Optimal Currency Areas:
Why Does the Exchange Rate Regime Matter?*

With an Application to UK membership in EMU

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Abstract

Microeconomic efficiency and market transparency argue in favour of UK membership in EMU and for Scotland's membership in the UK monetary union and also in EMU.

UK seigniorage (government revenues from money issuance) would be boosted by EMU membership.

Lender of last resort arrangements would not be substantially affected by UK membership in EMU.

The UK is too small and too open to be an optimal currency area. The same point applies even more emphatically to Scotland. The 'one-size-fits-all' , 'asymmetric shocks' and 'cyclical divergence' objections to UK membership are based on the misapprehension that independent national monetary policy, and the associated nominal exchange rate flexibility, can be used effectively to offset or even neutralise asymmetric shocks. This 'fine tuning delusion' is compounded by a failure to understand that, under a high degree of international financial integration, market-determined exchange rates are primarily a *source* of shocks and instability. Instead, opponents of UK membership in EMU view exchange rate flexibility as an effective buffer for adjusting to asymmetric shocks originating elsewhere. I know of no evidence that supports such an optimistic reading of what exchange rate flexibility can deliver under conditions of very high international financial capital mobility.

The economic arguments for immediate UK membership in EMU, at an appropriate entry rate, are overwhelming.

Monetary union raises important constitutional and political issues. It involves a further surrender of national sovereignty to a supranational institution, the ECB/ESCB. It is essential that this transfer of national sovereignty be perceived as legitimate by those affected by it. In addition, the citizens of the UK have become accustomed to a high standard of openness and accountability of their central bank since it gained operational independence in 1997. The ECB/ESCB must be held to the same high standard, and, while there are grounds for optimism, there still is some way to go there.

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Non-technical summary

The paper first reviews the economic pros and cons of UK membership in EMU from the perspective of the theory of optimal currency areas.

Microeconomic efficiency and market transparency argue for UK membership in EMU. The switch-over costs are likely to be lower for the UK than for other countries that have contemplated or are contemplating membership in EMU.

UK seigniorage, government revenues from the central bank's note issuance, is likely to be higher under EMU than under monetary autonomy. The UK's capital share in the European Central Bank is considerably higher than its share in the EU's monetary base. If the euro becomes an effective competitor for the US dollar as an international reserve and vehicle currency and as an international store of value, seigniorage revenue under EMU would be boosted further.

In euroland, the lender of last resort function continues to reside with the national authorities. The UK's current tri-partite arrangement, involving the FSA, the Bank of England and the Treasury, would not be materially affected by UK membership in EMU.

The macroeconomic stability argument for UK membership in EMU in probably most critical. Unfortunately, conventional optimal currency area theory is quite deficient. It has two fatal flaws. First, there is a persistent confusion between nominal wage and price rigidities - the *sine qua non* of monetary policy - and real or structural rigidities, distortions and inefficiencies. The latter are irrelevant for monetary union. Second, the theory appears to be set in a world without international financial capital mobility, in which the exchange rate effectively clears the trade balance. This is irrelevant to the circumstances of the UK today.

The UK is too small and too open to be an optimal currency area. The 'one-size-fits-all' , 'asymmetric shocks' and 'cyclical divergence' objections to UK membership are based on the misapprehension that independent national monetary policy, and the associated nominal exchange rate flexibility, can be used effectively to offset or even completely neutralise asymmetric shocks. This 'fine tuning delusion' is compounded by a failure to understand that, under a high degree of international financial integration, market-determined exchange rates are primarily a *source* of shocks and instability. Instead, opponents of UK membership in EMU view exchange rate flexibility as an effective buffer for adjusting to asymmetric shocks originating elsewhere. I know of no evidence that supports such an optimistic reading of what exchange rate flexibility can deliver under conditions of very high international financial capital mobility. I favour a 'financial integration approach to optimal currency areas', according to which, from a technical economic point of view, all regions or nations linked by unrestricted international mobility of financial capital form an optimal currency area. Because monetary union is not just a technical monetary, financial and economic issue, but also an important political and constitutional arrangement, monetary union can only survive when a minimal degree of political integration is present. This political integration is absent among many regions for which economic logic alone would make a common currency optimal. Examples are the USA, Canada and Mexico and indeed most of Europe, North America and Japan. The required minimal degree of political integration is present in the EU, which is therefore the best politically feasible halfway house on the road to global monetary union.

Asymmetric transmission of the current UK-wide monetary policy across heterogeneous UK regions, sectors and industries is to a large extent due to the asymmetric exchange rate sensitivities of the sheltered and internationally exposed (exporting and import-competing) sectors. This

problem of asymmetric transmission of a common monetary policy would be less severe for the UK regions following membership in EMU. The reason is that about half of UK imports and exports are with the euro zone (the share is larger if one allows for likely future EU and EMU enlargement). The remaining exchange rate exposure of the UK regions, sectors and industries following UK membership in EMU would be much less significant than it is currently under national monetary autonomy.

The economic arguments for immediate UK membership in EMU, at an appropriate entry rate, are overwhelming.

Monetary union also raises important constitutional and political issues. It involves a further surrender of national sovereignty to a supranational institution, the ECB/ESCB. It is essential that this transfer of national sovereignty be perceived as legitimate by those affected by it. In addition, the citizens of the UK have become accustomed to a high standard of openness and accountability of their central bank since it gained operational independence in 1997. The ECB/ESCB must be held to the same high standard. While there are grounds for optimism, there still is some way to go there.

1. Introduction

Should the UK join EMU? Would Scotland benefit from having its own currency and monetary authority? Similar questions are being asked the world over, in Canada, Iceland, Switzerland, Mexico, Argentina, Bulgaria and the Ukraine.[1] It is an issue in political economy *par excellence*. Technical economic and financial arguments are interlaced with political and constitutional considerations.

In this lecture I illustrate the general question as to what determines a nation's optimal currency regime, by focussing on the arguments for and against UK membership in EMU. Along the road, the question of the optimal currency arrangement for Scotland will, I hope, also be answered satisfactorily.

Why does the currency regime matter? In Sections 2 to 5, I review the technical economic arguments for and against a common currency, starting with the microeconomic benefits of a common medium of exchange and the microeconomic costs of the change-over. Next is the question of seigniorage - the real resources appropriated by a national government through the issuance of non-interest-bearing central bank liabilities. The third topic is systemic financial stability and the role of the national central bank as the lender of last resort. The final, and most controversial economic issue concerns the costs and benefits of national monetary sovereignty and exchange rate flexibility from the point of view of macroeconomic stabilisation policy. This is the venerable subject of optimal currency area theory. It is here that conventional wisdom and enlightened economic analysis part company most starkly. Section 6 considers some political and constitutional aspects of membership in a common currency arrangement. This

[1] See e.g. Buiter [1999c,d]

includes the substance and symbols of national sovereignty and the issue of accountability of the monetary policy makers to the electorate. Section 7 concludes.

2. The microeconomics of a common currency

The transaction cost saving advantages of a common currency are familiar. A medium of exchange or transactions medium is subject to a network externality (Dowd and Greenaway [1993]). The usefulness to me of a medium of exchange is increasing in the number of other economic agents likely to accept it in exchange for goods, services and securities. By eliminating the need for the exchange of one currency for another, monetary union saves real resources. From a microeconomic efficiency point of view, if one were to design the world from scratch, a single currency would be adopted.

If the status quo is a situation in which there are multiple national currencies, the permanent flow of transaction cost savings from having a common currency have to be balanced against the one-off, up-front switch over costs of moving to a common currency. For the UK, if and when it joins EMU, these switch over costs are likely to be lower than for the countries that joined EMU in the first round, on January 1, 1999, for three reasons.

First, in the wholesale financial markets the investment has already been made. Second, the UK is unlikely to join much before 2003. This will be after the date (July 1, 2002) on which the visible relics of the old national currencies will have disappeared from the existing EMU area, through the issuance of euro notes and coins and the demonetisation of the old national currencies. UK businesses and consumers will therefore already be familiar with the euro in all its manifestations, at the wholesale and retail levels.

Third, the microeconomic costs of giving up sterling and switching to the euro depend on how widespread the use of the national currency is as a means of payment or medium of

exchange and as a numéraire or unit of account and invoicing currency. While at the retail level and in labour contracts the use of sterling is likely to remain near-universal, contracts among larger international businesses are likely to see a growing use of the euro. The recent decision by Rover to require its ten largest suppliers to contract in euros is, I believe, a sign of things to come. While one should not overstate the scope and scale of this 'creeping demonetisation of sterling', it will make the final switch easier.

It is impossible to be precise and confident about the magnitude of the resource savings involved. The spreads in the foreign exchange markets will understate the true cost because it ignores the 'in-house' costs incurred by the non-bank parties in the foreign exchange transactions. It overestimates the true costs to the extent that there are monopoly profits or X-inefficiency in the foreign exchange markets.

In its report *One market, one money* (European Economy [1990]), the Commission of the European Communities estimated the permanent flow of exchange transaction costs savings at about 0.5 percent of GDP for the 15 member Community as a whole. Of course, this exercise involved the thought experiment of the abolition of 14 national currencies and their replacement by a single currency. In the case of the UK joining EMU, there would only be the abolition of a single national currency and its replacement by the euro. The foreign exchange transaction costs savings should also be augmented by the transaction costs saved in now redundant exchanges among instruments denominated in national currencies motivated by exchange risk considerations. E.g., today an investor could decide to switch from UK Treasury bills to German euro-denominated bills because of currency risk considerations.[1] This would involve the sale of

[1]Assume for simplicity that, apart from currency risk, the risk and return properties of the British and German bills are identical. If the UK government issued euro-denominated bills in addition to sterling-denominated bills, currency risk considerations could trigger the sale and purchase of bills denominated in different currencies without this involving any foreign exchange transactions. This would be the case if purchases of UK government euro-

the UK sterling bills, a purchase of euros and the purchase of the German bills. There would be three transactions, and three sets of transaction costs. Foreign exchange market transaction costs are just one of the three. One half of one percent of GDP (if that is a indeed a reasonable estimate) may not sound like much, but it is twice the maximal estimate of the amount of seigniorage the UK currently gets from note issuance (see Table 1 below).

The magnitude of the switching costs for the UK are even harder to estimate. Competing estimates differ by one and sometimes two orders of magnitude. The switching costs do not just involve the administrative, legal and hardware cost of re-denominating all contracts, changing vending machines etc., but also the psychological costs of having to compute prices with a new numéraire. With boundedly rational individuals, these costs will always be there, but they are likely to be less significant in the case of the UK adopting the euro, because most UK residents will already be familiar with this currency by the time the UK decides to join. Adopting an altogether new currency would involve higher re-computation costs of this kind.

The adoption of its own currency by Scotland would involve both giving up the microeconomic transaction cost savings from having a common currency with the UK, and incurring the switch over costs of establishing a new currency. Despite the circulation of Scottish bank notes, these switch over costs are likely to be more significant than the cost of the UK switching to the euro. The microeconomic costs and benefits of Scotland joining the euro while the rest of the UK stays out, are left as an exercise to the reader.

A final microeconomic benefit from a common currency is the greater price transparency it creates. Price discrimination and market segmentation are discouraged when buyers can more easily engage in comparison shopping. The argument that the single European market, reinforced by a common currency, would benefit consumers by sharpening the enforcement of the 'law of

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denominated bills could be paid for in sterling.

one price', according to which identical goods sell for the same price everywhere, indeed has merit as a characterisation of long-term trends and tendencies. However, recent research by Haskel and Wolf [1999] suggests that there still is a long way to go. While their study predates the launch of EMU, and therefore does not provide evidence on the extent to which the use of a common currency promotes competition and price convergence, it does contain information relevant to the wider question of the operation of the 'law of one price' in a supposedly integrated market.

They study the pricing behaviour of IKEA, the Swedish household furniture retailer which now has stores in 25 countries. The traded goods it sells are identical and come from the same manufacturer. In Europe, the 1998 catalogues are exactly the same in each country apart from the language and local prices. And the goods are sold within each country at a single catalogue price.

Haskel and Wolf find that because of significant variations in local costs, simple relative price differences do not say very much about competition or the lack of it. In other words, even 'traded goods' have a significant, non-traded local value added component. They also find that, when international prices are not too different, they converge but only very slowly. When relative prices get wildly out of line, prices converge rapidly.[2] This study supports the view that it would be wise not to expect immediate miracles from the introduction of the euro for the effective integration of markets throughout the EMU zone. A common currency does promote greater price transparency. Greater price transparency does encourage competition. Competition tends to work its magic, but it takes its time.

[2] Further evidence supporting this view can be found in European Central Bank [1999], in European Commission [1999] and in Engel and Rogers [1996]..

3. Seigniorage

The state receives revenues from the central bank's issuance of central bank money. There are several ways of measuring the resources appropriated by the state through this mechanism. In the UK, both components of the monetary base (currency and banks' balances with the central bank) are unremunerated, so one straightforward measure of state revenue from the activities of the central bank is simply the change in the monetary base. To get a sense of magnitude, it is helpful to express this as a fraction of nominal GDP. Letting M_t denote the nominal stock of base money at the end of period t, P the price level and Y real GDP, I defined seigniorage, σ, as follows:

$$\sigma_t \equiv \frac{M_t - M_{t-1}}{P_t Y_t} \qquad \textbf{(1)}$$

An alternative measure is the interest bill foregone by having non-interest-bearing rather than interest-bearing liabilities. I denote this ω. Let i be the short risk-free nominal interest rate, then

$$\omega_t \equiv i_t \frac{M_{t-1}}{P_t Y_t} \qquad \textbf{(2)}$$

The revenues of the central bank go to defray its expenses, with the remainder becoming part of the general revenues of the government, through a transfer to the Treasury.

A related measure of the monetary revenue of the state is the inflation tax, the reduction in the purchasing value of the outstanding stock of base money. I will refer to this as the *anticipated* inflation tax, denoted τ. Let π be the rate of inflation[3], then

$$\tau_t \equiv \pi_t \frac{M_{t-1}}{P_t Y_t} \tag{3}$$

The three measures are related. Let m be the base money-GDP ratio[3] r_t the real interest rate in period t, and g the growth rate of real GDP[4], then

$$\sum_{j=0}^{\infty} \prod_{k=0}^{j} \frac{1}{1+r_{t+k}} \sigma_{t+j} \equiv \sum_{j=0}^{\infty} \prod_{k=0}^{j} \frac{1}{1+r_{t+k}} \omega_{t+j} - \frac{1}{1+r_t} m_{t-1} \tag{4}$$

That is, the present discounted value of current and future seigniorage equals the present discounted value of current and future interest savings minus the value of the initial money stock.

Seigniorage and the inflation tax are related through the following identity:

$$\sigma_t \equiv \tau_t + \frac{g_t}{1 + g_t} m_{t-1} + \Delta m_t \tag{5}$$

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[3] $1 + \pi_t \equiv P_t / P_{t-1}$

[3] $m_t \equiv \dfrac{M_t}{P_t Y_t}$

[4] $1 + g_t \equiv \dfrac{Y_t}{Y_{t-1}}$

Seigniorage therefore equals the inflation tax plus the 'real growth bonus', $\frac{g_t}{1+g_t}m_{t-1}$, the growth in the demand for real money balances associated, other things being equal, with higher real growth, plus the change in the base money-GDP ratio, Δm_t.

Whatever the measure one uses, the revenues from the national printing presses are very small beer indeed for the UK. Table 1 provides some illustrative seigniorage figures. Seigniorage has not been more than 0.24% of GDP since 1994. The interest bill foregone is similar in magnitude to seigniorage, and the inflation tax figures are half that. These low figures reflects the very low ratio of currency to GDP in the UK, barely more than 3% of annual GDP in recent years, and the recent low inflation rates and nominal interest rates.

TABLE 1 HERE

When a country joins a common currency area, it loses its national seigniorage and it gains a share of the common currency area seigniorage. The rules governing the distribution of EMU-wide seigniorage revenues, based on a nation's equity stake in the ECB (a function of GDP and population size), are laid down in the Treaty of Maastricht. According to most experts, the UK would come out ahead in the seigniorage stakes were it to join EMU (see e.g. Sinn and Feist [1997]). The reason is that, because of the relative sophistication of the UK financial and payments systems, the UK's national 'seigniorage base' is well below the average for the current EMU members.

According to Sinn and Feist, the UK had, in 1997, about 8.6 percent of the EU-15 monetary base.[5] Its equity share in the ECB is 14.7 percent. With a uniform reserve deposit ratio of 2 percent (about the current average), the UK would gain about 15 billion (1997) euros in

[5]They define 'seigniorage wealth' as the monetary base corrected for the fact that some monetary authorities pay interest on private bank reserves.

'seigniorage wealth' or about £10.4 billion.[6] Similar calculations cannot be performed for Scotland. Its would-be equity share in the ECB is unknown, as is the magnitude of the current Scottish monetary base.

If the euro develops into a major international currency, perhaps eventually rivaling the US dollar as an international reserve asset and vehicle currency, global holdings of euros outside the euro area could grow significantly (see Portes and Rey [1998]). This would boost EMU wide seigniorage and UK euro seigniorage receipts with it.

US dollar notes are currently used the world over as means of payment and store of value by operators in the grey, black and outright criminal sectors of the economy, as well as by legitimate operators in countries with underdeveloped and/or highly unreliable domestic monetary and financial systems. Recent estimated by Federal Reserve Board staff suggest that *"As much as two-thirds of all Federal Reserve notes in circulation -perhaps $250 to $300 billion- are now held abroad"* (Allison [1998, p. 1]). If the euro becomes an effective competitor for the dollar in these domains too, the seigniorage gains of EMU members would be further enhanced.

Neoclassical optimal public finance arguments suggest that, if the fiscal authorities do not have non-distortionary taxes at their disposal, the distortionary inflation tax should be used, together will all other distortionary taxes, in such a way as to minimize the inevitable distortions and efficiency losses, now and in the future, associated with the financing of any given public spending programme. If nations differ in the extent to which their conventional taxes are distortionary, or in the effectiveness of their tax administrations, different national inflation rates may be optimal. Even in the rarified world of these neoclassical public finance models, this argument is by no means robust. Money is an asset, as well as a medium of exchange, and there is a considerable literature suggesting that, at least in steady state, assets should not be taxed.

[6]The UK currently has minuscule reserve requirements.

Money can also be thought of as an intermediate input in the process transforming primary inputs into goods and services available for household consumption. There is another body of literature suggesting that taxing intermediate inputs is undesirable.[7]

Whatever the merits of this literature, the data make it clear that modern industrial states with well-developed financial systems do not make use of the inflation tax to any significant extent. The UK is no exception to this rule.

I conclude that, from the point of view of normal seigniorage revenues, the UK is likely to benefit from joining EMU. This expected gain should, however, be set against the loss of the ability to use national discretion over seigniorage in exceptional times.

In some countries, especially ones that have a large stock of nominally denominated fixed interest public debt outstanding, and that have little scope for generating large increases in primary government surpluses, the loss of national control over the national inflation rate could be more costly from the point of view of the broadly defined inflation tax. This consists not only of the reduction in the purchasing power of the national base money stock (the *anticipated* inflation tax), but includes the reduction in the market value of all nominally denominated government debt, including its interest-bearing liabilities (the *unanticipated* inflation tax). One can visualise dire circumstances in benighted countries which would render valuable a capacity to impose a capital levy on the holders of nominal public debt (especially longer-maturity debt) through an unexpected increase in the inflation rate. In the UK, with a stock of nominal public debt that is low relative to GDP, both in comparison to most other industrial countries and by historical standards, and with considerable conventional 'fiscal elbow room', deliberate recourse to the unanticipated inflation tax is both inappropriate and unlikely.

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[7]See e.g. Chari, Christiano and Kehoe [1993].

4. Financial stability: the lender of last resort

The state has a unique responsibility for dealing with systemic financial instability. The reason is that the state has deeper pockets than any private domestic agent. It can provide short-term liquidity in unlimited amounts. It can also provide long-term resources for restructuring and recapitalisation in larger amounts than any private agent. The state has the monopoly of the legitimate use of coercion and force. This is expressed through its power to tax, to declare certain of its liabilities to be legal tender, and to regulate. The central bank is the state agency with the short-term deep pockets, derived from its ability to issue legal tender, which remains liquid even when most other stores of value and means of payment become illiquid.

If a financial crisis is not a short-lived phenomenon (a liquidity or rollover crisis), but becomes a long-term solvency crisis for a substantial part of the financial sector, the short-term deep pockets of the central bank must be supplemented with the long-term deep pockets of the Treasury. A central bank that attempts to recapitalize a sizeable chunk of a bankrupt private financial sector's balance sheet, would undermine its own solvency. Since the central bank does not itself have the power to tax, central bank solvency could be safeguarded only through continued monetary issuance, which would be inflationary. Non-inflationary recapitalisation of a bankrupt financial system requires the resources of the state agency with the long-term deep pockets: the Treasury with its power to tax.

To a certain extent, the lender of last resort function can be 'privatised', through the interbank markets, through private deposit insurance, through contingent private credit lines etc. The Treasury itself could, when faced with a domestic financial crisis, and without recourse to central bank money, borrow internationally (or from such domestic private residents as still have liquid wealth at their disposal despite the crisis) and perform the lender of last resort function with these borrowed resources. For truly systemic financial crises this may well be inadequate.

There is no adequate substitute, in the short run, for the ability to create your own legal tender in unlimited quantities, either to engage in lender of last resort support for individual institutions, or in 'market operations', to create liquidity for the system as a whole.

Since the Bank of England lost its regulatory and supervisory function vis-à-vis the UK-based banking and financial sector, following independence in June 1997, the lender of last resort function in the UK is shared by three agencies of the state: the FSA, the Bank of England and the Treasury. The FSA, the new regulator and supervisor, has the best financial sector information and possesses regulatory and supervisory authority. It does not have deep pockets. The Bank of England no longer has the same information and authority vis-à-vis individual institutions that it had when it was the regulator and supervisor, but does have short-term deep pockets because of the unique liquidity of its liabilities. The Treasury has long-term deep pockets and retains the ultimate political authority over both the FSA and the Bank.

As was made clear in a recent contribution by Tomaso Padio-Schioppa [1999], the lender of last resort function will continue to be exercised at the national level by the traditional national authorities. When the financial operations undertaken as a result of the intervention of a national lender of last resort are on a sufficient scale to have an appreciable impact on EMU area-wide monetary conditions, offsetting market operations will be conducted at the level of the EMU area as a whole.

There is no possibility, for the foreseeable future, of centralising the lender of last resort function in Frankfurt. As pointed out by Charles Goodhart [1999], it is not even clear whether, under its statutes, the ECB has the powers to undertake operations that involve the kinds of risk of loss associated with lender of last resort operations (see also Lastra [1999]). In addition, there is the issue as to whether any bail-out would be consistent with EU regulations on state aid etc. Furthermore, the own capital of the ECB is limited, and it is not backed, either formally or

informally, by the deep pockets of a ministry of finance. The EU does not have the necessary budgetary resources, and the approval of the European Commission, Council and Parliament for anything that would look like a subsidy would be doubtful. Lender of last resort actions therefore should, and have been, left at the national level, subject to ECB oversight and coordination if the scale of the operations warrants it.

As EMU area-wide banks and other financial institutions evolve and grow in significance, there will be a growing need for banking and financial sector supervision and regulation at the level of the EMU area as a whole, in addition to the continuing regulation and supervision at the national level of institutions operation mainly on a national scale. The EMU area supervisor and regulator could, but need not, be the ECB. There can be no EMU-area wide lender of last resort, until there is a European fiscal authority with the resources to back up serious lender of last resort exposure by the ECB. That will be a long time coming.

Following membership in EMU, the reality of the exercise of the lender of last resort function in the UK would therefore not change substantially. Nothing concrete can be said about Scotland, as there is no separate Scottish central bank or separate Scottish banking and financial sector regulator.

5. Macroeconomic stabilisation: the theory of optimal currency areas revisited

The most important and most contentious economic aspects of monetary union concern its implications for a nation's ability to conduct stabilisation policy. My first maintained hypothesis in what follows is that the current UK monetary arrangement (symmetric inflation targeting with a floating exchange rate) is capable of delivering, on average and in a sustained

manner, the inflation target mandated by the political authorities. My second maintained hypothesis is that membership in EMU would produce a very similar inflation performance, on average, to the one achieved under the current independent UK monetary arrangements.

The current UK inflation target, 2.5 percent per annum on the Retail Price Index Excluding Mortgage Interest Payments (RPIX) definition, is not miles away from the ECB's definition of price stability. The ECB considers a rate of inflation between 0 and 2 percent per annum for the Harmonised Index of Consumer Prices (HICP) to be compatible with its price stability mandate. I am happy to venture a bit beyond what the ECB is willing to admit to publicly, and will assume that 1 percent per annum on the HICP index is the centre of the ECB's target inflation range. Since RPIX inflation during these past few years is running just under 1 percent a year above HICP inflation, the explicit UK inflation target is unlikely to be much more than half a percent per annum above the implicit ECB inflation target. That is close enough for comfort.

Granted then, that both the current regime and monetary union within EMU can deliver very similar degrees of price stability, the macroeconomic stability issue can be narrowed down to the question as to which regime is more likely to stabilise the real economy, that is, which regime is more likely to avoid or minimise deviations of unemployment from the natural rate or departures of actual from capacity output.

My third maintained hypothesis is that the choice of exchange rate regime will have no significant, lasting impact on the path of capacity output or on the natural rate of unemployment: the long-run Phillips curve is vertical and there is no hysteresis in the natural rate of unemployment. In the absence of hysteresis, temporary real shocks only have temporary real effects. In the presence of nominal rigidities, nominal shocks, whether temporary or permanent, are temporary real shocks. I recognise that monetary shocks, to the extent that they affect

investment decisions of any kind (or through such features as overlapping, staggered nominal contracts), can have real effects that may last longer than the nominal rigidities that make money non-neutral in the short run. I do however, maintain the assumption that money is neutral in the long run. For practical purposes, we can take the long run to be two years.

How useful a stabilisation instrument is monetary policy, working through domestic short nominal interest rates, thought market anticipations of future short rates, through the credit channel and through a floating nominal exchange rate? What does a nation give up, in terms of the ability to pursue macroeconomic stabilisation policy, by surrendering monetary sovereignty and joining a monetary union? How can it compensate for the loss of the monetary instrument? These are the central questions that produced the theory of Optimal Currency Areas (OCAs).

The theory of Optimal Currency Areas, developed by Mundell [1961], McKinnon [1963], Ingram [1969] and Kenen [1969] (for a recent survey see Masson and Taylor [1992]) is, unfortunately, one of the low points of post-World War II monetary economics. From the start, the OCA debate has been marred by two fatal weaknesses in the original contributions to this literature.

The first was a failure to distinguish in a consistent way between short-term nominal rigidities and long-term real rigidities. Thus a nominal depreciation becomes a real depreciation, not only in the short run, while nominal rigidities persist, but even in the long run. This has led to a serious overestimation of the power of monetary policy, working through nominal interest rates, through the credit channel and through changes in the nominal exchange rate, to influence real economic behaviour.

The second fatal flaw in the OCA literature is its failure to allow properly for the international mobility of financial capital. This has lead to an overemphasis on the stabilising, buffer stock potential of a market-determined nominal exchange rate, and a failure to recognise

its destabilising potential. I view exchange rate flexibility as a source of shocks and instability as well as (or even rather than) a mechanism for responding effectively to fundamental shocks originating elsewhere.

The result of these two flaws, which continue to distort the analysis and discussion of currency union issues, is that the debate on the merits of monetary union and other exchange rate arrangements in the first decade of the new millennium tends to be conducted with the intellectual apparatus of the 1960s. It is out of date, misleading and a dangerous guide to policy.

The optimal currency area literature asks which of a set of national economies, each of which has its own national currency, would benefit from having irrevocably fixed exchange rates with one or more of the other currencies. The following characteristics have been argued to favour retention of the national currency, and the associated scope for nominal exchange rate flexibility.

(1) A high degree of nominal rigidity in domestic prices and/or costs.

(2) A relatively low degree of openness to trade in real goods and services.

(3) A high incidence of asymmetric (nation-specific) shocks rather than symmetric or common shocks and/or dissimilarities in national economic structures or transmission mechanisms that cause even symmetric shocks to have asymmetric consequences.

(4) A less diversified structure of production and demand.

(5) A low degree of real factor mobility (especially labour mobility) across national boundaries.

(6) Absence of significant international (and supra-national) fiscal tax-transfer mechanisms.

5.1 How important are nominal cost and price rigidities in the UK?

If there are no significant nominal cost and price rigidities, the exchange rate regime is a matter of supreme macroeconomic insignificance. A country can be mired in real rigidities, and its real economic performance will be miserable. Unless these real rigidities can be addressed effectively through nominal exchange rate variations, the country's performance will be equally miserable with a common currency, with an independent national currency and a floating exchange rate, or with a system of universal bilateral barter.

The severity and persistence of nominal rigidities therefore becomes a key empirical and policy issue. Unfortunately, the available empirical evidence is extremely opaque and very hard to interpret. Information on the duration of nominal wage and price contracts and on the extent to which they are synchronised or staggered is subject to an obvious application of the Lucas critique. These contracting practices are not facts of nature, but the outcomes of purposeful choices. Changes in the economic environment conditioning these choices will change the practices.

Testing price and wage data for statistical measures of persistence is equally unlikely to be enlightening. The pattern of serial correlation in the data reflects both 'true' structural lags, invariant under changes in the economic environment, and expectational dynamics that will not be invariant when the rules of the game are changed. There is no deep theory of nominal rigidities worth the name.

Menu cost theory assumes that there are real costs associated with changing the prices of goods and services in terms of some numéraire. It does not explain why the numéraire should be money (the means of payment and medium of exchange) or what the consequences would be of a change in the numéraire. Economics has a hard enough time motivating the use of a transactions medium. It has nothing to say about why the numéraire matters. A theory of the

numéraire would swiftly land us in the domain of bounded rationality, and area where conventional economists are loath to tread.

A number of empirical economists have braved the identification deadlock and have produced estimates of the degree of nominal inertia in wage and price setting for a range of countries. A well-known example, albeit somewhat dated by now, is Layard, Nickell and Jackman [1991]. They find that the degree of nominal inertia in the UK is somewhere in the middle of the pack of industrial countries. Nominal rigidities were more important in the UK than in continental Europe (except for Finland), but less important than in the US and Canada. While these findings are in accord with the more informal and institutional evidence on nominal rigidities, the estimates and their interpretation are not securely based.

This leaves the economics profession in an uncomfortable position. We believe the numéraire matters, although we cannot explain why (using conventional economic tools). We believe that nominal wage and price rigidities are common and that they matter for real economic performance, but we do not know how to measure these rigidities, nor how stable they are likely to be under the kind of policy regime changes that are under discussion. The answer to this key question therefore is: we don't know much.

5.2 Is the UK too small and/or too open to benefit from exchange rate flexibility?

A common theme in most OCA approaches is that an economy that is more open to trade in goods and services will lose less when it gives up its national currency. The argument is that the more open an economy is to trade in goods and services, the more likely it is that domestic nominal costs, including wages and prices, would be strongly linked to the exchange rate. This could be either though formal exchange rate indexation or through anticipating or catch-up

behaviour that has much the same effect. When domestic nominal rigidities are less important, monetary policy, including nominal exchange rate flexibility, is less important.

In this subsection I establish a number of points. First, using the standard economic metric of size, the UK is indeed a rather small open economy as regards international trade in goods and services. Second, despite this, the existence of a large internationally sheltered or non-traded sector, and the fact that labour services are largely non-traded, mean that monetary policy can have significant, albeit transitory effects on the relative price of traded and non-traded goods and on unit labour costs in the UK relative to those of its overseas competitors. Third, international financial openness, something not considered in the OCA literature, is very substantial for the UK. Since the exchange rate is influenced powerfully by international financial market developments, the effectiveness of monetary policy as a stabilisation instrument is severely impaired. I return to this later, when I propose a financial integration theory of optimal currency areas.

The proper metric for size in virtually all economic analysis is *market power*. A small open economy is defined as an economy without power to influence prices in the world markets for internationally traded goods and services. There are two key sets of international prices: the terms of trade (the relative price of imports and exports), and world asset prices (or the world rate of interest). In a Keynesian universe, this definition should be extended to include the absence of any ability to influence global economic activity. The UK is a large economy if and to the extent it can influence its international terms of trade, the world rate of interest and global economic activity.

Financial openness and size of the UK economy

The UK foreign exchange market and the UK market for OTC derivatives is huge. In a survey conducted by the Bank of England in April 1998, as part of a worldwide survey organised

by the Bank for International Settlements, reports that the UK is the world's largest centre for foreign exchange and OTC derivatives business, accounting for 32% and 36% of the global foreign exchange and OTC derivatives markets respectively (Bank of England [1998]). In 1998, London had 80% of the global secondary market trade in international bonds.[8] London is the world's largest centre for the trading of foreign equities, accounting for almost 65% of global turnover in 1998. New York' share was 21%. In 1996, London accounted for 22% of world marine insurance business and 27% of aviation insurance business. London is the world leader for the management of institutional equities. Edinburgh, incidentally, ranked as the world's 14th largest city in institutional equity management.[9]

The fact that very large shares of global foreign exchange transactions, OTC derivatives transactions, eurobond transactions, international equity transactions and international insurance business are mediated through London, does not give the UK, or UK monetary policy, a handle on the asset prices determined in these markets (except of course for sterling interest rates, sterling exchange rates and the derivative contracts based on them). If there were any market power, it would be seen in the buying-selling spreads in these markets. While the UK share of these markets is large, the international financial market place is very competitive and contestable. One would wait in vain to see UK monetary policy exercise global leverage through its impact on non-sterling spreads. These financial market turnover data are an indicator of the *degree of financial openness* of the UK, and of the importance to the UK of the financial sector

[8]Source: British Invisibles: International Financial Markets in the UK, July 1999.

[9]Source: Bank of England, London as an International Financial Centre [1999].

as a generator of income and wealth in the UK economy, not of its relative weight in the determination of global asset prices.[10]

The magnitude of the impact of the UK on the world interest rate is probably best calibrated on such scale variables as its share of world GDP (4.1 % or 3.3%), or its share of world financial wealth (on which there are no reliable data).[11] . I would conjecture that this impact is very small, even negligible.

With the exchange rate driven primarily by asset market developments, and asset markets driven not just by rational fundamentals, but also by collective mood swings and speculative bubbles, the scope for effective use of domestic monetary policy and exchange rate flexibility for stabilisation of the real economy is very limited.

Openness and relative size of the UK economy in the global markets for real goods and services

In a recent newspaper article (Buiter [1999b]), I wrote that *" for a rather small economy like the UK, quite open to international trade in goods and services and very open to international financial flows, the cost-benefit analysis of monetary union is simple: a national currency and an independent national monetary policy are an expensive luxury - a costly way of indulging a taste for national sovereignty."* I received many, often irate, rebuttals, most of which objected to my characterisation of the UK as a 'rather small' economy. The objectors

[10] The UK's finance, banking, insurance and financial auxiliary services accounted for 6% of UK GDP and 4% of UK employment in 1997. In 1998, the UK financial sector was the largest net contributor to the UK's balance of payments current account, with net earnings of about £32 billion (source Bank of England, London as a Financial Centre [1999]).

[11] At the end of 1998, domestic equity market value for London was 9.26% of the total domestic equity market value of 28 leading stock exchanges (London Stock Exchange [1999]). Even if these 28 exchanges capture most of global equity wealth, they do not capture any non-equity financial wealth or other non-human wealth.

principally pointed to the fact that the UK was the world's fifth largest economy and considered their case proven.

To point at a country's rank in the economic size stakes as evidence of its market power is, of course, nonsense. A country could be the world's largest economy and still have no market power. Market power is determined by size relative to the market, and by the speed and ease with which competitors can enter and exit the market.

According to World Bank data, reproduced in Table 2 below, the UK was, in 1997, the world's fifth largest economy, behind the USA, Japan, Germany and France, as measured by GNP, converted at market exchange rates. When measured at purchasing power parity (PPP) exchange rates, the UK moves to seventh place, now also preceded by China and India. From the point of view of the UK's clout as a price maker in the markets for internationally traded real goods and services, its relative size, UK GNP as a fraction of world GNP, is more relevant than its absolute size, let alone its rank. Using current exchange rates, the UK accounted for 4.1 percent of world GNP in 1997. Using PPP exchange rates, the UK accounted for 3.3 percent of world GNP in 1997.

TABLE 2 HERE

The UK's share of world trade is higher than its share of world GDP, reflecting the empirical fact that smaller economies tend to be more open. The statistical relationship between size and openness in trade in real goods and services is clear from Tables 3 and 4. Table 3 shows that, when one considers all 132 countries for which the World Bank provided data, the UK (market by the square) found itself just below the regression line in 1996.[12] The true entrepôt traders, Singapore and Hong Kong, are the outliers with the very high trade shares. When the

[12] Trade shares are measures as (Exports + Imports)/2GDP.

sample is restricted to 32 industrial economies, the UK is just above the regression line, as shown in Table 4.

In 1996, trade in goods and services was 29% of GDP for the UK, against 12% for the USA, 8.5% for Japan, 23% for Germany, 36.5% for Canada, and 50 percent for the Netherlands. In 1996, the UK accounted for 5.2% of world trade, the USA for 13.7%, Japan for 6.9%, Germany for 8.9%, Canada for 3.4% and the Netherlands for 3.2%.[13]

TABLE 3 HERE

TABLE 4 HERE

Note that 'entrepôt trade', that is, importing and re-exporting, does not necessarily give a nation much additional market power. Export value added as a share of GDP for the UK was 21.6 percent in 1990 and 26.3 percent in 1997. Exports of goods and services (including net foreign factor income earned abroad), which includes the value of re-exported imported goods and services, were 27.8 percent of GDP in 1990 and 33.1 percent in 1997.[14][15]

A market share of 3, 4 or even 5 percent does not normally warrant an investigation by the Monopolies Commission. In the standard metric of market power over traded real goods and services, the UK is indeed a 'rather small' economy, with very limited, and probably largely transitory, power to influence world prices and global activity.

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[13] Source: World Development Report 1998/99. The share of world trade was calculated as follows: (UK exports + UK imports)/(World exports + World imports). There is no implication that there is interplanetary trade.

[14] The source for these figures is Baker and Buiter [1999], and is based on internal calculations by Bank of England staff.

[15] For the Netherlands, the share of re-exported imports in total exports is likely to be even higher than for the UK, but I do not have the input-output information for the Netherlands to venture a numerical guess.

To design a currency regime for a country like the UK or France on the assumption that it is rather like the US, when in fact it is rather more like Canada or even the Netherlands, would be a serious mistake.

A price taker in the world markets for imports and exports cannot use variations in its nominal exchange rate to affect its international terms of trade. If all final goods and services and well as all intermediate goods and services and raw materials are traded internationally, and if the country is small, changes in the nominal exchange rate also will not affect the relative price of traded and non-traded goods and services (the 'real exchange rate').

However, even if final and intermediate goods and services are internationally traded and governed by the law of one price, primary inputs, especially labour services, are unlikely to be internationally traded on a scale sufficient to have the domestic price of labour determined as the product of the exogenous world price of labour and the nominal exchange rate. With labour non-traded, nominal wage rigidities are sufficient to give the nominal exchange rate a temporary handle on the real economy, through its ability to influence relative labour costs and profitability.

The UK may have some limited, and probably only transitory, power to affect its external terms of trade. Its relative price of traded to non-trade goods can be influenced, temporarily, by monetary policy. The presence of immobile labour and nominal wage rigidity means that monetary policy can also, temporarily, influence relative unit labour costs. This necessary condition for the nominal exchange rate to play a potential stabilisation role is therefore satisfied. I argue below, that other key necessary conditions are not satisfied.

Scotland is both more open and much smaller than the UK. An independent Scottish monetary policy would therefore have only limited effects on real economic activity in Scotland.

5.3 Are asymmetric shocks and asymmetric transmission of monetary policy obstacles to UK membership in EMU?

The 'one-size fits all' monetary policy corset inflicted on all members of a monetary union is most costly to a member state if it is subject to especially severe asymmetric shocks or if its structure is such as to cause even symmetric or common shocks (or a common monetary policy) to have seriously asymmetric impacts on output and employment. The proposition that a monetary union is more attractive when the structure of production and demand is well-diversified should be seen as a statement about the conditions under which asymmetric shocks are less likely. Fortunately, the UK has a well-diversified structure of production, with a small primary sector (agriculture and extractive industries such as North Sea Oil and coal mining). Primary industries tend to be subject to particularly severe supply shocks and are very directly affected by changes in world prices.

I will consider the *asymmetric shocks* and *asymmetric monetary transmission* arguments in turn.

Asymmetric shocks

It is true that giving up nominal exchange rate flexibility would deprive the UK of a potentially useful mechanism for responding to asymmetric shocks. While nominal exchange rate flexibility does not reduce the long-term pain of changing international relative costs or prices, it can, in principle, reduce the transitional costs of achieving the real adjustment that is required. How serious this loss is depends on how well, in practice, this mechanism has been and can be used.

There are two further considerations that qualify the practical importance of the asymmetric shocks argument in favour of retaining nominal exchange rate flexibility. Nominal exchange rate changes are the appropriate response only to asymmetric shocks to the demand for

goods and services, that is, to *IS* shocks. In response to asymmetric monetary shocks (*LM* shocks), a constant nominal interest rate is appropriate. In a world with perfect international financial capital mobility, a constant nominal interest rate translates into a constant expected rate of exchange rate depreciation. A fixed exchange rate is one way of delivering this optimal response to *LM* shocks.[16] The optimal response of the exchange rate to supply shocks is ambiguous, even in sign.

The measurement of the extent and persistence of cyclical divergence between regions and nations is not a straightforward affair. Table 5 shows the dispersion of regional unemployment rates in the UK, and Table 6 the dispersion of national unemployment rates, output gaps and national inflation rates for 11 EU member states and the UK.

TABLE 5 HERE

TABLE 6 HERE

It is clear that the dispersion of regional unemployment rates in the UK (which ranged, in April 1999, from 10.1% in the North East to 3.7 % in the South East) is less than the dispersion of national unemployment rates (which ranged from 17.3 percent in Spain to 3.3 percent in the Netherlands). However, cyclical divergence should be measured by differences between national deviations of the actual unemployment rate from the NAIRU, the equilibrium or natural rate of unemployment. The unobservable NAIRUs are likely to differ more among EU members than among regions in the UK.

For instance, the gap between the 17.3% unemployment rate in Spain and the 3.3% unemployment rate in the Netherlands is unlikely to reflect just differences in the Spanish and Dutch business cycles. Spain has a high natural rate of unemployment, and anecdotal evidence

[16]This is a straightforward extension of Poole [1970] to an open economy setting with integrated global financial markets (see Buiter [1997]).

supports the view that many of the recorded unemployed do in fact work. The Netherlands has moved many of its unemployed into various 'inactive' categories. Table 6 also presents two sets of estimates of the NAIRU for the euro area countries and the UK in 1997, that support the contention that differences among euro area unemployment rates are mainly structural rather than cyclical in nature. The output gap data presented in Table 6 also suggest that differences in national unemployment rates in the euro area are likely to overstate the degree of cyclical divergence.

Obviously, a single snapshot only contains limited information about the degree of cyclical divergence, as it contains no information at all about the degree of persistence of cyclical divergence. Nevertheless, Tables 5 and 6 do not support the contention that the degree of cyclical convergence among EU members is significantly higher than among UK regions.

Evidence on the magnitude and persistence of asymmetric shocks, and convincing evidence on the nature and source of these shocks is hard to find, despite a growing number of empirical studies devoted to this subject (see e.g. Minford and Rastogi [1990], De Grauwe and Vanhaverbeke [1991], Minford, Rastogi and Hughes Hallet [1993]), Masson and Symansky [1993], Bayoumi and Eichengreen [1993], Erkel-Rousse and Melitz [1995], Gerlach and Smets [1995], and Bhattacharya and Binner [1998]). Most of the earlier studies failed to distinguish between *LM* shocks and *IS* shocks, and even the more recent studies that do, such as Erkel-Rousse and Melitz [1995] and Bhattacharya and Binner [1998], have to resort to heroic identification restrictions that fail to convince. All these studies fail to allow for the possibility that the foreign exchange markets, under conditions of a very high degree of international financial integration, may be an independent source of noise, shocks and instability.

If national monetary shocks are an important contributor to cyclical divergence, it could be expected that the formation of a monetary union itself could create a tendency for greater

business cycle symmetry to emerge. In a recent study of the ERM experience of 9 ERM members, Artis, Krolzig and Toro [1999] do indeed identify the emergence of a common European business cycle, which is significant in contributing to individual countries' cyclical experience. It is significant that the principal exception in this study is the UK. This is consistent both with the fact that the ERM experience of the UK was shorter-lived than that of the other countries in the study, and with the view that UK monetary policy was, even during its ERM membership years, significantly divergent from the ERM norm. The degree of cyclical convergence would, of course, be greater under full monetary union than under a looser arrangement like the ERM. Estimates of UK cyclical divergence from the EMU norm based on data generated under an independent UK monetary policy are bound to give an overestimate of what is likely to be the case after the UK joins EMU.

Even with full monetary union, there will remain asymmetric, nation-specific shocks that will put the UK business cycle out of synch with that in the rest of the EMU area. However, within a common currency area, there are national and supranational adjustment mechanisms that will mitigate the impact on the real economy of these remaining asymmetric shocks. Below, I consider factor mobility and EMU-area-wide automatic fiscal stabilisers. Here I will briefly consider three further mechanisms: (1) divergent national inflation rates, (2) national automatic fiscal stabilisers and (3) current account imbalances.

Divergent rates of national cost and price inflation are a key adjustment mechanism in a common currency area. We can see this at work in the euro area, with Portuguese, Spanish, Dutch and Irish inflation rates significantly above those of Austria, France and Germany, as is evident in Table 6. Even if the 'law of one price' comes through in the long run and equates inflation rates of similar traded goods, differences in national inflation rates of non-traded goods and services can persist indefinitely (the so-called Balassa-Samuelson effect). Labour services

are preponderantly non-traded, so changes in relative unit labour costs can have important influences on the relative profitability of exporting and import-competing activities.

Divergent national inflation rates within the euro area are often interpreted as evidence that the common currency is not working. Quite to the contrary, they are evidence that the national adjustment mechanisms are permitted to work, and that they are working.

Import leakages are an important mechanism for damping demand and supply shocks. Cyclical variations in intra-euro area current account imbalances are important shock absorbers that continue to be effective in a common currency area.

Intra-euro area current account imbalances can play a stabilising role even if the government budget is balanced continuously. Counter-cyclical variations in national government budget deficits reinforce this mechanism. They are actually more effective, under conditions of a high degree of international financial integration, when the exchange rate is fixed than when it floats.

Asymmetric transmission of a common monetary policy

There is a flip-side to the proposition that different nations within EMU are likely to be affected by asymmetric shocks, and that a common monetary policy will therefore be inappropriate. This is the proposition that, because of differences in economic structure (sectoral and industrial composition of production, employment and demand, financial structure, labour market institutions etc), the monetary transmission mechanism differs among nations - as it does within nations. A common monetary policy will therefore impact asymmetrically on different nations, as it does on sectors, industries and regions within nations.

A common version the one-size-fits all objection to UK membership in EMU, based on asymmetric transmission of monetary policy, is the following. A uniform national monetary policy, set to be appropriate for the UK as a whole, is often disproportionately painful for various

regions, sectors or industries within the UK. How much more would the regions, sectors and industries with in the UK, and indeed the UK as a whole, suffer from a locally conjuncturally inappropriate monetary policy set in Frankfurt for the EMU area as a whole?

This argument is fallacious. The reason a single UK-wide monetary policy at times impacts asymmetrically on different regions, sectors and industries, is that in a rather small and open economy like the UK, monetary policy works primarily (even if not reliably) through the exchange rate. Different sectors, regions and industries are internationally exposed to different degrees. With the UK in EMU, different sectors, regions and industries within the UK would be much less exposed to variations in the external value of the euro than they are currently to variations in the external value of the pound.

The reason is that much of the external exposure of UK exporters and import competitors is exposure to the euro area. While the current euro area is just as open to trade in goods and services as the UK if internal cross-border trade in the euro area is included (31.5% of euro-area GDP in 1998), it is much more closed when intra-euro area trade is excluded. The IMF's October 1998 World Economic Outlook puts trade in goods at 11.3 % of euro area GDP. With services added, this in unlikely to rise much above 15%. In 1997, 46.2% of UK exports went to the euro area. The rest of the EU accounted for 4.3% of UK exports, and the rest of Europe 8.2%. Since the other non-EMU EU members are likely to join EMU soon, and since most of the rest of Europe is likely to be both EU and EMU-bound soon thereafter, almost 58% of UK exports goes to current or likely future members of the euro area. In 1997, 48.6% of UK imports came from the euro area, 4.0% from the rest of the EU and 8.4% from the rest of Europe.

With the UK in EMU, the asymmetric transmission of monetary policy through the exchange rate would be less troublesome for the internationally exposed sectors, industries and regions of the UK. The same would apply to Scotland. Of course, some asymmetric

transmission would continue to be present, both through the uneven exposure of different sectors, industries and regions to variations in the external value of the euro and through asymmetric transmission through the interest rate and credit channels. I shall argue below that, despite the undoubted continued presence of asymmetric shocks and asymmetric transmission, joining EMU is likely to improve the stability of the real economy in the UK, compared to what is currently on offer.

A financial integration approach to Optimal Currency Areas.

The theory of Optimal Currency Areas was developed in an era when international financial integration was limited. During the Bretton Woods period, foreign exchange and capital controls were the norm. Things are rather different today.

The optimism displayed by proponents of national monetary independence about the stabilising virtues of exchange rate flexibility, only makes sense in a world with very limited international financial capital mobility. In the limit, with zero capital mobility, the exchange rate clears the trade balance. There is no contribution of net external demand to domestic economic activity. Domestic risk-free interest rates are determined by the domestic monetary authorities and by market expectations about the future conduct of these authorities. Exchange rate flexibility therefore completely insulates the domestic economy, real and financial, from foreign shocks and disturbances.

It is true that even with complete international financial integration, a freely floating exchange rate regime can, in principle, support fully efficient outcomes. For this to be the case, markets, financial and real, must be efficient and complete. Unfortunately, markets are neither.

According to the financial integration approach to optimal currency areas that I favour, all regions linked by unrestricted financial capital mobility form an optimal currency area. It is the interaction international financial markets that are highly efficient in a very narrow technical

sense (trading efficiency), but inefficient in every other sense, and nominal price and cost rigidities in the markets for real goods and services that underpins this approach to optimal currency areas.

Most of the time, the foreign exchange markets are technically efficient, in the weakest possible sense, that large transactions can be made almost instantaneously, at very low transactions costs and with a minimal impact on the exchange rate.[17] Progressively stronger notions of technical, trading or informational efficiency require that it is impossible to make systematic above-normal risk-adjusted profits by transacting in these markets.

Depending on the information set that conditions expected profits and conditional risk assessments, the foreign exchange markets can be informationally efficient in the in the weak, semi-strong or even the strong sense (Fama [1970]). The foreign exchange markets have never been shown to be informationally efficient in the semi-strong or strong sense. There are doubts even about weak-sense informational efficiency.[18]

Departures from even rather weak notions of informational efficiency are not uncommon. Herd behaviour, bandwagon effects, noise trading, carry trading, panic trading, trading by agents caught in liquidity squeezes in other financial market, and myriad manifestations of irrational behaviour make for excessive volatility and sometimes quite persistent misalignments in the foreign exchange markets as in other financial markets (see Grossman [1989, 1995] for general

[17] Like other financial markets, the foreign exchange markets denote at times beset by "disorderly market conditions", in which spreads widen to the point that transactions dry up and the market ceases to be efficient, even in the narrow technical sense.

[18] The literature on foreign exchange market efficiency is endless. I will just refer to a small selection, covering a range of views and approaches : Fama [1984], Hakkio and Rush [1989], MacDonald and Taylor [1992], Dutt [1994], Crowder [1994], Taylor [1995], Dutt and Ghosh [1995], Zietz [1995], Lajaunie, McManis and Naka [1996].

theoretical considerations about financial market inefficiencies, and Shiller [1984, 1995, 1996] for some interesting empirical studies outside the domain of exchange rates).

Even the prices determined in informationally fully efficient markets need not convey the right social scarcity valuations. Rational speculative bubbles can cause an asset price like the exchange rate to differ from its fundamental valuation, without this creating any scope for trading strategies that generate above-normal risk-adjusted profits. Even without speculative bubbles, rational or otherwise, the interaction of technically and informationally efficient foreign exchange markets and inefficient markets for real goods and services may result in inefficient equilibria that could be Pareto-improved by the regulation, or even the elimination, of some of the technically and informationally efficient financial markets.

Exchange rate misalignments interact with nominal price and cost rigidities to produce large and at times persistent swings in relative goods prices, relative costs or other dimensions of relative competitive positions. Production, employment, investment and consumption decisions can be distorted (see e.g. Krugman [1989, 1990, 1996]).

Summing up, markets for real goods services are incomplete and shot through with real and nominal rigidities. Financial market also are neither complete nor efficient.

The foreign exchange market and the exchange rate can therefore be a source of extraneous shocks as well as a mechanism for adjusting to fundamental shocks. One cannot have the one without the other. The potential advantages of nominal exchange rate flexibility as an effective adjustment mechanism or shock absorber are bundled with the undoubted disadvantages of excessive noise and unwarranted movements in the exchange rate, inflicting unnecessary real adjustments on the rest of the economy. My reading of the evidence leads me to the conclusion that the potential advantages of nominal exchange rate flexibility when a country is faced with

fundamental asymmetric shocks, are dominated by its disadvantages as a source of extraneous asymmetric shocks.

From an economic point of view, with international financial integration the norm, most of the world now constitutes an Optimal Currency Area. For obvious political reasons, some of which are touched upon in Section 6, a single global currency is not feasible today. This leaves the euro as the best available half-way house, both for the UK and for Scotland.

5.4 Is limited real resource mobility an obstacle to the UK joining EMU?

A high degree of real factor mobility can be an effective substitute for nominal exchange rate adjustments in the face of asymmetric shocks. Indeed, factor mobility permits long-term, even permanent real adjustments to asymmetric real shocks, something nominal exchange flexibility cannot deliver. The real factors whose mobility matters are labour and real or physical capital.

Physical capital mobility

Real capital mobility, both within and between nations, is limited even when financial capital mobility is perfect. Once real capital (plant, machinery and other equipment, infrastructure etc.) is installed, it becomes costly to shift geographically. There are some examples of 'flying capital', such as Jumbo jets, that move very easily and at a low cost, and even in the past, there are examples of whole factories being shipped over great distances by rail or by ship. The conventional view in the OCA literature is that, as a first approximation, real capital cannot be relocated. New gross investment can of course be redirected across national boundaries, and financial capital mobility can facilitate this process, by permitting the decoupling of national saving and gross domestic capital formation. This is not a process that is likely to be very significant at cyclical frequencies, however, Moving the real capital stock between the UK

and the rest of the euro area through variations in gross investment flows is therefore unlikely to be an effective substitute for the short-term stabilisation potential of nominal exchange rate movements.

The technological developments of the past few decades probably are making the argument that physical capital, once installed, is very costly to move geographically, progressively less applicable. While a blast furnace is likely to be prohibitively expensive to move geographically, many modern assembly lines for high-tech products are extremely valuable in relation to their weight, bulk, fragility and general unwieldiness - the proximate determinants of the cost of moving them geographically. They can be, and are moved over large distances in response to changes in relative costs of production (or to changes in the other determinants of profitability).

For instance, the Welsh subsidiary of a large Japanese multinational producing audio equipment, was, at the end of June, 1999, operating at thirty percent of capacity: the plant had room for ten assembly lines. Only three were operating. Two more were idle. In the two years since the Asian crisis started in July 1997, two entire assembly lines had been sold and shipped to another subsidiary in Malaysia. Management in Wales judged that, from the moment a decision to sell an assembly line was taken, it would take at most two months for it to be fully operational again in its new location in Malaysia.

The ease of shifting physical capital around internationally is of course greatest when there are essentially identical production units already in existence in different countries. Organisational structures may be costly to move, but with management and other key aspects of the organisation in place, as well as plant, communication, transportation and distribution networks, shifting assembly lines and other valuable capital equipment is rather easy. Physical

capital mobility is therefore already easier than the textbook models suggest, and is likely to become even easier in the future.

Physical capital mobility can be a substitute for labour mobility from the point of view of achieving an efficient reallocation of resources following a shock. The distributional consequences, both for those who move and for those who stay behind, of capital rather than labour moving abroad following a shock, can, however, be very different.

Labour mobility

Despite some improvement in the technology for moving labour internationally, there remain many obstacles to labour mobility. Many barriers are legal and administrative, or cultural and educational, including the inability to communicate effectively in foreign languages. However, legal and administrative obstacles to labour mobility among EU members are diminishing Throughout the EU, work permits for EU citizens are a thing of the past, and mutual recognition of professional qualifications is becoming the norm rather than the exception. Labour mobility between Scotland and the rest of the UK is undoubtedly higher than between the UK and the euro area. This is an argument for Scottish membership in the UK monetary union.

Even with legally and administratively unrestricted cross-border labour mobility, it is unlikely that labour mobility could mimic the nominal exchange rate as a potential cyclical stabilisation instrument. Migration is costly, within as well as between nations. Workers are only likely to move if the fixed, up-front cost of moving is compensated for by a long period of higher earnings in the country of destination. Permanent (or at least persistent) real shocks will trigger labour mobility. Nominal exchange rate flexibility only affects the real economy for a short transition period. To mimic the effect of nominal exchange rate flexibility, net cross-border migration flows would have to be reversible and significant at cyclical frequencies. It is hard to see that happening.

I conclude that cross-border mobility of real capital and of labour between the UK and the rest of the EMU area is unlikely to be an effective substitute for (optimally managed) nominal exchange rate flexibility. However, I doubt that even within existing currency unions (like the USA), net interregional migration flows are quantitatively important at cyclical frequencies. This means one of two things. Either, these existing currency unions are not optimal currency areas, or an optimal currency area does not require a high degree of labour mobility at cyclical frequencies.

5.5 Is a Federal EMU fiscal authority necessary to compensate for the loss of the exchange rate instrument?

The brief answer is 'no'. Fiscal stabilisation policy works if and to the extent that postponing taxes, and borrowing to finance the resulting revenue shortfall, boosts aggregate demand. This will be the case either if there is myopia among consumers, who fail to realise that the present value of current and future taxes need not be affected by the timing of taxes, or if postponing taxes redistributes resources between households with different propensities to consume. In overlapping generations models without an operative intergenerational gift motive, postponing taxes redistributes resources from the young to the old and from generations yet to be born to generations already alive. This will boost aggregate consumption in the short run. Intra-cohort heterogeneity (say through the coexistence of life-cycle consumers and current disposable income constrained consumers) can reinforce these effects.

Unless the supranational Federal Fiscal Authority in a currency union has access to the financial markets on terms that are superior to those enjoyed by the national fiscal authorities, there is nothing the Federal authorities can achieve by way of fiscal stabilisation that cannot be achieved equally well by national or even lower-tier fiscal authorities. National government

financial deficits and surpluses, probably mirrored to some extent in national current account imbalances, are a perfect substitute for supranational fiscal stabilisation.

A study by Bayoumi and Masson [1993], building on earlier work by Sala-i-Martin and Sachs [1992], analyses regional flows of federal taxes and transfers within the USA and Canada. They try to distinguish between long-term fiscal flows (the redistributive element) an short-term responses to regional business cycles, which they identify with the stabilisation element. They find that in the USA, long-run flows amount to 22 cents in the dollar while the stabilisation element is 31 cents in the dollar. For Canada, the corresponding figures are 39 cents and 17 cents respectively. While interesting, these studies tell us nothing of relevance to the issue of whether fiscal policy in EMU (or in a possible North American Monetary Union or NAMU) could compensate for the loss of the exchange rate instrument. The long-term redistribution properties of the budget are irrelevant, because the nominal exchange rate is not an instrument for long-term redistribution. The stabilisation properties of the fiscal system do matter, but the necessary stabilisation can be provided at the supranational, national or sub-national level.

It is true that, to the extent that monetary union is part of a wider process of political integration, the political pressures may grow for long-term redistribution among the nations that constitute the monetary union. What the redistribution figures in the studies of Bayoumi and Masson and of Sala-i-Martin an Sachs tell us, is the degree to which the United States and Canada are societies, rather than just economies, and the extent to which notions of national solidarity and regional social cohesion are translated into redistributive measures through the tax-transfer mechanism.

I conclude that the likely continued absence of a strong EMU-wide Federal fiscal authority with serious transnational tax and transfer powers, is not a technical, economic obstacle to EMU or to UK membership in EMU.

6 Political and constitutional aspects of monetary union

Monetary union is not just a technical economic, financial or monetary issue. It represents a significant constitutional and political change, touching at the core of conventional perceptions of national sovereignty. Monetary union raises two distinct but related political and constitutional issues: first the legitimacy of the surrender of national sovereignty involved in the decision to join a wider monetary union, and second the accountability of the supra-national monetary policy makers to the electorate or its elected representatives.

The concepts of 'sovereignty', 'state' and 'nation' are fraught with ambiguity. The Collins Dictionary and Thesaurus [1987] defines sovereignty as *"supreme and unrestricted power, as of a state"*. The Concise Oxford Dictionary gives us: *"1 supremacy. 2 self-government. 3 a self-governing state"*. Despite these absolutist definitions, sovereignty, of course, is never absolute and unqualified. It is always shared, qualified and circumscribed. The only sovereignty that is absolute and unqualified is that of God, and even there the devil begs to differ.

Sovereignty cannot be considered independently of the domain over which it is exercised. One should not confuse the formal trappings of sovereignty - the 'dieu-et-mon-droit' splendour of a head of state, the formal law-making powers of the legislature and the majesty of the judiciary - with the substance of it. Some may consider it a vulgar philosophical error to bring considerations of power, and of the domain over which the sovereign can effectively exercise choice, into a discussion of sovereignty. I am happy to plead guilty to that error.[19] If a state could be both fully sovereign and completely powerless, sovereignty would not be an interesting

[19] This issue is closely related to the debate over the meaning of 'freedom'. I consider any discussion of the 'right to choose' that does not pay close attention to the domain over which choice can be exercised, to be naive and pointless. A poor man living in a shanty-town has every right to (is free to) buy a Rolls Royce car any time he wants to. That's nice.

concept. A puppet state like Manchukuo had all the trappings of sovereignty but none of the substance. Even a legitimate unitary nation state, fully sovereign in the formal, legalistic sense of the word, may have but a negligible domain over which this sovereignty can be exercised effectively, because of the size of the country, its strategic military vulnerability, or its openness to trade, financial flows and factor mobility. Luxembourg is a sovereign state.[20] In a Federal state, sovereignty is exercised over different domains at different levels.

The concepts of 'state' and 'nation' too are fraught with ambiguity. The Concise Oxford Dictionary gives us three offerings under 'state', "*an organized political community under one government; a commonwealth; a nation"*. The last of these, tying state and nation together is singularly unhelpful, especially for the UK. Collins gives us *"a sovereign political power or community, the territory occupied by such a community, the sphere of power in such a community"*. For nation, Collins gives us *"an aggregation of people or peoples of one or more cultures, races, etc. organised into a single state"* and *"a community of persons not constituting a state but bound by common descent, language, history, etc."* The first of these definitions again bundles nation and state.[21] The Concise Oxford Dictionary offers *"a community of people of mainly common descent, history, language, etc., forming a state or inhabiting a territory."*

Identifying the state with the nation can be misleading. The United Kingdom is not a nation state but a four-nation state. The coexistence of England, Scotland, Wales and Northern Ireland under a single sovereign is remarkable, and provides an interesting model of what the European Union may become.

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[20] It was in a currency union with Belgium from 1922 till 1999.

[21] In fairness, it does correspond to common usage, as when one refers to the Canadian or Swiss nation.

The constitutional arrangements in the UK between the constituent nations and the centre, and indeed between the centre and all other tiers of government, national, regional and local, have always been in flux. Under the Thatcher administration, the UK became the ultimate unitary, centralised state. Not only did the four nations not have national representative parliaments or assemblies, regional and local governments lost most of their remaining powers, which were concentrated in Whitehall. This centralisation of the powers of the state went together with a considerable diminution of many of the institutions of civil society, further weakening the individual citizen in his dealings with the state.

Since the days of Mrs Thatcher, the progress of the unitary centralised state has been halted, and some extent reversed. The Scottish Parliament, the Welsh Assembly and the new Northern Ireland Assembly have reinvigorated the political life of the non-English nations. England, of course, does not yet have its own, distinct parliamentary voice. An elected mayor for London may be the first step towards the restoration of some substantive power at the regional and local levels.

The geographic domain of UK national sovereignty has waxed and waned through the Acts of Union with Wales (1536-42), Scotland (1707) and Ireland (1801), and the creation of the Irish Free State in 1921. Since 1921, within a constant geographic domain of UK sovereignty, there have been important changes both in the formal, legal aspects of sovereignty and in the substantive ability of the country to manage its affairs as it sees fit. The relationship between the UK between the European Economic Community, and the successor European Community and European Union provides the most pertinent recent examples.

When the UK joined the European Community on January 1, 1973 (under a Conservative government led by Mr. Heath), significant national sovereignty was formally transferred to the supranational European level. A further important transfer of formal UK national sovereignty to

the supranational European level took place when the Single European Act came into force in 1987, again under a Conservative government, led this time by Mrs. Thatcher. The latest significant transfer of formal national sovereign powers to the European level was the signing, again under a Conservative government led by Mrs. Thatcher, of the Treaty of European Union, in Maastricht on 7 February 1992. It came into force on 1 November 1993. The Treaty of Amsterdam, which involved some rather minor amendments to the Treaty on European Union and earlier Treaties and related acts, was signed in Amsterdam on 2 October 1997, under a Labour government led by Mr. Blair.

6.1 The legitimacy of the transfer in national sovereignty involved in EMU

Monetary union represents a surrender of national sovereignty to a supranational entity. A central bank is a key agent of the state. The ability to issue legal tender is an expression of the power of the state to coerce, to prescribe and proscribe behaviour. The common use of the term 'seigniorage' to refer to the revenues accruing to the state through base money issuance, and the fact that central bank money is legal tender, are reminders of the fact that the issuance of central bank money is a manifestation of the state's ability to coerce and to tax. A nation that joins a monetary union surrenders its national sovereignty in the monetary domain and becomes subject to a supranational form of sovereignty in the monetary domain.

The sober cost-benefit analysis of the partial surrender of national sovereignty involved in monetary union, is complicated by the strong symbolic significance often attached to the national currency.[22] The irreducible minimal list of symbols that define the state include a national currency, along with an anthem, a flag and, in much of the world, a football team. The

[22] In the UK debate, much has been made of the symbolic significance of the portrait of the monarch on sterling notes and coin. For notes, this practice actually only dates back to 1960.

emotions that are awakened when the abolition of the national currency is under discussion go beyond what can be rationalised in terms of concerns about the loss of national discretion in the use of seigniorage or the loss of the national monetary stabilisation instrument.[23]

These constitutional issues are very clear in the case of EMU. Economic and Monetary Union in Europe is part of an ongoing process of economic and political integration in Europe, and not an isolated, 'technical', monetary arrangement. In this it differs from arrangements like the classical gold standard, which flourished between 1880 and 1914, the heyday of European imperialism and nationalism. EMU is a step on the road to 'ever closer union' in Europe. It represents a new chapter in the European federalist agenda, a transfer of national sovereignty to a supra-national institution. Unless this transfer of power is perceived as legitimate by EMU residents, the authority of the ECB will be challenged by those who perceive themselves to be adversely affected by it.

In the past, common currency arrangements, including a supranational central banking system with centralised authority, have proven vulnerable unless, at the time of their creation, a stronger and more legitimate federal government structure was in place than is currently the case in the EMU area. The EU has, at present, only a very weak, proto-confederal set-up, but it does have a Parliament, a Court and a proto-executive, made up of the Commission and the Council of Ministers.

While there have been exceptions to the rule that political unification precedes monetary union, monetary unions that occurred without prior political unification and that did not

[23] Similar emotions are involved when, in a decentralised, Federal system, the issue of which flag or flags to fly from government buildings is at stake. The flying of the Confederate flag in the USA South is one example of this. In Canada, the symbolism of the national and provincial flags evokes powerful emotions. The "Stone of Destiny" is another example.

subsequently lead to political unification, have very low life-expectancies. The only exception to the rule I am aware of are Belgium and Luxembourg.

I have considerable sympathy for the long-standing German position that, in the context of European Economic and Monetary Union, further political integration should have accompanied (or even preceded) monetary union.[24] On the other hand, the whole European integration experiment, from the Coal and Steel Community on, has been a political wolf dressed in economic sheep's clothing. It has been successful so far, and it may well continue to be so.[25] It is essential, however, that the European Parliament, backed by the European Court and the Ombudsman, act as an effective watchdog over the ECB. The legitimacy of the ECB will depend on the extent to which it is effectively accountable to the European Parliament.

6.2 Accountability of the ECB

Monetary policy in a the euro area is made by an operationally independent central bank, the ECB. Unlike the Bank of England, the ECB has a high degree of 'target' independence in addition to its operational independence. While the broad target of price stability is politically determined, and laid down in the Treaty of Amsterdam, the ECB itself determines how this general, qualitative objective is translated into an operational target for monetary policy. In the UK the Chancellor of the Exchequer sets the targets of monetary policy, currently a symmetric 2.5% inflation at an annual rate on the RPIX definition, and, subject to that, the support of the government's other objectives, including growth and employment.

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[24] See e.g. Tietmeyer [1998a,b].

[25] There have been times, however, that the economics got too far ahead of the politics. The Werner Group's recommendation in 1970 of full monetary union by 1980 clearly was a bridge too far at the time.

I consider the UK arrangements, with an operationally independent central bank pursuing a politically mandated set of objectives, to be superior to the current EMU arrangements. It is superior because responsibility for the objectives of monetary policy lies with the elected government. It avoids the appearance of rule by unelected technocrats.

One can appreciate that there are practical reasons for not yet having politically determined operational targets for monetary policy in the euro area. It is not even clear who would set the operational targets: the minsters of finance of the euro area, the Commission, the European Parliament or all of the above? Nevertheless, I hope and expect that we will, in due course, see a revision of the Treaty that will locate the power to define the operational targets of monetary policy where it belongs: with the elected, accountable politicians.

In an open, democratic society the delegation of policy making powers to unelected officials will only be accepted as legitimate by the citizens, if the independent central bank is accountable to the elected representatives. Accountability requires openness and transparency. The objectives of the central bank must be clear and unambiguous. This is essential if the electorate and its elected representatives are to be able to judge the performance of the central bank.

The need for openness and transparency also applies to the procedures of the central bank. Individual voting records of the members of the central bank's decision making Council should be in the public domain. So should the minutes of its meetings. More elaborate and in-depth analyses of the Council's thinking (like the Bank of England's quarterly inflation report and inflation forecast) should be published regularly. An independent body (like the Non-Executive Directors of the Court of the Bank of England) should vet the procedures of the central bank and its Council on a regular basis, and should have the power to make binding recommendations.

This procedural openness and accountability is essential for two reasons. First, it is the only effective instrument of quality control for an operationally independent central bank. Second, openness, transparency and accountability of any agent of the state is a political public good. If any state agency can deny information to its citizens on grounds other than clear and present danger to the security of the state, the citizens' right to know is impaired across the board.

At the core of effective accountability is the need for the Council members, collectively and individually, to justify themselves before a duly constituted parliamentary committee. In the Euro Area, the Subcommittee on Monetary Affairs of the European Parliament is charged with the political supervision of the ECB. In the UK, committees of both the House of Commons and the House of Lords call Monetary Policy Committee members to appear on a regular basis to explain their actions.[26]

The ECB is the heir of a central banking tradition in which openness and accountability are alien concepts. While this culture is changing, it is changing only slowly. The right to know of the public and its elected representatives continues to be qualified by the ECB's interpretation of their capacity to understand the intricacies of monetary policy.[27]

I recognise that, both as regards the clarity of the politically mandated objectives of monetary policy, and as regards the procedural openness and transparency of the monetary policy

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[26] In the UK, there is a further dimension of political accountability. If the inflation rate departs from the politically mandated target by more than 1% in either direction, the Governor of the Bank of England has to write an open letter to the Chancellor of the Exchequer. In that letter he has to explain why the departure from the target happened, what the MPC proposes to do about it, over what time horizon it expects to be back on track and how all this is consistent with the MPC's mandate.

[27] The following quote from Issing [1999] is informative: "What matters most in order to make sense of reality (which is inherently non-transparent to policy-makers and the public alike) and of policy makers' behaviour is a coherent frame of reasoning to interpret the subset of *relevant* information. In this sense, the "public's right to know" has to be balanced by the "public's need to understand".

framework, the ECB still falls somewhat short of current best practice.[28] Current best practice itself remains, of course, eminently improvable. However, in the euro area and in the realms of current best practice (the UK), the political mechanisms exist to improve the rules of the monetary policy game. The European Parliament can, should they wish to do so, impose true accountability on the ECB.

I expect that, by the time the UK is ready and willing to join EMU, some of the other current 'outs' will also be ready to come on board. Both Denmark and Sweden are examples of political cultures in which openness and accountability of the state is seen as an essential right, not an optional extra at the discretion of the great and the good. The culture and practices of the ECB are likely to be transformed when the UK, Denmark and Sweden become full EMU members.

7. Conclusion

The two flaws in the conventional OCA literature - the failure distinguish between the nominal and the real exchange rate and the failure to take on board the implications of international financial integration and the associated disruptive potential of exchange rate flexibility - have severely distorted the debate on the economic merits of UK membership in EMU.

The most alarmist characterisations of the macroeconomic fate that would befall the UK in EMU appear to be based on an ultra-old Keynesian view of the monetary transmission mechanism in an open economy, what one might call the old optimal currency area approach on steroids. According to this view, a policy of sustained, systematic depreciation of the nominal

[28] See Buiter [1999]. For an opposing view see Issing [1999].

exchange rate can produce a sustained weakening of the real exchange rate, a lasting improvement in international competitiveness and a permanently lower rate of unemployment or even a permanent increase in the growth rate of real GDP.[29] Arguments of this nature continue to be heard also in current discussions of UK monetary policy (see e.g. Mills and Mitchell [1999]). In this ultra-hysteretic view of the monetary transmission mechanism, even temporary nominal shocks can have permanent real effects.

This view of the monetary transmission mechanism and of what monetary policy can deliver, is a delusion. Nominal exchange rate depreciations engineered by expansionary policy have at most a temporary effect on the real exchange rate and on international competitiveness. These transitory real effects are eroded by higher domestic cost and price inflation. Any real effects are smaller and shorter-lived when the use of the nominal exchange rate as an instrument in the pursuit of international competitive advantage becomes systematic and predictable.

Any temporary effects from expansionary monetary policy on the real exchange rate are desirable and welcome, when they correct an existing overvaluation. Under these circumstances they expedite and facilitate a necessary correction of international relative costs and prices that would otherwise have to occur through differential rates of price and cost inflation between the UK and its overseas competitors. Generating such differential rates of inflation is likely to involve greater real resource costs than achieving the same relative price or cost realignment through a change in the nominal exchange rate.

Any temporary effects from expansionary monetary policy on the real exchange rate are undesirable and unwelcome when they cause a departure from a balanced international price and cost configuration, and a fortiori when they reinforce an existing undervaluation.

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[29] This view of the monetary transmission mechanism is symmetric. Policies that generated sustained appreciations of the nominal exchange rate are argued to have the opposite effects from those just described for sustained depreciations.

To recognize that monetary policy does have a temporary effect on international competitiveness, is not the same as accepting the proposition that monetary policy can be used to fine tune the international competitive position. Those who voice the asymmetric shocks and asymmetric transmission objections to UK membership in EMU, jump from the correct observation that monetary policy (working through the nominal exchange rate and other channels) has powerful (albeit transitory) real effects, to the incorrect conclusion that monetary policy can be used systematically and effectively to dampen the effect on the real economy of external and/or internal shocks. This fallacy is so common that it deserves a proper name. I will call it the '*fine tuning fallacy*'.[30]

For monetary policy to be an effective cyclical stabilisation instrument, we not only have to know the *sign* of these effects, but also their *timing* and *magnitude*. It is one of the oldest shibboleths of macroeconomics, that the lags in the transmission of monetary policy are long, variable and uncertain. Unfortunately, this shibboleth is true. The irreducible uncertainty about the magnitude and timing of the effects of monetary policy on the real economy, including the real exchange rate, output and employment, means that monetary policy has but a very limited role as an instrument for dampening the national business cycle.

Monetary policy can deliver a reasonable degree of price stability over a run of years. By firmly anchoring medium and long-term inflation expectations, it eliminates an important source of uncertainty affecting household and business decisions. This will enhance macroeconomic performance and stability. Monetary policy can also help prevent the kind of systemic banking

[30] A typical example is Nott et. al. [1999], Chapter 6. Much of this publication is marred by a consistent failure to distinguish between real, structural differences between the UK and the euro area, which are irrelevant to monetary union, and differences in structures and transmission mechanisms that may be germane to the monetary union issue. It is very short on economics. A more balanced and economically literate account of the pros and cons of EMU can be found in Currie [1997].

and financial collapses that led to full-scale economic crisis and blighted the Thirties for most of mankind. Central banks do this not by monetary fine tuning, but by lender of last resort operations and by 'market operations' beyond the scope of conventional short-term collateralised central bank lending and borrowing. To have stabilisation ambitions much beyond this, is likely to lead to greater volatility and instability in the real economy.

Scholarly research sometimes encourages the fine tuning fallacy. A typical recent example is the study by Brigden and Nolan [1999] of the cost to the UK of joining a monetary union. Their analytical framework is a very sparse model of a multi-country economy. Each country is fully characterised by four parameters: two 'structural' parameters, the slope of the short-run Phillips curve and the correlation coefficient between domestic and foreign supply shocks; and two policy parameters, the relative weight placed on inflation as opposed to output stabilisation by the national monetary authority and the weight accorded to individual countries in the European monetary authority's loss function.

There is assumed to be only one kind of shock, a national aggregate supply shock. The national monetary authority is assumed to observe the national supply shock immediately and perfectly. It then sets national monetary policy instantaneously and optimally to cope with this shock. The national authority knows the true structure of the economy (not too hard, in the exercise under consideration, but rather harder in the real world) and this structure of the economy makes certainty equivalent strategies optimal: the only random shocks are the perfectly observed additive random (supply) shocks, the model is linear and the objective functions are quadratic. This means that the best way to handle uncertainty is to ignore it.[31] The domestic authority is

[31] Strictly speaking, the optimal policy is obtained by setting the additive disturbances equal to their expected values and solving the resulting deterministic optimal control problem.

assumed to be able to control the domestic rate of inflation directly and exactly (wish it were so). As a result, it makes no difference at all to their framework whether the national economies are financially isolated or fully integrated into the global financial system. Indeed, a remarkable implication of this set-up is that, in a paper investigating the consequences for the UK of adopting an alternative exchange rate regime, the exchange rate itself does not appear at all. The authors attempt to add empirical content by 'calibrating' the model with quasi-real world estimates of the four key nation-specific parameters (treating these estimates as known numbers), thus further contributing to the confusion of the unwary.[32]

While heroic oversimplification and the cavalier use of numerical calibration are common and innocuous in four-finger classroom exercises, they are rather serious shortcomings in a study that purports to be a serious empirical assessment of (part of) the costs of the UK joining the Economic and Monetary Union.

Without any uncertainty about the transmission mechanism (the magnitude and timing of the response of the economy to changes in the policy instrument), and with only a single, perfectly observed nation-specific shock, national monetary policy can, not surprisingly, do rather well as regards improving the trade-off between inflation and output variability. As a guide to policy,

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[32] A further serious flaw in this study is that the numerical estimates of the correlation between the supply shocks faced by the UK and other nations, rely on supply shock estimates that are almost surely misidentified. The supply shock time series on which these numerical estimates are based are from Bayoumi and Eichengreen [1994]. Bayoumi and Eichengreen identify supply shocks through the restriction that only permanent supply shocks have permanent real effects. As pointed out, for instance, in Buiter [1997], such an identifying restriction is incorrect in virtually any modern macroeconomic model. Permanent real shocks to aggregate demand (that is, all shocks other than shocks to the demand for or supply of money) will, in general, have permanent real effects. Fiscal policy shocks, time preference shocks and other IS shocks are examples. The Bayoumi-Eichengreen framework completely fails to distinguish between LM shocks and IS shocks. It also completely fails to even consider the possibility of shocks originating in the foreign exchange markets, e.g. foreign exchange risk premium shocks and speculative bubbles originating in the foreign exchange markets.

or as a contribution to the pros and cons of monetary union and the cost-benefit analysis of the abandonment of the national monetary instrument, this study is uninformative at best. At worst, it feeds the monetary fine tuning illusion.

My view on the limits of what monetary policy can achieve as a stabiliser of real economic activity is, fortunately, becoming more widely held.[33] The argument applies even in completely closed economies (and in rather closed economies like the US). They are reinforced, in the case of an open economy like the UK, by the recognition that the foreign exchange market is mainly a source of noise, shocks and instability.

The view that fine tuning the real economy through national monetary policy is impossible, implies that the loss of the national monetary stabilisation instrument that comes with membership in EMU, is not a serious matter, as long as the ECB pursues medium and long-term price stability, and as long as an adequate framework for dealing with serious financial crises is in place. Both these conditions are satisfied.

I conclude that the economic case for immediate UK membership in EMU is overwhelming. It is of course important that an entry rate be negotiated that is close to the UK's 'Fundamental Equilibrium Exchange Rate'. Estimating the Fundamental Equilibrium Exchange Rate is even more difficult than estimating the age of the universe. My best guess would place it some distance south of the current external value of the pound, but it is hard to be confident about this. It is left as an exercise to the reader.

The benefits in terms of enhanced macroeconomic stability from adopting the euro, and the seigniorage benefits, can be reaped immediately. Enhanced macroeconomic stability only requires the irrevocable locking of the parity of the pound and the euro. To enjoy the

[33] Its locus classicus is Friedman [1968]. See King [1997] and Viñals and Vallés [1999] for recent restatements.

seigniorage benefits, UK membership in the ECB/ESCB is required as well. There is no need to wait till the payments and settlement mechanisms, wholesale and retail, are ready for the switch over. The transaction cost savings, of course, will not occur until the euro is the means of payment and unit of account throughout the UK. The benefits of greater price transparency are also likely to be greatest only after full euroisation has occurred.

If the economic arguments favour immediate UK membership in EMU, the transfer of national sovereignty involved in UK EMU membership will only be perceived as politically legitimate, if the 'rules of the game' that have been announced governing possible UK accession, are observed both in the letter and in spirit. This means unavoidable delay. The road map for UK membership in EMU is familiar.

First, a party or coalition of parties favourable, in principle, to UK membership has to win the next general election. Second, the new government has to determine that the 'five economic tests' have been passed (see HM Treasury [1997]).[34] Third, Parliament has to vote in favour of membership. Fourth, a referendum has to ratify the Parliamentary vote. Fifth, an acceptable 'date and rate' for joining has to be negotiated between the UK and the existing EMU members.

A political impediment to UK membership in EMU is the accountability and openness deficit of the ECB. I am optimistic that the flexibility and good sense that have characterised the

[34] The five economic tests are the following:
(1) Are business cycles and economic structures compatible so that we and others could live comfortably with euro interest rates on a permanent basis?
(2) If problems emerge is there sufficient flexibility to deal with them?
(3) Would joining EMU create better conditions for firms making long-term decisions to invest in Britain?
(4) What impact would entry into EMU have on the competitive position of the UK's financial services industry, particularly the City's wholesale markets?
(5) In summary, will joining EMU promote higher growth, stability and a lasting increase in jobs?

actual conduct of monetary policy in the euro area since the middle of 1998, will also be applied to the procedures of the European Central Bank.

Membership in EMU is in the enlightened national interest of the United Kingdom. I hope this lecture has contributed to this enlightenment.

TABLE 1

Seigniorage in the UK

	Seigniorage (£ billion)	**σ Seigniorage (% of GDP)**	**m Base Money-GDP ratio (%)**	**ω * Interest bill foregone (% of GDP)**	**τ ** Inflation tax (% of GDP)**
1994	**1.593**	**0.24**	**3.1**	**0.19**	**0.08**
1995	**1.217**	**0.17**	**3.2**	**0.2**	**0.11**
1996	**1.614**	**0.21**	**3.2**	**0.2**	**0.08**
1997	**1.649**	**0.21**	**3.2**	**0.23**	**0.1**
1998	**1.545**	**0.18**	**3.2**	**0.18**	**0.11**

*** Interest rate is 3 month TB yield**
**** Inflation rate is RPI inflation rate**
Source: Economic Trends

Table 2

Two Measures of the Size of the UK Economy

	GNP at Current Exchange Rates			GNP at PPP Exchange Rates		
	Billions of $, 1997	Rank	Share %	Billions of $, 1997	Rank	Share %
USA	7690.1	1	25.7	7690.1	1	20.8
Japan	4772.3	2	15.9	2950.7	3	8
Germany	2319.5	3	7.8	1748.3	4	4.7
France	1526	4	5.1	1280.3	5	3.5
UK	1220.2	5	4.1	1208.9	7	3.3
Italy	1155.4	6	3.9	1152.1	8	3.1
China	1055.4	7	3.5	4382.5	2	11.9
Brazil	773.4	8	2.6	1019.9	9	2.8
Canada	583.9	9	2	661.6	12	1.8
Spain	570.1	10	1.9	617.6	15	1.7
Korea, Rep	485.2	11	1.6	621.1	13	1.7
Russian Fed	403.5	12	1.4	618.4	14	1.7
Netherlands	402.3	13	1.3	332.8	20	0.9
Australia	380	14	1.3	373.2	19	1
India	373.9	15	1.2	1587	6	4.3
World	29925.7		100	36950.6		100

Source: World Bank Development Report, 1998/99.

Table 3
Size and Openness, 132 Countries, 1996

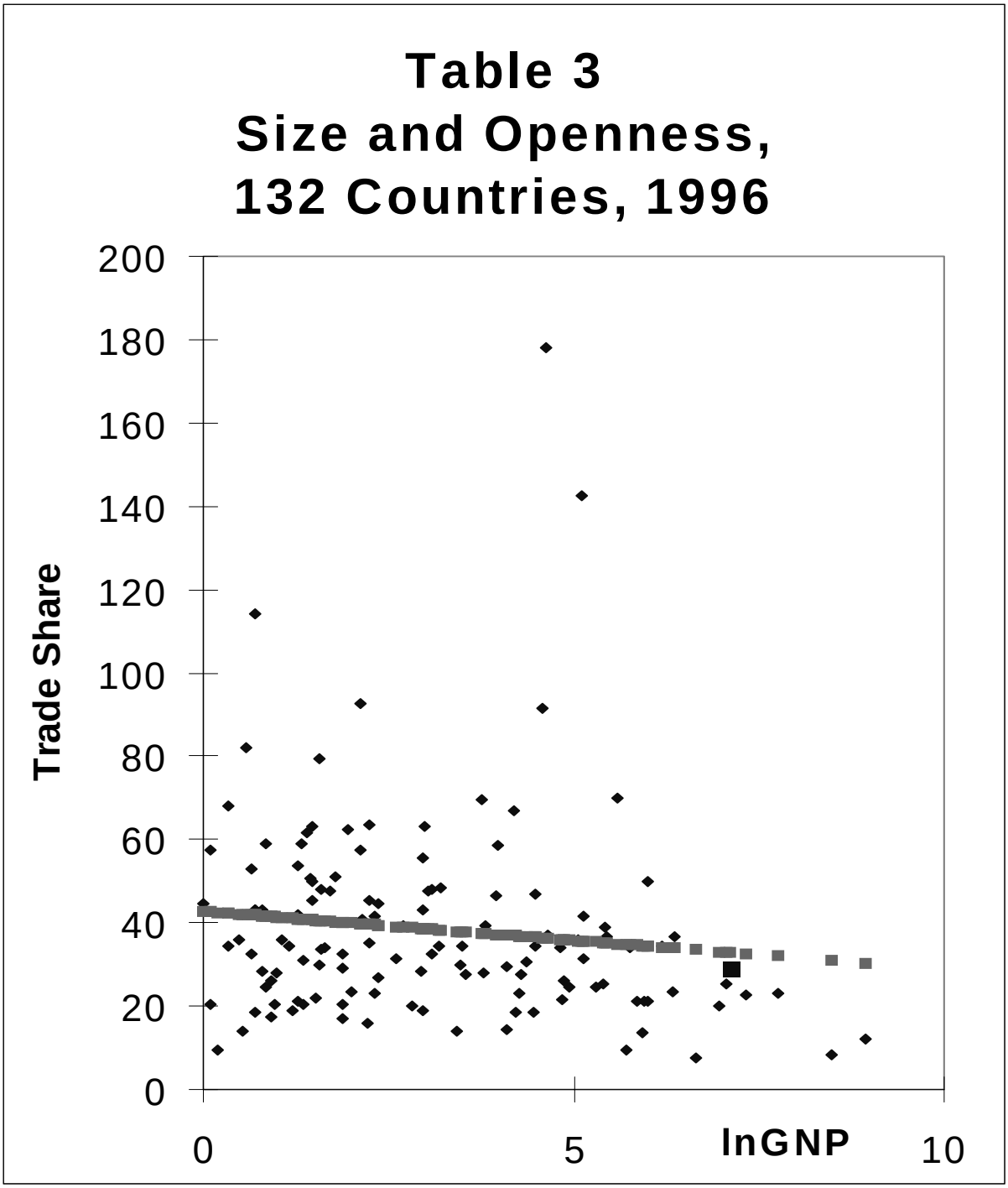

Table 4
Size and Openness, 32 Old Industrial Countries, 1996

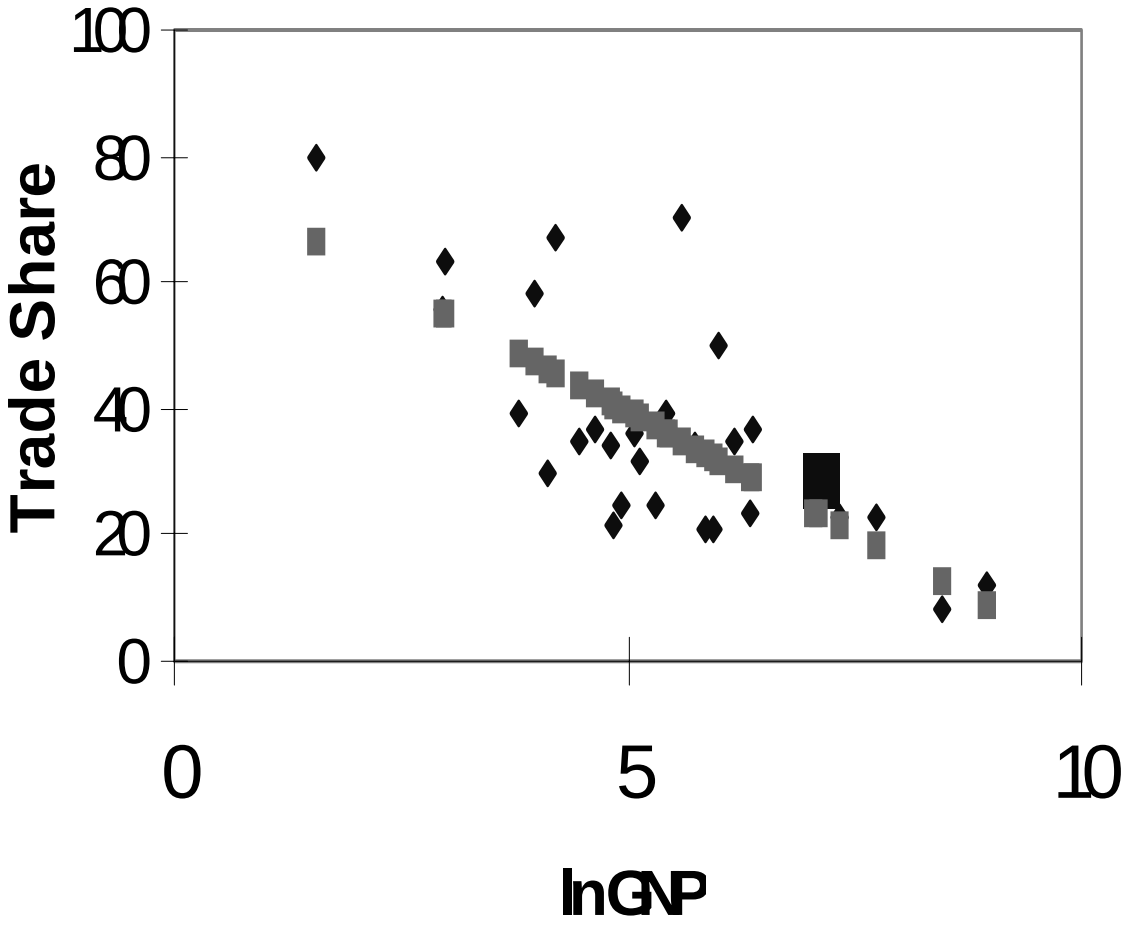

Table 5 **Unemployment Dispersion in the UK**	
	LFS Unemployment Rate (%, April 1999)
UK	6.2
Great Britain	6.2
England	6
North East	10.1
North West	6.9
Yorkshire & the Humber	7.1
East Midlands	5.2
West Midlands	7
East of England	4.3
London	7.8
South East	3.7
South West	5
Wales	7
Scotland	7.2
Northern Ireland	7.3
Source: ONS	

Table 6

Cyclical Divergence in the Euro Area

	Unemployment Rate (%, April 1999)	**Inflation Rate** (Harmonised Consumer Prices Index, % change on a year earlier, April 1999)	**Output Gap** (%, 1998)	**Estimates of the NAIRU for 1997**	
				OECD * (%)	IMF ** (%)
EU11	10.3	1.1	-1		
Germany	10.6	0.8	-1.3	9.6	8.9
France	11.3	0.6	-0.8	10.2	9.7
Italy	12	1.3	-3.3	10.6	9.7
Netherlands	3.3	1.9	2.1	5.5	6.3
Spain	17.3	2.3	-0.3	19.4	18
Finland	10.6	1.3	1.1	11.3	10
Belgium	9	1.1	-1	11.6	7.7
Portugal	4.3	2.7	-0.1	...	5.8
Ireland	6.8	2	3.2	11	11
Austria	4.5	0.1	-0.1	5.4	6
UK	6.2	1.5	1.4	7.2	7

Source: unemployment rate and inflation rate, Eurostat
output gap: OECD Economic Outlook, June 1999.
* OECD Economic Outlook, Paris, December 1998.
** IMF World Economic Outlook, May 1999

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