

The Eastern Enlargement of the EU and the Case for Unilateral Euroization

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1. Introduction. As they approach accession to the European Union (EU), and later to the Economic and Monetary Union (EMU)¹, eastern applicant countries are likely to be faced with the simultaneous appearance of the following conditions:

1. rapid expected growth (far faster than in the EU itself);
2. real appreciation resulting from the well known Harrod-Balassa-Samuelson effect;
3. free capital movements;
4. the need to satisfy the Maastricht criteria and join EMU within a few years of EU accession.

These factors are likely to lead to high current account deficits, which it will be difficult for the authorities to limit to prudent levels. The best solution, for those countries with sufficient international reserves, is rapid unilateral adoption of the euro as their domestic currency, even before they join the EU.

At the core of our analysis lies an attempt to combine what we know about the macroeconomics of rapidly growing poorer countries with the standard prescriptions of the Mundell-Flemming model under the free capital movements required in the pre-EU and pre-EMU accession periods. We describe these underlying pressures in Section 2, discuss standard macroeconomic policy responses and their drawbacks in Sections 3 and 4. In Section 5 we examine the implications for the fulfilment of the Maastricht criteria for EMU entry. In Section 6 we describe how unilateral adoption of the euro would work and the benefits we believe it would bring.

2. Stylized facts on economic trends in the applicant countries. There are three principal effects which are likely to cause a “demand” for current account deficits by the applicant countries:

1. Expected growth: if people expect to be richer in future than they are at present they behave rationally if they smooth their consumption path by borrowing today and repaying their debt later. At the level of a whole country this leads to foreign borrowing (capital inflow) and a current account deficit. If a number of countries expect their economies to grow, the faster growing ones should borrow from the slower. Applicant countries are expected to be fast growing for a number of reasons:
 - i. they have stopped pursuing the very bad economic policies which they had in the past under central planning;
 - ii. they will obtain considerable gains from learning by doing within the institutional framework of the market economy which was initially non-existent (e.g. bankruptcy courts, customs services, financial institutions);
 - iii. the new liberal economic structure allows them to benefit from the stock of innovations which were developed in the West during the 40 years that the command economy held sway in the East, and which they missed out on because of the rigidity and closed nature of the command system;
 - iv. new structural reforms are still coming on stream (e.g. pensions’ reform, privatisation of utilities);
 - v. the expected benefits of EU and EMU membership.

¹ We follow the common usage in referring to the „third stage” of EMU as simply EMU.

2. The well known Harrod-Balassa-Samuelson effect (H-B-S below) means that richer countries have higher price levels than poorer ones. Its corollary is that faster growing economies will experience real appreciation of their currencies - without loss of competitiveness - relative to countries with slower growth (either as a result of higher inflation, or of nominal appreciation). The importance of this phenomenon in transition economies has been pointed out in the seminal paper by Halpern and Wyplosz (1995)². Real appreciation means that national income measured in foreign currency rises faster than when it is measured in domestic currency. As a result the command of domestic residents over foreign resources increases faster than indicated by the growth of real GDP at domestic prices (in which the inflation in the non-tradeables sector is discounted). This higher than conventionally measured real growth justifies more smoothing of consumption, and a higher current account deficit than otherwise.

3. If a large part of the government's debt is denominated in foreign currency (as is the case in many transition countries) then real appreciation leads to a decline in the ratio of public debt to GDP, and therefore of the ratio of public debt to the potential tax base. Even if Ricardian equivalence is only partial, residents can be supposed to expect a lower share of taxes in national income will be needed to service the existing public debt. This raises future disposable income and the desire to smooth consumption (and raise the current account deficit) along with it.

To illustrate the above points we start with an equation for the current account from Obstfeld and Rogoff (1996):

$$CA_t = B_t - B_{t-1} = Y_t - C_t - G_t - I_t \quad (1)$$

Where B is the net foreign assets owned by the residents of the country (including their government), Y is national income, C is consumption, G government expenditure and I investment. It is assumed, for the moment, that G is fully financed by taxation. In the long run the current account should be in balance, the economy should have zero net foreign assets and therefore the net present value of consumption should equal the net present value of net income $Z = Y - G - I$. The representative consumer, faced with uncertainty, maximizes the expected value of an inter-temporal utility function of the form:

$$U_t = E_t \left\{ \sum_{s=t}^{\infty} \beta^{s-t} u(C_s) \right\} \quad (2)$$

where t is the present and s is the date of every future period, subject to the constraint³:

$$NPV(CA) = NPV(B) = NPV(Y - C - G - I) = 0 \quad (3)$$

which implies:

$$NPV(C) = NPV(Y - G - I) \quad (4)$$

² For a formal treatment of how differential productivity growth in the tradeable and non-tradeable sectors of two countries affects the real exchange rate between their currencies, see Obstfeld and Rogoff (1996, pp. 204-12).

³ Where $NPV(CA) = NPV(CA_t + CA_{t+1} + CA_{t+2} + \dots + CA_{t+\infty})$. The same holds for $NPV(B)$ and $NPV(Y - C - G - I)$, etc..

The operator $E_t \{.\}$ is "a mathematical conditional expectation - a probability-weighted average of possible outcomes, in which probabilities are conditioned on all information available to the decision maker up to and including date t " (Obstfeld and Rogoff, 1996 p. 79). C_t^* is what we call the level of consumption generated by the above procedure at time t . The current account is then given by:

$$CA_t = Z_t - C_t^* \quad (5)$$

So that the current account shows a surplus if $Z_t > C_t^*$ and a deficit if $Z_t < C_t^*$. Point (1) above (rapid expected growth of the applicant countries) implies that with consumption smoothing it will be usually the case that $Z_t < C_t^*$, and $CA_t < 0$. Second, the H-B-S effect means that growth of national income in real foreign currency terms will be faster than in real domestic currency terms, justifying a higher time path of C_t^* and larger current account deficits than would otherwise be the case.⁴ Third, real appreciation reduces the absolute value of B_t / Y_t and since $B_t < 0$ is normal in fast growing economies, this leaves scope for an increase in negative net foreign assets (net foreign liabilities or debt), which by eq.(1) leads to a larger CA deficit. Perhaps most useful of all, eq.(3) shows us that if the residents of an applicant country revise their expectations of the NPV (Y) upwards, as it has been argued happens at various times during the transition process⁵, then they should also increase C_t^* for all t . If current Z_t does not increase by as much as C_t^* , and there is no reason why it should, then the current account deficit will also increase.

At the same time there are a number of "supply" factors, inducing capital inflows, which are likely to be present in the applicant countries:

1. Increased productivity in the tradeable goods sector and increased relative prices in non-tradeables lead to an increased return on capital in both sectors in the fast growing country.
2. The "Visegrad Three" all have full liberalisation of inward FDI flows (including repatriation of profits and principal), and upon EU entry truly fully free capital accounts will be mandatory.
3. Increased maturity of the institutional infrastructure will strengthen creditors' property rights and exit possibilities for shareholders.

Thus, from the perspective of foreign investors, high expected growth rates and real appreciation in applicant countries mean increasing asset values. This may induce further inflow of capital, causing further real appreciation together with a desire for higher current account deficits and higher private sector foreign debt on the part of applicant country residents. High current account deficits, even when largely financed by foreign direct investment, expose a country to the danger of a sudden "stop" in capital inflows (Calvo 1998), which may result in a currency crisis.⁶

⁴ The model does not take into account the direct relative price effects, by which foreign goods become cheaper to domestic residents as a result of real appreciation.

⁵ This point has been made forcefully to me by Stanislaw Gomulka in personal communications.

⁶ There is also the risk that real appreciation means further capital gains for foreign investors, so that a "capital inflow - real appreciation" bubble develops, with the real exchange rate and the current account deficit rising ever more above its medium term equilibrium level until,

This matters for two reasons. First, within the ERM II mechanism applicants will have to keep their exchange rate within a 30% band around its central rate to the euro in the two years before EMU accession. Second, and more important, many applicant countries have a high level of ‘liability euroization’, with high public and private foreign debt (for the reasons described above) which is denominated in foreign currencies, and also often a high share of foreign currency denominated bank deposits and domestic bank credit. As a result, a sharp depreciation causes a large increase in both the the gross and the net indebtedness of the economy, which may more than offset the positive effect of depreciation on the demand for exports, and even result in a severe depression as has happened recently in Indonesia. Greenwald and Stiglitz (1990) have shown that an increase in the debt/equity ratio can cause firms to reduce output. Common sense suggests that, in the presence of bankruptcy, an increase in gross leverage at the national level has an asymmetric effect on activity, with lenders increasing their demand less than borrowers reduce theirs, even if net foreign borrowing remains unchanged relative to GDP (which would not be the case). Calvo and Reinhart (1999) have discussed the implications of ‘liability dollarization’ for Latin America, and Hausmann et al. (this volume) suggest that fear of such an outcome is important in limiting the willingness of governments to allow free floating in highly ‘euroized’ or ‘dollarized’ economies. Thus, setting a ceiling on the current account deficit at some prudent level may be a justified aim of public policy for the applicant countries. The dilemmas of conducting macroeconomic policy with such an aim, under the conditions which are likely to hold in the run-up to EU and EMU membership, is the subject of the next section.

3. The effect of fiscal policy on the current account in the medium and long-run.

What policies will allow applicant countries to keep their current account deficits at “prudent levels”? We first look at an adaptation of the consumption-smoothing model discussed in the previous section to help us analyse the policy implications in the medium and long term.

We adapt the model by adding tax revenue as a determinant of the current account, and by specifying the medium-term determinants of the RHS of the CA equation. Including tax revenue is justified by the weakness of the empirical evidence for Ricardian equivalence (e.g. Wilcox, 1989). G and I can be spent on imports just like C and therefore subtract from any positive CA_t , while taxes subtract from disposable income which could be spent on imports. Since $Y - C = S$ (savings) we rewrite eq.1 as follows (including the behavioural determinants of the variables on the right hand side):

$$CA_t = B_t - B_{t-1} = S_t(Y, \varepsilon) - (G_t - T_t) - I_t(r^*, \eta) \quad (6)$$

We make the Keynesian assumption that savings depend on national income and the neo-classical assumption that investment depends on the world interest rate r^* , and add the shift variables ε and η which represent the effects of (upward) changes in expectations regarding growth. Increases in the variable ε causes S to decline, while increases in η cause I to increase⁷. Changes in both variables are assumed to be random, but are restricted to being non-negative (i.e. if $\varepsilon_t < \varepsilon_{t-1}$ when random values of ε are drawn then we set $\varepsilon_t = \varepsilon_{t-1}$, and we

finally, the bubble bursts.

⁷ I am grateful to Stanislaw Gomulka for suggesting this approach to me.

do the same for η). Finally, consumers are assumed not to be able to anticipate future values of ϵ , or to calculate their expected value $E(\epsilon_t) > 0$ (the same goes for η). We seek justification for these highly irrational expectations in the completely unprecedented nature of the transition from communism to capitalism⁸. Thus over time, but in a highly unpredictable way, the gap between I and S increases, increasing the current account deficit. The only way the authorities can offset this trend is to reduce the budget deficit $G - T$, possibly to the extent of turning it into a large surplus.

As in the earlier version of the consumption-smoothing model, an unanticipated reduction in the absolute value of B_t / Y_t (due to an increase in Y_t or to real appreciation) implies a reduction in net foreign liabilities/ GDP, since normally $B_t < 0$ in fast growing economies, and therefore brings about a desire by consumers to increase the net foreign liabilities/GDP ratio. As before, this implies a reduction in B_t below B_{t-1} , and therefore a current account deficit. However, we encounter an ambiguity regarding the policy implications of the model at this point: while the direct effects of a reduction in the budget deficit should reduce a current account deficit (the traditional two-gap model result), if a significant part of public debt is owed to foreign residents - as is the case in the applicant countries - an unanticipated tightening in fiscal policy reduces government net foreign liabilities and therefore induces the private sector to increase its own net foreign liabilities. The result might be that total net foreign liabilities remain unchanged. In such a case (which we can call the "crowding in of private sector foreign debt") the current account deficit is unaffected by reductions in the fiscal deficit in the medium term.

This is the equivalent of so-called "Ricardian equivalence", but relates to the impact of fiscal policy on the current account rather than on aggregate demand. Although empirical evidence for standard Ricardian equivalence is weak, I believe the effect may be stronger in relation to the current account, because of constraints originating from the international suppliers of credit. We know that these often look at the total indebtedness of a country's residents, both public and private, when assessing an individual resident's credit risk⁹.

4. The implications of the Mundell-Flemming model for the short term and an extension.

Similar doubts as to the efficacy of fiscal (and also monetary) policy for current account deficit reduction resurface in the context of the Mundell-Flemming model and its application to policy making in the short-term.

We look at the Mundell-Flemming model with perfect capital mobility, risk neutral investors and fully flexible exchange rates. We assume that in the short term the exchange rate is not expected to change, i.e.

⁸ A more acceptable way of putting this might be that $E(\epsilon_t) = 0$, and the effects we are discussing will occur if the actual values of ϵ_t exceed this over a sustained period (the same goes for η).

⁹ Of course, the extent to which this actually happens depends on the proportion of the reduction in the fiscal deficit which goes to reducing foreign public debt below its previously expected level. The lower this proportion, the stronger the standard effect of public sector deficit reduction on the current account deficit will be.

$$\rho_t + u_t = \rho_t^e = \rho_{t-1} \quad (7)$$

Where the last period's expectations of the current period's exchange rate (ρ_t^e), which are simply the last period's actual exchange rate (ρ_{t-1}) efficiently predict the current period's actual exchange rate (ρ_t , where u_t is a normally distributed error term). In such a case, if there were a difference between the rate of return on domestic and foreign assets, investors would put all of their money into the asset with the higher return. Since both kinds of assets are held it follows that their returns must be equal. Since exchange rate expectations are static, it follows that rates of return (i.e. interest rates) must be the same in the two countries:

$$i = i^* \quad (8)$$

where i is the domestic rate of interest, and i^* is the world rate (given exogenously). This means that the LM curve (representing equilibria in the "money" market) becomes:

$$M/P = L(i^*, Y) \quad L_1 < 0, L_2 > 0 \quad (9)$$

while the "goods market equilibrium" IS curve becomes:

$$Y = C(Y - T) + I(i^* - \pi^e) + NX(Y, \rho P^*/P) + G$$

$$C_1 > 0, I_1 < 0, NX_1 < 0, NX_2 > 0 \quad (10)$$

where π^e is expected domestic inflation, P^* is the foreign price level, P is the domestic price level and NX is net exports (remaining variables are as conventionally or previously defined)¹⁰.

The result in ρ, Y space is a vertical LM curve and an upward sloping IS curve:

¹⁰ A more general formulation is:

$$Y = E(i^* - \pi^e, G - T, \rho P^*/P, Y) \quad E_1 < 0, E_2 > 0, E_3 > 0, 0 < E_4 < 1$$

Figure 1

Any tightening of monetary policy by the authorities is immediately offset “one for one” by capital inflows, because i cannot rise above i^* . This capital inflow must be offset by a deterioration of the current account, so that the policy is in fact counterproductive as far as reducing the current account deficit is concerned¹¹. Intuitively we can understand this if we remember that, given that the domestic interest rate is fixed at the level of the world rate, a reduction in M can only affect the exchange rate, which appreciates, reducing net exports¹². If capital movements were not perfectly free in the very short term, so that the authorities could succeed in reducing M (in spite of their difficulty in raising i) this would have two offsetting effects. On the one hand it would reduce Y , increasing net exports (NX) and improving the current account balance. On the other hand, it would lead to a nominal appreciation of the domestic currency - a reduction in ρ - and if P (the domestic price level) is sticky downwards we would also have real appreciation, so that net exports would decline and the current account balance would deteriorate (see Figure 1, where ρ is defined as units of domestic currency/unit of foreign currency, so that a decline indicates an appreciation). Which of the two effects will be stronger depends on the various elasticities, but in neither case is the policy likely to be very powerful.

Returning to the case of perfect capital mobility in the short term, expanding rather than contracting M will lead to capital outflow (to obtain the infinitesimally higher interest rate abroad) and therefore to nominal depreciation. In the short run there will also be real depreciation if prices are sticky upwards, so that the current account deficit would be

¹¹ If the international reserves of the central bank increase, then the exchange rate is not, in fact, fully floating.

¹² This reduces Y . Hence in a small open economy with a floating exchange rate, contractionary monetary policy affects Y *via* ρ rather than *via* i .

successfully reduced¹³. However, in the medium term increased M would lead to higher prices (not allowed for in the fixed price level Mundell-Flemming model), which would likely mean breaching the Maastricht criterion on inflation, and also to an erosion of the real depreciation and a reversal of the improvement in the current account. Thus, in the medium term, sustaining a “prudent” level of the current account through expansionary monetary policy would require accelerating inflation which would clearly be inconsistent with the Maastricht inflation criterion.

If the exchange rate is credibly fixed, then the domestic authorities have no influence over M . They have to respond to sales (purchases) of foreign (domestic) currency with a supply of central bank domestic (international) reserves, so that M becomes entirely endogenous and cannot affect the current account in any way. Monetary policy is thus unlikely to be effective in reducing a current account deficit whichever of the two exchange rate regimes, floating or fixed, is in force. This result is confirmed by empirical studies, which find that in the Mundell-Flemming model and its Dornbusch (1976) extension, changes in monetary policy are unable to predict either nominal or real exchange rate changes (Obstfeld and Rogoff, 1996 pp.622-6).

On the other hand, with fully free capital movements, the Mundell-Flemming model suggests that fiscal policy becomes highly effective in determining the current account balance, both under free and fixed exchange rate regimes. If the exchange rate floats and the fiscal deficit is reduced so that $G - T$ in eq. (10) falls, then the IS curve in Fig.2 shifts up, leading to depreciation of the exchange rate without any effect on output: aggregate demand falls as a result of the direct effect of the fall in $G - T$ (together with any multiplier effects it may have) while the depreciation of the currency increases net exports (NX) by an exactly offsetting amount. National Income remains constant because it is determined by real money balances (M/P) in the money market equation (9), but the accompanying nominal depreciation leads to an improvement in the current account. The depreciation may have some inflationary effects over time, which may partially offset the current account improvement, however, with no increase in domestic M , such effects need not be very powerful:

¹³ Alternatively we can think of the expansionary monetary policy as causing a one to one offsetting capital outflow which by definition improves the current account. For the extent to which the final outcome necessarily involves or not a depreciation of the domestic currency see Kouri (1978).

Figure 2

With a fixed exchange rate the model consists in eq.(10) and:

$$(11) \quad \rho = \text{cons.}$$

In Y, ρ space this gives the following equilibria:

Figure 3

A reduction in the budget deficit causes a fall in Y and thus an increase in (NX) helping to achieve the aim of a “prudent” level for the current account deficit. As previously stated, under a fixed exchange rate, a reduction (increase) in the domestic credit counterpart of M merely leads to an increase (reduction) in the international reserves of the central bank. Thus, the overall conclusion is that keeping the economy on course for EMU membership - in the face of the medium term effects (described in Section 2) which are pushing the applicant countries towards larger current account deficits - *implies ever tightening fiscal positions for these countries*. Since the Czech Republic and Poland already have fiscal deficits well within the Maastricht fiscal balance criterion, achieving a prudent current account position may require them to run significant budget surpluses in their last pre-EMU entry years.

This conclusion, though, is brought into question by the medium term consumption-smoothing model we looked at in the previous section. There we saw that even the effect of fiscal policy on the current account might be ambiguous. That result inspires one to ask whether there are other indirect effects of a tightening of fiscal policy which might cast doubt on the conclusions we arrived at within the Mundell-Flemming framework, even in the short term. For instance, a tightening of fiscal policy could lead to a positive re-evaluation of the expected future worth of a country’s productive assets, leading to an increase in investment demand, and therefore to an *increase* in the current account deficit rather than a reduction.¹⁴ This problem can be highlighted by examining a simple extension of the Mundell-Flemming model we have used above. We rewrite eq.(10) as :

$$Y = C(Y - T, \theta) + I(i^* - \pi^e, \eta) + NX(Y, \rho P^*/P) + G$$

$$C_1 > 0, C_2 > 0, I_1 < 0, I_2 > 0, NX_1 < 0, NX_2 > 0 \quad (12)$$

Where θ and η are shift variables which represent the effects of upward changes in expectations regarding growth. As in eq.(6) they are assumed to always be non-negative and completely unanticipated by consumers and investors. Under a floating exchange rate, positive θ and/or η will result in a downward shift in the IS curve in Figure 2 (from IS_1 to IS_0), and thus in nominal appreciation, a fall in net exports and an increase in the current account deficit. If the exchange rate is fixed, the IS curve shifts out as in Figure 3 (from IS_1 to IS_0), directly increasing the current account deficit. In either case, policy makers will need to offset these effects by increasing T and/or reducing G . The problem is that it may also be true that :

$$\eta = \eta(G - T) \quad \eta_1 < 0 \quad (13)$$

So that when growth expectations are revised, the size of the revision is positively related to the fiscal position. In that case, an improved fiscal position *increases* investment demand and may increase the current account deficit overall.¹⁵

¹⁴ That this might not be mere theorizing is indicated by the view of some Hungarian economists that their currency’s avoidance of rapid real appreciation over recent years has been due to the government’s large fiscal deficit, something which cannot be explained in the Mundell-Flemming framework.

¹⁵ An alternative mechanism which could generate the same result would be if a tightening of the fiscal position resulted in a positive re-evaluation of the expected future worth of a country’s currency, leading to increased demand for money and an inward shift in the LM

Indeed, evidence from OECD countries shows that, while sharp reversals of fiscal policy may affect the current account deficit in the expected direction, the link between levels of fiscal and current account deficits is usually insignificant (Obstfeld and Rogoff, 1996 pp.144-5).

5. Implications for conformity with the Maastricht criteria.

Because of their expected rapid growth rate, the H-B-S effect may be very strong in the applicant transition countries. Thus, in the 1990s real appreciation has occurred at a rate of 2% per annum in Portugal and only 0.4% per annum in Spain¹⁶, while in Poland it averaged 7.5% during 1993-97. This difference is related to the difference in growth rates, with the Portuguese and Spanish economies growing at under 2% per annum, while Poland grew at about 6%. As growth rates accelerate in the other applicant countries, we can expect rates of real appreciation to reach high levels as well. The implications for the achievement of the Maastricht criteria for stage three of EMU by the applicant countries are profound.

To be clear about the H-B-S effect, let us assume that economies produce two kinds of goods: tradeables (e.g. manufactures), where productivity differs between countries, grows relatively fast and can grow at different rates in different countries; and non-tradeables (e.g. services and construction) where productivity is uniform throughout the world and grows slowly. We also assume that all goods are sold on perfectly competitive markets, that labour is homogeneous and labour markets are perfectly competitive. In such a world, differences in income between any two countries are due to the productivity of their tradeable goods sectors. Furthermore, in the faster growing economy productivity in the traded goods sector rises faster than in the slower growing one, with the result that real wages rise faster. However, because of the homogeneity of labour and the competitiveness of labour markets, real wages must increase by the same amount in both sectors in the faster growing economy. Since productivity in non-tradeables grows slowly, this means that prices have to increase in this sector. As a result, if the share of the two sectors is similar in the two countries, average prices will rise faster in the faster growing country even if the nominal exchange rate is constant, implying real appreciation. Since unit labour costs denominated in foreign currency remain unchanged in the tradeables sector (the same number of domestic workers can produce more tradeable goods and get paid proportionally more), the nominal exchange rate need not be affected in any way.

This is why it may be unwise for the applicant countries to achieve the Maastricht inflation criterion, which at present requires that inflation not exceed the average of the three best performers within EMU +1.5%. If the H-B-S effect required a real appreciation of 7.5% per annum relative to the euro zone (as Polish experience suggests it might), then this criterion would imply an equal nominal appreciation of almost the same amount. Thus, satisfying the Maastricht inflation criterion may entail two kinds of risks:

1. The current Maastricht inflation criterion is unsuitable for countries with a strong H-B-S effect, since it seeks to limit what is better thought of, in their case, as a *relative price change* (between traded and non-traded goods) rather than as an increase in the

curve in Figures 1 and 2. The effect on the exchange rate and the current account would depend on whether this inward shift in the LM curve outweighed the simultaneous inward shift in the IS curve due to the direct effect of the fiscal deficit reduction.

¹⁶ 1990-1997 for both countries.

overall price level. In fact, for average prices across both sectors to be constant in a rapidly growing economy, its currency needs to appreciate nominally to such an extent that the ensuing fall in the domestic price of tradeables compensates for inflation in non-tradeables, so that:

$$- \alpha P_T (\partial \rho / \partial t) / \rho = (1 - \alpha) \pi_{NT} \quad (14)$$

is required for $\pi = 0$ (where α is the share of tradeables in national income, P_T is the price of tradeables, ρ is the exchange rate defined as units of domestic currency per unit of foreign currency, π_{NT} is the rate of inflation on non-traded goods and π is the average inflation rate). If we assume some downward price rigidity for domestically produced tradeable goods, such a nominal appreciation implies a deterioration in the trade and current accounts of the rapidly growing country, so that the Maastricht inflation criterion would export instability and recession to the applicant countries.¹⁷

2. If nominal appreciation is sufficient for eq.(14) to hold, then the interest parity condition:

$$- [(\partial \rho / \partial t) / \rho]^e + i = i^* \quad (15)$$

may imply negative short-term nominal interest rates in the applicant country¹⁸. For example, if we take the rate of nominal appreciation implicit in (1) meeting the Maastricht inflation criterion (of inflation not exceeding the average of the three best performing members of the eurozone + 1.5%) and (2) having the same real appreciation *vis-a-vis* the eurozone as Poland did during 1993-7,¹⁹ then with $i^* = 4\%$, i needs to be minus 3%! In the spirit of Dornbusch [1976], we suggest that this anomaly may be avoided through an initial upward jump in the value of the domestic currency, so that subsequent expected appreciation is low enough for $i > 0$. However, subsequent expectations of a delay in EU entry may then cause a currency crisis.

Moreover, there are a number of difficulties in devising a suitable exchange rate regime for the CEE applicants for the period immediately prior to EMU entry. There are two main possible exchange rate arrangements in the pre-EMU period (Kopits 1999):

¹⁷ Since the growth in the productivity of labour in the tradeables sector does not require real appreciation, this is likely to be a move *away* from the equilibrium exchange rate. Much depends on the nature of what is produced by the non-traded goods sector. If it is exclusively non-storable services, then the result we described above indeed follows. If non-tradeables include assets (e.g. land or buildings, the returns to which are expected to increase with increased productivity in the tradeables sector and real appreciation in the non-tradeables sector), then the anticipation of these processes can be expected to induce a capital inflow, which will cause an appreciation of both the equilibrium and the actual nominal exchange rate. The latter effect will help to stifle average inflation without a move away from the equilibrium exchange rate.

¹⁸ Because ρ is defined as units of domestic currency/unit of foreign currency, appreciation involves a reduction in it (i.e. a negative growth rate of ρ), which therefore has to be subtracted from the domestic interest rate (giving a positive effect to the LHS of eq. (15)) to arrive at the foreign interest rate.

¹⁹ Together these two conditions imply a nominal appreciation of 7% per annum, if average eurozone inflation exceeds that of the best three performers by 1%.

1. Pegged rate. Such a system is very likely to be incompatible with the Maastricht inflation criterion, because of the operation of the H-B-S effect. Expected rapid growth will lead to high levels of capital inflows which may result in the need to choose between (a) dangerously high CA deficits as a result of periodic revaluations, or (b) inflation well above that due solely to the H-B-S effect²⁰.

2. Wide fluctuation bands (+/- 15%) around the central rate as in the current ERM2. This holds at present in the Czech Republic and Poland, and is likely to lead to nominal appreciation and high CA deficits, but may give the possibility of fulfilling the inflation criterion. One danger is an “appreciation bubble”, which leads to an exchange rate which is unsustainable. This could lead to a collapse of the exchange rate before accession to EMU, which would be against the Maastricht requirements, or to an overvalued exchange rate at the time of joining, which could mean a lengthy period of low growth within EMU.

We can summarise the discussion so far as follows:

- The H-B-S effect means that there will be powerful pressures for real appreciation in the applicant countries in the medium term.
- Rapid expected growth, the H-B-S effect (*via* its effect on the ratio of foreign debt/GDP) and various factors increasing the supply of foreign capital, mean that applicant countries are likely to run large and growing current account deficits.
- Monetary policy will be either counter-productive, likely to risk the return of high inflation, or ineffective.
- Only fiscal policy may have the potential to limit current account deficits to what the authorities may consider prudent levels (and this is so under both fixed and flexible exchange rate regimes). As a result of their need to tighten fiscal policy each year while they are EMU pre-ins, countries with relatively low fiscal deficits at present such as the Czech Republic or Poland, may need to run substantial surpluses (possibly of the order of several percentage points of GDP) by the time they join EMU. We should consider the extent to which this is likely to be politically feasible.
- Even tight fiscal policy may, however, prove ineffective in limiting current account deficits, as a result of its effect on the private sector’s willingness to increase its foreign indebtedness and foreigners’ willingness to lend. In that case, there is a serious danger that a large current account deficit will lead to a currency crisis and blow applicant countries off their course to EMU membership.
- Due to the H-B-S effect, only nominal appreciation is likely to make the attainment of the Maastricht inflation criterion possible. However, this might be at a high cost in terms of foregone output and increased risk of currency crisis. Therefore the Maastricht inflation criterion for EMU membership should not be applied to the CEE applicant countries, although the exchange rate criterion should be maintained.
- Neither a pegged nor a wide band exchange rate policy allows an applicant country to avoid these fundamental problems.

²⁰ Due to the effect of capital inflow on the domestic money base. The ensuing inflation will ultimately lead to a high CA deficit as well.

6. Benefits and costs of unilateral euroization.

A number of CEE applicants have sufficient international reserves not only to exchange all existing domestic currency denominated central bank monetary liabilities for euros (coins, notes and commercial bank reserves at the central bank), but also to create an emergency fund to provide lender of last resort liquidity to the banking system (since the central bank would no longer be able to create high powered money – in euros – for this purpose)²¹. In what follows I shall use the example of Poland, which I know best.

One way to implement unilateral euroisation is simply to pass, as soon as is technically feasible, the very law establishing the euro as legal tender, which would have to be passed in the CEE concerned upon its entry into EMU by the traditional route. Only those parts of the law that relate to the role of the national central bank (NCB) would have to be different. Instead of providing for the NCB's membership of the European System of Central Banks (ESCB), they would provide for the NCB to run the lender of last resort facility for the banking system, using owned (or borrowed) international reserves. In the case of Poland, whose international reserves are very high (about \$26 billion)²², about half of this sum would be used to exchange all the NCB's zloty denominated monetary liabilities into euros. The remaining \$13 billion would be paid into a "banking sector liquidity fund" (BSLF) to be used in cases of runs on solvent but illiquid banks (see G.Caprio et al. 1996). This amount is equivalent to some 90 percent of sight deposits and 25 percent of all deposits in the Polish banking system, and should therefore be quite sufficient. If there was reason to suppose that \$13 billion might prove inadequate for this purpose, then the Polish government could arrange a euro denominated credit line to supplement the BSLF, as the Argentine government has done²³. It is worth remembering that a number of eurozone central banks do not have true lender of last resort facilities. This includes the Bundesbank, which can only lend to banks for liquidity purposes against the security of government paper, and indeed also the ECB itself, which is similarly restricted.

The main advantages of rapid unilateral euroization are as follows:

1. Capital inflows would accelerate rapidly, boosting investment and economic growth.
2. A rapid reduction in interest rates due to the elimination of currency risk to levels which exceed those in the eurozone only by the amount of pure country risk. Since dollar-denominated Polish government paper currently trades at about 120 basis points above US Treasury paper of the same maturity, rates on previously zloty-denominated Polish government paper could be expected to fall to about 7.5% compared to 15% at present, while rates on bank loans could be 9-12% compared to some 20% at present.
3. Lower interest rates on previously zloty-denominated government and central bank paper should save the public sector the equivalent of about 1.5% of GDP per annum.

²¹ Estonia, the Czech Republic, Slovenia and Poland certainly qualify, with Slovakia and Hungary as possibles.

²² As a result of the sterilization policy pursued over the last 5 years in a vain attempt to avoid real appreciation of the domestic currency.

²³ This possibility means that even countries which have international reserves which are only adequate to cover the euroization of coins and notes and other monetary liabilities of the NCB to the banking sector, can still establish a BSLF by setting up credit lines with eurozone commercial banks if their governments have a sufficiently good credit rating.

This significantly outweighs the loss of central bank seignorage revenue, which would amount to less than 0.4% of GDP²⁴. This would enable Poland to satisfy the Maastricht fiscal deficit criterion²⁵.

4. Maybe most important, all these benefits could be reaped within two years (rather than the five I would expect Poland to need to enter EMU by the traditional route), and moreover, without the need to meet the Maastricht inflation criterion, with its ensuing nominal appreciation and the (possibly devastating) effects on the competitiveness of the traded goods sector.

What of the disadvantages of unilateral euroization? Those most frequently mentioned have been:

1. Loss of seignorage. As regards current seignorage, we have already discussed and dismissed this. However, it has been suggested that a country which euroizes unilaterally will forego the benefit of receiving euros from the ECB when it joins the EMU by the orthodox route. This is a misunderstanding of how EMU accession works, and is dealt with in the Appendix.
2. The contractionary shock, which may result from unilateral euroization [Lutkowski 1999]. The benefits described above suggest that the effect is more likely to be expansionary than contractionary: falling interest rates will increase demand rather than reduce it, capital inflows will improve the supply side and the avoidance of nominal appreciation should help the traded goods sector when compared to the traditional approach.
3. Inertial inflation in the traded goods sector inherited from the zloty regime could continue after euroization, causing the traded goods sector to become uncompetitive [Buiter 1995], which might require a long recession to cure. A variant is the claim that CEE applicants need to make their economies more flexible before they can expose them to the discipline of the euro [Orlowski and Rybinski 1999]. My first response is that this problem can only be worse when a country follows the traditional approach to EMU, with its need for nominal *appreciation* to offset the H-B-S effect on the prices of non-traded goods. Second, under unilateral euroization any inertial inflation in the traded goods sector anticipated by the authorities can be allowed for by an up front devaluation of the domestic currency at the moment of conversion. This is something which may not be allowed when countries follow the traditional route, as the exchange rate at which a country joins EMU has to be

²⁴ The National Bank of Poland earns seignorage by emitting non-interest bearing currency and investing the international reserves it obtains in this way in interest bearing foreign assets (US and German government bills and bonds, current accounts with OECD commercial banks, etc.). These reserves amount to some \$26 billion. About \$10 billion of this, or two fifths, would need to be converted into euro notes and coins for circulation within the country. The remainder, which would back the NBP's non-cash liabilities to the banking sector (obligatory and voluntary reserves and repos) as well as the institution's net worth (which would fund the „banking sector liquidity fund” already described), could largely remain invested as at present. The *gross* loss of seignorage would thus amount to about \$600 million per annum (at an interest rate of 6%) or merely some 0.38% of GDP!

²⁵ For the last four years the consolidated general government deficit, measured according to EU statistical conventions, has remained stubbornly at about 3.3% of GDP (0.3% of GDP above the “reference value”).

negotiated with existing members. Finally, rapid productivity growth as compared to the EU should quickly absorb both inertial inflation in traded goods prices and any initial error in setting the “conversion rate” of the applicant’s currency to the euro.

4. “Real convergence” is required before the euro can be adopted safely: applicant countries need to develop industrial structures which are similar to the average of the existing eurozone members [Orlowski and Rybinski 1999, and Rosati 1999]. Otherwise, ECB policy in response to an asymmetric supply or demand shock, which affects existing members differently from applicants, will be unsuitable for the needs of the latter. However, since Poland (the largest applicant economy by far) accounts for about 2% of eurozone GDP, its needs will hardly be taken into account when the ECB sets monetary policy, even when it becomes a fully fledged EMU member. The argument is therefore one against *early* EMU entry in any form, and not against *unilateral* euroization in particular. Second, we should note that the structures of the CEE applicant countries do not, in fact, differ all that much from those of existing EMU members. Thus, the structure of Poland’s economy differs from the EU average more than do those of France or Germany, but less than those of Finland, Greece, Ireland or Sweden, two of which are not only members of the EU but also of EMU (Table 1). As regards the structure of industry, Poland’s differs from the EU average less than do those of Ireland and Portugal, both of which are EMU members (Table 2).

One danger to which I have drawn attention myself in a joint article with a colleague [Bratkowski and Rostowski 1999] is that the large influx of capital which we expect to follow upon euroization may lead to a credit boom, which could result in loose lending practices, the accumulation of bad debt, and ultimately a banking crisis. But CEECs must in any case expect very large capital inflows over the next decade (a large part of which will be mediated by their banking systems), so that they have to ensure a major improvement in the quality of their banking skills and bank supervision in any case. Unilateral euroization will merely increase the magnitude of the phenomenon.

Finally, we need to mention the differences between the unilateral euroization that we propose and the establishment of a currency board based on the euro as suggested by others [Dornbusch and Giavazzi, 1998]. The precise differences will depend on the legal framework of the monetary system in each CEEC. As described above, and as applied to Poland, our proposal consists in unilaterally declaring the euro the only legal tender in the state. This makes the regime one which is likely to be more credible than a simple currency board, because under a currency board the domestic currency continues to exist, and the rules which bind it to the euro can be repealed. With euroization, exit is a harder process: a *new* domestic currency would have to be created and declared legal tender. But speculation against the continuation of the euro regime, i.e. against the, as yet non-existent, new domestic currency would still be possible. It could be undertaken by borrowing in Poland and investing abroad – on the assumption that a “new zloty”, in which existing liabilities would be denominated would be created, and then devalued, by the authorities.²⁶ To describe this “exit path” should be sufficient to show how unlikely it would be, especially during the few years between unilateral euroization and full EMU

²⁶ I am grateful to Boguslaw Grabowski for this point.

membership. Furthermore, such an exit would also be possible after fully fledged accession to EMU.

7. Conclusion.

The traditional route to EMU membership seems to be fraught with difficulties, the most important of which is the absence of macroeconomic policy instruments which would allow CEE applicant countries to achieve the exchange rate and inflation criteria of the Maastricht treaty together with the maintenance of prudent levels of the current account deficit in the context of rapid economic growth and free capital movements. Nor are the difficulties removed if the Maastricht inflation criterion were to be suspended for the CEE applicants as we have suggested. The problem of achieving the exchange rate criterion together with a prudent level of the current account deficit would remain. Unilateral euroization seems the best solution to this conundrum, and none of the objections which have been put forward against it are fully convincing when they are tested against the conditions obtaining in most of the first wave CEE applicant countries.

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APPENDIX

Unilateral euroization entails the exchange of euro notes and coins for existing zloty. Under unilateral euroization the euros for this purpose must be bought using an applicant's own or borrowed international reserves. In the case of Poland own international reserves are fully adequate, being equivalent to about two and a half times zloty notes and coins in circulation. Some critics claim, however, that in joining EMU in the normal way, Poland would get its notes and coins exchanged for euros for **free**. This means that the roughly 10bn euro which would be used for unilateral euroization would be wasted, and could probably never be recovered. In order to answer this point I have analysed what happens when a country joins EMU in the normal orthodox way and becomes a shareholder in the ECB. The analysis is based on the Statute of the ECB and the Annual Reports (including Balance Sheets) of the ECB for 1998 and 1999, which are available on www.ecb.int.

Critics might be right if, by joining the European System of Central Banks (ESCB), the National Bank of Poland received the right to exchange its outstanding zloty notes for euro ones issued by itself, while *at the same time* its right to dispose freely of its assets remained unaffected. It is indeed the case that both the ECB and the National Central Banks (NCBs) can issue euro banknotes (Article 16 of the ECB Statute), so that the euro notes initially exchanged for zloty notes will presumably be those issued by the NCB of the country concerned, and not by the ECB.²⁷

However, what the statute calls the "monetary income" of the NCB (i.e. its income derived from those assets it holds to back notes in circulation and deposit liabilities to credit institutions – Art. 32.2) will *not* remain in the hands of the NCB (to be transferred to its shareholder, the state budget, as profit). Rather: "The sum of the national central banks' monetary income shall be allocated to the national central banks in proportion to their paid up shares in the capital of the ECB..." (Art. 32.5). This is the crucial point, since it means that *the link between the size of the monetary base issued by an NCB (or the assets held against it) and the NCB's profits is broken*. Instead, an NCB's contribution to ECB income will depend on its "own monetary income", while its profits will depend, like its share in ECB capital, equally on its country's share in Eurozone's GDP and population. Thus, Germany's share is

²⁷ As a result there is no need for an NCB to issue a claim on itself to the ECB for the euro notes which the latter would exchange for domestic currency notes.

24.49% of present capital, while Poland's would be about 6.5%²⁸.

If a country euroizes unilaterally, it reduces its monetary liabilities by the amount of outstanding zloty notes and coins (which it buys for euro), and therefore it follows that it reduces its "own monetary income" and the obligatory contribution to ECB revenue which it will have to pay upon EMU entry very substantially. Indeed, only income derived from assets held against the deposit liabilities of credit institutions would remain as the NCB's contribution to the total monetary income of the ESCB.²⁹ However, its share of seignorage upon EMU entry will be unaffected by the fact of its previous unilateral euroization. Upon accession it begins to receive seignorage - in proportion to its share in ECB capital - on all euro notes in circulation, including those which it had bought earlier with part of its international reserves (IR) so as to carry out the unilateral euroization exercise. Thus, the "net own monetary income" of the NCB (i.e. its share in ECB profits less its contribution to ECB revenues)³⁰ is *completely unaffected by previous unilateral euroization*. Unilateral euroization means shortening the balance sheet of the NCB, reducing both assets (IR) and liabilities (zloty notes and coins), but leaves its net worth unchanged. The reduction in assets is compensated immediately by the reduction in zloty liabilities and translates into a reduction in the forced contribution to ECB revenues (own monetary income) upon EMU entry, while leaving the NCB's share in ECB profits unaffected.

Thus, unilateral euroization does not lead to a country missing out on an allocation of "free euros" upon entry into EMU, for the simple reason that no such allocation is ever made. Rather, domestic currency notes are converted into euros, but not for free. The consideration for this exchange is that the income from the assets backing the notes goes to the ECB (so that these assets, although they formally continue to be the property of the NCB, are in fact in escrow for the ECB). The income these assets generate is then divided among the ECB's shareholders according to each NCB's share in ECB capital, and quite independently of the amount of notes involved.

²⁸ Depending on which other countries were also members.

²⁹ In the case of Poland (using the 1999 balance sheet of the NBP) such deposits were the equivalent of about 2.2bn euros, compared to a value for zloty notes and coins of 9.5bn euros.

³⁰ This can, of course, be negative as well as positive.