Horst Tomann
Freie Universität Berlin

Real Convergence in a Monetary Union

Introduction

When the European Economic and Monetary Union was established in 1999, the entry ticket consisted of a set of criteria requiring monetary convergence of accession countries. Since there was no demand for 'real convergence' in the set, the EMU had from its very beginning to live up to the critique that from an economic point of view it was 'a bad idea'. That critique has been continued until recently, pointing at the lack of 'a substantial measure of homogeneity in the economic structure of its member states' (OECD 2005), increasing asymmetries (Portes 2001) and the lack of resilience (OECD 2006).

Those judgments are rooted in growth differences and inflation differences which can be observed between member states. They have as a common concern that there is not enough flexibility in the national economies and the tool sets of economic policies to respond adequately to the resulting imbalances. Against this background, the paper tries to clarify the long-run implications of a monetary union for competitiveness and growth. In particular, it is argued that a monetary union may stimulate real convergence because it sets credible guidelines for labour contracts. Moreover, it has to be clarified if the observed divergence in macroeconomic indicators does reliably indicate macroeconomic imbalances. This will be demonstrated in the case of diverging 'real' interest rates.

Long-term effects of a monetary union

In the long run, it is not asymmetrical shocks that matter but differences in real income levels and differences in productivity growth. These differences may affect the monetary equilibrium within a monetary union. The reason is that long-term growth differences in a monetary union may result in an external imbalance between member countries reflecting a gap between real income (y) and real absorption (a) in the countries concerned. Usually, one would expect that the country performing high growth rates would realize a deficit in its external current account, whereas the slow growing economy would achieve a surplus. This has been the case between USA and Europe (albeit with flexible exchange rates) but also

Germany, for instance, has performed high surpluses in its trade balance with other EMU countries resulting from slow growth. So, the question arises whether a monetary union withstands national differences in productivity growth.

Since there is no solvency restriction for the member countries of a monetary union, a monetary imbalance (y </> a), say between Germany and Italy, may hold for long. Such an imbalance can be reduced by wage flexibility, that is to say adjustment of the relative wage levels corrects the terms of trade between the two countries. But as long as wages are rigid, external imbalances between member countries are reflected in credit relations and/or fiscal transfers. The long-term solution to these imbalances is factor mobility, shifting employment opportunities and thereby closing the gaps between income and absorption, respectively.

A monetary union will have a stimulating effect on factor mobility. In particular, it will spur on foreign direct investment. Investors will certainly take the advantage of exploiting investment opportunities all over the monetary union without taking different monetary risks. Consequently, structural change will presumably be accelerated in a monetary union, pushing average productivity growth. Also, with reduced monetary risks, long-term interest rates decrease and the volume of investment rises. On the other side of the balance sheet we have to note that the process of structural change increases unemployment which may persist for long but should be eventually reduced in the course of rising income levels.

The following example describes a typical scenario of the effects of increased factor mobility. Suppose that two countries with different economic structures and different income levels, Germany and Poland, build a monetary union. At the outset the external balance will show a deficit for Poland (y<a), indicating a high demand for goods. Investment is attracted by low wages in Poland, and the net flow of direct investment will be directed into Poland until the return on investment is equalised in the monetary union – in the Ricardian sense. Foreign direct investment in Poland increases productivity and real income, inducing a catch-up process and the long-term convergence of income levels. The monetary condition for this process to be completed is that real absorption rises less than income in Poland. Under this condition, Poland achieves a surplus in its external balance (a<y) which is necessary to correct for the initial deficit. In our two-countries-world a corresponding deficit is required in the external balance of Germany. Consequently, a monetary equilibrium can be achieved in the process of convergence if real wages in Poland increase less than productivity growth would allow. Thereby it is secured that real absorption, though increasing, remains small, relative to income. On the other hand, this implies for Germany that it accepts a deficit in its external balance against Poland. So, Germany, though it may be hit by rising unemployment

as a consequence of accelerated structural change, is required to keep real absorption high, relative to real income.

This conclusion seems to be strange. Though economists normally would agree with the conditions for Poland (the periphery) to complete the catch-up process, they would hesitate to accept the consequences for Germany (the centre). But the logic of macroeconomics allows no way out. In the real world of many countries inside and outside a monetary union, the problem is diluted but it is nonetheless existent. An unpleasant implication of this conclusion is that if it comes to "a race to the bottom" that is wage reductions in the centre to combat increasing unemployment, that would not only be costly for the workers concerned but also detrimental for the overall economy. The conditions for a catch-up of the periphery were not fulfilled in this case.

There is some empirical evidence that the euro area performed well in terms of long-term productivity growth. Table 1 displays potential GDP growth which is mainly determined by investment activity and can be taken as a measure of long-term productivity growth. It shows that the euro area came closer to the OECD average growth during the last decade. Also, low-income countries within the euro area managed to catch up by performing above average growth rates. In addition, these countries improved their growth performance compared to the decade when they had still conducted their national monetary regimes, except for Portugal. A more detailed analysis reveals that the variance of national growth rates within the euro area has barely changed since 1970 (ECB 2005).

As far as the labour market is concerned, the establishment of a monetary union will not directly affect labour mobility. But there are indirect effects. Since structural change is accelerated through foreign direct investment, that will also stimulate labour mobility. Workers will have to move across industries but also within industries (in the case of vertical direct investments which induce intra-industrial trade). It is not quite clear how the increased labour mobility affects the wage structure. Presumably, the outcome of increased foreign direct investment will be a more dispersed wage structure, but labour mobility will dampen this dispersion.

Wage and Price Adjustments and the Catch-up

There are two more specific arguments in favour of a monetary union with respect to its implications for real convergence. The first one was recently applied by Ronald McKinnon and Gunther Schnabl to demonstrate the usefulness of a monetary anchor in the catch-up

process. McKinnon/Schnabl (2006) analyse the long-term economic trends of Japan and China and the resulting external imbalances. In contrast to conventional wisdom they argue that those imbalances are less threatening and better to manage in the context of a monetary regime with credibly fixed exchange rates. This argument can be applied to the process of real convergence in a monetary union (compared to a regime of adjustable or flexible exchange rates).

The argument is focussed on real wage growth, which is the central feature of a catch-up process, and on the related adjustments in wage and price levels. In a small open economy, the private sector of tradable goods acts as a wage leader (the 'Scandinavian model' of wage policy). Wage increases corresponding to the productivity growth of that sector (and some inflation target) spread over the economy and are also negotiated in sectors with poorer productivity growth. The resulting increase in inflation (according to the well-known Balassa-Samuelson-effect) diminishes the real wage gain to some extent, but does not impair the competitive position of tradable goods. Hence, the potential for long-term productivity growth and the catch-up of real wages is not impeded. The upshot is that this process of adjustment in real wage growth, although it goes with divergent rates of inflation, is facilitated in a monetary union.

The argument rests on two assumptions. First, in a monetary union the catch-up process does not induce expected appreciations of the currency (as would be the case with national currencies) that would dampen wage increases in the sector of tradable goods. Secondly, on the other hand, 'the bidding of trade unions for higher wages is constrained by the fixed exchange rate' (McKinnon/Schnabl, p.293). So, accordingly, a monetary union provides 'a welfare-enhancing environment for wage adjustment during the economic catch-up process' (ibid.).

Looking at the data, we observe that inflation differences have substantially narrowed in EMU, compared to the preceding monetary regime, and so have differences in wage increases (tables 2 and 3). However, the impact of EMU on real wage growth seems to be less clear (table 4). It is true that low-income countries in EMU have improved their relative real wage positions during the last decade. Above average real wage growth in those countries indicates real convergence, if only with a slow pace. But only two countries experienced a substantial acceleration of real wage growth after entering the monetary union. These are Greece and Portugal, countries that look back to an inflation-ridden past. They may well be taken as the model case, underpinning the McKinnon-Schnabl-hypothesis. This result is stressed by the fact that the poor performance of Greece and Portugal until the mid 1990s could not be

explained by conventional studies of beta-convergence which were based on neoclassical assumptions (see Sala-i-Martin 2003). Often enough, these countries were taken as exemptions and were excluded from the sample.

The question remains whether the inflation differences that can still be observed within EMU are detrimental to productivity growth and real convergence. These differences correspond largely to differences in the development of unit labour costs. Table 5 shows relative unit labour cost developments in the business sector and in manufacturing, respectively. The data are compatible with the hypothesis that inflation rates increase during the catch-up process due to the Balassa-Samuelson-effect. Low-income countries perform the highest rates of unit labour cost increases in the business sector. However, in all these countries unit labour costs rise far more slowly or even decrease in manufacturing. That gives evidence to the thesis that high inflation during the catch-up indicates a change in relative prices. The competitive position of the sector for tradable goods – which is indicated by manufacturing – is evidently not touched by this change. The spectacular case in this context is Ireland, where an incomes policy of relative wage restraint seems to have contributed to extraordinarily high rates of long-term growth. Overall, the data do not indicate increasing asymmetries.

Real interest rates and growth divergence

One of the most exciting observations in advance of the euro was the convergence of long-term interest rates in the euro area. Not only did the money market rates fall which the central bank can easily control. But also the spread of long-term government bond rates and capital market rates of private borrowing narrowed substantially at low interest rate levels. This convergence of long-term interest rates towards the lower end of the band signals a stabilisation of inflationary expectations all over the euro area which has been consistent with the ECB's primary objective of stabilising the price level over the medium term. Nonetheless, there was criticism that a 'one-size-fits-all' monetary policy could not tackle national differences in inflation, so that 'real' interest rates would diverge. This divergence would have unwarranted effects on growth and would eventually damage real convergence within the euro area.

Suppose, the observed inflation differentials (table 2) stand for unexpected inflation. Then the argument may be valid. Over the last decade, the low-income countries performed above average rates of inflation and their 'real' rates of interest calculated on this basis were

relatively low, correspondingly (table 6). Following Angeloni and Ehrmann (2004), a relatively low real interest rate stimulates internal demand and inflation. Although the authors judge this process to be temporary, it may well become self-enforcing. Unexpected inflation is to the benefit of the borrowers, firms and private households, who may feel that their net wealth position is improved and increase investment activity or consumption, respectively. Against this position, the ECB (2005) and Otmar Issing (2005) argue that the stimulating effect of a low real interest rate would be compensated for by a loss of national competitiveness that follows from the real effective appreciation which is connected to higher inflation. So, does higher inflation during the catch-up process just end up in two opposing effects which tend to neutralize each other? This conclusion seems to be premature. We must not overlook the macroeconomic mechanics behind the Balassa-Samuelson-effect. Actually, the ECB uses consumer prices in its analysis to compound changes in national competitiveness (ibid., chart 2). Instead, producer prices should have been the correct indicator, in particular producer prices in the sector of tradable goods and services. As a proxy for producer prices, table 5 shows relative unit labour costs in manufacturing (which can be taken for tradable goods) and in the total business sector. Both indicators perform differently in the euro area. Whereas unit labour costs in the business sector develop largely in line with inflation differentials, unit labour cost in manufacturing follow a quite different pattern. Consequently, among the countries enjoying low 'real' rates of interest – Ireland, Spain, Portugal, Greece – Ireland has improved her international competitive position (in contrast to what the ECB analysis suggests), while all the rest has lost more or less (see also table 7). This casts doubts on the usefulness of calculating real interest rates. Evidently, that indicator does not reveal much information about the determinants of investment behaviour in the competitive sector of the economy.

Policy Implications

The process of real convergence which has been observed in EMU so far was accompanied by the accumulation of external trade imbalances which were substantially higher in dollar terms for nearly all member countries compared to the previous period (table 7). However, the relative positions of member countries in the regional pattern of external balances remained remarkably stable. The main evidence is that Germany's external trade surplus increased relatively strongly while at the same time Spain built up larger deficits. The imbalances in external trade are the combined results of price and income effects. However,

they signal monetary imbalances in the economy and may have policy implications in a monetary union.

The monetary implications of a change in the accumulated trade balances become visible in the current account (table 8). A country accumulating a current account surplus achieves a creditor position in international finance. Accordingly, current account deficits lead a country into a debtor position. Together with cumulated direct investment, current account balances also indicate the liquidity status of a country (McKinnon and Schnabl 2005). These imbalances are cushioned in a monetary union. So, Germany as well as Spain profited from the monetary union. To clarify this point we just have to imagine a regime with adjustable national currencies. In such a regime Germany would have been exposed to expected appreciations of its currency and an increased deflationary pressure. On the other hand, Spain would have had to devalue its currency and to face a revival of inflation.

Actually, the euro area as a whole experienced a substantial revaluation against the dollar. As for Germany, the main exporter to the rest of the world, appreciation of the euro did not reduce its external trade surplus. On the contrary, as McKinnon and Schnabl would suggest, the external trade surplus was increased and the economy went through a long-lasting recession. In this situation, Germany tried a national strategy of wage restraint to combat stagnation of the economy and high structural unemployment. The level of real wages fell significantly (table 4). Here we find a case for considering real exchange rates within a monetary union as a matter of common concern. The economic rationale behind the German strategy was to induce an export-led growth which required an adjustment of the real exchange rate. Since there is no nominal exchange rate between member countries of a monetary union, Germany's real exchange rate could only be adjusted by a change in its wage level relative to productivity. So, the main task of the strategy was assigned to the wage bargaining partners in the labour market, assisted by some incomes policy of the government. It is clear that such an adjustment is not easily to achieve, compared to monetary strategies like interest rate policies or exchange rate adjustments which are not available for a single country in a monetary union. But if it becomes effective, it works like an exchange rate adjustment by correcting the terms of trade of the country concerned. This may give a head start to the home economy. It has, however, detrimental effects which may also cause disadvantages to the rest of the monetary union and, therefore, calls for cooperation:

- First, there are no direct effects on productivity growth. In addition, its indirect long-term effects are rather detrimental to growth. Like devaluation, this strategy provides a

cushion against international competitive pressure and so dampens incentives to innovation and growth.

- Secondly, like devaluation, a strategy of reducing the national wage level in a monetary union is a policy of 'beggar thy neighbour' which could be imitated, in particular if a big country like Germany tries to go this way.

The alternative to combat a recession is fiscal policies which can restore monetary equilibrium but must be applied carefully in order not to violate the long-term goal of sustainability. In this field also cooperation would be required.

To conclude, differences in productivity trends in a monetary union which may cause a divergence of income levels in the long run do influence the monetary equilibrium but they do not initiate "centrifugal powers" which would cause a monetary union to explode. To clarify this point, we have to apply a clear concept of monetary equilibrium. This enables us to correctly evaluate the impact of a monetary union compared to strategies of exchange rate adjustments.

References

Angeloni, Ignazio and Michael Ehrmann (2004) Euro area inflation differentials, *ECB Working Paper Series* no. 388

ECB (2005) Monetary Policy and Inflation Differentials in a Heterogeneous Currency Area, *Monthly Bulletin*, May, pp.61-77

Issing, Otmar (2005) A Single Monetary Policy for a Heterogenous Currency Area, Speech at the CEPR/ESI 9th annual conference 'Structural reforms and economic growth in Europe', Frankfurt am Main, September

McKinnon, Ronald and Gunther Schnabl (2006) China's Exchange Rate and International Adjustment in Wages, Prices and Interest Rates: Japan *Déjà Vu? CESifo Economic Studies,* vol.52, 2, pp 276-303

OECD (2005) Economic Outlook, vol.77, 1, June, Paris

OECD (2006) Economic Outlook, vol.78, 1, June, Paris, preliminary edition

Portes, Richard (2001) A Monetary Union in Motion: The European Experience, *CEPR Discussion Paper* nr 2954, London, September

Sala-i-Martin, Xavier (2003) Keynote speech: Convergence and divergence – theoretical underpinnings, in: Tumperell-Gugerell, G., Mooslechner, P. (eds) Economic Convergence and Divergence in Europe, Vienna

Abstract

Since Krugman's "Geography and Trade" it has become common knowledge among economists that the spatial consequences of "integration", that is to say of reduced transaction costs, may be the building up of agglomerations with high productivity levels and external economies of scale (the centre) whereas the periphery is being deprived by out-migration. The authors of a recent study published by the OECD had evidently this picture in mind when they concluded that in the long run a monetary union can only function "if there is a substantial homogeneity in its economic structure" (Economic Outlook, May 2005).

Against this background, the paper addresses the question of real convergence in a monetary union. It is argued that in a monetary union the specific answer to this question is not regional policy but macroeconomic policy coordination. The macroeconomic conditions of real convergence are analysed. It is concluded that a strategy of real convergence requires considering real exchange rates within a monetary union as a matter of common concern.

Table 1

**Potential GDP-Growth
in the euro area
1984 – 2006, average annual percentage change**

	1984-93	1994 - 2006
Austria	2.3	2.4
Belgium	2.1	2.1
Finland	2.1	2.5
France	1.9	2.2
Germany	1.1	1.5
Greece	1.5	3.3
Ireland	4.1	7.0
Italy	2.1	1.3
Luxembourg	. [a]	. [a]
Netherlands	2.5	2.5
Portugal	3.0	2.4
Spain	2.9	3.4
Euro area	1.1	2.1
for comparison: *OECD*	*2.4*	*2.5*

[a] not available

Source: OECD

Table 2

**Inflation differences
in the euro area
1978 – 2006, average annual percentage change**

	1978-88[a]	1996 – 2006[b]
Austria	3.9	1.6
Belgium	5.0	1.8
Finland	7.9	1.5
France	8.0	1.6
Germany	3.0[c]	1.4
Greece	18.8	3.6
Ireland	9.9	3.1
Italy	12.1	2.3
Luxembourg	.[a]	2.4
Netherlands	3.2	2.4
Portugal	18.8	2.8
Spain	11.4	2.9
Euro area	7.9	1.9

[a] National consumers price Indices
[b] HICP
[c] West Germany

Source: OECD; German Council of Economic Experts

Table 3

**Wage differences
in the euro area
1978 – 2006, average annual percentage change
of compensation per employee in the
business sector**

	1978-88	1996 - 2006
Austria	5.5	2.2
Belgium	6.2	2.5
Finland	10.5	3.4
France	9.3	2.4
Germany	4.0	1.0
Greece	18.9	6.3
Ireland	11.9	4.8
Italy	13.4	2.4
Luxembourg	.	.
Netherlands	2.9	3.2
Portugal	18.2	4.1
Spain	12.9	2.9
Euro area	8.6	1.7

Source: OECD

Table 4

Real wage growth[1)]
in the euro area
1978 – 2006
average annual percentage change

	1978-88	1996 – 2006
Austria	1.5	0.6
Belgium	1.1	0.7
Finland	2.4	1.9
France	1.2	0.8
Germany	1.0	- 0.4
Greece	0.1	2.6
Ireland	1.8	1.6
Italy	1.2	0.1
Luxembourg	.	.
Netherlands	- 0.3	0.8
Portugal	- 0.5	1.3
Spain	1.3	0.0
Euro area	0.6	- 0.2

[1)] Compensation per employee in the business sector, deflated by
consumer price indices

Table 5

**Relative unit labour cost
in the euro area
1995 = 100**

	Manufacturing 2003	Business sector 2006
Austria	74.2	101.7
Belgium	94.3	111.7
Finland	90.6	111.7
France	85.4	111.0
Germany	97.9	99.6
Greece	107.9	141.3
Ireland	76.8	112.0
Italy	135.6	127.2
Luxembourg	92.9	119.7
Netherlands	106.9	124.4
Portugal	106.2	140.3
Spain	116.8	132.7
Euro area		110.0

Source: OECD

Table 6

**Long-term interest rates
in the euro area
average annual rates in per cent
1997-2006**

	Nominal rates[1]	Real interest rates Deflated by consumer price indices
Austria	4.7	3.1
Belgium	4.7	2.8
Finland	4.7	3.2
France	4.6	3.0
Germany	4.6	3.1
Greece	6.0	2.3
Ireland	4.8	1.6
Italy	5.0	2.6
Luxembourg	4.3	1.9
Netherlands	4.6	2.2
Portugal	4.9	2.0
Spain	4.8	1.8
Euro area	4.7	2.8

[1]   10–year government bond yields

Source: OECD

Table 7

**Accumulated Trade Balances for Goods and
Services in the euro area
$ billion**

	1988-1996	1998 – 2006
Austria	0.3	79.8
Belgium	67.0	92.6
Finland	21.8	86.7
France	19.2	91.4
Germany	229.3	695.0
Greece	-66.5	- 119.0
Ireland	39.2	182.2
Italy	171.6	107.9
Luxembourg	23.3	51.3
Netherlands	154.0	317.4
Portugal	- 55.4	- 115.4
Spain	- 67.0	- 254.7
Euro area	537.0	1215.1

Source: OECD

Table 8

Accumulated Current Account Balances
in the euro area
$ billion

	1988-1996	1998 – 2006
Austria	- 15.8	- 10.3
Belgium[1]	89.9	92.5
Finland	- 16.9	69.3
France	28.9	37.9
Germany	17.4	342.9
Greece	- 30.3	- 103.5
Ireland	6.8	- 8.8
Italy	- 4.6	- 85.9
Luxembourg	.	.
Netherlands	116.6	243.0
Portugal	- 8.4	- 103.9
Spain	- 90.6	- 371.5
Euro area	97.9	289.9

[1] Including Luxembourg until 1994

Source: OECD