European Economic Integration

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The Economic Case for Monetary Union in the European Union

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Abstract

Differential requirements for seigniorage provide a weak case for retaining monetary independence. As regards adjustment to asymmetric shocks, nominal exchange rate flexibility is at best a limited blessing and at worst a limited curse. Absence of significant fiscal redistribution mechanisms among EU members is not an obstacle to monetary union. Neither is limited international labour mobility. Convergence of real economic performance is irrelevant for monetary union. A common currency is the logical implication of unrestricted capital mobility. The Maastricht criteria need not hinder monetary union provided the political will exists to adopt a flexible interpretation of the fiscal criteria.

1. Introduction

This paper addresses the question: "What economic considerations should determine whether the countries belonging to the European Union ought to be pursuing monetary union," or "Is the EU an Optimal Currency Area?" I approach the issue from a narrow economic perspective. Most of the advocates and proponents of monetary union in the EU are not motivated by such economic considerations. Monetary union is first and foremost the next step in an ongoing process of economic and political integration in Western Europe.

The focus is throughout on the policy implications of the various strands of the optimal currency area literature: what does a nation (or group of nations) gain or lose by giving up monetary sovereignty, and what changes are required (in the fiscal policy instrumentarium and/or in other institutional or policy design aspects of the capacity to adjust) to compensate for the loss of the national monetary instruments? Unfortunately, the theory of optimal currency areas is one of the murkiest and most unsatisfactory areas of macroeconomic and monetary theory.

The outline of the paper is as follows. Section 2 reviews microeconomic arguments for a common currency. Section 3 reviews neoclassical public finance arguments against a common currency. Section 4 considers the implications of nominal rigidities. Section 5 looks at changes in policies and institutions required to make up for the loss of the exchange rate instrument. Section 6 reviews the role of capital controls and Section 7 the Maastricht convergence criteria.

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2. Microeconomic Efficiency Arguments for a Common Currency

The microeconomic efficiency arguments for a common currency are well-known. A medium of exchange or transactions medium is subject to an obvious network externality (Dowd and Greenaway, 1993). This is most easily seen in the case of intrinsically valueless (or fiat) money: the usefulness of a medium of exchange and the likelihood of it being accepted in exchange for intrinsically valued goods and services by an economic agent is increasing in the number of other economic agents that are likely to accept it as a medium of exchange, since what determines the liquidity or moneyness of the medium of exchange is the probability of being able to dispose of it when desired, at short notice, and at a low and certain cost.

The use of a given stock of money balances in transactions is obviously rival: I can only spend a given dollar bill once. However, since the usefulness to me of any particular currency for effecting transactions is strictly increasing in the frequency, scale, and scope of that currency’s use by others, there is an ultra-nonrivalness in the choice of which currency to use. This creates the public good aspects of money. Social transactions costs are minimized with a single currency. There is a direct parallel here with the social gains from having a common language (or a common measurement system): apart from aesthetic considerations, the value to me of learning another language is increasing in the number of other people that know the language. The benefits from having a common currency are a continuing flow of real resource savings, now and in the future.

Complex measurement problems make it difficult to assess empirically the order of magnitude of the microeconomic efficiency gains that might be achieved by monetary union, in the EU or elsewhere. The Cecchini Report tried to estimate the real resource savings from the bid–ask spreads in the foreign exchange markets. This, the value added in the foreign exchange business, represents the competitive rentals of the physical and human resources currently tied up in the exchange of currencies that would be liberated by monetary union, plus any pure rents, enjoyed either as monopoly profits or as X-inefficiency (organizational slack). To the extent that these markets are imperfectly competitive, the equilibrium spreads overstate the social opportunity costs incurred by banks and other foreign exchange traders, of exchanging one currency for another. On the other hand, the spread ignores altogether the real resource costs incurred by the other (non-bank) parties in the foreign exchange markets, the so-called inhouse costs in Emerson et al. (1990). In addition, a whole range of further securities (bonds denominated in the national currencies, options, futures contracts and other derivatives) would become redundant following monetary union, freeing additional resources for alternative uses. In sum, the existing estimates are incomplete, inconclusive, and rather arbitrary, and there is no consensus regarding the true magnitude of the net microeconomic benefits from having a common currency.

While, if one could redesign the world from scratch, microeconomic efficiency would clearly suggest the optimality of a single common currency, it does not follow that it is necessarily efficient to move to a common currency from an initial situation involving many currencies. Switching currencies is costly in a world of boundedly rational agents with limited computational, data-gathering and data-processing capacity. In addition, there are the real resource costs of introducing a new currency (or of extending the use of an existing currency to previous nonusers), the costs of converting contracts denominated in old currencies into the new currency, and a variety of other costs that can be labelled “vending machine costs.” To sum up, the one-off cost of
switching must be set against the continuing gains from operating with a single currency, meaning that the microeconomic case for moving to a common currency from a pre-existing multiple currency system is not a priori self-evident.

An interesting point, noted in Dowd and Greenaway (1993), is that, from the point of view of efficiency, a move to a single currency should be a move towards the universal use of one of the pre-existing currencies (say the D-mark in the EU) rather than the adoption of a new currency (such as the euro). That way at least the Germans will be spared the switching costs, and even non-Germans will be dealing with a common currency that will at least be somewhat familiar. By the same token, English, Spanish or Mandarin would make a better world language than Esperanto. This suggests the following (somewhat tongue-in-cheek) proposition.

**Proposition 1.** *If the European Union (or a subset thereof) moves to a common currency, efficiency considerations suggest that the name of the most widely used existing currency be attached to the new common numéraire. This means that the name of the new European currency should be the D-mark.*

Nothing in the Maastricht Treaty precludes the adoption of the D-mark as the name of the common currency. Note again that while the name "D-mark" would be retained, the Bundesbank would, as provided in the Maastricht Treaty, lose its ability to conduct monetary policy in Germany or anywhere, and would become just the German branch office of the ECB. It would be the ECB that controlled the EMU-wide issuance of D-marks following monetary union.4

Leaving aside the microeconomic efficiency arguments for a common currency, there are just two reasons why the nominal exchange rate regime might matter for real economic performance: seigniorage and nominal inertia. Note that, apart from the microeconomic efficiency arguments, the arguments for a common currency are the same as those for any credible fixed exchange rate regime. It may of course be the case that the only truly credible fixed exchange rate regime is a common currency.

## 3. Exchange Rate Independence and Seigniorage

**Basic Concepts**

Governments5 can appropriate real resources by issuing intrinsically valueless (fiat) money, provided private agents believe that fiat money will offer them a competitive rate of return (including saved transactions costs) over the planned holding period.

Let the nominal quantity of government fiat money (henceforth base money) outstanding at the end of period $t$ be denoted $H_t$. For simplicity, assume that base money (currency plus banks’ balances with the central bank) is non-interest-bearing. Let $P_t$ be the general price level during period $t$, and $Y_t$ be the real GDP; $\Delta$ is the backward difference operator. It is important to avoid loose language and to distinguish between “seigniorage” and the “inflation tax.” Seigniorage is the value of the resources the government appropriates by expanding the nominal monetary base. As a fraction of GDP, it is given by $\sigma_t$:

$$\sigma_t = \frac{\Delta H_t / (P_t Y_t)}{\Delta Y_t}.$$  \hspace{1cm} (1)
There is a closely related concept, occasionally also referred to in the literature as seigniorage (although I shall avoid that usage), given in equation (2), which defines the interest burden foregone by the government through its ability to issue non-interest-bearing liabilities. Let \( i \) denote the one-period nominal interest rate on government interest-bearing debt issued in period \( t \). This concept of interest burden foregone (the opportunity cost measure of seigniorage), denoted \( \omega_e \), is (as a fraction of GDP):

\[
\omega_e = i_i H_{t-1} / (P_t Y_t) = (i_i / (1 + \pi_t)) / (1 + g_t)
\]

(2)

where \( h_i = H_t / (P_t Y_t) \), \( 1 + \pi_t = P_t / P_{t-1} \), and \( 1 + g_t = Y_t / Y_{t-1} \).

The flows of current and future seigniorage and the flows of current and future interest burden foregone are related by the following identity:

\[
\sum_{j=0}^{\infty} \left( \prod_{k=0}^{j-1} (1 + i_{tk}) \right) \Delta H_{t+j} = \sum_{j=1}^{\infty} \left( \prod_{k=0}^{j-1} (1 + i_{tk}) \right) i_{tr} h_{t+j-1} - H_{t-1} / (1 + i).
\]

(3)

Thus, the present discounted value of current and future seigniorage equals the present discounted value of the current and future interest burden foregone minus the initial stock of base money (the liabilities of the central bank).

A third related concept, also at times referred to as seigniorage, is the Central Bank’s budgetary contribution to the general government. This is effectively the tax levied by the Treasury on the central bank. For our purposes, the intra-public sector transfer of resources between the central bank and the general government is of no interest. What matters is the transfer of resources between the public sector as a whole (that is, the consolidated general government and central bank) and the remaining economic actors (the domestic private sector, the state enterprise sector, and the rest of the world).

The inflation tax is generally defined as the reduction in the real value of the outstanding stock of base money due to increases in the general price level. Thus, the inflation tax in period \( t \), as a fraction of GDP, \( \tau^\pi_t \), is given by

\[
\tau^\pi_t = \pi_t H_{t-1} / (P_t Y_t) = \pi_t (1 + \pi_t)^{-1} (1 + g_t)^{-1} h_{t-1}.
\]

(4)

The inflation tax and seigniorage are related by the identity

\[
\sigma_t = \left( (1 + \pi_t) (1 + g_t) - 1 \right) (1 + \pi_t)^{-1} (1 + g_t)^{-1} h_{t-1} + \Delta h_t
\]

\[
\equiv \tau^\pi_t + g_t (1 + g_t)^{-1} h_{t-1} + \Delta h_t.
\]

(5)

Seigniorage equals the inflation tax plus the “real growth bonus” \( g_t (1 + g_t)^{-1} h_{t-1} \), plus the increase in the monetary base-GDP ratio \( \Delta h_t \).

When the demand for money is sensitive to the (expected) rate of inflation, the inflation tax is distortionary, like every other real-world tax, transfer, or subsidy. The normative neoclassical theory of public finance recognizes that, in general, a (constrained) optimal design of fiscal policy will require the use of all distortionary tax instruments. Efficiency requires that the excess burdens imposed by the various distortionary taxes be equalized at the margin. This might seem to create a presumption that countries with well-developed direct and indirect tax systems should make less use of the inflation tax than countries with less efficient revenue administrations.
and more relaxed public attitudes towards tax evasion. The optimal inflation rate might be expected to vary across time and across countries as tax bases, tax administration capacities, and tax ethics vary. This would constitute an argument against a common currency. In addition, the inflation tax is one of the few means of taxing the (cash-intensive) underground economy, which may be desirable both on efficiency and on equity grounds (Canzoneri and Rogers, 1990). The importance of this motive may well vary among the current members of the EU.

This presumption is less robust than one might assume, however, even as a purely theoretical proposition. Recent insights into the optimal use of distortionary taxes on the returns from durable (capital) assets, due to Chamley (1986) (see also Lucas, 1990; Corsetti, 1992; Corsetti and Pesenti, 1992; Zhu, 1992; and Roubini and Milesi-Ferretti, 1994) imply that, at least in the fairly standard theoretical model developed in Buiter (1995), the Friedman rule for the optimal quantity of money (the nominal rate of interest should be zero and saturation with real money balances should occur) still applies.

Few people are likely to lie awake about seigniorage for most EU countries in any case. In recent years there has been very little recourse to the anticipated inflation tax or to seigniorage for most EMU countries, with the notable exceptions of Spain, Italy, and especially Greece and Portugal (Grilli, 1989a, 1989b). Without committing the offense of measuring the amount of damage done by a tax (or by its abolition) by the revenue it raises, it seems extremely unlikely that the imposition of a common (low) rate of inflation on the EMU countries would significantly increase the excess burden associated with the financing of the public spending program.

A Broader View of the Inflation Tax

The inflation tax referred to in the theory of public finance is perhaps more accurately referred to as the (narrowly defined) anticipated inflation tax. Anticipated inflation can influence the government’s budgetary position through other channels. The most important of these is the Olivera–Tanzi effect through which a higher rate of inflation erodes the real value of taxes paid in arrears. The reason is that such arrears often are not index-linked and are not subject to a market interest rate reflecting anticipated inflation.

In addition to using the anticipated inflation tax (broadly defined), the government can improve its real financial net worth by reducing the real value of its outstanding nominally-denominated fixed interest rate debt through unanticipated inflation. Variable-interest-rate, short-maturity debt can have its real value eroded by an unanticipated increase in the price level. Even if nominal domestic costs are sticky, the CPI will be flexible in an open economy through the import component of the consumption bundle. In a small open economy, a price level jump can be engineered through a discrete (or maxi-) devaluation.

Giving up the ability to have nationally differentiated unanticipated inflation tax levies on the national debt, may be more serious than the loss of the discretionary use of the anticipated inflation tax for a number of countries with high public debt GDP ratios and a doubtful capacity for generating significant and sustained primary government surpluses. For this group of countries, which includes Greece, Italy, and Belgium, the option of a de jure (through a partial “consolidation” or default by some other name) or de facto (through an inflation surprise or an unexpected devaluation) capital levy on the public debt is valuable. If a de jure public debt repudiation turns out to be politically unacceptable, a fierce burst of monetary and exchange rate irresponsibility
may be the only way to reimpose *ex post* consistency on the public accounts. The optimal time to do this would be just before joining EMU, since in that case there would be no cost (in terms of the credibility of the country's commitment to future noninflationary policies) from having a last fling with inflation.

As the EU is only a relatively small subset of the set of all nations, there is an additional international seigniorage dimension. Member currencies (especially the D-mark) are used as reserves, intervention currencies and vehicle currencies by official and private agents outside the EU. The total amount of external seigniorage raised by all EU members from non-EU members is likely to change as a result of monetary union. It is quite possible that a new European currency could become, in relatively short order, a more effective competitor for the US dollar as an international store of value than the DM is today.\(^7\) This good news must, however, be balanced by the recognition that the rules that will be followed by the European Central Bank for the distribution of its seigniorage (including its external seigniorage) among the various member states are unlikely to mimic the current distribution of seigniorage. Scope for conflict is clearly present.

### 4. Nominal Rigidities and the Keynesian Arguments for an Optimal Currency Area

The monetary non-neutralities I will focus on in this section are short-run “Keynesian” non-neutralities, due to nominal rigidities in wage and/or price setting behavior.\(^8\) It is ironic that, ignoring the microeconomic efficiency argument and the neoclassical public finance arguments, one can only get legitimately exercised about the abandonment of the national monetary instrument if one believes the economy to have Keynesian features, at least in the short run. Nominal wage and price rigidities are the result of the common practice of setting wages and prices in money terms for months, quarters or even years in advance. These multiperiod nominal contracts are incomplete. In particular, they often are not contingent on nominal wage and price developments elsewhere in the economy or in the economy as a whole: they are not index-linked.\(^9\)

I shall cast the arguments about nominal inertia in terms of the simplest open-economy expectations-augmented Phillips curve, but many other formalizations are possible (Buiter, 1985; Buiter and Miller, 1985). The first issue that must be settled is whether there is any long-run (steady-state) effect of monetary policy on such real variables as the level of capacity utilization or the rate of unemployment. In the Phillips-curve paradigm, long-run non-neutrality of inflation requires at least one of two phenomena to be present: either the long-run Phillips curve is nonvertical or there is hysteresis in the natural rate of unemployment.

#### The Long-Run Neutrality and Superneutrality of Money

The argument is familiar, so I will restate it only briefly in the simplest possible setting. The actual unemployment rate is denoted \(u\) and the natural rate of unemployment \(u^N\). The core inflation rate or underlying rate of inflation is denoted \(\Pi\). The coefficient \(\beta\) measures the weight of foreign prices in the domestic price index; \(\pi^f\) denotes foreign inflation and \(e\) the percentage rate of depreciation of the nominal exchange rate. \(E_{t-1}\) is the expectation operator conditional on information at time \(t-1\), and \(\zeta\) denotes some exogenous process driving the natural rate of unemployment. Specifically, \(\zeta\) is a process independent of past, current, and anticipated future values of the rate of inflation, the growth rate of nominal money or the actual unemployment rate.

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\[
\pi_t = -\alpha (u_t - u_t^N) + \gamma \hat{\pi}_t - \beta \left( \hat{\pi}_t - (\varepsilon_t + \pi^*_t) \right), \quad \alpha > 0, \quad \beta \geq 0, \quad 0 \leq \gamma \leq 1, \tag{6}
\]
\[
\hat{\pi}_t = \eta E_{t-1} \pi_t + (1 - \eta) \pi_{t-1}, \quad 0 \leq \eta \leq 1, \tag{7}
\]
\[
u_t^N = \delta u_{t-1}^N + (1 - \delta) u_{t-1}^N + \zeta_t, \quad 0 \leq \delta \leq 1. \tag{8}
\]

In a long-run steady state,\(^{10}\) expectations are realized \((E_{t-1} \pi_t = \pi_t)\), the inflation rate is constant, and the terms of trade (or real exchange rate) are constant \((\pi = \varepsilon + \pi^*_t)\). Consider first the case where the natural rate is exogenous, that is \(\delta = 0\). For simplicity assume it to be constant as well. In that case,
\[
\pi = \alpha (\gamma - 1)^{-1} (u - u^N). \tag{9}
\]

There is no long-run inflation-unemployment tradeoff if and only if \(\gamma = 1\); that is, in the long run core inflation feeds one-for-one into actual inflation and the long-run Phillips curve is vertical at the exogenous natural rate of unemployment.

Now maintain the vertical long-run Phillips curve, that is \(\gamma = 1\), but allow path-dependence or hysteresis in the natural rate by assuming \(\delta > 0\). The current natural rate now depends (with exponentially declining weights) on the entire past history of the actual unemployment rate (and, of course, on the entire past history of the exogenous process \(\zeta\)). While in steady state the Phillips curve is vertical, it can be vertical at any level of the unemployment rate, depending on the past history of the actual unemployment rate. With hysteresis, any temporary shock, including (if there are nominal rigidities) a temporary nominal shock, can have permanent real effects.

The assumption \(\gamma < 1\) ceased to be intellectually respectable quite a while ago. The hysteresis hypothesis is intriguing but as yet unsubstantiated. I will therefore maintain the key assumption that neither the nonvertical long-run Phillips curve nor the hysteresis hypothesis are empirically relevant to the EU. This implies that any monetary non-neutralities are strictly short-run.

Short-Run Non-Neutrality of Money and the Implications of Nominal Exchange Rate Flexibility for Real Economic Performance

With money non-neutral in the short run but neutral in the long run \((\gamma = 1 \text{ and } \delta = 0)\), both the costs and benefits from nominal exchange rate flexibility are strictly limited and transitory. Nominal exchange rate flexibility makes only a transitory difference to the way in which the real variables of the economy\(^{11}\) respond to shocks, regardless of whether these shocks are real or nominal and permanent or transitory.\(^{12}\) The central messages of this subsection are conveniently expressed as a number of propositions.

**Proposition 2.** Nominal exchange rate flexibility permits international relative price and cost adjustments that are warranted by fundamental real developments and fundamental real shocks—adjustments that will eventually occur regardless of the nature of the nominal exchange rate regime—to be achieved more quickly and with smaller transitional or adjustment costs.

**Proposition 3.** Nominal exchange rate flexibility will cause financial shocks and other nominal shocks to result in temporary changes in international relative

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prices and costs—changes that are unnecessary and harmful from the point of view of the underlying real fundamentals and that involve real, albeit transitory, adjustment costs.

Proposition 4. In a world with incomplete markets, the existence of multiple currencies with (potentially) market-determined exchange rates creates additional financial markets through which extrinsic, nonfundamental or "sunspot" volatility can be injected into the financial system and thus into the economic system as a whole. Exchange rate flexibility may breed excess volatility and temporary (but possibly persistent) misalignment rather than merely filtering an exogenously given amount of irreducible, fundamental uncertainty.

Asymmetric Shocks

The optimal currency area literature\textsuperscript{13} has emphasized that if the preponderance of shocks hitting a potential common currency area are idiosyncratic or asymmetric—that is, region-specific or nation-specific shocks—then the case for a common currency is weakened. Note that the relevant asymmetry can either be asymmetric shocks (impulses) or asymmetric economic structures (domestic transmission, response, or propagation mechanisms). Of course, nominal rigidities are a necessary condition for this conclusion to follow.

Two further characteristics of a country's economic structure have been argued to be important for the choice of exchange rate regime. These are the openness of the country to trade in goods and services and the degree of diversification of its production and demand structures.

As regards openness to trade, the argument is that, if importables and exportables are large relative to domestic absorption and production, then variations in the nominal exchange rate will tend to be translated swiftly and comprehensively into increases in domestic consumer and producer prices, without any changes in key indices of international competitiveness. The limiting case would be that of the small open economy with only traded goods. Note, however, that even in this case nominal wage rigidity would cause (short-run) changes in real wages and real unit labor costs to result from variations in the nominal exchange rate.\textsuperscript{14} Another weakness of this argument is that the relationship between openness and the cost of nominal exchange rate rigidity is obviously nonmonotonic: for a completely closed economy, the nominal exchange rate regime is a matter of supreme indifference. As regards diversification of production and demand, these are best viewed as determinants of the likelihood that shocks to the demand for or supply of goods and services are symmetric (general) or asymmetric (nation-specific).

Even in the presence of nominal rigidities, the presumption that asymmetric shocks favor independent currencies and flexible exchange rates represents at best a half-truth. This is a simple open economy application of a point first made by Poole (1970).

Consider a semi-small\textsuperscript{15} open economy model with perfect international capital mobility. All variables are in natural logarithms with the exception of nominal and real interest rates. Foreign variables and parameters are distinguished by a star superscript. All parameters are positive. $m$ is the nominal money stock, $p$ the GDP deflator, $q$ the CPI, $s$ the nominal spot exchange rate (the domestic currency price of foreign exchange), $y$ real output, $z$ the real exchange rate, $d$ the stock of domestic credit, and $\rho$
the stock of international reserves. The money demand shock, the IS shock, and the supply shock are denoted $\lambda^d$, $\lambda^s$, and $\lambda^i$, respectively.

\begin{align*}
    m_t - q_t &= k(p_t + y_t - q_t) - \gamma_i^t + \lambda_i^t, \\
    y_t &= -\nu_r + \delta z_t + \lambda^d_t, \\
    r_t &= i_t - E_s q_{s+1} + q_t, \\
    i_t &= i^s_t + E_s s_{s+1} - S_n, \\
    q_t &= (1 - \beta)p_t + \beta(p_i^s + s_t), \\
    y_t &= \alpha(p_t - E_{t-1} p_t) + \lambda^s_t, \\
    z_t &= s_t + p_i^s - p_n, \\
    m_t &= \theta d_t + (1 - \theta) \rho_t.
\end{align*}

Assume for concreteness that the objective of policy is to stabilize real output around its “full information”, natural level $\lambda^i$. Basically nominal exchange rate flexibility is desirable when faced with “IS” shocks (shocks to the private or public demand for goods and services). For instance, in the face of the German reunification (GEMU) shock, maintaining the nominal exchange rate vis-à-vis the D-mark by the other ERM members was bound to be costly for countries with significant nominal wage and price rigidities. Nominal exchange rate flexibility is definitely undesirable in the face of domestic financial market shocks (say liquidity preference (money demand) or shocks to the domestic money supply process). For supply shocks and foreign interest rate shocks the results are qualitatively ambiguous. Without going through a rather tedious full-blown Poole-style analysis, one can still be very precise about the case of monetary shocks.

With a floating exchange rate, $\rho = 0$ and, for notational simplicity, $\theta = 1$; the money stock, $m = d$, is exogenous. Since our semismall open economy takes the foreign interest rate as given and has perfect international capital mobility, credibly fixing the nominal exchange rate (setting $s_t = E_s s_{t+1} = 0$, say) is equivalent to pegging the domestic nominal interest rate at the level of the foreign nominal interest rate. The now endogenous domestic money stock adjusts passively to shocks in the demand for money through endogenous variations in the stock of international reserves, $\rho$, even if the stock of domestic credit, $d$, is exogenous. Real economic activity (output, real exchange rate and real interest rate) is perfectly insulated from domestic financial shocks $\lambda^i$. So is the domestic price level.

The presumption in favor of interest-rate pegging (of which a fixed exchange rate is the most relevant example for a financially small open economy with perfect international capital mobility) carries over, in the multicountry version of this model, to asymmetric financial shocks. The particular system-wide monetary and exchange rate policy package that is optimal from the point of view of insulating real activity in both countries (and the two price levels), from the effects of monetary shocks, is system-wide nominal interest-rate targeting. The most relevant example of such a policy is a fixed nominal exchange rate, $s_t = E_s s_{t+1} = 0$ (say) (which implies $i = i^*$), and an adjustment of the system-wide quantity of money, $d + d^*$, to keep the common nominal interest rate constant at its target level in the face of monetary shocks in either country or in both countries. Open-loop nominal interest-rate targeting leads to price level indeterminacy in the two-country version of the model: there.
is no nominal anchor for the system as a whole. The solution to this technical problem is to make some real exogenous variable or policy instrument a function of current, past, or anticipated future values of some nominal price or quantity. An example would be to make the nominal interest rate (the real rate of return differential between nominal bonds and base money) a function of the current or lagged price level,

\[ i_t = \hat{i} + \eta p_{t-j}, \quad \eta \neq 0; \quad j \geq 0, \]
\[ i_t^* = \hat{i}^* + \eta^* p^*_{t-j}, \quad \eta^* \neq 0; \quad j \geq 0. \]

The standard empirical procedure for evaluating the desirability of retaining nominal exchange rate flexibility has involved the decomposition of demand and supply shocks into idiosyncratic or asymmetric versus common or symmetric shocks. Finding a preponderance of asymmetric shocks was then interpreted as an argument against monetary union. Ironically, the standard identifying restrictions commonly imposed in order to distinguish supply shocks from demand shocks imply the opposite conclusion. Specifically, the common identifying restriction that demand shocks have no long-run real effects only makes sense for monetary shocks or "LM shocks." The restriction that there be no long-run real effects certainly does not make sense for (permanent) fiscal policy shocks or other "IS shocks."

Empirical evidence (based on credible identifying restrictions) about the relative importance of IS versus LM shocks in the EU is essential for it to be possible to draw sensible inferences about the appropriate exchange rate regime. An equally serious qualification to many of the "shocking" recent findings is that the nature and magnitude of the shocks perturbing the system may be functions of the exchange rate regime itself, as asserted in Proposition 4. That is, different exchange rate regimes not only transmit given fundamental shocks differently, but also may generate different kinds and amounts of extrinsic, nonfundamental noise.

Recent empirical investigations by Maria Nikolakaki (1996) attempt to identify separately the contributions of LM, IS and supply shocks to the variability of output and the real exchange rate in a number of EU countries, using structural VAR methods. In her first identification scheme, only supply shocks can have long-run effects on real output. The aggregate supply shock therefore, by construction, gradually explains most of the output variability across countries as the time horizon increases. She considers nine countries (Austria, France, Italy, Germany, The Netherlands, Portugal, Spain, Sweden, and the UK (all relative to Germany)) for the post-Bretton Woods (1975:4–1994:4) period. Her key findings are as follows. First, supply shocks account for most of the variability in output for Austria, Germany, Sweden, The Netherlands, Portugal, and the UK, even in the short run. In France and Italy, the LM shock typically accounts for between 45% and 68% of output variability over a 1 to 10 quarter horizon. IS shocks account for little of the output variability at any horizon. As regards real exchange rate variability, supply shocks account for very little at any horizon. IS shocks account for the bulk of real exchange rate variability at all horizons except in the Netherlands and Germany, where LM shocks dominate.

In a second identification scheme, both aggregate supply shocks and IS shocks are allowed to have long-run real effects. One implication of this change in identification scheme is that IS shocks become more important as a source of output variability, especially in the long run.
Clearly, even if these results are taken at face value, their interpretation must be informed by the Lucas critique. It is by no means obvious that the reduced-form relationships between output and the real exchange rate on the one hand, and the three shocks on the other hand, will remain invariant under the changes in the stochastic processes driving these three shocks that might result from a major regime change such as a move to a monetary union. Nevertheless, some interest attaches to the finding that LM shocks were a non-negligible source of real output and real exchange rate variability during the post-Bretton Woods era for the nine countries considered.

I summarize this subsection in another proposition.

**Proposition 5.** Asymmetric shocks, far from being an argument against a fixed exchange rate or a common currency, are an argument in favor of a fixed exchange rate or a common currency if the shocks in question are financial shocks and the degree of international financial capital mobility is very high.

### 5. What is Required to Make Up for Loss of Exchange Rate Flexibility?

What is gained through nominal exchange rate flexibility is an instrument with strictly temporary or transitory real effects. When used properly, it facilitates adjustment to goods market shocks; when used improperly, it may complicate adjustment to financial shocks. Compensating for the loss of the exchange rate instrument therefore requires only an instrument that has strictly temporary or transient real effects.

It is true that the word "temporary" can cover any interval short of eternity. How long is the relevant short run? There obviously can be no answer to this question that is universally valid; it depends on the nature of the shocks hitting the system, on the institutional arrangements in a particular country at any given point in time, and on the decision rules adopted by private agents.

A conventional wisdom going back at least to Milton Friedman holds that in a low-inflation OECD-type economy, rather closed to international trade like the US, it may take as much as two years for monetary changes to feed through into prices rather than affecting real quantities. If capital formation has been affected in the meantime, real consequences of nominal shocks may last longer than that. For more open economies and for economies undergoing higher and more variable rates of inflation, the real consequences of nominal shocks may be significantly less persistent. The UK is probably the European economy with the highest degree of nominal inertia, and even there it is significantly less important than in the USA. There is some evidence to support the view that most of continental Europe has significant real price and cost rigidities, but no nominal inertia of much consequence. The loss of the exchange rate instrument would then be of little importance.

The optimal currency area literature is imprecise and even confused about the policy, institutional or other behavioral changes required to compensate for the loss of the nominal exchange rate instrument. The main confusions concern international factor mobility, international fiscal transfers, and divergent underlying real economic performance.

**Factor Mobility**

The argument goes as follows. When a country is hit by an asymmetric shock to the demand for or supply of its output, there are two international adjustment mecha-
nisms: first, a change in the relative price of the domestic good, and second, international factor mobility. In a neoclassical world, the two mechanisms are substitutes. If there is a high degree of international factor mobility, international relative prices will have to change only little in response to a given asymmetric goods market shock. Since international relative price changes are costly under a fixed nominal exchange rate, a high degree of international factor mobility, by obviating the need for any (significant) international relative price adjustment, reduces the cost of giving up nominal exchange rate flexibility.

The problem with this argument is that international factor mobility, especially labor mobility, is costly. International relocation of real factors of production is an investment subject to sunk (irreversible) costs. It is therefore efficient only in response to permanent (or at least very persistent) real shocks. Migration flows that are reversible over the typical business cycle are rare. As a substitute for nominal exchange rate flexibility, international factor mobility therefore delivers both too much and too little. It delivers too much insofar as international factor mobility is a mechanism for achieving permanent real adjustments. It delivers too little insofar as it does not possess the self-liquidating, transient properties of a nominal exchange rate adjustment.

It is true that net international migration flows can be reversible without this requiring the reversal of any individual migration decision. In a representative agent model, gross flows equal net flows, and reversal of the net migration flow requires individual migrants to reverse their earlier migration decisions; that is, to engage in strictly temporary migration. In a model with a heterogeneous potential migrant population and positive gross flows in both directions, sign reversal in the net flow of migrants between countries does not require any individual migration decision to be reversed; that is, it does not require temporary migration by any individual migrant. By itself, however, recognition of migrant heterogeneity and positive two-way gross flows does not invalidate the presumption that, because migration is subject to sizeable sunk costs, it is neither an effective mechanism for adjusting to temporary shocks, nor an adequate substitute for an adjustment mechanism that has only temporary real effects.

International labor mobility is not an effective cyclical stabilization mechanism. It is a means for achieving long-term structural change. Labor migration is not a very cyclical phenomenon. Since the exchange rate regime affects the behavior of the real economy only at cyclical frequencies, labour mobility is not a substitute for nominal exchange rate flexibility.

The point is often made that the states of the USA are better candidates for a common currency area than the members of the EU, because interstate labor mobility is significantly higher in the USA than intercountry labor mobility in the EU.24 It is true that in the USA there is rather more permanent or long-term interstate labor mobility, but only little of this occurs at cyclical frequencies. The kind of temporary, reversible, or cyclical international labor mobility required to compensate fully for the loss of monetary autonomy is not found anywhere in the world.

International Fiscal Transfers

What is lost by giving up nominal exchange rate flexibility can be recouped through international fiscal transfers that are strictly temporary or transitory (and indeed reversible— in present-value terms—if there is no Ricardian equivalence).25 There is no need for any mechanism capable of making permanent fiscal transfers in order to make
up for the loss of national monetary autonomy. The fact that the EU budget is tiny and engages in a negligible amount of international redistribution is therefore irrelevant from the point of view of monetary union. By the same token, the fact that the US federal budget is responsible for a significant amount of interstate redistribution represents massive overkill from the point of view of establishing the presumption that the USA is an optimal currency area.

All the EU needs in order to compensate for the loss of national monetary sovereignty and nominal exchange rate flexibility is an international transfer mechanism that is capable of making temporary (i.e., self-liquidating) transfers between countries.

Divergent Real Developments

There is a widely-held view that convergence in real economic performance is a substitute for nominal exchange rate flexibility. The following quote from a speech of the Governor of the Bank of England (George, 1995) is not unrepresentative:

This longer-term problem of unemployment reflects, at least in part, structural features of the European labour market, which also differ from one country to another—for example in the degree of flexibility in wages and other conditions of employment, or in the degree of non-wage, social costs of employment. It is being addressed, variously, through structural policies nationally and through measures such as those that are being explored by the European Commission and debated by the European Council. But it will not easily go away. And it could in fact become more difficult to resolve within monetary union as a result of on-going differences between member countries, for example, as a result of differences in rates of productivity growth, or unrelated differences in earnings growth, or as a result of divergent demographic trends and associated differences in dependency ratios.

The fundamental misunderstanding, reflected in the above quote, of what nominal exchange rate flexibility can deliver prompts the following proposition.

PROPOSITION 6. Real convergence or divergence is irrelevant for monetary union.

Asserting the contrary would mean attributing to monetary policy (under which I include exchange rate policy) power and significance well beyond what it can deliver. Does anyone really believe that the problems of Italy's Mezzogiorno would have been alleviated if Southern Italy had been given its own currency and had decided to float the southern Lira independently of the northern Lira? Or that Appalachia would have been more prosperous if it had been granted its own currency? How would real wage rigidities be alleviated by having an independent currency and a floating exchange rate? How are the competitiveness problems associated with excessive nonwage labor costs mitigated by having a floating exchange rate? Why would international differences in the severity of intergenerational distribution problems, and in the strains put on public sector budgets by graying populations and emerging "youth deficits," be any less with a floating exchange rate than under a fixed rate? There is no reason whatsoever why regions characterized by persistent differences in total factor productivity
growth, or by persistent differences in real earnings growth unrelated to productivity growth differentials, cannot be locked together in a common currency area. No doubt real economic performance would be dismal in a region whose real earnings growth systematically exceeded its productivity growth, but it would be equally dismal regardless of the exchange rate regime.

With nominal inertia, monetary policy can influence the current short real interest rate; that is, it can influence the short real interest rate in the short run. With the myopia, herd-instinct and bandwagon effects that often dominate financial markets on a day-to-day basis, monetary policy may also have a transitory effect on the current long real interest rate; that is, it may be able to influence long rates in the short run (although not necessarily in a very predictable manner). Unless the economy is hysteretic, monetary policy ultimately cannot influence either the short-term real rate or the long-term real rate. *Mutatis mutandis*, the same holds for the ability of monetary and exchange rate policy to influence the real exchange rate or any other real variable.  

6. Restrictions on Capital Mobility

Virtually all the arguments given in Emerson et al. (1990) to the effect that the logic of market integration implies the need for a common currency are seriously flawed. Many seem to derive from fears that competitive devaluations of the nominal exchange rate can buy a country a lasting competitive advantage (a lasting real devaluation), thus distorting the competitive “level playing field” (whatever that is). If the economy has the natural rate property at least in the long run, these fears are overstated. In addition the historical evidence of the OECD countries and a wide range of developing countries and transition economies supports the view that it is not possible to gain any enduring competitive advantage by pursuing deliberately inflationary policies.

Only one aspect of market integration does indeed point in the direction suggested by the “One market, one money” school of thought. That aspect is financial market integration, and specifically the removal of fiscal and administrative obstacles to the international movement of financial capital. The key point here can be summarized in the following proposition

**Proposition 7.** With unrestricted international mobility of financial capital, a common currency becomes, at the very least, desirable. It may well become unavoidable.

The arguments supporting this position are both theoretical and empirical. Managed exchange rate regimes, including fixed-but-flexible exchange rate regimes such as Bretton Woods, or target zones with hard barriers such as the original ERM, break down with probability 1 in finite time. They are not sustainable in the longer term. Floating exchange rate regimes may be feasible, but are likely to have undesirable operating characteristics: they frequently are characterized by excess short-term volatility and persistent medium-term misalignments.

Take a fixed exchange rate regime as epitome of all managed exchange rate regimes. Any fixed exchange rate regime that is not irrevocably fixed (that is, anything short of monetary union) can be abandoned for one of two reasons. The authorities can choose to abandon the fixed parity, for any number of virtuous or opportunistic
reasons, even in the absence of speculative attacks, or they can be forced off the fixed parity by a speculative attack that exhausts their international reserves and credit lines. While technically (that is, in a world with credible commitment) any solvent government should be able to borrow infinite amounts of foreign exchange (simply by swapping it for its own currency or debt), in reality there is a limit to the credit lines that any monetary authority can draw on. Any finite limit can be challenged by private speculators in reasonably efficient financial markets. Again, in principle a government could always raise short-term interest rates to the point where speculators decide not to short its currency. In practice, with imperfect credibility, the interest rate levels that may be required to do the trick are likely to be politically unsustainable, especially in countries like the UK where the cost of many variable rate mortgages is tied closely to the short rate of interest.

The gold standard survived as long as it did for two reasons. First, the degree of international capital mobility was less than it is today. Second, the key national authorities were not held responsible for real macroeconomic performance (output and unemployment) and could make the defense of the gold standard their overriding priority. At least since World War II, no government has been able to enjoy the luxury of focusing monetary and fiscal policy exclusively on the defense of the external value of their currency. Any commitment to a fixed parity is therefore vulnerable, and will be tested by the markets.

The completion of one component of the single market program, the elimination of (virtually) all remaining restrictions on the intra-EC mobility of financial capital, was sufficient to seal the fate of the EMS and the ERM. With all legal restrictions removed and much of the accumulated inefficiency of the previously protected private financial sectors swept away, a market mechanism was created that could shift literally hundreds of billions of dollars worth of financial claims between currencies in a matter of minutes, and at very little cost. Add to this a renewable population of unskilled and unsuccessful speculators (including those in charge of macroeconomic policy in the national ministries of finance and central banks, but also new and inexperienced players from the private sector), and all the elements for a successful attack on a fixed-but-adjustable exchange rate arrangement like the ERM were in place. This is not to say that the EMS and the ERM would have survived if effective capital controls had been in place. The literature on voluntary (or opportunistic) abandonment of the peg does not require that there be any international mobility of capital.

Is it possible to put the genie back in the bottle through fiscal or administrative capital controls? The scope and efficiency of the global industry ready to take on the authorities by supplying the means to avoid and evade controls is awesome. The rewards from taking on the monetary authorities are too high: given the ineffective penalties likely to be imposed and the low risk of being caught evading the controls, the odds on capital controls working effectively are virtually nil.

Proposals for imposing non-interest-bearing reserve requirements on balances used for taking open positions to attack currencies are vulnerable because they ignore key developments of the last two decades in the international financial markets. There are myriad ways now of attacking a currency: through the spot markets, through the futures markets, through the derivatives markets. "Tobin" taxes on foreign exchange transactions would likewise have to be expanded in their coverage to include transactions in the option markets and in markets for all other kinds of derivatives. Note that this argument for a common currency extends beyond the EU and applies to any countries linked by unrestricted financial capital mobility, including the USA and Japan.
7. The Maastricht Convergence Criteria

A common currency may be the only logical option left after the abolition of capital controls; the question is, can we get there from here? In particular, how do the Maastricht convergence criteria enhance or impede the process?

Of the four convergence criteria (the exchange rate criterion, the interest rate criterion, the inflation criterion, and the excessive deficits criterion (which consists of a government deficit ceiling and a government debt ceiling)) only one, the exchange rate criterion, makes any sense. The interest rate and inflation criteria are largely redundant and irrelevant. Fortunately, these two are unlikely to create serious compliance problems for most European countries. The budget deficit and debt criteria are unnecessary and potentially dangerous for the EU as a whole and for individual countries. The good news is that while the exchange rate, interest rate and inflation criteria are quite specific, the deficit and debt criteria, as specified in the Treaty of Maastricht, are quite vague and flexible. It is important to recognize that flexibility and to take advantage of it.

Consider the four convergence criteria in turn.

The Exchange Rate

The rationale for ruling out significant parity changes (devaluations) prior to monetary union surely is to avoid the risk of “endgame” devaluations aimed either at achieving a transitional competitive advantage or at reducing the real value of public debt denominated in domestic currency.

As long as monetary autonomy is expected to exist in the future, maintaining a reputation for being tough on inflation is valuable to the monetary authority. The cost of losing that reputation militates against the temptation to gain a competitive advantage (or amortize debt) through devaluation. Once monetary union is a fact, national reputations for monetary restraint are worth nothing (see Froot and Rogoff, 1991; Bayoumi, 1995). The temptation to get in one last, big devaluation before the ECB throws the key away, may be hard to resist. The exchange rate criterion rules this out and therefore makes sense from the point of view of avoiding zero-sum (at best) “endgame” devaluations in pursuit of national competitive advantage. “Endgame” devaluations as a means of amortizing excessive public debt are of course also ruled out by the exchange rate criterion.

Interest Rates

Long-term nominal rates of interest on government debt are required to converge to a level close to that achieved by the three countries with the lowest rate of inflation. In the absence of (1) differences in effective marginal tax rates on interest income, and (2) differences in default risk, there will be complete interest rate equalization immediately following currency unification. The only way to make sense of the interest rate convergence criterion, which imposes limits on interest rate spreads prior to monetary union, is that it is either a device for imposing interest income tax harmonization or yet another stratagem for keeping out of the monetary union governments whose debt is subject to a significantly higher default risk premium than the debt of the other member governments. Barring differential default risk and differential interest taxation, the criterion is redundant: monetary union ensures interest rate equalization—the cart is put before the horse. The interest rate criterion therefore only makes sense as a fiscal criterion in disguise.

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Inflation

Prior to being allowed to join, a prospective entrant's inflation rate must be close to the inflation rates achieved by the three countries with the lowest rates of inflation. It is clear that monetary union is a means for achieving inflation convergence. Inflation rates for traded goods should converge quite quickly, while nontraded good prices and costs also would ultimately rise at a common rate (corrected for the familiar inter-member differences in the productivity growth differential between the traded and nontraded good sectors). Why then impose inflation convergence prior to monetary union as a criterion for EMU membership?

If there is a reasonable answer, it must involve an empirical judgment about the inheritability of inflation persistence (or inflation inertia) following monetary union. The issue is a fascinating and important one, and one on which there is little or no empirical evidence. Clearly, if there is no inflation persistence, the prior inflation convergence criterion makes no sense. However, in order to reach the conclusion that prior inflation convergence is desirable, it does not suffice to note that potential EMU members have historically been characterized by inflation inertia. Assume that Italy has inflation inertia and that the current core inflation rate (in lira) is x percent per annum. As long as contracts are denominated in lira, this core inflation rate will respond only sluggishly to changes in economic conditions (that is the meaning of inflation inertia). It is by no means clear, however, what will happen to Italian inflation persistence once contracts are denominated in the new currency (the euro). Will Italian euro inflation inertia simply inherit Italian lira inflation inertia, or will it instead evolve according to a different process (say the average prior core inflation of the other EMU members?). If there is full “inheritance” of national inflation inertia, convergence of core inflation rates prior to EMU is desirable to avoid important changes in relative prices and costs building up under EMU before national core inflation rates have converged. It probably makes sense to be cautious, but this is surely a judgment that can be left to the individual member countries and does not need to be written in stone and enforced centrally.

Public Debt and Deficit Ceilings

The two numerical fiscal criteria of the Maastricht Treaty make no sense and should be jettisoned. Some of the reasons are as follows.

First, the two figures are arbitrary and their origins accidental. Sixty percent happened to be the average debt–GDP ratio in the EC at the time the Maastricht Treaty was being cobbled together. A 3% deficit–GDP ratio is consistent with the maintenance of a 60% debt–GDP ratio when the growth rate of nominal GDP is 5% per annum (say 3% real growth and 2% inflation). No normative significance attaches to a 5% growth rate of nominal GDP. Even if we think a 5% annual growth rate of nominal GDP to be a desirable EU-wide target, why a debt ratio of 60% with a deficit ratio of 3%, rather than a debt ratio of 80% with a deficit ratio of 4% (which would also be consistent with each other), or perhaps a debt ratio of 20% with a deficit ratio of 1%?

Other things being equal, I would like most EU governments to have less debt and a smaller deficit. In the best of all possible worlds, the state would not be a debtor at all but a creditor, who finances all socially necessary expenditures out of the interest income it receives from its financial assets! That would do away with the disincentive
effects of distortionary taxation, and in addition it would boost the national saving rate. The key question, however, is not whether we could have done better and should do better in the future. It is rather whether now (that is before the beginning of 1998 when the list of countries satisfying all the criteria for EMU is drawn up) is the time to engage in fiscal heroics to bring down the average EU debt–GDP ratio significantly. The answer for most would-be EMU members is a clear “no.”

Second, higher debt and deficit levels are feasible (sometimes even sustainable), and may, under specific circumstances, be desirable. Immediately following World War II the UK debt–GDP ratio was over 250%. The highest ever figure was recorded following the Napoleonic wars. What is an appropriate debt and deficit level depends on economic structure (e.g., private saving rates and the level of private financial wealth), on historical circumstances (the aftermath of war or deep recession), and on the role accorded to public debt and deficits in intergenerational redistribution through the budget. To have a “one-size fits all” upper limit to public debt and deficit ratios is an economic nonsense.

Third, the one instance of a monetary union within the EU, that between Belgium and Luxembourg (since 1922), combines the countries with the highest and the lowest debt–GDP ratios in the EU. Admittedly, it is difficult to extrapolate from a currency union between a small country and a dwarf state to a union between a number of medium-sized and small countries. Taking a longer historical perspective, it is interesting that the Dutch Republic (1572–1795) combined monetary union with fiscal autonomy for the seven provinces, a very limited federal budget and the complete absence of a proper federal tax system (Dormans, 1991).

Fourth, while the deficit is defined in terms of net borrowing, the debt concept is defined in terms of gross debt. Financial window-dressing (liquidating financial assets to pay off financial debt) is invited. The privatization of public sector enterprises should be undertaken for efficiency reasons, not for revenue reasons (at any rate in advanced industrial countries), and certainly not for financial window dressing. More generally, focusing on conventionally measured public debt aggregates diverts attention from the many “off-balance sheet” implicit contingent liabilities of the government (future social security benefits, state pensions, loan guarantees, export credit guarantees), and from other future spending commitments that may be a more serious threat to fiscal probity and solvency. Off-balance sheet public sector assets (natural resource or mineral rights) are likewise ignored.

Fifth, the criterion fails to allow properly for the distinction between public sector consumption spending and public sector capital formation, although the Treaty actually contains a rather vague reference to the effect that “The report of the Commission shall also take into account whether the government deficit exceeds government investment expenditure . . .” (Article 104c, 3).

Sixth, with the average debt–GDP ratio in the EU now above 70% of GDP and the average deficit at 4.5% of GDP, a serious attempt to meet the criteria by 1998 would require a major fiscal contraction. This should be contemplated only if an offsetting EU-wide relaxation of monetary policy were contemplated, permitting the overall level of aggregate demand to be maintained while the change in the policy mix favors a change in the composition of demand towards investment and away from private and/or public consumption. The assertion that fiscal contractions, far from depressing aggregate demand, will boost it (“crowding in” rather than “crowding out”), either through “confidence” effects or through the favourable announcement effects of future fiscal contractions on the bond market and the stock market, is central bankers’ pie-in-
the-sky, except possibly in countries where the fiscal situation is so out of hand that there is a serious threat of state default. Only Belgium, Italy, and Greece are potentially in that category.

Anticyclical deficits are desirable both for Keynesian demand-management reasons and because it is efficient to finance temporary increases in public spending in part by borrowing, thus minimizing the need for large fluctuations over time in distortionary marginal tax rates. Note that it is not correct to say that a strict interpretation of the deficit criterion permanently immobilizes the automatic fiscal stabilizers. After all, deficits can fluctuate around an average value of zero or minus 2% of GDP as easily as around an average value of 3% or 4% of GDP. A strict interpretation of the deficit criterion as an upper limit would, however, immobilize the automatic stabilizers for a number of years, with the EU average deficit already at 4.5% of GDP.

The debt and deficit criteria do not constitute a mechanism for coordinating fiscal policy in the EU as a whole, let alone for achieving the right EU-wide monetary–fiscal policy mix. This is something on which the Treaty is silent. A mechanism or procedure for ensuring the right overall monetary–fiscal policy mix is indeed hardly compatible with the notion of central bank independence enshrined in the Treaty—and constitutes a powerful argument against central bank independence.

Fortunately, the debt and deficit criteria were applied quite sensibly and flexibly in the one real test case we have had thus far, that of Ireland. In 1995 Ireland’s government deficit was 2.7% of GDP and its government debt 85.9% of GDP. The corresponding figures for 1991 were 2.2% and 96.7% respectively. The Irish were judged to have passed the test. That is the kind of flexibility the EMU program can survive with.37

What then is the purpose of the excessive deficits criterion? One somewhat cynical interpretation is that it was included to provide Germany with an alibi if it decides it does not wish to give up the D-mark when the time comes. A more charitable interpretation is that it is intended to strengthen the hand of the European Central Bank vis-à-vis the national ministries of finance, and the hand of the “fiscally responsible” countries and of Brussels vis-à-vis “fiscally irresponsible” countries like Italy, Greece, and Belgium. The fiscal criterion aims to strengthen the effectiveness of the “no bail-out” (directly by other ministries of finance or by Brussels and indirectly by monetization through the ECB) clause by making it less likely that a debt default contingency would ever arise or that any country could ever blackmail the rest of the EU into servicing part of its debt.

I view the fear that a fiscally irresponsible EMU member (say, Italy, for the sake of argument) could blackmail the rest of the Union (or the ECB) into effectively taking over some of its debt as overblown and unrealistic. After all, what could Italy threaten the rest of the EMU countries with? A rescheduling of or default on some or all of its debt? That is first and foremost a distributional issue between on the one hand the holders of the Italian public debt and on the other hand the Italian taxpayers and the beneficiaries from Italian public spending.

Are there likely to be systemic externalities (e.g., an EMU-wide financial crisis) from an Italian rescheduling or default? Investors in Italian securities have earned risk premia for quite a while now. Careful portfolio managers will have realized that risk premia tend to be paid because there is risk and will have built up reserves to allow for unfavorable contingencies, including default. If there has not been adequate provisioning against default risk, major Italian bond holders, including banks, could be faced with default risk. The solution to that problem is banking
supervision and regulation, including upper limits on the exposure of any financial institution to sovereign default risk, not the imposition of debt and deficit ceilings on national governments.

If worst came to worst and a commercial bank rescue operation by the European Central Bank were required, the integrity of the banking system (and especially of the payment mechanism) could be salvaged without bailing out the Italian state. After all, the ECB should be a more effective debt collector than the private holders of Italian government debt. Note also that the Italian state would be in a much weaker bargaining position vis-à-vis the European Central Bank than it is today vis-à-vis its own central bank. The risk of sovereign default, or of central bank monetization of the public debt, would be less with EMU than without it.

It is essential that the ECB be willing and able to act as lender of last resort should the need arise. The Treaty is, unfortunately, almost silent on this key role of any central bank. Moral hazard always rears its head when the lender of last resort function is taken seriously, but it can be minimized by the central bank adopting the following, familiar operating rules. (1) For solvent financial institutions faced with a liquidity crisis, lend freely but at a penal rate. (2) For insolvent financial institutions whose sudden demise would cause serious systemic externalities, first ensure that all equity claims are extinguished as soon as any public money goes in and, second, fire the entire top management of the institutions without any golden handshakes.

It follows from this analysis that Waigel’s proposal for a “stability pact” (a tighter version of the Maastricht fiscal criteria) for EMU members following monetary union has even less to recommend it than the original Maastricht fiscal criteria. Compulsory interest-free deposits with the ECB, and eventual forfeiture of these deposits if the Waigel criteria continued to be flouted, would add injury to insult.34

As long as the fiscal criteria are applied sensibly and flexibly, and as long as the overall fiscal–monetary policy mix in the EU as a whole is adjusted appropriately, no serious damage need result from the pursuit of the Maastricht fiscal norms as a medium-term goal. The automatic fiscal stabilizers can continue to perform their normal cyclical stabilizing functions at the national level. Each national government can aim to reduce its claim on its national savings in ways and at a rate that respect differences in initial conditions, economic structures, and external environments, supported by an appropriate EU-wide monetary policy aimed at maintaining aggregate demand in the face of whatever fiscal retrenchment is deemed necessary—not because of the arbitrary Maastricht criteria, but for sound national economic reasons.

8. Conclusions

Most economic arguments for or against monetary union are misconceived and overstated. All the heated talk about the international monetary and exchange rate system should not blind us to the fact that it is merely monetary policy, or rather the international dimension of monetary policy, that it is at stake. Monetary policy is not unimportant from the point of view of short-run, cyclical stabilization, but neither is it the stuff of which the wealth of nations is made.

The narrowly economic case for monetary union seems quite finely balanced. As stated in the Introduction, it is unlikely that the issue will be decided on anything else than general political grounds. If the political tide towards greater European integration is halted or reversed, especially in Germany, monetary union will go by the board.
If European integration gets a second wind, much as it did in 1986 with the signing of the Single European Act, there will be a single European currency for most of the current EU members by the beginning of the next century.

Such subordination of economics to politics may be sobering for economists. It fits in well with the long history of the quest for exchange rate stability in Europe. It is also very much in the spirit of the interpretation of the causes of the breakdown of the ERM in 1992/93 proposed in Buiter et al. (1997). In that interpretation, the principal cause of the collapse of the system in 1992/93 is a quintessentially political event: the breakdown of cooperative behavior among the Periphery countries when faced with an exogenous shock—the boost to aggregate demand in the Center—joined to the continued (and long-standing) unwillingness of the Center to compromise on its domestic macroeconomic objectives. It now seems certain that what began with politics will also end with politics. Plus ça change . . .

References


**Notes**

1. The nonconvexity intrinsic in this transaction technology means that the value of the technological network externalities is not captured by the bid–ask spread in the foreign exchange markets, even if the latter are competitive and efficient.
2. An updated analogy would emphasize the social gains of adopting common or compatible software systems.
3. See Dowd and Greenaway (1993). Note that a related kind of switching cost is also present whenever a multiple currency system is in effect. Boundedly rational agents will incur temporary switching costs every time they have to switch between numéraires.

4. Lest I be accused of having feet planted firmly in the air, I am aware that considerations of national pride and international envy are likely to rule out any efficient solution to the problem of the name of the common European currency proposed here.

5. In this section "government" refers to the consolidated general government and central bank.

6. The same applies to other proposed measures of the resource transfer between the general government and the central bank such as the fiscal seigniorage favored by Klein and Neumann (1990, 1992), and by Rovelli (1994). Klein and Neumann define fiscal seigniorage as central bank profits transferred to the general government, plus the net increase in central bank credits to the government, minus interest payments of the government to the central bank. As pointed out by van Ewijk (1992), there are questions about the appropriateness of this definition even as a measure of the contribution the general government gets from the central bank's monopoly over base money. Drazen (1985) consolidates the general government sector with the central bank and consequently has a measure of seigniorage which corresponds to the one used here (Buiter, 1983a, 1983b).

7. We are talking potentially serious money. A recent Bundesbank study, reported in the Financial Times (1995), estimated that some 30–40% of the total currency circulating outside the banking system (between DM65bn and DM90bn) was probably abroad. The corresponding figure for the US dollar was estimated to be between 60% and 70%.

8. They are to be distinguished from the non-neutralities that would be present even in a world without nominal rigidities and that reflect the effects of anticipated inflation on consumption demand and portfolio allocation. "Superneutrality" of money, that is, invariance of real equilibrium allocations in classical competitive equilibrium models with complete markets, under alternative fully anticipated rates of growth of the nominal money stock and associated rates of inflation, is unlikely to be of much practical interest. The Mundell–Tobin effect is probably the best-known channel through which higher anticipated inflation, by affecting the portfolio choice between money and real capital, influences real equilibrium allocations. It will be ignored in what follows.

9. Economic theory has been unable so far to provide a convincing rationalization of this particular form of incomplete contracting. Indeed, we do not have good theories as to why wage and price contracts tend to use money (the medium of exchange and means of payment) as the numéraire (unit of account), rather than some other bundle of goods.

10. For simplicity I consider a deterministic steady state.

11. Including the rate of inflation, which is of course a real variable.

12. As we shall see below, the transitory difference made by nominal exchange rate flexibility to the real adjustment path of the economy is potentially desirable in the case of shocks to goods market demand, but potentially undesirable in the case of monetary shocks.


14. In the model under consideration, labor services (and leisure) are of course nontraded goods, so variations in the nominal exchange rate still work by influencing the relative price of traded and nontraded goods. The only other transmission channel would be the asset revaluation effects of nominal exchange rate changes, including real balance effects.

15. Semi-small because it faces a downward-sloping demand curve for exportables, while it treats the world nominal rate of interest and the foreign price level as parametric.
16. Strictly speaking, $\lambda^t$ is a shock to the excess demand for money. For our purposes, it does not matter whether it is a shock to money demand or to money supply.
17. Alternatively, the objective could be to stabilize output around its ex ante full information natural level, 0. The optimal policy response to LM shocks and IS shocks is unaffected by this. The optimal policy response to supply shocks obviously would be.
18. It is well-known, that the optimal policy in the face of a range of shocks is a "combination policy" expressing the exchange rate as a function of the nominal interest rate. Pegging the interest rate and pegging the quantity of money are two special cases of this. I focus on these two special cases because they seem the most operationally relevant: the authorities are not, in my view, likely to be able to identify the (time-varying) variance–covariance structure of the fundamental shocks to the economy.
19. The complete two-country model adds the following equations to equations (10) to (16):

$$\begin{align*}
m^*_s = q^*_s + k^* \left( p^*_t + y^*_r - q^*_t \right) - \gamma^* \lambda^*_r & = -\nu^* r^*_t + \delta z^*_t + \lambda^*_d^t \\
r^*_t = i^*_t - E_t q^*_{t+1} + q^*_t & = (1 - \beta^*) p^*_t + \beta^* (p^*_t + s^*_t) \\
y^*_t = \alpha \left( p^*_t - E_{t-1} p^*_t \right) + \lambda^*_t & = \theta^* d^*_t + (1 - \theta^*) \rho^*_t.
\end{align*}$$

20. Strictly speaking the model is hysteretic in the values of the nominal variables rather than indeterminate. In period $t$, $E_{t-1} p^*_t$ and all other expectations, formed in period $t - 1$, of future nominal prices are predetermined and will provide a nominal anchor for the model in period $t$.
21. Having a nonzero stock of domestic-currency denominated interest-bearing public debt outstanding would also suffice to eliminate the price level indeterminacy problem. Neutrality (or homogeneity of degree zero of the real equilibrium) applies only to all outside nominal asset stocks, not to money alone.
22. Note that this is a different point from the usual Lucas critique, which is discussed below.
23. IS shocks can have a long-run effect on the real exchange rate but not on real output. LM shocks affect neither real output nor the real exchange rate in the long run.
25. Indeed, the loss of the national monetary instrument could, in principle, be compensated for through the more active use of domestic fiscal instruments (including the automatic stabilizers), without any need for international transfers. The Maastricht fiscal criteria make this difficult, with both the average EU general government deficit (about 4.5% of GDP in 1995) and the average general government gross debt (over 70% of GDP in 1995) above their ceilings of 3% of GDP and 60% of GDP respectively.
26. In the empirical analysis of Sala i Martin and Sachs (1992), there is a large area of ambiguity between insurance against certain kinds of transitory shocks (which is all that nominal exchange rate flexibility can provide) and (potentially) permanent redistribution through the Federal Budget. See also Eichengreen (1990a), Van Rompuy, Abraham and Heremans (1991), von Hagen (1992), Courchene (1993), Goodhart and Smith (1993), Bayoumi and Masson (1994), and Muet (1995).
27. It may well be that much greater permanent or structural international and interregional redistribution will be required within the EU in order to render the system politically viable. That, however, is a quite separate matter from the issue of what needs to be done in order to make up for the loss of the national exchange rate instrument.
28. Other than the nominal interest rate, which is, despite its name, another real variable.
29. It is true that even monetary union is not irreversible. The Maastricht Treaty does not, however, have any provisions for a country leaving EMU after joining it. Indeed, neither the Rome Treaty nor the Maastricht Treaty have provisions for member states leaving any of the European institutions to which they have acceded.
30. See, e.g., Tobin (1982).
31. Ignoring the gross–net confusion referred to below.
32. While privatization receipts are not supposed to be netted against the Maastricht measure of the deficit, recent French legerdemain with the pension liabilities of a major French public enterprise shows that those determined to cheat can and will do so.

33. In 1996, only Luxembourg, Denmark, and Ireland were judged to have passed the "excessive deficits" test.

34. With thanks to Marcus Miller.