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Jacek Rostowski

**The Approach to EU and EMU  
Membership: the Implications  
for Macroeconomic Policy  
in Applicant Countries**

*Warsaw, 1999*

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This paper was prepared for the research project No. P 96-6089-R (ACE PHARE Programme 1996) on "The Medium and Long-term Perspectives of Fiscal Adjustment of Selected Central European Countries".

Graphic Design: Agnieszka Natalia Bury

DTP: CeDeWu – Centrum Doradztwa i Wydawnictw "Multi-Press" sp. z o.o.

ISSN 1506-1639, ISBN 83-7178-148-2

Publisher:

CASE – Center for Social and Economic Research  
ul. Sienkiewicza 12, 00-944 Warsaw, Poland  
tel.: (4822) 622 66 27, 828 61 33, fax (4822) 828 60 69  
e-mail: case@case.com.pl  
Open Society Institute – Regional Publishing Center  
1051 Budapest, Oktober 6. u. 12, Hungary  
tel.: 36.1.3273014, fax: 36.1.3273042

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**Jacek Rostowski**

**Professor of Economics at the Central European University in budapest (CEU)**

*The Author is also the Head of the Economics Department at CEU. He was a Member of the Programme for the Post - Communist Reform at the Centre for Economic Performance, London School of Economics, which advised the government of the Russian Federation on Macroeconomic Policy. In 1989–1991 he also was an adviser to the Deputy Prime Minister and Minister of Finance of the Republic of Poland, and member of the Supervisory Board of the Polish Development Bank, Warsaw. Jacek Rostowski is a member of the Council of the CASE Foundation and has been involved in numerous research projects conducted by CASE.*

## **1. Introduction**

Many commentators have noted the fact that the so-called "Eastern enlargement" of the EU is unique, in the sense that never before have countries which are so much poorer than the EU been admitted. Furthermore, they are being admitted to an EU which is far more internally liberalised (the single market) and intergrated (EMU) than previously. Finally, the applicant countries are far more liberalised internally and open internationally than was the case with the previous enlargement to relatively poor countries (the so-called "Southern enlargement" of the 1980s). We believe that this unique combination of circumstances is likely to generate unanticipated problems for the applicant countries in their conduct of macroeconomic policy in the run-up to EU and later EMU accession. The problems we predict stem from the combination at one time of the following factors:

1. Expected rapid growth in the applicant countries (far faster than 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 ten years.

These factors are likely to lead to high current account deficits, which it will be difficult for the authorities to limit to prudent levels. We describe the underlying pressures in Section 2, discuss suitable macroeconomic policy responses in Sections 3 and 4, and conclude in Section 5. 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 and the institutional requirements of the pre-EU and pre-EMU accession periods.

## **2. Medium and Long-run Trends in the Applicant Countries**

There are three principal effects which are likely to exert a "demand" for current account deficits (and for the matching capital account surpluses to finance them):

1. Expected growth: people who expect to be richer in future than they are at present will behave rationally if they smooth their consumption path by borrowing today in order to consume more now, 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 (pervasive government control, extensive subsidies, massive foreign trade distortions, etc.);

(ii) considerable gains from learning by doing within the institutional infrastructure of the market economy which was initially non-existent (e.g. the bankruptcy courts, customs services, financial institutions), which can be expected to continue for some time to come;

(iii) new structural reforms which are coming on stream (e.g. pensions' reform, privatisation of utilities);

(iv) expected benefits of EU and EMU membership.

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 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). The simplest way to understand the H-B-S effect is to assume that economies produce two kinds of goods: tradeables (e.g. manufactures, primary products and agricultural products) where productivity differs between countries and can grow at different rates across countries, and non-tradeables (e.g. services and construction) where productivity is constant and uniform throughout the world [1]. Finally, one assumes that all goods, but in particular tradeables, are sold on perfectly competitive markets, and also that labour is homogeneous and labour markets are perfectly competitive. In such a world differences in income between any two countries are due exclusively to the productivity of their tradeable goods sectors. 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 must rise faster [2]. However, because of the homogeneity of labour and the competitiveness of labour markets, real wages must increase by the same amount in both the tradeable and non-tradeable sectors. Since productivity in non-tradeables is constant, this means

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[1] In fact, it is sufficient to assume that productivity growth is lower in the non-traded goods sector, that its growth is uniform across countries and that returns to labour have a larger share in the non-traded goods sector. For a formal treatment of how differential productivity growth in the two sectors affects the real exchange rate between two countries see Obstfeld and Rogoff (1996, pp. 204–12).

[2] This need not lead to any increase in either the domestic or foreign prices of tradeables produced by the fast growing country, since unit labour costs denominated in foreign currency remain unchanged (the same number of domestic workers can produce more tradeable goods and get paid proportionally more). For this reason the nominal exchange rate need not be affected in any way either.

that prices have to increase in this sector. The faster the growth rate of productivity in the traded goods sector the faster the rate of price increase in the non-traded goods 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. If the nominal exchange rate is not constant, then it is average prices adjusted for the change in the nominal exchange rate (i.e. in the currency of the foreign country) which will rise faster in the faster growing country, also implying real appreciation. Now, 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. Equally important, 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 obtained 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 constraint [3]:

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

which implies:

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

The operator  $E_t \{ \cdot \}$  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. 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 process [4], 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. Observation of these trends will make foreign lenders willing to provide increased loans to the private sector within applicant countries.

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[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.

[4] This point has been made forcefully to us by Stanislaw Gomulka in personal communications.



2. The "Visegrad Three" all have full liberalisation of inward FDI flows (including repatriation of profits and principal). Furthermore, OECD membership means that they are already committed to freedom of outward capital flows and short term capital movements. Some countries believe that – in practice – the extent of these latter freedoms can still be limited at present [5]. Whether this is in fact so is unclear. In any event, upon EU entry truly fully free capital accounts will be unavoidable. Thus, much of the period preceding EMU entry will be one of fully free capital accounts.

3. Increased maturity of the institutional infrastructure will strengthen creditors' property rights and exit possibilities for shareholders [6]. The prospect of imminent EU membership can be expected to raise foreign investor" awareness of the progress which has been made in this regard.

From the perspective of foreign investors, high expected growth rates and real appreciation in applicant countries means increasing asset values. This may induce a 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, so that a "capital inflow – real appreciation" bubble may develop, with the real exchange rate rising ever more above its medium term equilibrium level [7] until, finally, the bubble bursts. Thus, setting a ceiling on the current account deficit at some prudent level may be a justified aim of public policy in the applicant countries. The dilemmas of conducting macroeconomic policy with such an aim and 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. Fiscal and Monetary Policy in the Approach to EU and EMU Membership**

What policies will allow applicant countries keep their current account deficits at "prudent levels"? We first look at an adaptation of the consumption-smoothing model

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[5] This is the view of Kopits (1999). The present authors suspect that the current degree of capital account liberalisation is so great in the "Visegrad three" countries, that remaining controls are not effectively binding (i.e. they do not allow macroeconomic results, different from those which would occur in the absence of the controls, to be achieved).

[6] In the presence of limited liability and asymmetric information in the provision of finance, there is increased risk to lenders as leverage increases, so that only part of the current account deficit can be financed through the accumulation of foreign debt by the private sector. The rest is financed by foreign direct investment (FDI).

[7] And the current account deficit rising ever more above its sustainable level. The IMF has a very crude procedure for estimating the level of a country's sustainable current account deficit [Knight and Scacciavillani, 1998].

discussed in the previous section to help us analyse the policy implications in the medium-term, and then at short-term the Mundell-Flemming model.

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  $\varepsilon$  and  $\eta$  which represent the effects of (upward) changes in expectations regarding growth. Increases in the variable  $\varepsilon$  causes  $S$  to decline, while increases in  $\eta$  cause  $I$  to increase [8]. 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  $\varepsilon$  are drawn then we set  $\varepsilon_t = \varepsilon_{t-1}$ , and we do the same for  $\eta$ ). Finally, consumers are assumed not to be able to anticipate future values of  $\varepsilon$ , or to calculate their expected value  $E(\varepsilon_t) > 0$  (the same goes for  $\eta$ ). We seek justification for these highly irrational expectations in the completely unprecedented nature of the transition from communism to capitalism [9]. 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 NFL/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

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[8] We are grateful to Stanislaw Gomulka for suggesting this approach to us.

[9] A more acceptable way of putting this might be that  $E(\varepsilon_t) = 0$ , and the effects we are discussing will occur if the actual values of  $\varepsilon_t$  exceed this (the same goes for  $\eta$ ).

significant part of public debt is held abroad – as is the case in the applicant countries – an unexpected 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 regarding the impact of fiscal policy on the current account rather than on aggregate demand. Although empirical evidence for standard Ricardian equivalence is weak, we believe it may be stronger in the present context 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 risk. 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. We shall see below that similar doubts as to the efficacy of fiscal policy for current account deficit reduction resurface even in the context of the Mundell-Flemming model and its application to policy making in the short-term.

To analyse the implications of the effects we describe in the previous section for macroeconomic policy 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.

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

Where the last period's expectations of the current period's exchange rate ( $\rho_t^e$ ), which are simply the last period's actual exchange rate ( $\rho_{t-1}$ ) efficiently predict the current period's actual exchange rate ( $\rho_t$ ), 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:

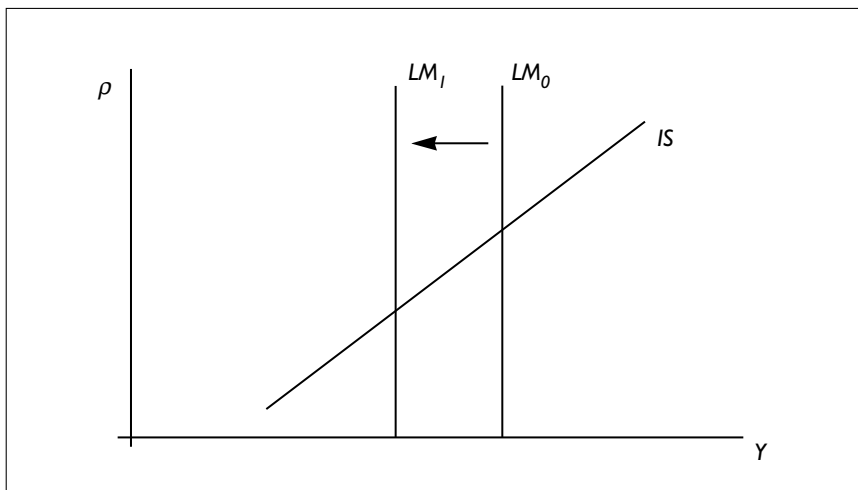
$$Y = C(Y - T) + I(i^* - \pi^e) + NX(Y, \rho P^*/P) + G$$

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

where  $\pi^e$  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  $\rho, Y$  space is a vertical LM curve and an upward sloping IS curve:

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 [11]. Intuitively we can understand this if we remember that, given that the domestic

[10] A more general formulation is:

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

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

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 exports [12]. 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  $\rho$  – 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  $r$  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, so that the current account deficit would be successfully reduced [13]. 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].

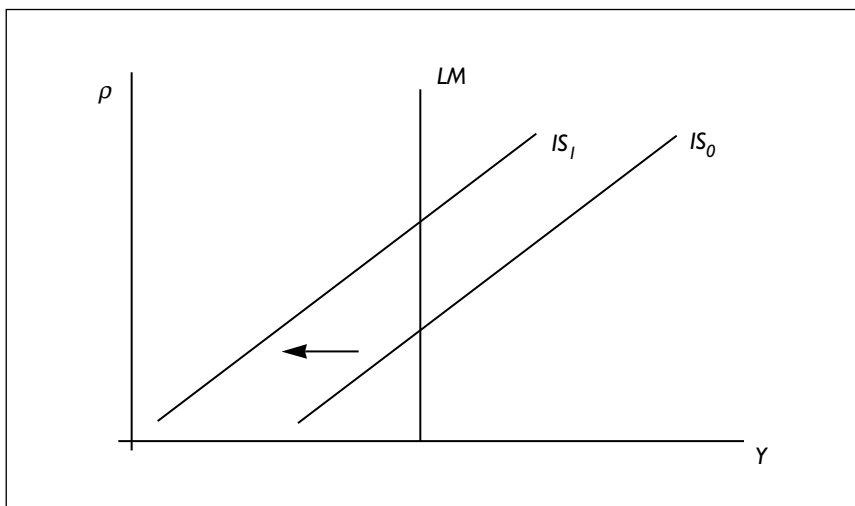
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[12] This reduces  $Y$ . Hence in a small open economy with a floating exchange rate, contractionary monetary policy affects  $Y$  via  $\rho$  rather than via  $i$ .

[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).

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 to the left, 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:

**Figure 2.**

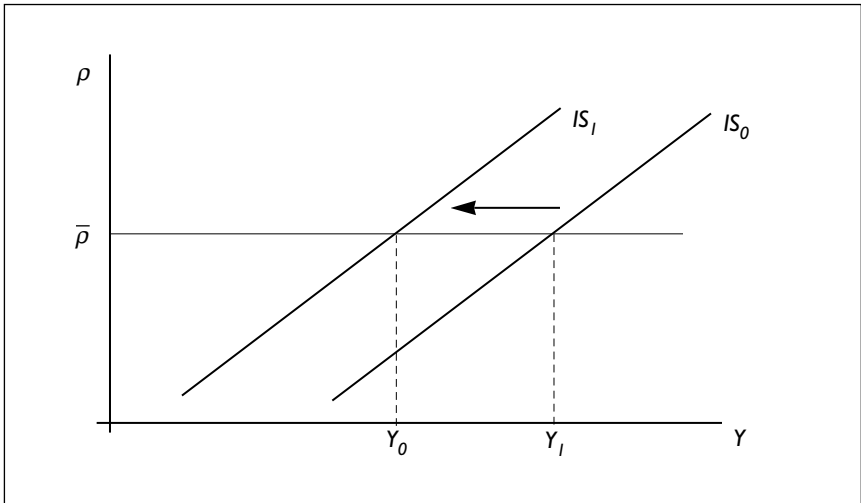


With a fixed exchange rate the model consists in eq. (10) and:

$$\rho = \bar{\rho} \tag{11}$$

In  $Y, \rho$  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, a reduction (increase) in  $M$  merely leads to an increase (reduction) in the international reserves of the central bank. 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 increasing 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 policy 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 earlier in this section. There we saw that also 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 even in the short term on the conclusions we arrived at within the Mundell-Flemming framework. For instance, a tightening of fiscal policy could lead to a positive re-evaluation of the expected future worth of a country's currency, leading to its appreciation, rather than depreciation, and therefore to an increase in the current account deficit rather than a reduction. 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 or even in the standard version of the medium term consumption-smoothing model. Furthermore, 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 fiscal and current account deficits is usually insignificant [Obstfeld and Rogoff, 1996 pp.144–5]. This is the kind of result which Knight and Scacciavillani (1998) have in mind when they draw the rather gloomy conclusion that exchange rate movements and current account changes may, in fact, be indeterminate.

#### **4. Inflation, Interest Rates and Exchange Rate Regimes in the pre-EMU Accession Period, and their 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 Spain [14], while in Poland it has averaged 7.5% during 1993–97. This difference seems to be 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 very high levels as well. The implications for the achievement of the Maastricht criteria for stage three of EMU by the applicant countries are profound.

First, it may be unwise for the applicant countries to achieve the 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 were to require a real appreciation of 7.5% per annum relative to the Euro zone (as Polish experience suggests it might), then this criterion would imply a nominal appreciation of at least 6% per annum. Such a policy may entail two kinds of risks:

1. The current Maastricht inflation criterion is in fact unsuitable for countries in which a strong H-B-S effect operates, since it seeks to limit what is better thought of as a relative price change (between traded and non-traded goods) rather than as an increase in the overall price level. If, as we have assumed, prices are constant in the traded goods

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[14] 1990–1997 for both countries.



sector of the rapidly growing country while productivity increases rapidly, then the nominal exchange rate can also remain constant without affecting that country's trade or current accounts. Increases in the prices of non-traded goods (resulting from the need to pay homogeneous labour higher wages in both sectors given the increase in its average productivity) need therefore have no effect on the current account or the equilibrium exchange rate. In fact, for prices to be constant in the rapidly growing country, 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:

$$- \alpha P_T (\partial \rho / \partial t) / \rho = (1 - \alpha) \pi_{NT} \quad (12)$$

is required for  $\pi = 0$  (where  $\alpha$  is the share of tradeables in national income,  $P_T$  is the price of tradeables,  $\rho$  is the exchange rate defined as units of domestic currency per unit of foreign currency,  $\pi_{NT}$  is the rate of inflation on non-traded goods and  $\pi$  is the average inflation rate). But such a nominal appreciation implies a deterioration in the trade and current accounts of the rapidly growing country which the growth in the productivity of labour in its tradeables sector by itself does not require, and which is therefore likely to be a move away from the equilibrium exchange rate [15].

2. If nominal appreciation is sufficient for eq. (12) to hold, then the interest parity condition:

$$- [(\partial \rho / \partial t) / \rho]^e + i = i^* \quad (13)$$

may well imply negative short-term nominal interest rates in the applicant country [16]. For example, if we take the rate of nominal appreciation implicit in (1) meeting the Maastricht inflation criterion and (2) having the same real appreciation as Poland did during 1993–97 (i.e. a nominal appreciation of over 6% per annum), then with  $i^* = 4\%$ ,  $i$  needs to be  $-2\%$ ! 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, it is also possible

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[15] 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 the equilibrium nominal exchange rate and will in fact help to stifle average inflation.

[16] Because  $\rho$  is defined as units of domestic currency/unit of foreign currency, appreciation involves a reduction in it (i.e. a negative growth rate of  $\rho$ ), which therefore has to be subtracted from the domestic interest rate [giving a positive effect to the LHS of eq. (13)] to arrive at the foreign interest rate.

that an "appreciation bubble" may develop, with the exchange rate overshooting its sustainable level (and ultimately collapsing) [17]. Alternatively, the expectation of nominal appreciation could put such downward pressure on the domestic interest rate that an explosion of domestic credit ensues.

Second, 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. This matter has been discussed by G.Kopits (1999). However, we believe that Kopits has underestimated the difficulties which may arise. There are a number of possible exchange rate arrangements in the pre-EMU period:

1. Fixed rate (this is currently the mechanism obtaining in Estonia). Hungary has a variant of this, a pre-announced crawling devaluation of the currency with a very narrow band of permitted fluctuations around the central rate. As inflation decreases in Hungary, and the rate of crawl is consequently reduced to zero, the Hungarian system will converge on the Estonian one (unless the band for permitted fluctuations is considerably widened). As we have seen, such a system is very likely to be incompatible with the Maastricht inflation criterion, simply 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, or (b) inflation well above that due solely to the H-B-S effect [18].

2. Wide fluctuation bands (+/-15%) around the central rate as in the current ERM2. This holds at present in the Czech Republic and Poland [19]. This is likely to lead to nominal appreciation and high CA deficits, but may give the possibility of fulfilling the inflation criterion. As Kopits points out, appreciation even beyond the "fluctuation band" does not infringe the Maastricht exchange rate criterion. One danger is an "appreciation bubble", which leads to a 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 [20].

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[17] The 15% band of the current ERM2 mechanism could well be sufficient for such a bubble to develop. Once it had done so it would likely be allowed to break through the ceiling, since the alternative would be to acquiesce in higher inflation.

[18] 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.

[19] In Poland the central rate is devalued at a preannounced crawl, but this feature is to be abolished in the year 2000.

[20] This seems to be the current problem in Germany.

## **5. Conclusions**

– The H-B-S effect means that there will be powerful pressures for real appreciation in the applicant countries in the medium term [Halpern and Wyplosz, 1995].

– 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 effectively limit current account deficits to what the authorities are likely to 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 in each successive year while they are EMU pre-ins, countries with relatively low fiscal deficits at present such as the Czech Republic or Poland, may therefore 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.

– 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. In that case there is a serious danger that a real appreciation boom-bust cycle may blow applicant countries off their course to EMU membership.

– The Maastricht Treaty inflation criterion for EMU membership should not be applied to the CEE applicant countries when the time comes for them to join the Euro zone, although the exchange rate criterion should, of course, be maintained.

– A fixed exchange rate policy in the run-up to EMU membership will make the attainment of the Maastricht inflation criterion completely impossible (which will not matter if the latter has been dropped). However, a wide-band ERM2 type of arrangement carries its own risks of high exchange rate volatility.

## References

Dornbusch, R. (1976). 'Expectations and Exchange Rate Dynamics'. *Journal of Political Economy* 84 (December) 1161–76.

Halpern, L. and C. Wyplosz (1995). 'Equilibrium Real Exchange Rates in Transition'. Discussion Paper No. 1145, Centre for Economic Policy Research, London.

Kopits, G. (1999). 'Implications of EMU for Exchange Rate Policy in Central and Eastern Europe'. IMF Working Paper No. WP/99/9, International Monetary Fund, Washington D.C.

Kouri, P. (1978). 'International investment and interest rate linkages under flexible exchange rates'. [in] R. Aliber (ed.) *The Political Economy of Monetary Reform*, London: MacMillan.

Knight, M. and F. Scacciavillani (1998). 'Current Accounts: What is their Relevance for Policymaking' [in] O. Radzyner and A. Schubert (eds.) *Current Account Imbalances in East and West: do they Matter?*, Oesterreichische Nationalbank, Vienna.

Obstfeld, M. and K. Rogoff (1996). 'Foundations of International Macroeconomics'. Cambridge: MIT Press.

Wilcox, D. (1989). 'Social Security Benefits, Consumption Expenditure, and the Life-cycle Hypothesis'. *Journal of Political Economy* 97 (April) 288–304.