

Endogeneities of Optimum Currency Areas

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Abstract

This chapter brings together several strands of the literature on the endogenous effects of monetary integration. There are four areas that we analyse in this context: the endogeneity of economic integration, in which we look primarily at evidence on prices and trade; the endogeneity of financial integration or equivalently insurance schemes that can be provided by capital markets; the endogeneity of symmetry of shocks and (similarly) at synchronisation of outputs; and the endogeneity of product and labour market flexibility. The paper presents a conceptual framework within which to discuss such endogeneities. There is then a discussion of different arguments and an exploration of the empirical literature to gauge their quantitative importance.

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1. Introduction

This paper brings together several strands of the literature on the endogenous effects of monetary integration. The start of the European Economic and Monetary Union (EMU) has spurred a new interest in this debate: i.e., whether sharing a new single currency, the euro, sets free forces that bring euro area countries closer together.¹ Much of the merit for having kick-started this debate goes to Andrew Rose and Jeffrey Frankel (see Rose (2000 and 2002 a and b) and Frankel and Rose (1997 and 2001)).

By studying the effects of several currency unions that have occurred in the past, Frankel and Rose first showed that monetary integration leads to very significant deepening of reciprocal trade. The implication for EMU is that the euro area may turn into an optimum currency area (OCA) after the launch of monetary integration even if it wasn't 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 expectation that trade integration and income correlation will augment once a currency union is created. This has been termed the "endogeneity of optimum currency area" effect.²

The endogeneity of OCA effect (of Frankel and Rose, et alii) is grounded on two main insights. The first insight is that the degree of openness, i.e., reciprocal trade between the members of the currency area, is likely to increase. This insight is widely accepted although there are different views on its strength (as we shall discuss below). The second insight postulates a positive link between trade integration and income correlation. On this insight there are diverging views as not all authors would subscribe to a positive link between trade integration and income correlation (as we shall also discuss below).

This paper revisits the arguments behind these two insights and explores more systematically the notion of endogeneity of OCA that could originate from several other sources. Several authors have in fact brought forward concepts similar to the above hypothesis of "endogeneity of OCA" but in different areas than trade. Artis and Zhang (1999) and others have discussed the endogeneity of symmetry of shocks. Blanchard and Wolfers (2000), Saint Paul and Bentolila (2002), and Saint-Paul (2002) discuss the endogeneity of labour market institutions. Kalemli-Ozcan, Sørensen, Yosha (2001) and other authors have discussed the effects of sharing a single currency on financial markets and insurance schemes. Therefore, we address here the issue of "endogeneities of OCA." These, endogeneities of OCA can be seen as a set of processes triggered by the start of a monetary union, improving the OCA-ratings of the union..

Against this background there are four areas that we analyse

- a. the **endogeneity of economic integration**, in which we look primarily at evidence on prices and trade;

¹ On 1 January 1999 the euro was established as the single currency of eleven European countries and the European Central Bank started operating and managing their common monetary policy. Greece then joined on 1 January 2002.

² However, an optimum currency area needs to be judged along more dimensions than just trade openness. Optimality is also captured by the mobility of labour and other factors of production, price and wage flexibility, diversification in production and consumption, similarity in inflation rates, financial integration, fiscal integration, similarity of shocks, and political integration. Sharing of these OCA properties -- among sovereign countries, forming an "area" -- reduces the usefulness of nominal exchange rate adjustments among them by: fostering internal and external balance; reducing the impact of some types of shocks; or facilitating the adjustment thereafter. See Mundell (1961), McKinnon (1963), Kenen (1969), and Corden (1972). For recent surveys see Tavlas (1993), De Grauwe (2001) and Mongelli (2002).

- b. the **endogeneity of financial integration** or equivalently of insurance schemes provided by capital markets.
- c. the **endogeneity of symmetry of shocks**; and
- d. the **endogeneity of product and labour market flexibility**.

Changes in these four areas are of course inter-linked and we shall try to highlight some of the main connections and interdependences.

The paper is organised as follows. Section 2 presents a conceptual framework. Section 3 discusses the endogeneity of economic integration. Section 4 discusses the endogeneity of symmetry of shocks. Section 5 discusses the endogeneity of labour market flexibility. Section 6 discusses the endogeneity of insurance schemes. Section 7 presents a set of concluding observations and open issues for further consideration/analysis.

2. Some conceptual elements of endogeneities of OCA

Why should European monetary integration improve the *OCA-rating* of the euro area? What drives any endogenous effect?

a. Market-based forces fostering endogeneity

There are diverse market-based forces at play. Some pecuniary costs disappear or fall following monetary integration. The introduction of the euro contributes, amongst others, to reducing trading costs both directly and indirectly: e.g., by removing exchange rate risks and the cost of currency hedging. Some information costs will be reduced. The euro is expected to have a catalyzing role for the Single Market Program by enhancing price transparency and discouraging price discrimination. This should contribute to reducing market segmentation and fostering competition.

A common currency among partner countries is seen as “a much more serious and durable commitment” than other monetary arrangements between countries (McCallum (1995)). It precludes future competitive devaluation, facilitates foreign direct investment and the building of long-term relationships, and is likely to encourage forms of political integration. This will promote reciprocal trade, economic and financial integration and foster even business cycle synchronisation among the countries sharing a single currency. However, there are diverging views on this link (as we shall also discuss below).

Finally, one single money is more efficient than multiple currencies in performing the roles of medium of exchange and unit of account. As a result, a common currency promotes convergence in social conventions with potentially far reaching legal, contractual and accounting implications (Garcia-Herrero et al (2001)).

b. Institutional forces fostering endogeneity

There are institutional forces at play, and EMU might have a catalysing role. The existence of EMU is likely to intensify ongoing institutional reforms, as for example, those fostered and monitored by the EU Commission and including the Financial Services Action Plan (FSAP), the Lamfalussy Report and its follow ups, the Giovannini Report and others (see for example the EU Commission Scoreboard). As a result, political institutions might also be endogenous to some extent (Issing (2003)).

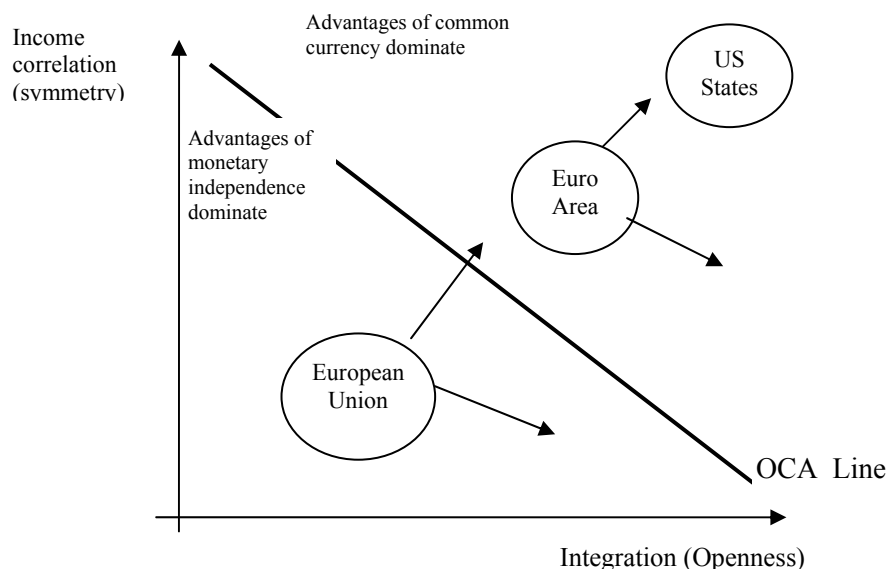
c. A graphical representation

In this section we use a simple graphical device to illustrate changes in the OCA-rating along three main dimensions: i.e., economic openness, income correlation within the currency area, and flexibility of each country participating to the currency area. A deepening of different OCA properties generates improvements in the scores of these three dimensions as follows:

Economic integration and income correlation

The degree of economic openness and the correlation of incomes are crucial in assessing the net benefits from currency union. We illustrate this in Figure 1. The OCA-line is the collection of combinations of symmetry and integration among groups of countries for which the cost and benefits of a monetary union just balance. It is downward sloping for the following reason. A decline in symmetry (increase in asymmetry) raises the costs of a monetary union. These costs are mainly macroeconomic in nature. They arise because the loss of a national monetary policy instrument is more costly as the degree of asymmetry increases. Integration is a source of benefits of a monetary union, i.e. the greater the degree of integration the more the member countries benefit from the efficiency gains of a monetary union. Thus, the additional (macroeconomic) costs produced by less symmetry can be compensated by the additional (microeconomic) benefits produced by more integration. Points to the right of the OCA-line represent groupings of countries for which the benefits of a monetary union exceed its costs. We have put the US states and the Euro area to the right of the OCA-line because we believe that the microeconomic benefits of these monetary unions more than compensate their macroeconomic costs.

Figure 1. Openness, Income Correlation and OCA



To the left of the OCA line the benefits from monetary independence dominate the efficiency gains from the union. We have put the European Union as a whole to the left of the OCA-line because we believe that these countries are not yet sufficiently integrated to generate efficiency gains that will compensate for the macroeconomic costs of the union. We realize, however, that this is a controversial issue and that not all economists may agree on this.

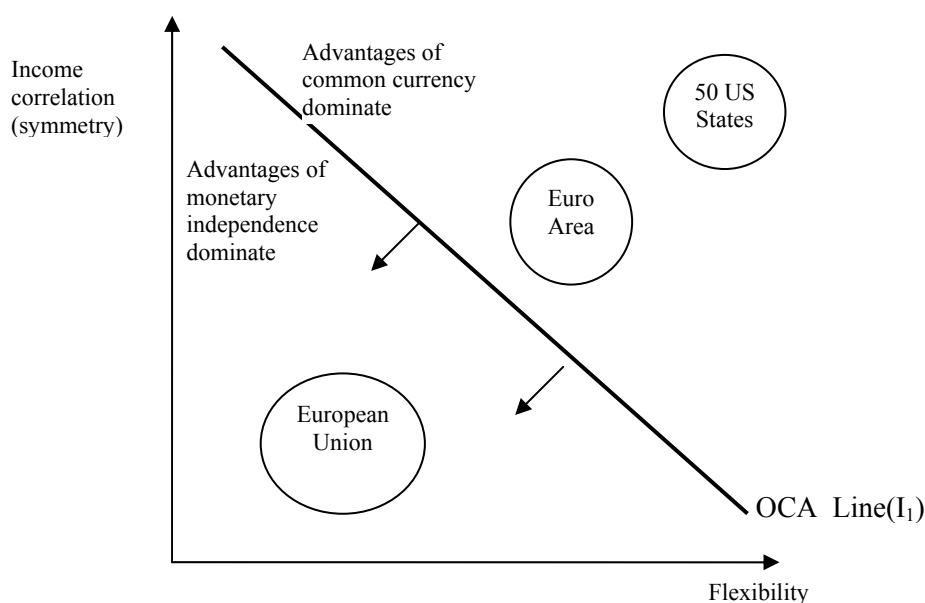
The degree of economic integration and income correlation evolve over time. There are different views on such evolution (as illustrated by the arrows around the EU and Euro circles in Figure 1). As is discussed in Section 3 below, most authors agree that openness is likely to increase among countries sharing a single currency. The intuition is the following: the introduction of the single currency will contribute to reducing trading costs both directly and indirectly, e.g., by removing exchange rate risks (and the cost of hedging) and diminishing information costs. The single currency will also spur transparency and competition, lessen segmentation, and reduce transportation and transaction costs.

There is disagreement concerning the extent to which income correlation might rise, or fall. In one case the increased openness raises income correlation (and reduces asymmetry of shocks). The EU then moves along the upward arrow. In another case, that we call the specialisation case, we move along the downward sloping arrows in figure 1. This then produces the opposite effect, and more flexibility for the monetary union would be required as is discussed next.

Income correlation and flexibility

In addition to the degree of economic openness and income correlation there is another important dimension to judge the merit of monetary integration, i.e., the degree of flexibility. The trade-off between symmetry and flexibility is illustrated by the downward sloping “OCA line” in Figure 2. Points on the OCA-line define combinations of income correlation (symmetry) and flexibility for which the costs and the benefits of a monetary union just balance. It is negatively sloped because a declining degree of symmetry (which raises the costs) necessitates an increasing flexibility (which is a source of benefits of a monetary union). To the right of the OCA-line the degree of flexibility is large given the degree of symmetry, so that the benefits of the union exceed the costs. To the left of the OCA-line there is insufficient flexibility for any given level of symmetry. Note that the OCA-line is drawn for a given level of integration (I_1)

Figure 2. Symmetry, flexibility and OCA



Again, the 50 US States and the current members of the euro area (*according to us*) are located on the right of the OCA line. Some authors doubt that the European Union (EU) as a whole should share a single currency, and we illustrate this by placing the EU on the left of the OCA line. Assuming that the newly enlarged EU25 is not yet in the OCA zone, how does

further integration affect the movement towards OCA? The OCA-line was drawn for a given level of integration (I_1). Increasing integration has the effect of shifting the OCA-line downwards, i.e. when integration increases the benefits of the union increase so that we need less flexibility and/or less symmetry to make the monetary union beneficial. If there is endogeneity in integration then starting a monetary union among the EU will bring it closer to the OCA-zone .

There is interaction between integration, flexibility and symmetry that we now analyze in more detail. Let's postulate that the net benefits of monetary union (B) are a positive function of :

- the degree of flexibility (F)
- the degree of symmetry (S)
- the degree of integration (I)

We can specify the relation between net benefits (B) and the three variables, F, S; and I as follows (assuming that these relationships are linear)

$$B = \alpha F + \beta I + \gamma S$$

where α , β , γ are positive parameters. This allows us to derive the OCA-plane, i.e. the combinations of F, I and S for which the net benefits of a monetary union are zero. Set $B=0$, then:

$$F = -\beta'I - \gamma'S$$

where $\beta' = \beta/\alpha$ and $\gamma' = \gamma/\alpha$. A graphical representation of this relation is given in figure 3. We have normalized the variables such that

$$0 < I < 1 \text{ and } -1 < S < 1;$$

Thus, S can be positive and negative depending on whether shocks are symmetric or asymmetric. Figure 3 synthesises the three trade-offs:

- the trade-off between flexibility and integration
- the trade-off between symmetry and flexibility
- the trade-off between symmetry and integration

The figure also highlights the interaction between these tradeoffs. To illustrate this, let us concentrate on the trade-off between symmetry and flexibility, which shows that when symmetry declines more flexibility is needed to make OCA beneficial. It can be seen that this trade-off depends on integration. Start with zero integration and let it gradually increase. Then the relationship between symmetry and flexibility is shifted downwards, i.e. one needs less flexibility for any given level of symmetry.

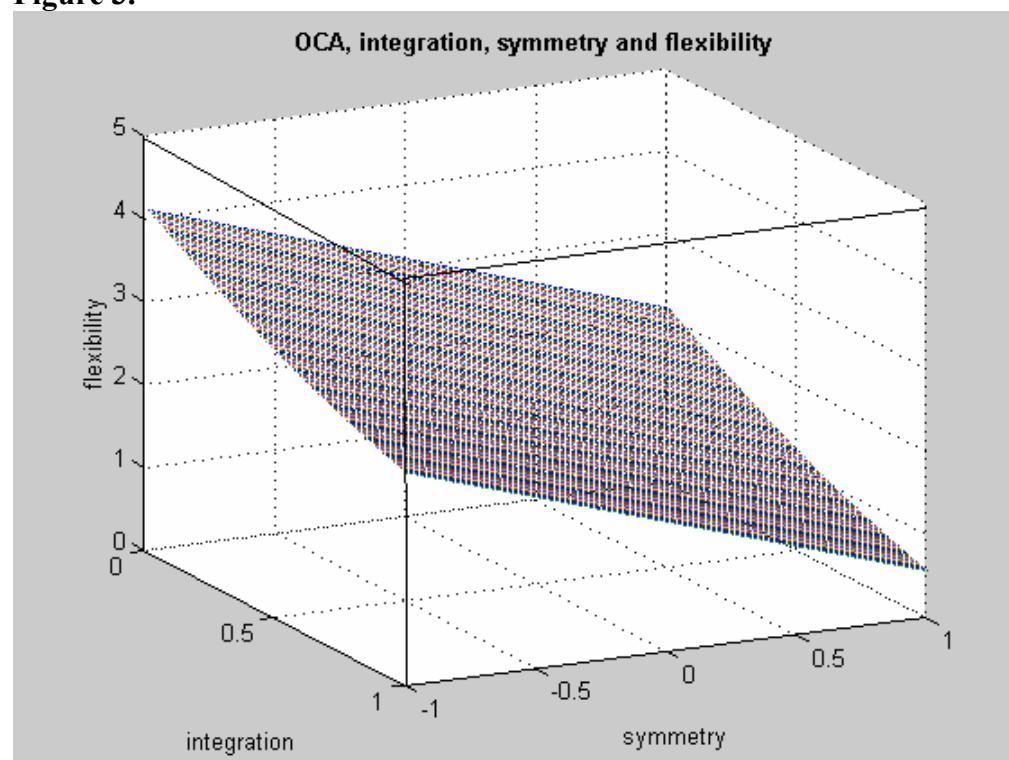
There are more such interactions. Let us focus on the trade-off between integration and flexibility. This trade-off is influenced by the degree of symmetry. An increase in the latter leads to a downward shift of the trade-off between integration and flexibility. Finally, there is a trade-off between integration and symmetry. This trade-off is influenced by the degree of flexibility. When flexibility increases the trade-off between integration and symmetry shifts downwards so that one needs less of both integration of and symmetry to make a monetary union advantageous.

These interactions are important for understanding endogeneities and their interdependence. Let us assume that the European Union 25 as a whole is located below the

OCA-plane. A decision to form a monetary union then sets in motion different endogeneities. First, integration is likely to increase. This has the effect of improving the symmetry-flexibility trade-off thereby facilitating the movement into the OCA-zone. A second endogeneity is symmetry. The decision to enter monetary union has the potential to increase symmetry. This in turn improves the trade-off between flexibility and integration, thereby facilitating the movement into the OCA-zone.

In this sense, endogeneities in integration, symmetry and flexibility reinforce each other, and speed up the process into the OCA-space. In the next section we discuss the empirical evidence about these endogeneities.

Figure 3.



Section 3. Endogeneity of economic integration

In what follows we start by discussing some research focussing on trade and then turn to evidence on prices. Financial integration is discussed in Section 6.

a. Monetary union and trade

Several recent studies have improved our knowledge of the effects of a monetary unification (union) on trade. First, Engel and Rogers (1995) found that crossing the border between the US and Canada has an impact on relative price volatility, equivalent to an addition of, at least, 1780 miles, to the distance between cities. Second, McCallum (1995) and Helliwell (1998) conclude that Canadian provinces are 12 to 20 times more likely to trade with each other than with US states.

Third a series of studies initiated by Andrew Rose³ and using large panel data sets, find that membership in a currency union leads to a multiplication of trade by a factor of three or more. Although these results were received with some scepticism, the trade creation effects from monetary unification proved to be quite robust qualitatively. There are however some qualifications.⁴ Recent research by Melitz (2001) and Persson (2001) comes out with substantially lower estimates. The minimum point estimate (from Persson) still suggests a 13 per cent increase in trade from currency unification with a preferred estimate of around 40 per cent.

b. Some “early” evidence: the effects of the euro on euro area trade

The empirical evidence discussed above relates to monetary unions in general. Does the introduction of the euro have a similar potential for trade creation. Recently this question has been analysed. Rose and Van Wincoop (2001) use an estimated version of the theoretical model of Anderson and van Wincoop (2001) to infer the impact from EMU on intra Euro Area trade and welfare. They conclude that intra euro area trade would expand by more than *50 percent*. Interestingly a similar order of magnitude is also postulated by Bun and Klaassen (2002) who use a dynamic panel model finding a cumulated long-run effect of about *40 percent*. Micco, Stein and Ordoñez (2003) corroborate these findings.

The previous results relate to the likely long-term effects. They are impressive. As far as the short-term effects are concerned, the evidence suggest that it may take some time for these effects to be realized. Bun and Klaassen (2002) using a dynamic panel model find that the euro has increased trade by 4 percent in the first year.

Anderton and Skudelny (2001) estimate an import demand function for the euro area vis-à-vis its main extra-area trading partners which takes into account the possible impact of both intra- and extra-euro area exchange rate uncertainty. Using some panel estimates they find that extra-euro area exchange rate volatility may have reduced extra-euro area imports by around 10 per cent resulting in some substitution between extra- and intra-euro area imports. This is an important qualification of the above Trade Evidence.

In summary, the above trade evidence leads to some ambiguities. The theory and the empirical evidence of the trade creating effects of a monetary union is now well-established. At the same time, the evidence of such an effect in the euro area is still limited. An explanation might be that the trade creating effects of a monetary union take a lot of time to be felt (see Mongelli, Dorrucchi and Agur (2004) on this issue).

Section 4. Endogeneity of financial integration (i.e., insurance schemes)

Defining financial integration is a broad and complex task as it embraces a wide array of financial intermediaries, a variety of financial market segments, and an assortment of financial instruments. Following Ferrando et alii (2004) we postulate that financial integration is achieved when all potential market participants with the same relevant characteristics: (1) face a single set of rules when they decide to deal with those financial

³ See amongst others Rose (2000), Rose (2001), Frankel and Rose (2000), and Rose and van Wincoop (2001).

⁴ For example, Quah (1999) notes that this empirical evidence pertains to a narrow set of relatively small (or even tiny) countries/territories representing about 1% of the sample used by Frankel and Rose (2002) and Rose (2000). Such entities have at times adopted the currency of a much larger partner country: often the US or some other former coloniser, or a large neighbour, or an important trading or financial partner of the small country.

instruments and/or services; (2) have equal access to the above-mentioned set of financial instruments and/or services; and (3) are treated equally when they are active in the market.

a. Effects of financial integration

Financial integration generates several widely accepted benefits such as the improved allocation of capital, higher efficiency, and higher economic growth. Graphically, financial integration has the effect of endogenously shifting the OCA lines in Figures 1 and 2 downwards (i.e., raising the net benefits from EMU). Amongst others, financial markets can provide a significant source of insurance against asymmetric shocks. To the extent that monetary unification enhances financial integration, it will endogenously improve insurance against asymmetric shocks, thereby reducing the costs of a monetary union: an important endogenous component for EMU.

One interesting line of research has led to the identification of a “border effect” also for financial market integration. Atkeson and Bayoumi (1993), Bayoumi and Klein (1997) and Crucini (1999) all find that risk sharing across the regions of a country is significantly larger than across countries. Asdrubali, Sorensen and Yosha (1996) looked at channels of interstate risk sharing in the US. They focused on shocks to gross state product and found that: 39% of the shocks were smoothed through *capital markets*, 23% are smoothed through *credit markets* and 13% through the *federal government*. 25% are not smoothed. Hence, financial markets and institutions in the US contribute with 62% (i.e., 39% + 23%) to the absorption of state idiosyncratic shocks. The effect is about five times more important than the federal budget.

However, the above findings do not carry over to the EU/euro area because the European Union is not currently endowed with a “Federal Budget” i.e., a supranational shock-absorbing scheme. Also, European monetary integration is in its infancy, and financial integration is still modest overall (but rising) as we shall see. But over time financial market integration in the EU/euro area might lead to stronger inter-national risk sharing.

c. Some “early”evidence: the effects of the euro on financial prices, interest rates and equity returns

Money markets integrated almost immediately after the introduction of the euro. The transition was smooth and swift. However, even in money markets, integration has not progressed in a uniform way in the different market segments. The unsecured deposit market may be regarded as fully integrated. The repo segment, where market participants exchange short run liquidity against collateral is less well integrated (see Berg, Grande and Mongelli (2004) and ECB, July 2001 “The Euro area Money Market Report”).

Looking at bond markets it is clear that the integration of financial markets in the euro area started well before Stage 3 of Economic and Monetary Union. Yield differentials among euro area government bonds converged markedly since 1996. This convergence accelerated further after the pre-announcement of the irrevocable fixing of parities in May 1998. Since May 1998 yield differentials have only rarely exceeded 40-50 basis points while in early nineties spreads of more than 500 basis points – mostly reflecting inflation differentials – were not uncommon.⁵ However, Adjaoute, Danthine and Isakov (2003) discern no obvious pattern in

⁵ 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. there was also a sharp drop in interest rate volatility for each country; and a convergence in nominal yields due to the convergence in inflation rates.

the dispersion of *ex-post* real yields *pre- and post*-EMU. But still there is a considerable decrease in volatility of real yields.

Adjaoute, Danthine and Isakov (2003) find some new evidence that the equity risk premium may have decreased in Europe reducing the cost of capital. There is also evidence that the structure of equity returns has changed in Europe: country factors now appear to be dominated by the factors associated with industries or sectors. Adjaoute, Danthine and Isakov conclude, however, that there is little evidence in support of the hypothesis that the average European investor is now more financially diversified than in the recent past. Rather European financial markets continue to be seriously undiversified. See Galati and Tsetsaronis (2001) BIS.

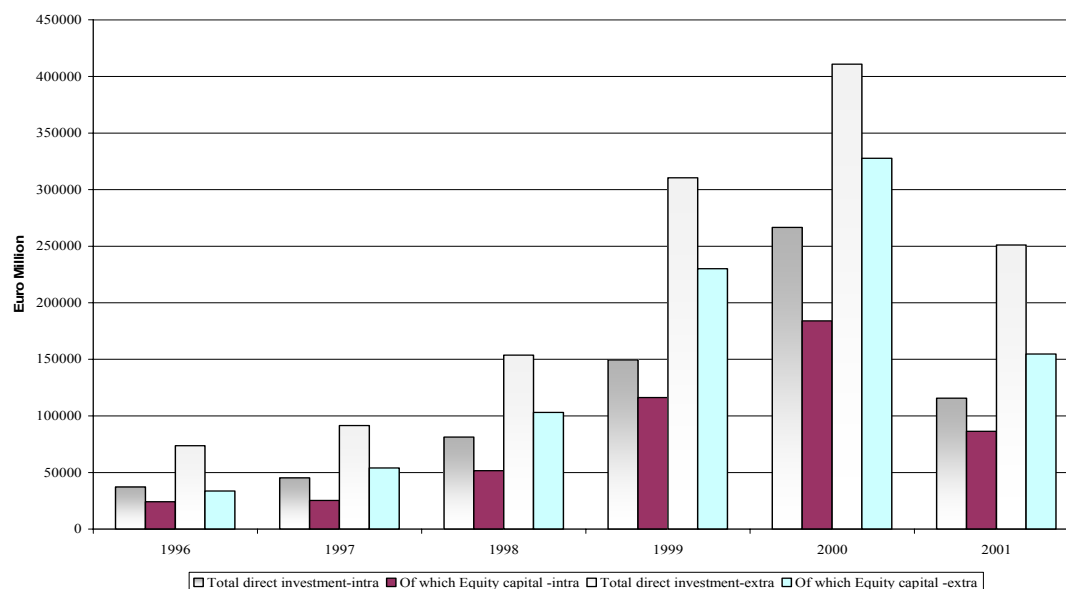
Angeloni and Ehrmann (2003) seek evidence of euro area-wide banking integration and the degree of interest rate pass-through using post-1999 data. They show that the pass-through of changes in money market rates is not only faster and more complete but also increasingly homogenous across the euro area. Bank retail rate spreads have also fallen steadily.

d. Some “early”evidence: the effects of the euro on financial flows, stocks and structures

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*.

Figure 6 shows both the intra and extra-euro area total foreign direct investment (FDI) and equity capital flows.

Figure 6. Foreign Direct Investment flows intra- and extra-euro area, 1996-2001

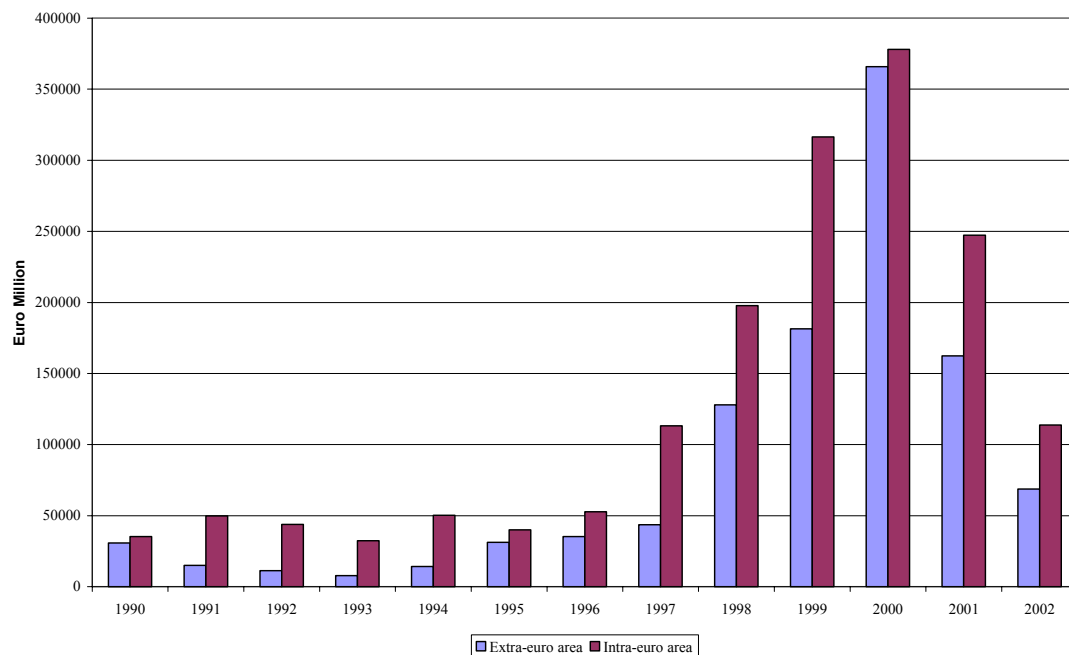


Over the sample period intra-euro area and extra-euro area FDI showed comparable patterns, posting a remarkable increase in 2000 and 2001. It is noteworthy that the annual percentage change of intra-euro area FDI, has been higher than the extra-euro area FDIs during 2000-1. There are important caveats and qualifications of these data. The most important one is that it

is as yet unclear how much of this observed increase in FDI is due to the conditions of economic boom during 1999-2001.

M&A transactions show a similar development as the intra and extra-euro area FDI. M&A investments increased markedly between 1996 and 2000 posting a seven-fold increase (Figure 7). However, here also a qualification should be made. The large increase in M&A activity observed during 1997-2001 is probably linked to the asset bubbles and the economic boom. We observe a sharp fall since 2001. It is therefore unclear whether EMU is in any way responsible for these developments.

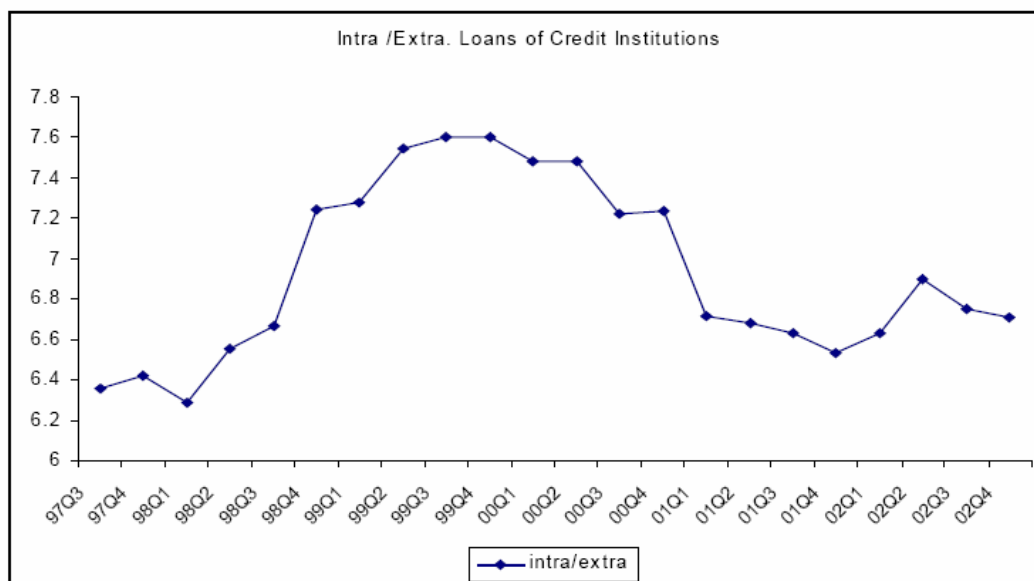
Figure 7. Mergers and Acquisition activity intra- and extra-euro area, 1990-2002



There has also been an increase in bond issuance both by non-financial corporations and by monetary and financial institutions (MFIs) – see Ferrando et alii (2004). The increased access of non-financial corporations to market finance reflects, in part, stronger competition within the European financial sector. Banks are therefore under pressure to use their balance sheet more efficiently in order to increase their return on equity. As a consequence banks are increasingly facilitating the access by corporations to capital markets. A particular 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 indications of progress in integration in financial services. Loans represent in fact the most important asset in the balance sheet of the MFIs. Figure 9, which collects also the gross stock of the loans to euro area residents versus non-euro area residents, shows a remarkable increase of intra- euro area loans, compared to the extra-euro area loans, after the 1998. However, after the year 2000 a sharp decline occurs again, leaving this ratio at a somewhat higher level than at the start of the eurozone.

Figure 9, Ratio of loans of the MFIs to euro area residents and non-residents.
 Source: ECB. MFIs database.



Concluding observations on the endogeneity of financial integration (and the insurance schemes)

From the preceding evidence, one can conclude that some progress has been made towards more financial integrations in the eurozone. There is no doubt that this progress, especially in the money and bond markets has been due to the introduction of the euro. Yet, the eurozone is still far from a unified financial market. The view of Giovannini (2002) according to which European financial markets are still a *juxtaposition* of national markets may not be far off the mark.

Section 5. Endogeneity of symmetry of shocks.

a. Effects of economic and financial integration on income correlation

Several authors note that the process of economic integration affects the symmetry of output fluctuations through diverse channels. According to Frankel and Rose (1998) the removal of trade barriers raises trade, allows demand shocks to more easily spread across the trading partners, and leads to more correlated business cycles. They also mention that policy shocks will become more correlated. Coe and Helpmann (1995) argue that knowledge and technology spillovers will also increase with economic integration and support symmetry of output fluctuations.

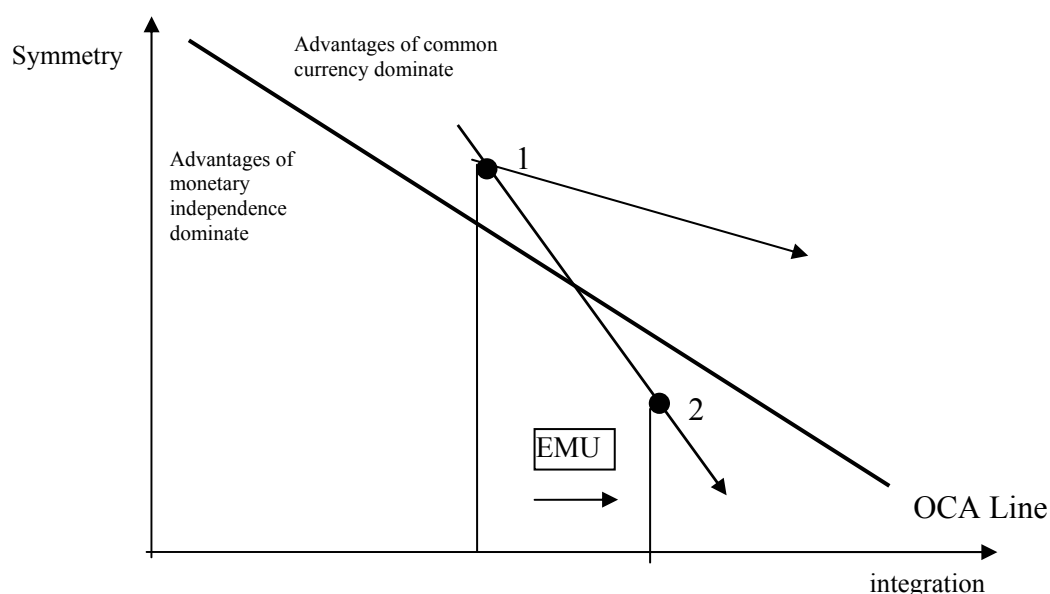
Kalemli-Ozcan, Sørensen, Yosha (2001) argue instead that higher financial integration may lead to more asymmetric macroeconomic fluctuations, possibly counterbalancing the other channels. The argument runs as follows. Economic integration leads to better risk-sharing opportunities (income insurance) through financial market integration. This in turn makes specialisation in production more attractive, rendering macroeconomic fluctuations less symmetric.

The implications for EMU of the work of all these channels could be substantial. We illustrate these with the following two distinct (illustrative) paradigms -- specialisation versus endogeneity of OCA -- which have different implications for the benefits and costs of a single currency.

b. The specialisation paradigm

The specialisation paradigm postulates that as countries become more integrated, they become increasingly specialized. The dynamics underlying this process is based on economies of scale and agglomeration effects. Members of a currency union would then become less diversified and more vulnerable to asymmetric shocks. Correspondingly their incomes will become less correlated. Kalemli-Ozcan, Sørensen and Yosha (2001) provide empirical evidence that financial integration enhances specialisation in production. The consequence is that an increase in integration could move a group of countries that are in the OCA-zone outside this zone, e.g., from point 1 in Figure 11 to point 2. Whether it does this depends on the relative strength of two opposing forces that result from increased integration: the increase in asymmetry which increases the costs of the union and the increase in the efficiency gains of the monetary union.

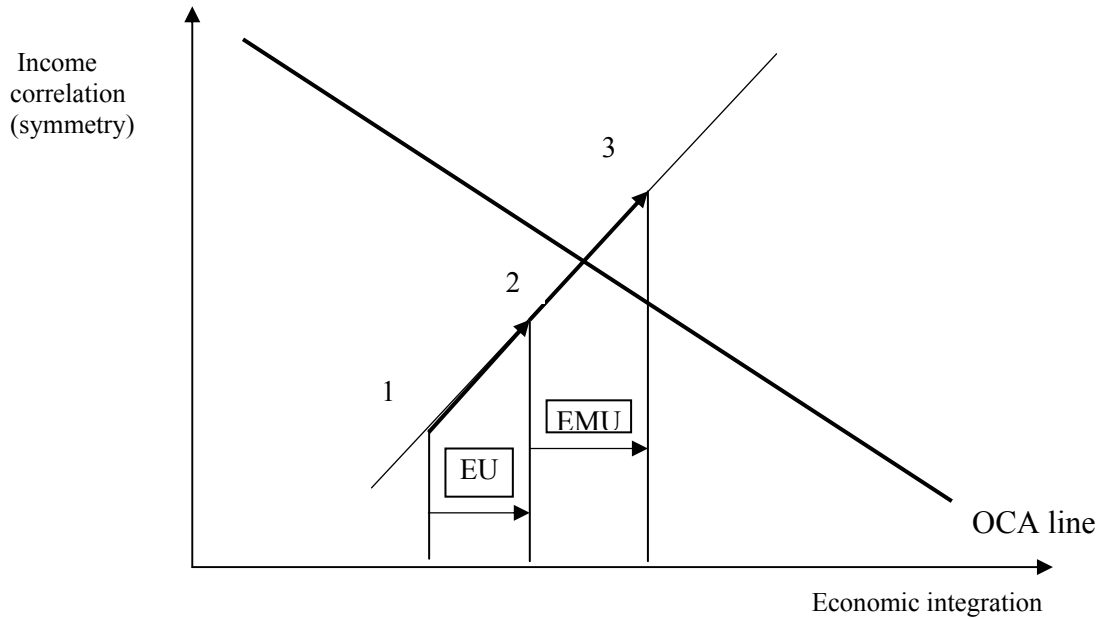
Figure 11. Specialisation Increases and Correlation of Incomes



c. The “endogeneity of OCA” paradigm

The second paradigm is the “*endogeneity of OCA*” hypothesis that postulates a positive link between income correlation and trade integration. The basic intuition behind this hypothesis is that a common currency as “a serious and durable commitment” (McCallum (1995)). It precludes future competitive devaluations, facilitates foreign direct investment and the building of long-term relationships, and may over time encourage forms of political integration. This will promote reciprocal trade, economic and financial integration and it will foster business cycle synchronisation among the countries sharing a single currency. This idea is represented graphically in Figure 12.

Figure 12. A Country Joins the EU and then EMU and the “Endogeneity” of OCA Dominates



The group is initially on the left of the OCA line. If these countries join together and form a “union,” such as the European Union (EU), both trade integration and income correlation within the group will rise: i.e., they will gradually move to point 2. If the same countries were to start a currency area -- e.g., EMU -- the degree of trade integration and income correlation within this group would rise even further and the group would subsequently find itself on the right of the OCA line.

d. The empirical evidence thus far for specialization or endogeneity of OCA

Frankel and Rose (1996) have undertaken important empirical research relating to this issue. They analysed the degree to which economic activity between pairs of countries is correlated as a function of the intensity of their trade links. Their conclusion was that a closer trade linkage between two countries is strongly and consistently associated with more tightly correlated economic activity between the two countries. This is also confirmed in the studies of Rose and Engel(2001) and Rose(2002). Similar evidence is presented in Artis and Zhang (1995), who find that as the European countries have become more integrated during the 1980s and 1990s, the business cycles of these countries have become more correlated.

There is another piece of empirical evidence that enhances the view that economic integration may not lead to increased asymmetric shocks within a union. This has to do with the rising importance of services. Economies of scale do not seem to matter as much for services as for industrial activities. As a result, economic integration does not lead to regional concentration of services in the way it does with industries. As services become increasingly important (today they account for 70% or more of GDP in many EU-countries) the trend towards regional concentration of economic activities may stop even if economic integration moves forward. There is some

evidence that this is already occurring in the USA. In a recent study, the OECD(2000) came to the conclusion that the regional concentration of economic activities in the USA started to decline after decades of increasing concentration.

e. Concluding observations on the endogeneity of symmetry of shocks

In summary, there seems to be some evidence indicating that in the past increased integration has led to more symmetry in economic shocks. Whether this will continue to be so in the future remains uncertain. Economies of scale and agglomeration effects may do their work in enhancing asymmetries. In addition, it is difficult at this stage to gauge the effect of financial integration on specialisation. Nevertheless we are inclined to conclude that the endogeneity of the OCA-paradigm will tend to prevail.

Section 6. Endogeneity of product and labour market flexibility

In this section we analyse the conditions in which a monetary union will be a device to increase product and labour market flexibility. The task of this section is probably the most difficult of all because measuring product and labour market flexibility is a delicate task. Hence, we will use also indirect measures and indicators (and some proxies of flexibility), including national income policies, labour market reforms, and so forth.

a. Some “early” evidence: the effects of the euro on wages

A visible phenomenon of recent years has been an impressive progress toward nominal stabilisation in the run-up to EMU and since the start of Stage 3 of EMU. A large part of this stabilisation of nominal wages has to do with the decline in inflation observed during the same period. There may, however, be more involved. Calmfors (2001) and Pichelmann (2003) note that this wage moderation had coincided with a reappearance of national income policies and longer contract periods in some others (the latter being the result of low inflation).

The increased use of national wage policies is probably linked to the monetary discipline imposed by a common currency. There are other areas in which the common currency affects the wage bargaining process. In particular, monetary unification, may affect wage bargaining more generally by enhancing price transparency and fostering competition in product and service markets. This reduces the potential rent to be shared by workers and firms and encourages a de-centralisation of wage bargaining.

c. Looking at labour market reforms and policies

Is EMU encouraging or hindering labour market reforms? As so often in economics there are strikingly opposing views on this issue. One view is pessimistic and argues that a monetary union weakens the incentives to introduce structural reforms. This view is exemplified by Saint-Paul and Bentolila (2002). These authors note that the loss of monetary policy discretion at the country level lowers the incentive to undertake large-scale reform of labour markets as it precludes a “two-handed” approach according to which macroeconomic stimulus should facilitate structural reforms. They conclude, however, that EMU increases the likelihood of having *gradual* reforms and co-ordination of reform across countries. Other representatives of this pessimistic school of thought are Soskice and Iversen (1998) and Coricelli, Cukiermann and Lippi (2000). These authors are concerned that with EMU the

“deterrence argument” might be weakened, or at least diluted, so that incentives for real wage restraints could be diminished.

A second more optimistic view is to be found in Blanchard and Giavazzi (2001) according to these authors, product market deregulation and enhanced competition decrease total 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. In this connection, Jean and Nicoletti (2001) find a significant relationship between product market regulations in several sectors and wage premia.

d. Empirical evidence on an EMU-effect of labour market reforms

Which labour market reforms do we actually see? Bertola and Boeri (2003) conduct an insightful experiment: they take stock of reforms carried out in Europe in the field of employment protection and non-employment benefits. In a first step they look at the broad orientation of reforms: in the case of employment protection whether they are becoming more or less stringent, and in the case on non-employment benefits whether their “reward” would increase or decrease. Non-employment benefits include a variety of rewards: the most important are unemployment benefits, but various other cash transfers are also included, as well as pensions and some forms of employment protection.

The second step in their exercise is articulated in two distinct stages. In a first stage they classify reforms as marginal or radical depending on whether the reforms are comprehensive, involve existing entitlements and reduce replacement rates of the average production worker by 10 percent or more. The second stage is a validation procedure to verify the actual behaviour of the series. This requires collecting a number of successive observations to confirm the initial qualitative assessment (and exclude that a reform has been reverted). An important working assumption by the authors is that they choose a relatively early EMU break, i.e., 1995, presuming that the convergence process led by the Maastricht Treaty Criteria, and expectational effects of EMU even preceeding 1997 were at work.

They report then reform frequencies on -- per-country and per-year basis -- for 1987 through 2002 for euro area and non-euro area EU countries. The impact of EMU on reforms is visible since mid-1990s and particularly for reforms of non-employment benefits. The data indicate an acceleration of reforms especially in the euro area and in the field of non-employment benefits. Bertola and Boeri caution against any over-interpretation of these results as it will take more time to understand the joint effect of many reforms (several of which are marginal or are offset or compensated by measures to compensate specific interest groups).

A very different approach is pursued by Morgan and Mourougane (2003) who show an increasing relevance of Active Labour Market Measures (ALMMs) across all European countries during 1985 and 2000. In percentage of GDP, ALMMs grew to about 1 % in 1999/2000 .

d. Some concluding observations on the endogeneity of labour market flexibility

In summary, there has been significant progress towards wage moderation and discipline. This progress, however, was made prior to the start of EMU, and has been maintained since. It is not inconceivable that the wage moderation occurring prior to 1999 was influenced by the expected start of EMU and the discipline imposed by the Maastricht convergence requirements.

More importantly, several empirical studies have uncovered an endogenous component in labour market flexibility. Despite the fact that the theory is unable to predict whether a monetary union gives incentives to introduce labour market reforms, the preliminary empirical evidence suggests that EMU does create incentives to introduce more labour market flexibility.

Conclusion

This paper brought together several strands of the literature on the endogenous effects of monetary integration. A conceptual framework within which to discuss “endogeneities of OCA” was presented. The focus was on four areas: a. the endogeneity of economic integration,; b. the endogeneity of symmetry of shocks; c. the endogeneity of financial integration and the insurance provided by capital markets and d. the endogeneity of product and labour market flexibility;

We then surveyed the empirical literature to find out how strong these endogeneities are likely to be. In all the four areas our conclusion was a measured one. Since much of the empirical work is preliminary these conclusions are also.

First, as far as the endogeneity of integration is concerned, recent theories and empirical analysis suggest that a monetary union is a strong force towards trade creation among its members. Up to now relatively little of these effects have been observed. This suggests that the trade creation effects of a monetary union take a long time to materialize. Recent empirical studies confirm this. These have found some significant euro effect on trade, but most of these effects still have to materialize.

Second, our analysis leads to the conclusion that we should expect more symmetry in shocks of the countries participating in the currency union. Although there is still a lot of uncertainty here, it is not unreasonable to conclude that there is an endogeneity effect in the degree of symmetry of shocks in EMU.

Third, the impact of the euro on financial markets is evident in some market segments such as money markets. In other segments, the introduction of the euro may be starting to contribute to greater depth and liquidity. In bond and equity markets a gradual process of structural change and increasing integration is unfolding. Evidence of significant risk-sharing is modest thus far, and there are several areas in which financial market integration has not yet had significant effects.

Fourth, although the theory is ambiguous, some empirical studies have come to the conclusion that labour market flexibility is likely to be enhanced in a monetary union. If this is confirmed by more studies, it leads to the conclusion that the start of a monetary union creates a potentially powerful endogeneity in the OCA-criteria.

On the whole our conclusion is one of moderate optimism. The different endogeneities that exist in the dynamics towards optimal currency areas are at work. How strong these endogeneities are and how quickly they do their work remains to be seen. These questions will continue to provide rich sources of future research.

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