The Euro - Engine or Brake of Europe's Economic Convergence?

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Introduction

The launch of the euro as a single European currency caused observers to believe it will soon facilitate growth, employment and sound budgets in the participating nations. However, the disappointing performance of Euroland's economy compared to the US and some EU countries who opted against the Euro is a cause for concern among politicians and economists and subject to intensive research. This paper attempts to describe why the tendency to sticky wages in Europe in combination with the loss of monetary autonomy by the EMU member states causes Eurozone's GDP to almost stagnate. The paper is organized as follows: We start with a demand side model highlighting the importance of money supply in the case of wage and price rigidities, thus employment and income is demand constrained. The next section concentrates on the question whether the single currency is creating an adverse core-periphery divide inside Europe. The third section cross-checks the theoretical assumptions presented before, asking whether the EMU is converting itself into an optimum currency area (OCA). The paper concludes with some considerations regarding the international role of the Euro and the ability of Europe to deal with both, the American and Chinese, challenge.

Is Euroland a dynamic economic area? The role of money supply

Almost seven years after the launch of the euro differences in the macroeconomic performance of the participating countries raise concern, the single currency has been detrimental to the ambitious European goals of invigorating growth, job creation and achieving more balanced budget. Rather, the EMU-region as a whole has been reporting for years lover output growth than other major competitors worldwide. Economic growth since Euro introduction in 1999 has averaged 1.8% per year - well below the outcome of the US (3.1% yoy), but also less than some EU, yet non-EMU nations like UK, Sweden and Central and Eastern Europe. Admittedly, Spain, an Eurozone participant, has outpaced the big three continental EMU-economies too. However, this partly results from the catch-up – status of the country, which started its real convergence process at lover level of capital per worker and income per capita

back in the 1970s and 1980s. Yet Spain is increasingly unhappy with the growing trade and current account deficit it believes is a product of the irrevocable exchange rate peg Madrid nominally cannot influence.

A convenient tool to assess the importance of money supply for growth is the well known Robert Hall small macroeconomic model (Krugman, 1998), concentrating on one major asset, money.

In the model, the price level is directly determined by the wage level since the output is a homogenous good produced only by labor. Intuitively, in Euroland too GDP is produced by employing given input (labor, capital). Households enjoy utility not just from consumption, but also from the expected purchasing power of money they hold. That is, the utility of money is in providing future consumption. Because the Central bank is actively fighting inflation, future, i.e. expected, price level is unchanged:

$P^e = P$,

with P^e the expected (future) price level and P the current price level.

Utility is provided by real balances saved out of the households' income and by consumption with marginal propensity to save (s) and to consume (1-s) as the respective shares:

$U = (M/P)^s.C^{(1-s)}$

The utility function implies households will spend their wealth on goods and the rest on money.

While households' consumption is C, households are endowed with L units of labor; thus if there is no unemployment, the budget constraint is

$C + M'/P = L + M/P$

with M'/P real balances at the end of the period. Because the money supply is assumed constant (M = M'), real balances at the start and the end of the period are the same, i.e. C = L.

Given the condition that demand for money equals supply, the price level is a linear function of the money supply:

$P = ((1-s)/s)M/L$[1]

The problem resulting from a price level strait linked to money supply is what happens if prices are sticky. In Europe, the reason for sticky price levels are usually rigid nominal wages, which

[1] In equilibrium, either demand for goods equal supply L = (1-s)(L+M/P), or demand for money equal supply M/P = s(L+M/P). Solving for P delivers the above equation.

are subject to a complicated and often highly centralized process of wage bargaining (Deroose at al, 2004). But if the wage level is higher than the equilibrium level consistent with full employment the result is the real balances in the economy stay below equilibrium. In a currency area made up of quite different economies – Germany on the one side, Spain and Ireland on the other, Italy in between – real balances disequilibria may quickly show up. Some European economies may end up suffering money supply falling short of their demand at full employment. The mirror picture is output at full employment that falls short of demand.

We have assumed constant price levels in the future (no inflation expectations), therefore agents continue to hold the same amount of money at the end of each period they held at the beginning. The labor compensation is fully spent on consumption, which means consumption depends on the real balances:

$C = ((1-s)/s)M/P$.[2]

Because prices are sticky, the only way to do this is by increasing the money supply. Put other way, because in Europe the price level can not fall, money stock must rise.

This model, as trivial as it is, captures, however, some typical European realities. It foremost mirrors

i) rigid labor markets and – in the medium term - sticky wages and prices,

ii) as well as an independent ECB, aggressively guarding price stability.

On the other hand, the model's concentration on monetary issues falls short of Europe's complex reality, where a complicated policy mix of labor market, fiscal, and monetary policy is in place.

Not surprisingly, economists are so far divided whether a more pronounced demand boosting policy is the right way out of Europe's woes. Such a heavy weight like Robert Solow tends to identify demand policies in Europe as the culprit responsible for its current poor growth performance compared to the US. According to him, blaming, say, labor market rigidities alone for low German GDP dynamics is as if the hole in a flat tire must always be on the bottom, because that is where the tire is flat (Solow, 2000). In this respect aggregate demand has attracted attention at all: Rather studying just European institutions, one should look harder at the weakness of the demand for labor, goods, etc (Ackerloff at al, 1996). Accordingly, a pure supply-side explanation of the difference between the U.S. and Europe seems to be quite in-

[2] Having related L to M/P in the form L = (1-s)(L+M/P), and assuming L= C, obviously C = (1-s)(C+M/P). Consequently, M/P = s(C+M/P). Solving for C delivers C = ((1-s)/s)M/P.

adequate, while the record of the ECB is seen increasingly critically (Bibow, 2005). Yet some facts may justify the focus on inflation by the European Central Bank: The current high unemployment rate might reflect a high natural unemployment rate, rather than a large deviation of the actual unemployment rate above the natural rate. Maintaining constant inflation is then equivalent to maintaining unemployment close to its natural rate; this natural rate can only be reduced by labor market reforms, and this is not the responsibility of the central bank (Blanchard, 2005).

The ECB on its part is calling for a smaller government (ECB, 2006). To make the confusion perfect, research results claim to provide no evidence public spending is detrimental to growth: Countries with well-developed social security systems do not necessarily face a trade-off between social spending and competitiveness. On average, countries that spend a lot on social needs score well in the competitiveness league, i.e. a reverse causality from competitiveness to social spending is found weak (De Grauwe/Polan, 2003).

Is Euroland doomed to a lasting core-periphery divide?

Confusingly, not only there is lack of unanimous understanding of the reasons for the EMU's sclerosis. The performance of individual members of the EMU too, is different: Especially the Eurozone periphery is doing better while the lackluster development is limited mostly to the core economies of "Old Europe" Germany, France and Italy. Obviously, there are worrisome macroeconomic trends in Euroland in place which conflict with the goal of moderating the economic divergence of the continent.

Critics see an important effect of the EMU in facilitating macro-regional imbalances like better performance of some nations (Spain) and underperformance of other (Germany), where domestic growth is being stifled. Italy, so far another main loser of the common monetary policy, failed to adapt itself to the demand shock resulting from China's rise as a major producer of textiles, shoes and the like. Some Italian politicians vociferously claimed, Italy's exit from the Eurozone would boost its economy and employment. The concern for the EMU as whole is that individual economies perform not in line with the initially expected objective, namely per capita income convergence, instead of undesired growth rates divergence. Yet might divergence in an EMU ever occur? After all, the 'returns on capital' paradigm is central in an economic area without barriers to factor movement: Poorer regions (hereafter indicated as **1**) are offering higher returns per additional unit of capital invested, whereas capital abundant regions (hereafter indicated as **2**) suffer low marginal product of capital. In searching for better investment

opportunities capital is moving from the rich to the poor regions/economies until the capital stock per worker equalizes across the EMU.[3]

In Euroland free labor reallocation between the member countries is restricted due to various barriers – language and cultural idiosyncrasy, unemployment benefits, different social insurance systems, and so forth. But as theory suggests, it is not necessary for labor to cross the region's border to raise its factor income. It must in any case happen, because at some point labor productivity is the same in (1) and (2). In equilibrium, wage rates match marginal products (productivity), therefore labor income (and hence per capita income) will be the same in both regions. This is only possible if capital's and labor's shares of income equalize, i.e. $\alpha = \gamma$ and $\beta = \delta$.[4] Put other way, in Europe with its low labor mobility but with a fairly open capital market, the interregional distribution of labor as the immobile factor determines the interregional distribution of capital and output.

Yet the neoclassical approach to catch-up development is not free of critique. One can point out that if more realistic assumptions like economies of scale and technological spillovers are introduced, core-periphery effects may disadvantage poor regions or nations. Moreover, it is not certain that α and β (i.e. shares in national income) are converging across different regions and countries over time, as assumed above (Avdoulos/Derveaux, 2005). Even within the EU-15 the wage share (and hence the capital share) of the GNI vary significantly – currently between 63% in Finland and 73% in the UK (EU Commission, 2005). The variance is not visibly correlated with the per capita output level and does not show a common direction of convergence over time.

When dropping the 'constant return' paradigm and assuming economies of scale instead, divergence may be the possible outcome: the poor region may not catch-up economically, but even fall further behind. Hereby it is important that external economies of scale occur. They usually

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[3] In a two-region- (one advanced and one underdeveloped) world employing Cobb-Douglas technology to producing a homogeneous good, under the condition of free capital flow both regions end up with the same productivity. When technological progress is exogenous, the backward economy can freely implement innovations and new technology and accelerate growth. A necessary precondition is that in equilibrium marginal product of capital matches interest rate:
$\alpha K_1^{1-\alpha} L_1^{\beta} = a K_2^{1-\gamma} L_2^{\delta} = r_1 = r_2$, where (1), (2) denominate each region and r is the interest rate. α, β, γ, and δ are the factor shares in (1) and (2), respectively, which at the initial stage differ.

[4] In the world of the model this is the case because $\alpha/\beta = MPK_1 * K_1/MPL_1 * L_1$, where MPK, MPL denotes the region's (1) marginal product of capital and labor, respectively. After rearrangement we obtain $(K_1/L_1)/(MPL_1/MPK_1)$, where the denominator is the marginal rate of substitution among the factors. As capital intensity as well as marginal products in (2) are the same, obviously γ/δ is also the same. Because elasticities sum up to unity, $\alpha = \gamma$ and $\beta = \delta$.

refer to industries growing bigger in a given location entailing pay-off to the firms due to concentration and specialization effects. Because of agglomeration advantages, such regions grow rich and enjoy competitive edge. This enable their economies to accelerate output growth and raise their income level, widening the income gap (Krugman, 1991). Accordingly, at the national level, not only a country can end up differentiated in a core-periphery pattern, but the EU as a whole too.

Provided economies of scale occur, they offer pay-offs to pooling economic activity in agglomeration centers. If so, the process of capital-export driven growth in poor regions ceases to be straightforward. Because returns are not linear, firms are interested in investing in the core region (1) as they anticipate further decreasing marginal and average cost. This is the case when concentration and agglomeration cause variable and total cost to fall with growing regional output. Yet because space matters, they crucially have to consider transportation cost to achieve net agglomeration effect greater than zero. The net agglomeration (scale) effect to a firm operating either in (1) or (2) is

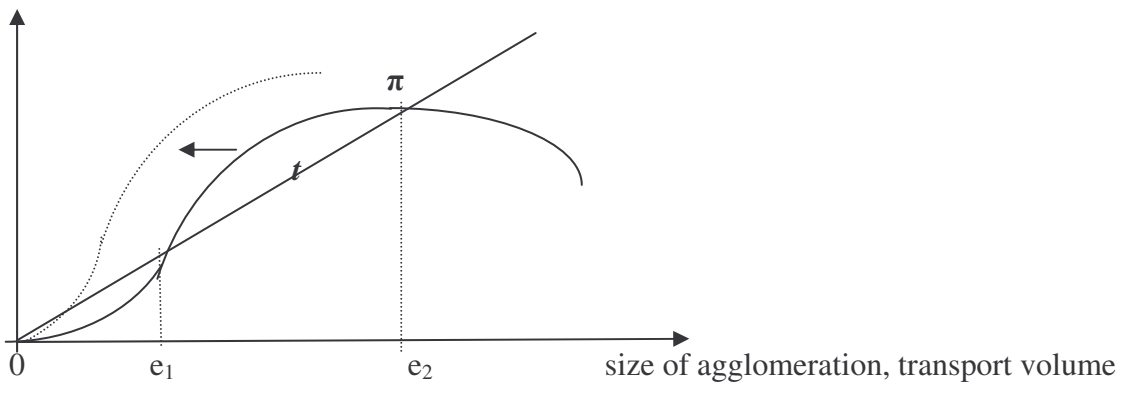
$$NA = \int_{e1}^{e_2} (\pi^{\mu} - t^{\eta})dq \; - \int_{0}^{e_1} (t^{\eta} - \pi^{\mu})dq,$$

$$\pi = (g)q_i \; , \; t = (f)D_i.$$

where transportation cost depend on the shipping distance to point (i), and the agglomeration pay-off depends on the scale of the respective industry or the firm's size, i.e.

$A = (f)q_i$. $\boldsymbol{\pi}$ and $\boldsymbol{t}$ are the agglomeration pay-off and transport functions, respectively. Their specific form may vary, for instance the transport function must not be linear ($\eta = 1$). Then, given the transportation cost, firms will operate profitably when the net return is > 0, i.e. right of point $\mathbf{e_1}$ in Figure 1.

Figure 1: Transport costs and net agglomeration effect



In the diagram, an exporting firm enjoys net agglomeration pay-off to the right of point e_1. The bigger the agglomeration the substantial the scale effect; thus the **π-**curve may shift to the left (alternatively, the transport schedule may rotate clockwise) and intersect the ***t***-curve left of e_1 with ongoing clustering of firms. As a result the disadvantages to the firms due to transportation expenses narrow. The area between the **π-** and ***t***-curves left of e_1 describes that lost. Evidently, the greater the scale of concentration (and specialization) the less costly to supply a bigger area out of the core. If this holds, there will be not any convergence between core and periphery regions because the direction of future specialization is determined. The core will become supplier of final goods, whereas the periphery may take over the role of the producer of raw material and (utmost) intermediate goods.

But sometime disadvantages of concentration start to overwhelm advantages. Will then firms in "Rich" invest capital in "Poor" and launch a process of classical convergence? Again, it depends on the transport cost. Given the lack of economies of scale in "Poor" it can supply only a few goods profitably. While Krugman is considering in his model fixed and marginal cost, we refrain here from working with fixed cost and regard instead average and marginal cost. This is justified since fixed cost exist just in the short run, whereas investment decisions of firms involve mostly long periods of time. The most straightforward case is when distance between "Rich" and "Poor" is huge and firms have to calculate big shipping cost. Since transport costs increase with distance, this cost burden must be offset by reducing other cost. If this can't happen, average total as well as marginal cost will be rising and returns will be decreasing. From the capital owners' standpoint here will be no incentive to invest in (2). In this case regional divergence will be preserved. At he same time the self reinforcing process of agglomeration in "Rich" then works on the basis that firms in "Rich" prefer to look for opportunities to invest where transport cost doesn't matter. This is true in the core himself, where disadvantages of concentration can be offset by innovations and structural change. This prolongs the already achieved closeness between the locations and further strengthens the center.

When so, the firm must consider the structure of input cost. By holding one factor (say, labor) constant, additional input of the other (say, capital) will affect marginal cost C':

$$C' = q\delta v/\delta x = q.1/(\delta x/\delta v) = q/g,$$

where q denotes the price of factor v, x the output and g the marginal productivity of v. Marginal cost rise with any additional factor input divided by the factor's productivity g. Marginal cost depend on marginal productivity of the factor the firm can vary, and it only decreases if g increases. Here C' is crucial, since it is affecting cost directly:

$d(C/x)/dx = (1/x^2)(xC'-C) = (1/x)(C'-C/x)$.

At $C' > C/x$ expanded output will cause average cost to rise and the investment project will be reconsidered, which prevents regional convergence.

In case there is not any input limit for either factor, the optimal input combination will be linked to the factor cost and their productivity:

$q_1/q_2 = g_1/g_2$. This reflects that the marginal rate of (technical) substitution is linked to the factor price because it is exactly equal to the ratio of factor-input prices.

But when are returns actually increasing? Obviously now

$C' = q_1/g_1 = q_2/g_2$, and $C/x = q_1v_1/x + q_2v_2/x$. The ratio $C'/(Cx)$ is the cost-output elasticity, i.e. the economies of scale:

$C'/(Cx) = (q/g)/(q_1v_1/x + q_2v_2/x)$.

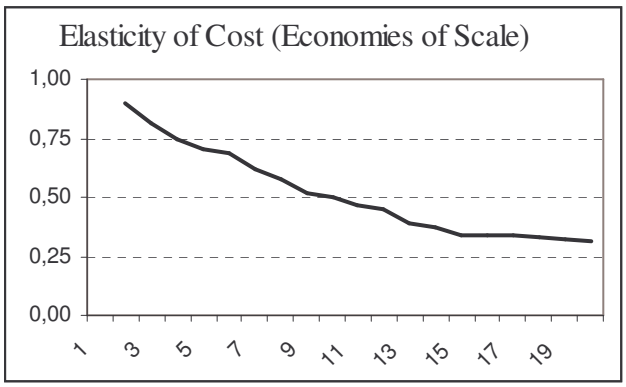
The degree of economies of scale depends upon the factor's productivity, which should cause marginal cost to decrease, and upon the input structure, which should avoid average cost increases. The marginal and average cost curves of the (homogeneous) production function of a firm investing in the poor region should be bent convex. In a region with a clustered industry made up of many (small) firms operating under perfect competition companies materialize on:

local base of specialized suppliers,

pooled labor with specialized skills,

local knowledge spillovers (Krugman/Venables, 1996), i.e. on the agglomeration pay-off. This produces a convex shaped curve of the cost-output elasticity function:

Figure 2: Cost-output performance at increasing returns



Source: Obtained on the basis of computed values of marginal and average cost

Higher economies of scale mean smaller elasticity of substitution between manufactured goods. This tends to facilitate regional divergence (Krugman, 1991). Hence, if the thesis of variable returns holds, convergence or divergence may take place depending upon conditions for investment in the poor region and upon transport cost. Clearly, this model is contradicting the neoclassical tenet. It may help understand why in reality regions often do not converge.

Therefore at this point we return to the first part of the model and ask again: What causes the real divergence observed so far within Euroland? And more precisely: Does the common currency facilitate a hypothetically possible core-periphery divide?

Increasing returns would cause, in theory, giant industrial cores on the one hand and vast underdeveloped regions, on the other. Fortunately, the emergence of big and dominant agglomerations is not infinite. In the EU-15, at the national level (NUTS-0 regions), there is no empirical evidence of some member countries "sucking" resources and enjoying growth clearly at the expense of others. At the sublevel (NUTS-2) of the EU-15 regions convergence is observed, although it is partly attributed to structural funds flows and not always to better economic performance of the poorer regions involved. Moreover, surprisingly, it is the periphery gaining momentum whereas the old core (Germany, France, Italy) is struggling to invigorate growth. Yet the explanation might not be the restrictive, demand suppressing policies of the ECB, but the inability of the EMU to converse itself into an optimum currency area.

Reality check for the euro: Exchange rate, interest and growth in EMU

A functioning EMU largely meets the criteria of an optimal currency area; the latter is characterised by its capacity to absorb shocks symmetrically. The EMU's capacity to efficiently absorb exogenous shocks can be shown in relation to the development of real exchange rates and interest. Under the conditions of a common currency, changes to the real rate of exchange effectively have to assume the adjustment function of nominal appreciation and depreciation.

With the irrevocable pegging together of exchange rates from 1999, a process began which involved the reordering of the individual economies' competitive positions on the basis of different national price changes. It was the case that competitors with cost- and thus price-advantages made use of the common currency in order to better position themselves *vis a vis* their Europartners with cost disadvantages. At the beginning of the 1990s, there was a marked tendency towards the alignment of inflation rates amongst the member states. This was contained, however, so that within the common currency area considerable inflation-differentials persisted. Moreover, the large differences between countries as regards price indices since 1999 (the kick-

off year of the common currency) have not tailed off.[5] Since the launch of the EMU, price rises in Germany have been lowest – at around 48% of the index of the EU-12 - followed by France, where inflation rates also lay under the EMU average. By contrast, the price rises in Italy, Spain and a few smaller partners were tangibly larger: In Greece, the inflation rate in this period was 2.63 times, and in Ireland around double, the EU-12 average (see Table 1).

Table 1: Inflation index by country 1995-2004, EU-12=100

Germany	France	Italy	Spain	Ireland	Greece
48	76	155	189	211	263

Calculated on the basis of GDP-deflator. Source: EU-Commission, DG EcFin, European Economy, No 4/2004, Statistical Annex, Table 24

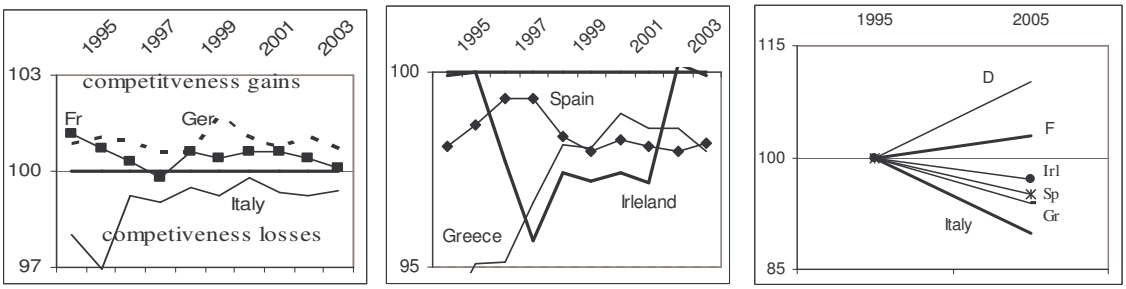
Developments in the wages and productivity of the EU-12 in the past years have been very different, with the result that wage costs tend to diverge from country to country. Within the Euro-group, Germany's, Ireland's and Austria's competitiveness has grown. In France and Finland it has remained constant, and in the Netherlands it has fallen. The differential price development (according to various deflators) under the conditions of currency union have caused a real depreciation in Germany and France, and a real appreciation in Italy, Spain and other countries. The improved competitiveness created an export boom in Germany (symbolised by the term 'World champion in exports') and to a degree in France as well. The formerly successful Italian export economy lost market share in the EU, whilst the Spanish current account dramatically worsened. Significantly, Italy's, Spain's and Greece's relative improvement in competitiveness has clearly slowed since the introduction of the Euro; in Ireland, by contrast, scarcely any negative Euro-effect can be identified.

Along with the real exchange rates, the composition of real interest rates in the individual participant countries showed divergent developments. The above-mentioned relationship between costs and price create, under conditions of a common EMU-interest policy, divergent levels of real interest which either favour growth in individual economies (regions) or curb it. Lagging demand throughout the economy is reflected in below average inflation rates; quick growth is, on the other hand, associated with above average price levels. The EMU-wide lowest inflation rate in Germany between 1995 and 2005 resulted in the EMU-wide highest real interest levels; the opposite has occurred in Spain and Ireland which are actually enjoying negative interest.

[5] The not weighted standard deviation of the inflation rate in 11 nations (without Luxemburg) in 1997-2000, 2001, 2002, 2003, and 2004 was 6.3, 5.2, 5.7, 5.6, und 6.1, respectively.

The differences in the inflation environment under the conditions of converging rates of nominal interest in the EMU favour borrowers in these and other countries with higher inflation rates rather than in low inflation economies: they receive credit at a similar nominal rate of interest; they use it at a lower real costs. This explains to a large degree the latest building boom in Spain and the successful BNP development in Ireland. On the other hand, borrowers in countries with low inflation rates find the Central Bank's single monetary policy too tight. This isn't a particular problem when small economies are affected by it –they can count on the 'big ones' to play the role of locomotive in the economic cycle. Yet in the EU-12, it is precisely these large economies that are suffering from weak demand. This in turn has implications for the ECB's monetary positioning: because the so-called potential gaps become permanent, they level down their growth and inflation targets, and the spreading of money that would have a positive effect on demand is curbed. In time, joblessness stabilizes at a high level and the potential gaps close. [6]

Figure 3: Competitiveness indices of the big (left graph) and other EMU-economies (center) on the basis of GDP-deflator*; on the basis of ULC** (right graph) since 1995



*Competitiveness index relative to EU-12 GDP-deflated; **Relative to 22 industrial nations ULC-deflated; Source: EU-Commission, DG EcFin, European Economy, No 4/2004, Annex, Table 24; No 6/2004, Table 35.

To sum up: two contradictory tendencies can be identified in both of EMU's largest economies, which yield around half the common BNP: on the one hand, real exchange rate depreciations – coupled with a demand in the other industrial countries as well as in Eastern Europe- tangibly revitalized Germany's export sector ("export champion"). On the other hand, too high a level of real interest in the two core economies of the EMU has the effect of creating restrained investment activity and slow growth. As a result, joblessness persists at a high level and the prospect of a public debt that is sustainable on a long-term basis becomes more distant. It is worrying that in the large EMU countries, of all places, the level of debt is again rising after a period of

[6] The NAIRU/NAWRU is assumed to lie close to the actual unemployment rate in the slow growing EMU-economies. For instance, there is hardly an inflation differential between them and the more dynamic industrialized countries (see estimations in: Maria Antoinette Dimitz, Output gaps and technological progress in European Monetary Union, Bank of Finland Research Department, Discussion Paper 20/2001, p. 17).

stabilisation; the burden of debt servicing which currently poses relatively few problems ought also to rise in future.

On the macro-economic level the question remains open of why the expanding export sector in both of the core countries does not act as a locomotive in the business cycle. German exports have risen in resent years by around 50%, without output growth profiting from it. The question is therefore particularly pressing given the widespread opinion that the large economies in the EU-12 are suffering from a weakening aggregate demand which could be revitalized through additional expenditure, for instance on the basis of a further breach of the Stability and Growth Pact. But it isn't clear why deficit spending should be a better trigger for growth than growing export demand. A comparison of the changes in export demand and government spending supports the thesis that exports give sufficient impulse for growth: net exports currently lie at around 4% of BNP, whilst it was negative until 2000. By contrast, the German budgetary balance has gone from positive to negative since 2000, without a significant growth effect. Deficit spending has not had an effect. What was for a long time a functioning standard model in many West European countries –an export-based growth- has reached its limits. Otherwise the export firms would reinvest their profits in the home economy, workers' consumer-demand would create demand throughout the economy and the expansion in the internal economy would have a revitalizing effect on partner-economies.

A plausible answer can be located in the fact of the single monetary policy and thus in the different levels of real interest. The relatively high German real interest rates have a deterrent effect on investors, so that capital exports from Germany have been activated. In a mirror image to the balance of the current account, capital exports have quadrupled since 2000, with the result that, on the part of investment demand, only limited economic impulses are being given out. The revitalizing effect on the weak internal sector of a healthy export sector is cancelled out by the limited attractiveness of Germany as a location. This points to structural problems and militates against excess budgetary expenditure as a means of stimulating growth.

Certainly, in the past, real interest rates were just as heterogeneous in the European countries. Germany was deemed a country of relatively high interest rates, against which the economies with large price rise rates (Greece, Italy) showed clear interest differentials (Table 2). The fragmented nature of the European capital markets produced the low interest rates in these countries, and this has today largely been overcome. In the EU unhindered cross-border capital movements were only a reality from 1990. This hampered an effective interest arbitrage and made governments in Athens and Rome into providers of investment securities in a monopoly.

They later inflated the credit debt away. By contrast, Germany enjoyed a stability bonus in the 1970s and 1980s, and was deemed an excellent location for investment because of the predictable monetary policy of the Federal Bank. With the creation of the EMU, this advantage was lost, since the ECB is today responsible for all countries that earlier distinguished themselves through the stability of their monetary value.

Table 2: Average real interest rates* in the EU-15 1971-2004, % (from low to high)

Greece	Italy	Ireland	UK	Luxem-burg	Sweden	France	Austria	Ger-many	Belgium
-1.9	2.2	2.4	2.8	2.8	2.8	3.4	3.6	3.8	3.9

Treasury bonds of the respective government over 5 years. Source: EU-Commission, European Economy, No 6/2004, Tables 24, 50.

The distinctiveness of the EMU, which does not have a nation-state as a political, linguistic and cultural basis, rules out ad hoc solutions for such intra-EU divergence, as illustrated by the example of the Stability and Growth Pact. One slow-growth state's going it alone in terms of fiscal policy is made impossible either by the Pact itself or through the ECB's moves against it. Unlike the USA, the adjustment reactions arising from cross-border migration of factors remains only of limited effectiveness. Work mobility, in particular between the EMU economies, is a marginal phenomenon. The EMU-capital market is not fully integrated either. Economic policy actions remain at the national level; yet attempts, to effect relief in a top-down manner are also questionable, as are the oft-repeated demands for higher wage agreements in order to combat deflationary tendencies and to revitalize demand. It is more likely that the aggregate demand would further shrink following such steps because of the likely rise in unemployment.

Conclusion

The launch of the Euro has raised questions whether the one-size-fits-all monetary policy of the ECB stifles the growth process in some EMU-economies, while other are about to overheat. By modeling a shortfall of aggregate demand due to restricted money supply, we tried to explain the lackluster growth performance of the big continental countries and thus of Euroland as a whole. But in spite of the disappointing GDP-dynamics of the EU-12, there might be other adverse effects of the common currency, foremost a possible core-periphery divide. A respective model was presented to capture the theoretical outcome.

Finally, the degree to which the Eurozone in its current shape meets the requirements of a optimum currency area was assessed. The result supports the conclusion, there is so far no smoothly

working mechanism in place to symmetrically absorb exogenous shocks. A looser monetary policy may cheer Germany, but it may hurt Spain. This is linked to the above question whether a divergence process is underway in Euroland facilitated by the one-size-fits-all policy of the ECB. Here the fiscal response to shocks is central. Unfortunately, in Europe fiscal constraints hinder and delay adjustment to stresses in the economy, as well demonstrated by the Stability and Growth Pact. The conclusion is, most of EMU's imbalances – regional and structural (stunning current account surpluses and deficits, high and low growth) are consequence of institutional shortages which are hard to fix in the current political environment in Europe (French and Dutch rejection of the Constitutional Treaty, etc.).

Last but not least, there is a mismatch between the real requirements of an optimum currency area on the one hand and the nominal criteria of the Maastricht treaty on the other. Yet meeting just the Maastricht criteria, not satisfying the OCA principles, was required to join the EMU. As a result the country composition and the coherence of Euroland was chosen wrongly. Shocks are likely to spread asymmetrically and a prolonged deflationary process in some nations (Italy, Netherlands, while Germany has been staying closely to deflation for some 10 years) is looming. In Central and Eastern Europe a slow-down of the convergence process cannot be ruled out in the big countries (Poland). An European Union divided economically by default and losing attractiveness in the world may be the outcome.

This would be a blow to many Euro enthusiasts who hope the common currency will soon surpass the dollar as the internationally dominant currency. Their expectation is founded on some facts: Euroland's GDP is matching America's output, while the US export volume is smaller. The most frequently quoted argument is, however, the growing American external imbalance. But recent studies doubt the latter play as important role as the critics of the dollar believe. Regressions have not found that net international debt position is an important determinant. Moreover, the respective results suggest that the relationship between currency shares and their determinants is nonlinear (Chinn/Frankel, 2005).

Ironically, it might turn out that it is not the rise of Europe, but the flawed US macroeconomic policies that eventually undermine confidence in the value of the dollar through overspending in the wake of "imperial overstretch" and the ensuing economic slump. Also, a gradual switch in commodity invoicing out of the dollar and towards the singe European currency cannot be ruled out.

Yet most studies overlook so far China, although – and this is another irony - it is China, that might spoil the European dream of a worldwide currency dominance. As China is reporting

growing trade surplus with the EU, it is staring to push the Euro in the same direction like the dollar. And what if Beijing re-pegged the renminbi, using in future the euro as anchor currency? The following dollar depreciation will hurt Euroland's economy, which is still relying on export demand for growth, while facilitating America's growth. Obviously, it is too speculative to decide about the possible outcome. However, why not think of a future world with three, not two, major international currencies – the dollar, the euro and the renminbi. Perhaps this would better reflect the new realities of the early third millennium.

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