in Section 4.4 has shown that even in short time-period there can be significant gains and losses of real exchange rate competitiveness in a monetary union. Perhaps the inability to devalue prevents an escape route often used in the past by some countries and maybe perceived as a cost (and the preclusion of the “two-handed approach” discussed in section 4.5).⁴⁵

⁴³ Kannan (2007) postulates significant welfare gains for having the euro used internationally. A terms-of-trade improvement could occur with easier international matching of sellers and buyers using the same unit of account. Such gains could range from 1.7% to 2.1% of consumption depending on domestic and foreign inflation.

⁴⁴ For example, the share of the euro as a reserve currency rose from 18% in 1999 to 25% in 2003 and has been relatively stable since then. The share of the euro in the stock of international debt securities gradually rose from 19% to slightly below 32%.

⁴⁵ Many authors have shown that the cost from having no nominal exchange rate for countries joining EMU is likely to be low because movements in exchange rates are dominated by monetary and financial shocks preventing the exchange rate from performing the macroeconomic stabilisation function (see for example Canzoneri, Vallés and Viñals (1996)). However, De Grauwe (2003) provides some qualifications by examining the successful devaluation in Belgium in the early 1980s.

Economic theory and empirical analysis have provided various arguments that tend to reduce these costs. However, the loss of this policy instrument still needs to be balanced by enhanced economic management, increasing the ability of the economy to respond to shocks and challenges. Hence, the costs of monetary union can vary from country to country depending on each country's overall economic flexibility and adaptability. The lower the "agility of the economies", the higher the costs.

There were **various changeover costs that resulted from switching to a new currency**. These costs included administrative, legal and hardware costs such as re-denominating contracts and adapting vending machines. We could also add the psychological costs resulting from a new numéraire: with bounded rationality these costs can be substantial over time. To some extent the issue of higher perceived inflation in several euro area countries (e.g. the *Teuro* in Germany) falls into this category of costs. In any case, this unfortunate phenomenon coincided with the transition to the euro but is not the direct fault of the euro: rather of profiting by some market participants and lax monitoring of price changes by several national authorities.

The **future costs of EMU will hinge also on the ability of each country to enhance its dynamic adjustment**. This cost is an order of magnitude far above all other costs mentioned here and is still poorly researched and explained to the vast public: i.e., the *precise intra-temporal and inter-temporal macro-economic costs of not undertaking structural reforms*. Countries with slow dynamic adjustment mechanisms and responsiveness will lose competitiveness and market shares to competitors (both inside and outside the euro area as shown in Section 4.4). Such reforms would have been indispensable, and perhaps even more complex to undertake for some countries – i.e., in the absence of the "exogeneity of OCA" -- without EMU.

6. Some concluding remarks

This essay has followed the synergies and complementarities between European Economic and Monetary Union (EMU) and the optimum currency area (OCA) theory. Both started at almost the same time in the early 1960s. The basic intuitions behind the OCA theory are remarkably resilient and are still central in the debate on monetary unions. Various advancements in economic theory and econometrics have made it possible to progress from the "early OCA theory" to a "new OCA theory". The OCA theory has now been "operationalised". Studies of each OCA property – and also of the transmission of shocks and the monetary transmission mechanism – have become comprehensive and articulated. We now discuss the institutional environment in which economic agents operate. We can now better address to what extent and why certain properties are shared, or not shared.

It is still complex to measure and compare the various OCA properties, and there is still no simple OCA test with a clear-cut scoring card. Using the OCA theory has not become any simpler. There is a clear illustration of that. When EMU made the leap to the Maastricht Treaty, the OCA theory could not deliver clear policy guidance and normative implications. At the same time over the last two decades the balance of judgements has shifted in favour of monetary unions: they are deemed to generate fewer costs and there is more emphasis on their benefits. The "endogeneity of OCA" has further strengthened this consideration.

Plans for EMU went ahead also as a follow-up of the Single Market Programme (SMP) with only limited direct input from the OCA theory. The main concern was to remove the risks of destabilising exchange rate volatilities and misalignments that had disrupted the European Monetary System (EMS) on several occasions.

While plans for EMU were advancing, it became apparent that several (future) euro area countries were still faring poorly under some OCA properties and concerns about

“Eurosclerosis” emerged. The implications for EMU were cautionary. Initiatives to promote structural reforms have been at the centre of policy-making in the EU over the last 15-20 years. The Lisbon Agenda and the Jobs Strategy of the OECD are clear examples. Hence, under the surface the OCA theory was being heeded, and European countries were tackling their structural weaknesses. We can almost talk of an OCA theory in reverse. If we look at the broad governance structure of EMU there may be an “exogeneity of OCA”. In the essay we refer to some empirical evidence of the 2-way link between institutional integration and economic integration: an aspect that deserves further investigation.

In the latter part of the essay we looked at the actual functioning of EMU. Overall the effect we see are benign and conducive to improving the scores of all euro area countries that are “weak” under some specific OCA properties. Several concerns preceding the launch of the euro are dissipated or much reduced:

There are no ever-rising inflation differentials and inflationary expectations are well anchored (both short-term and long-term expectations). The working of the real interest channel is not generating asymmetric transmissions. The risk of pro-cyclicality of fiscal policies is under control. Changes in competitiveness within the euro area are occurring at a sustained pace and need to be carefully monitored and properly understood. An area of weakness is the relation between EMU and the drive towards structural reforms. More is needed here. Financial integration is advancing at an uneven pace across different segments but it is likely to play an increasingly supportive role for the functioning of EMU (a lot hinges on deeper financial integration).

We also cast a brief look at the various benefits and costs from EMU. All in all the balance seems positive: the benefits outweigh the costs. There is greater resilience of the euro area as a whole, low actual and expected inflation, low interest rates and greater macroeconomic stability. A benefit that has not yet emerged is the enhanced cross-country competition in several services.

The future costs of EMU will hinge on the ability of each country to enhance its dynamic adjustment. This cost is an order of magnitude far above all other costs mentioned here and is still poorly researched and explained to the vast public. Countries with a slow dynamic adjustment and responsiveness will lose competitiveness and market shares to competitors. Such reforms would have been indispensable, and perhaps even more complex to undertake for some countries – i.e., in the absence of the “exogeneity of OCA” -- without EMU. In our view the achievements of EMU thus far – a low inflation environment, lower interest rates, and deeper financial integration -- are supportive of the structural reform process that is still needed -- in product, labour and financial markets -- but they cannot guarantee it.

The optimum currency area (OCA) theory, as well as the theory of monetary integration have carried us to this point but the issue of European Economic and Monetary Union is far more complex as clearly stated by “One Money, One Market” about two decades ago. One can recall Haberler (1970) that stressed that a similarity of policy attitudes among partner countries is relevant in turning a group of countries into a successful currency area.

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