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*Kazimierz Laski (ed.)*

**External Constraints  
on Sustainable  
Growth in  
Transition Countries**

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## **Abstract**

Sustainable growth in catching-up countries requires the widening of the foreign trade bottleneck. It is however not clear whether two prescriptions aiming at solving this problem: greater exchange rate flexibility and the liberalization of the capital market, are in reality not contradictory

The theoretical background is supplied by two papers of A. Bhaduri. In 'On the viability of external debt' the relation between the rate of growth and the rate of interest as well as the relation between the propensities to export and to import are analysed. In 'Capital flows, the balance of payments and the exchange rate', the model proving the extreme fragility of the prevailing system is demonstrated.

The experience of Latin American economies is analysed by J. López-Gallardo. He examines the advantages and disadvantages of the modernization strategy based on the liberalization of foreign trade and of the capital market. His main conclusion is that the current account deficits and financial crises were not provoked by insufficient private savings and not even by insufficient investment, but mainly by a premature opening of the economy and lack of an industrial policy.

These conclusions are confronted with the experience of CEECs, mainly Poland, in the papers of L. Podkaminer. He introduces the novel concept of import-led growth and concentrates on causes and consequences of currency appreciation in these countries. The first repercussions of FDI inflows on the current account in the CEECs are analysed in the paper of G. Hunya and S. Richter.

**Keywords:** external debt, FDI, trade and current account balances, exchange rate regimes, CEECs

**JEL classification:** F21, F31, F32, F34

## Introduction

*'Put bluntly, two prescriptions regularly extended to developing countries by the international community, including the IMF and the U.S. Treasury, namely to move toward greater exchange rate flexibility and to liberalize international capital movements, may be in deep tension, even deep contradiction.'*

(Cooper, 1999, p. 110)

## Introduction

1. The incompatibility of floating exchange rate and free capital movement in the transition economies of the Central and East European countries (CEECs) is the main subject of the present publication. In purely theoretical terms one can identify three main aspects of the economy's vulnerability to international financial crises under modern conditions of globalization, characterized by a less regulated world system of trade, investment and finance. The first aspect concerns the problem of long-term sustainability of growth that depends heavily on international capital inflows (the problem of solvency). The second consists in the ability of a country to maintain a viable 'cash-flow' position in terms of international payment commitments (the problem of liquidity). The third aspect is derived from expectations among lenders and borrowers concerning capital flows and balance of payments or the actual and expected exchange rates (the problem of diverging expectations). The first two aspects are analysed in the paper 'On the viability of external debt', the third one in 'Capital flows, the balance of payments and the exchange rate'. Both papers are authored by Amit Bhaduri.

The paper 'Modernization strategy, crises and adjustment in Latin American economies' by Julio López-Gallardo characterizes the modernization strategy as opening-up the domestic markets to imports, the curtailment of the economic role of the state and the liberalization of the financial sector, especially of the capital market. The author examines the advantages and disadvantages of this strategy and derives from the experience in Latin America some general conclusions which may be useful for other countries and regions as well.

The paper 'Sustainability of Poland's "import fed" growth' analyses the economic consequences of rapidly increasing import intensity of production and consumption, illustrated by the experience of Poland. The paper 'Nominal wage growth, exchange rate and productivity' investigates the relation between exchange rates and unit labour costs in Central and East European countries and derives therefrom conclusions for their future development. Both papers are authored by Leon Podkaminer.

The last paper, 'Hungary: FDI, profit repatriation and the current account', by Gábor Hunya and Sándor Richter, deals with the relation between FDI and the current account, using as an example the experience of Hungary.

### **I. The theoretical model linking capital inflows to current account deficits and actual to expected exchange rates**

2. The present stage of capital globalization – with extremely large capital flows in relation to foreign trade flows – has created general conditions to finance current accounts deficits relatively easily. An important factor has been the privatization programmes of large and poorly functioning public enterprises in the transition countries. Another one was represented by (sometimes extremely) high domestic interest rates linked to inflation rates much ahead of those prevailing in capital exporting countries, hence attracting important inflows of speculative capital. Both factors have provided opportunities to relax the foreign exchange constraints and to achieve GDP growth rates that otherwise would not have been attainable. Ample capital inflows have created, however, the danger of artificial appreciation of national currencies. In turn this artificial appreciation has negatively influenced the price competitiveness in foreign trade and increased the current account deficits, thus requiring more capital inflows to cover these deficits. It is clear that such cumulative development does not present a stable economic configuration; indeed, when international debt grows in relation to GDP the confidence of the borrowers in the domestic currency is being more and more eroded because they fear that sooner or later a devaluation of domestic currency may become necessary. When these expectations prevail, an outflow of capital starts and may lead to a panic of sudden withdrawal of lending and a financial crisis. In the recent past financial crashes of this kind have happened in many parts of the world, and they may repeat themselves in the CEECs. Therefore the nature of the problem of the relation between foreign capital inflows, especially short-term, current account deficit and exchange rate expectations deserves a thorough investigation both analytically and empirically.

3. An analytical attempt in this direction constitutes the paper 'Capital flows, the balance of payment and the exchange rate: An analysis of the opportunities and dangers of capital flows with special reference to the economies in transition in Eastern Europe'. Bhaduri has constructed a model with two dynamic systems. The first one refers to the interaction over time between the current account and capital inflows.<sup>1</sup> The second refers to the interaction over time between actual and expected exchange rates.<sup>2</sup> The author proves that these two systems are equivalent in all their qualitative dynamic properties. Economically therefore the time behaviour of the current account and capital inflows, on the one hand, and of the

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<sup>1</sup> See differential equations (9) and (13) in Bhaduri (B).

<sup>2</sup> See differential equations (21) and (22) *ibid.*



actual and expected exchange rates, on the other, are characterized by the same stability or instability regimes depending on the value of the same economic parameters.

4. The results of the first system can be summarized as follows: Given the lenders' attitude concerning the change of the expected exchange rate in reaction to changes in foreign exchange reserves, the stability of the system would be enhanced by three factors. First, by a larger improvement in the trade balance in response to depreciation of the home currency; second, by a more cautious attitude of the lender with respect to the expected exchange rate in face of an increasing foreign debt; and third, by speedier adjustment of the exchange rate to demand–supply disequilibria through changes in reserves. In contrast, higher servicing costs of external debt and a stronger response of capital flows to an expected change in the exchange rate would diminish the stability of the system.

The lenders' sensitivity to changes in foreign reserves, manifested in the change of their expectations concerning the future exchange rate, may be higher or lower. In general, high sensitivity means that even a small decrease in reserves makes the lenders expect a rather large future depreciation of the exchange rate and thus discourages future capital inflows. This provokes an actual depreciation. If the related improvement in the trade deficit is not sufficient, further depletion of reserves occurs, starting a downward spiral of panic withdrawal from lending, capital outflows and repeated devaluations. This leaves the country in the grip of a financial crisis of the kind observed in a number of countries in the recent past.

5. The second system refers, as already mentioned, to the interaction over time between actual and expected exchange rates. Here too the results can be summarized in the following way. Given the sensitivity of lenders to changes in the reserves, this system is stable if the trade balance improves significantly in response to depreciation of the home currency, if the lenders react cautiously to an increasing foreign debt and if the market for foreign exchange is free from intervention by the central bank. The same consequences produce lower servicing costs of external debt and more prudent short-term capital movements in anticipation of capital gains (losses) in the presence of expected appreciation (devaluation) of the home currency. If the system is stable it tends towards an equilibrium at which the actual and expected exchange rates are constant but not necessarily equal. Indeed, it is possible that at these exchange rates short-term capital flows compensate long-term capital flows, resulting both in an overall capital flow remaining zero and in an exactly balanced current account.

6. If a country has an export surplus, goods and services produced by this country are demanded outside the country and are attractive enough for domestic buyers as well. The appreciation of the currency under this condition makes imports cheaper but would not increase actual imports very much. If a country has an import surplus and nevertheless an

appreciating currency because of large capital inflows, cheaper imports do matter very much because the country had not enough attractive goods in the first place. This is why appreciation *cum* trade and current account deficit increases artificially the import intensity of the economy and prevents self-sustained growth. This process has been analysed in some detail by Leon Podkaminer and the results are presented in the paper 'Sustainability of Poland's "import fed" growth' (see pp. 78ff.).

7. The more general conclusions to be drawn from Bhaduri's study are as follows:

(a) The lenders' reaction to changes in the level of foreign exchange reserves appears as a critical variable of the model. A 'dangerously' low level of reserves might make lenders react strongly to a further small depletion in reserves, rendering both the balance of payments and the exchange rate unstable. When the balance of payments' current account is already in deficit, and the improvement in the trade balance from currency depreciation is relatively small, dangerously low reserves threaten to plunge the economy into serious instability, i.e. a head-long crash, without a self-correcting market mechanism.

(b) It is not always realized that, as long as public sector assets exist on a sufficiently large scale and policy continues to privatize them by selling them to foreign buyers, the public sector assets might – and do – act as a proxy for reserves. With adequate reserves in the form of 'marketable' public sector assets, the response of foreign lenders to a small depletion in liquid reserves may not be strong, and the prevailing regime of exchange rate and current account appears to be reasonably stable. However, when little remains to be privatized, the picture and the lenders' response may change rather sharply – a further small depletion in reserves may trigger off serious instability characterized by a continuously depreciating currency and a widening current account deficit, resulting ultimately in an economic crash.

(c) The question of deregulation of the foreign exchange market should not be viewed in isolation. While a greater extent of adjustment of the exchange rate to changes in reserves caused by demand and supply disequilibria in the foreign exchange market exerts a stabilizing influence in isolation, it can become destabilizing when short-term capital flows also respond strongly to expectations of variations in the exchange rate. Thus, some regulation of short-term capital flows together with greater deregulation of the market for foreign exchange might provide the correct perspective on the policy mix to be followed rather than a simplistic debate about regulation versus deregulation. This is the most important conclusion of the study of Bhaduri (B). It means that different rules for the foreign exchange market and capital market would stabilize the system.

8. These conclusions support analytically the view by Cooper quoted at the beginning of this introduction and based on an overview of the history of thought about exchange rate policy in the last 150 years. Drawing on a quarter century of experience with floating exchange rates in most countries, he comes to the conclusion that the results for all

countries are not conclusive and sometimes even contradictory. However, when discussing countries with small and poorly developed domestic capital markets, that is most countries, he presents a rather strong opinion: He argues that a large financial player can influence the exchange rate of relatively small countries by starting a run on the currency, through a combination of sales and rumors. If the word goes out persuasively that a currency will depreciate, many will join the bandwagon and the currency will depreciate' (Cooper, 1999, p. 110). He gives two examples of the kind. A few days before the outbreak of the Russian crisis in 1998 George Soros wrote a letter to the *Financial Times* predicting the imminent demise of the rouble. It was suggested thereafter that the letter was a deliberate attempt to destabilize the rouble. This has turned out not to be true because Soros actually lost a lot of money; nevertheless it shows that when the market expectations are already fragile some even accidental event may precipitate a crisis.<sup>3</sup> The other example quoted by Cooper is Brazil. In 1999 a Governor of a Brazilian state refused to continue servicing its debt to the federal Government in order to embarrass his political rival President Cardoso and precipitated the crisis. We witnessed the same scenario a few months ago when a hot dispute between the Prime Minister and the President of Turkey pushed the country into a financial crisis. In all these cases herd behaviour has manifested itself in fragile emerging markets in contrast to an idealized competitive market which assumes very many economic agents acting independently of each other. 'The unwelcome conclusion that flows from this discussion is that free movements of capital and floating exchange rates are basically incompatible, except for large and diversified economies with well-developed and sophisticated financial markets.' (Cooper, 1999, p. 12)

## **II. Inflation, exchange rate and interest rate**

9. The general price level is basically determined by unit labour costs, hence a disinflation process should start with efforts to adjust the rise of nominal wages to the rise of labour productivity. However, when confidence in the national currency is gone and the expected inflation is high, an external anchor in the form of the exchange rate, fixed at least for some time, may be useful as a tool to start the fight against inflation. This method has been successful in many countries. In Brazil the inflation rate went down from almost hyperinflation in 1993 to one-digit inflation after 1997. A similar success with the one-to-one fixed binding of the national currency to the US dollar could be observed in Argentina. Also the CEECs have used the anchor approach and achieved visible results in bringing down the inflation rate. The external anchor functions, however, only when the growth of the nominal exchange rate stays behind the inflation rate. Low prices of imported goods check

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<sup>3</sup> Market expectations were fragile because interest rates for rouble-denominated government securities were about 50 per cent and the financial investors were right to doubt whether any government would be able to continue payments on them. It should also be stressed that at an inflation rate of about 20 per cent at that time the real interest rate was about 30 per cent and no economy can survive such a monetary policy for a longer time (see Flassbeck, 2001).

to some degree the internal price level and exporters are forced to check the increase of unit costs, especially unit labour costs, hence to resist wage claims exceeding labour productivity growth. All this implies, however, real appreciation of the currency. An overvalued currency is the necessary side effect of successful disinflation supported by an external anchor.

The real appreciation of the national currency implied by the anchor approach has nothing to do with current account surpluses. On the contrary, as a rule this appreciation is accompanied by current account deficits. Hence, as soon as some effects are achieved in the sense of an acceptable level of inflation, the time is ripe for real depreciation because an overvalued currency cannot and should not be tolerated any longer than necessary. This is, however, a difficult and unpopular measure. Lopez (pp. 58-59) investigates this situation in the Latin American context, but it is evident that his analysis is relevant for CEECs as well. He points out that financial liberalization has introduced three actors committed to defending a 'strong' domestic currency. These are banks and firms with dollar-denominated debt greatly expanded. Being exposed to the volatility of foreign exchange markets they are interested in avoiding currency depreciation. Foreign investors are in a comparable situation – at least until they shift from domestic-denominated to dollar-denominated assets. The third actor is the Government itself. The Government is interested in maintaining a strong domestic currency and afraid that even a limited reduction of the nominal exchange rate may lead to major depreciation. This might inject chaos into the economy, damage their image and the future of the whole strategy. Indeed depreciation would affect domestic costs as well as expectations, hence unleash new inflationary pressures. Still worse it may also trigger actions that would become difficult or impossible to control, first of all capital flight. As price stability and a steady (and really even increasing) value of domestic currency have been normally used as expressions and symbols of the success of a chosen strategy, the Government would think twice before deliberately starting the necessary process of depreciation. One may rightly argue that the situation would get still worse if nothing is being done to prevent the increasing fragility of the situation characterized by increasing appreciation combined with high and rising current account deficits. But the Government may hope that foreign capital inflows continue indefinitely; market signals are rarely very clear and may be interpreted optimistically; sooner or later the expected increase in the ability to export might materialize and the propensity to import stabilize or start to fall. Being faced with the choice between a risky action and passive waiting for further developments they would mostly opt for the second. The crisis that may follow the deliberate cure, though dangerous, would be less severe than the one exploding spontaneously – but for the first one the Government would be held directly responsible, while for the latter the anonymous market, and the Government only indirectly, if at all.

In reality the cure does not have to result in a crisis. Podkaminer (p. 98) admits that currency devaluation, required for the maintenance of external competitiveness, would have some inflationary effects, hence devaluation would feed inflation and inflation would feed devaluation. Nonetheless the situation is not necessarily hopeless. In the process the pass-through rates (at which devaluation transmits itself on domestic prices) may be falling and a gradual fall in inflation may help reduce the levels of necessary devaluations. In this context he stresses also that the likelihood of inflation being substantially higher in the CEECs than in the EU would require adjusting, from time to time (or more or less continuously), their nominal exchange rate in order to prevent or slow down the appreciation of domestic currencies. This rules out (or should rule out) any early membership in the EMU (or immediate unilateral adoption of the euro) for most, if not all, CEECs. He comes to the conclusion that the CEECs could remain 'outsiders' of the EMU for quite a while, even if formally joining the EU.

10. The opening of the capital market in countries with high inflation rates creates favourable conditions for inflows of speculative capital. The interest rate in countries with high inflation is higher than the inflation rate because the former is treated as a necessary tool to fight inflation and because it is often argued that real interest rates for domestic savers should be positive even under these conditions. For all these reasons the interest rate in countries with high inflation are high and especially attractive for foreign financial investors from countries with both lower inflation and interest rates. Foreign speculators are not interested in the domestic price level at all. For them, the only relevant parameters are the nominal interest rate and the nominal exchange rate. If given the nominal interest rate the nominal exchange rate increases (with a constant or even mildly falling real exchange rate), foreign investors lose part of their profits earned on high nominal interest rates but their net profits are still attractive if the difference between the domestic and the foreign interest rate has been large in the first place. If in addition, as it happens, the real exchange rate increases, i.e. the domestic currency appreciates, the real interest rate for financial speculators is even higher than for domestic savers and impossible to achieve outside these so-called emerging markets. True, there is a risk that the countries concerned may default and that their currencies might lose, from one day to another, a large part of their value. This very fact makes the speculators insecure and may provoke a financial crisis they all fear. However, the first speculators to leave the sinking ship would save their money while the others would lose. This is the reason why everybody is afraid of being not among those who leave the ship in time. The result may be that the ship starts sinking, although it could still remain afloat for some time as long as there is no panic. But with or without panic, a policy of very high real interest rates administered by the Central Bank will sooner or later destroy the domestic economy in any case.

### III. Is it possible to supplement domestic savings with foreign ones?

11. Summarizing his analysis, Lopez writes: 'Low private savings did not provoke the growing and persistent current account deficit, nor did they cause the crises: low private savings were the consequence, not the cause, of the foreign deficit. Nor would a higher rate of investment have prevented the current deficit from swelling; had that rate been higher, the deficit would have been higher as well. The explanation for the deficit must be sought in the opening-up of the domestic market to imports, on the one hand, and in the appreciation of the domestic currency and the subsequent loss of competitiveness on the other. An additional structural factor was also very important: the lack of industrial policy. An industrial policy could have allocated investments to those branches and firms capable of producing the inputs and capital goods required in the new context. The modernization strategy did not require a much higher rate of investment; however, it did call for a better allocation of investment.' (p. 57) Although the author refers here to the experience of Latin America, his conclusions apply fully to the transition countries as well. It is worthwhile giving some thought to the basic economic idea behind his statement.

According to mainstream theory final output is determined by supply factors and can be distributed in any proportion between domestic consumption  $CD$  and domestic savings  $SD$ ; these savings can be then used freely at home or abroad. Denoting supply-determined final output by  $GDP^*$ , domestic investment by  $ID$  and the trade balance by  $E$  ( $= X - M$ , where  $X$  and  $M$  denote export and imports, respectively) we get

$$GDP^* = CD + ID + E$$

and

$$GDP^* - E = CD + ID$$

$$SD - E = ID, \text{ where } SD = GDP^* - CD.$$

If  $E < 0$ , meaning an import surplus, the term  $-E$  is nicknamed foreign savings  $SF$  and

$$SD + SF = ID \tag{1}$$

According to (1), if domestic savings are too low to finance domestic investment, the former can be supplemented by foreign savings. If the propensity to save were higher, domestic savings would substitute for foreign savings. Hence there exists, according to this approach, a choice between domestic and foreign savings. In reality  $GDP$  is not given but depends on decisions concerning domestic investment and exports given such parameters as the (domestic) savings ratio  $sd$  ( $= SD/GDP$ ,  $sd = 1 - cd$  where  $cd$  is the domestic consumption ratio  $CD/GDP$ ), and the import intensity is  $m$  ( $= M/GDP$ ). Indeed,

$$GDP = CD + ID + X - M = (cd)GDP + ID + X - mGDP$$

and

$$\text{GDP} = (\text{ID} + X)/(\text{sd} + m). \quad (2)$$

From (2) we see that

$$\partial(\text{GDP})/\partial(\text{sd}) < 0$$

hence GDP is a decreasing function of sd. When sd increases, GDP decreases and given m also imports decrease; this in turn reduces E (or foreign savings SF) and given ID increases SD according to (1). Thus domestic savings may substitute for foreign savings but in a very special way, namely by reducing the level of economic activity and the required imports.

12. In the Economic Report of the President (2000, p. 71) we read that over the last two decades domestic investment in the USA exceeded domestic savings and the difference was made up by foreign savings. 'The ratio of net national saving to GDP has risen about 3 percentage points over the last seven years. Despite this sizable improvement, this ratio remains low relative to its levels of the 1960s and 1970s. Indeed, if the national saving-GDP ratio were equal today to its levels in those decades, it would suffice to cover domestic investment.'

We have calculated the volume of GDP in the USA in 2000 according to (2), substituting 17.1 per cent, the actual domestic savings ratio sd, by 20 per cent, its average value, recorded in the 1960s and 1970s. The implied GDP would be 8.5 per cent lower than it actually was, the import surplus would decline from USD 309 billion to USD 202 billion, i.e. by USD 104 billion, at the cost of lost GDP amounting to USD 759 billion. It turns out that fighting 'foreign savings' by higher domestic savings is indeed a costly method because it means nothing but cutting GDP in order to cut imports.

The real cause of the drastic increase in the US trade deficit was not the low savings ratio but the rise of the import intensity from 12.3 per cent in 1995 to 14.8 per cent in 2000. This increase was provoked mostly by the appreciation of the US dollar. If the import intensity in the USA had remained at the 1995 level, the GDP in 2000 would have been, *ceteris paribus*, much higher than it really was and the import surplus would have nearly halved.<sup>4</sup> The appreciation has limited also the US export expansion in comparison to import growth. Between 1995 and 2000 the export intensity (the export/GDP relation) remained unchanged at a level of 11 per cent. Certainly another factor, namely the higher GDP growth rate in the USA in comparison with its main trading partners, played an important role as well. Without the strong appreciation of the US dollar or with higher economic growth in the US trading partners, the excessive trade deficit in the USA would not have

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<sup>4</sup> For details see Laski and Römisch (2001, Appendix).

emerged. In both cases the 'foreign savings' would not have come into existence – either because the demand for US imports would have been lower (at given US exports) or because the demand for US exports would have been higher (at given US imports). The idea that 'foreign savings' can be used like credits drawn from the banking system is completely wrong.

The analysis of the development in the USA is interesting for the CEECs because in these countries too the main reason for exploding import surpluses is not the low savings ratio but the steep increase of the import intensity supported by artificial appreciation of domestic currencies. However, the financial position is quite different in the two cases: while the USA can borrow abroad without any difficulty, the CEECs are obliged to sell family silver and depend heavily on inflows of FDI and speculative capital at often spectacularly high interest rates. Another similarity between the USA and the CEECs was the fact that the growth rate in CEECs was higher than in Euroland, their main trading partner; thus export expansion was limited also by the size of external markets.

The most important method to diminish the existing external constraints on growth in the CEECs is reducing the import intensity they cannot sustain and increasing the export intensity (the export/GDP relation) that stays far behind their import needs. This goal requires not only a sound exchange rate policy preventing an artificial appreciation of domestic currencies but also a sound investment policy. The share on investment in GDP should increase and this would in turn provoke an increase in the share of domestic savings. The expected acceleration of growth, however, would materialize only if investment were not merely to increase but if they served the main goal – create production capacities able to promote exports and increase the internal content of domestic production in order to prevent excessive imports. This implies some form of industrial policy, a term ignored in present discussions in these countries.

#### **IV. FDI and the balance of payments**

13. Because investment creates its own savings (or, in Kalecki's parlance, finances itself) previous savings are not a necessary precondition for growth acceleration through a higher investment share (investment-GDP ratio). However, depending on whether or not the economy works at full utilization of capacity and labour force, investment expansion influences current consumption in different ways. In the first case, growth acceleration requires that investment grows faster and consumption more slowly than GDP. If capacity is not fully utilized, acceleration of growth does not require an increase in the investment share. The growth acceleration of investment can go together with growth acceleration of consumption. The inflow of foreign capital is not a necessary precondition of growth acceleration in any of both cases. However, in the first case foreign capital inflow may ease



sacrifices in present consumption at the cost of future consumption when the foreign credits have to be repaid.

When the economy is not able to produce, in quantity and quality terms, goods necessary for growth acceleration, the role of capital inflows changes and they start to play an additional and special role. This refers to modern technical equipment (and modern management) and raw materials and inputs the country is not able to produce. On the other hand, when growth accelerates traditional exports suffer if internal demand for the respective goods increases and their production cannot be increased at an appropriate pace. Yet, even if production of other exportable goods can be accelerated, external demand for them may not increase enough. At the same time import requirements increase *pari passu* with internal growth and very often ahead of it. Hence, all countries accelerating their growth with respect to their main trading partners will sooner or later experience a bottleneck in the form of difficulties in balancing the foreign trade and current account. Seen from this perspective, it is also easier to describe the type of required capital inflows. They should not only bridge the current gap between import needs and export possibilities, but at the same time be looked upon from the perspective of future obligations.

14. In the paper 'On the viability of external debt' Bhaduri formulates two conditions necessary for the debtor country to maintain its ability to repay. Assuming that any gap between investment and savings is being financed by foreign borrowing, he comes to the conclusion that the constant interest rate on foreign credits must be lower than the constant steady-state growth rate of GDP. Under this condition the foreign debt stock-GDP relation would after some time approach a constant level, while otherwise the ratio of debt stock to GDP would increase indefinitely.

In a further step Bhaduri introduces explicitly net factor payments linking GNP to GDP. It turns out that a country may also achieve a constant proportion of net factor payments to GDP (and hence of GNP to GDP) meaning its ability to continue being a net borrower without explosive external debt. This goal requires that the total 'service charge' per unit of debt has to exceed the autarkic rate of growth without foreign borrowing. This total 'service charge' consists of the interest rate plus export surplus per unit of output multiplied by the incremental output capital ratio. (p. 26) This bears an obvious correspondence to the former case which considered the relation between the growth rate and the interest rate only.

In less technical terms, it is understandable that a propensity to export higher than the propensity to import is a necessary precondition for a sustainable process of growth because otherwise the dependence on foreign capital to finance imports would increase indefinitely with time. However, this is not a sufficient condition because the export intensity

must be higher than the import propensity by a certain factor to meet the growing interest payments on the stock of accumulated capital inflows associated with financing the current account deficit. If this condition is not fulfilled the GDP may continue growing while at some point of time GNP would nevertheless start to decline.

The Statistical Appendix by Roman Römisch presents the first results of the estimation of the relevant variables of the model presented above in CEECs.

15. The main form of capital inflows into the CEECs is represented by FDI, not foreign credits. As long as we remain in the domain of steady-state growth, the model for foreign credits can also be used for FDI. We can therefore ask, what are the conditions under which self-sustained growth is possible with a constant flow of FDI? The only change we have to introduce is the replacement of the interest rate by the relation of distributed profits to the stock of FDI. Hence the model specifies the conditions under which FDI would be able to produce positive net exports in such an amount that they would finance at least the payments required by distributed profits of FDI and keep at the same time the FDI stock to GDP relation at a constant level. If these conditions are not fulfilled, the FDI flow would not only be unable to solve the problem of difficulties in foreign trade but would even increase them.

16. The CEECs' expectations in relation to FDI inflows are very often based on orthodox theory, which argues that in these countries capital in relation to labour force is scarce. Hence, capital is expensive while labour is cheap. This should attract foreign capital if only the general conditions would not hinder the proper working of the world market mechanism. The investors' motives, however, go very often in another direction. They are interested in opening new markets for their products, mainly in manufacturing. From this point of view FDI is complementary rather than substitute for their export strategy. Further, a great part of FDI is directed towards infrastructure (such as energy, transport, telecommunications) or services (such as retail trade, mass media, insurance and banking) looking for profits that can be earned in these sectors. However, these are sectors with a very low export intensity, hence distributed profits to be transferred abroad in the future must be earned by FDI located in manufacturing or even by the domestic sector outside FDI, which by itself has difficulties balancing its foreign trade.

The problems arising for the balance of payments from the presence of FDI are related to time: Initially FDI does not yield high profits while it helps finance the trade and current account deficits. With time passing, however, the situation changes. The economy becomes saturated with FDI and the FDI stock-GDP relation tends to stabilize; on the other hand FDI starts to yield profits, part of which is being transferred. This is also the main difference between the model with debt-creating borrowing (credits) and non-debt-creating borrowing (FDI). With debt-creating borrowing the debt has to be serviced even if profits

are low, with non-debt-creating credits the debt service is the higher (lower) the higher (lower) the profits and the distributed part of them.

The last contribution in this publication, by G. Hunya and S. Richter, analyses the first experience of this development in Hungary, the country which was the first and most active in attracting FDI. For most CEECs the main conditions for self-sustained growth in the form of the growth rate being higher than the ratio of distributed profits seems not to be fulfilled yet.<sup>5</sup> The other condition – a higher propensity to export than to import – is certainly not fulfilled as all these countries report rather large deficits in their trade balances and current accounts. We shall see whether in the future this situation will change in the required direction.

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<sup>5</sup> It seems that 5 per cent is the presently observed ratio of distributed profits in relation to GDP in some of CEECs with a FDI stock. The growth rate of GDP in those countries is, however, mostly below 5 per cent.

## On the Viability of External Debt

### 1 Introduction

1. For most countries, a fundamental difference exists between internal and external debt. Given the legal institution of money as 'legal tender' within the national economy on the one hand and the (narrow) definition of money as the liability of the monetary authorities to the public on the other, internal debt can always be serviced in principle by issuing money, i.e. increasing the monetary authorities' liabilities in one form or another. This is the extended function of the monetary authority or central bank in a country as the 'lender of last resort' which is meant to override, at least temporarily, both a banking and an internal debt crisis, particularly insofar as internal debt consists of accumulated government borrowing, and the central bank follows an accommodative policy of monetarizing government deficit budget.

2. Since, beyond national boundaries, national money is not 'legal tender', its acceptance by foreigners is a matter of trust in that particular currency. Moreover, insofar as the foreigners might insist on being repaid in the particular currency in which the external debt is denominated, the central bank cannot play the role of the lender of last resort. It must either have enough reserves to meet such debt obligations or be able to exchange its domestic currency for the particular currency required. When confidence in the domestic currency is weak, and the central bank tries to buy the foreign currency against its domestic currency, an 'exchange crisis' and a 'banking crisis' may become inextricably interlinked, if domestic commercial banks are allowed to borrow freely from external sources, while the monetary authority/central bank bears the ultimate responsibility for liquidating the external debt in terms of the foreign currencies in which the debt is denominated. Indeed, this has been the case in several recent 'financial crises' in East Asia and Latin America.

3. However, so long as the domestic financial sector, including the central bank, can borrow abroad the required foreign currencies at some given rate of interest, a financial crisis cannot erupt. Any debt obligation can thus be met by further borrowing. Even in an 'imperfect' capital market, where the interest rate is not given, more borrowing to service existing debt is a course of action which can put off the financial crisis. Imperfection of the capital market in the standard sense, i.e. when the rate of interest increases with the level of borrowing, cannot therefore precipitate a financial crisis on its own. However, it can make it more likely insofar as the increased burden of debt servicing due to higher interest rates might weaken confidence in the currency. This leads to the *first analytical proposition*, which forms the basis of the algebraic formulation in the next section. The eruption of a financial crisis caused by an 'unviably' high level of external debt can occur only if *quantity-*

*rationing, rather than price-rationing* is imposed by foreign lenders on the borrowing country. In simpler words, foreign lenders have to deny any more lending at some stage, rather than simply raising the interest rate at which they lend or shortening the maturity period of the amounts being lent. Consequently, it is not the terms and conditions of lending (i.e. price-rationing), but the denial of lending (i.e. quantity-rationing) that triggers off a debt or financial crisis.

4. While denial of lending is the *immediate* or proximate cause of a crisis, its *roots* lie in a lack of confidence in the borrower. It arises from the suspicion that the borrower is either *unwilling* or *unable* to repay. The distinction between the two is often vague, especially in the context of an indebted developing or transitional economy. For instance, many economic analysts have emphasized a special form of 'moral hazard' problem that arises in such situations. The lending international banks may become relatively careless in their lending operations, on the assumption that in case of a threat of default by the borrowing country, their central banks or the IMF could bail them out. This bears a close analogy to a person being insured against probable loss, and therefore becoming negligent about the loss. Obversely, borrowing domestic banks and financial institutions could become careless on the assumption that their private external debt would be converted to public debt in the event of a repayment crisis, and the government or the central bank would come to their rescue as a lender of last resort in domestic currency to prevent a banking crisis at home. Perhaps more to the point is the assumption by the borrower that, in the event of his already being heavily indebted, the lender has to continue to lend, even for debt servicing purposes, in order to avoid the fear of manifest ('technical') default. This corresponds to Keynes' famous quip: 'If I owe you ten pounds, I would be worried; if I owe you ten million pounds, you should be worried.'

5. Such moral hazards are usually the consequence of *asymmetric information* which results in differing perceptions by the lender and the borrower about the prospects of investments financed through foreign borrowing. In turn, this results in their different evaluation of the borrower's ability to repay. However, in a situation in which the lender comes to believe that the prospects of investments are not adequate to repay, but the borrower still wishes to borrow, this may also be interpreted as unwillingness on the part of the borrower to repay. In this sense, the distinction between inability and unwillingness to repay is not always a useful distinction, at least for practical purposes, when the borrower and lender have divergent expectations at times based on asymmetric information about the prospects of returns on investment. It is, however, almost certain that a *growing* divergence, where the lender has an increasingly pessimistic assessment (compared to the borrower) of the prospects of investment would lead at some stage to quantity-rationing of loans advanced. It should be noted that the rationing-precipitating crisis has to come ultimately in terms of quantities rather than prices, i.e. the terms and conditions of the loan (e.g. higher interest rate or shorter maturity), because higher interest would increase the

burden of repayment and make its servicing more difficult, given the divergent expectations about returns on investment. This leads us to the *second analytical proposition*: the viability of external debt over time requires that there is no *increasing divergence* in the lender's and the borrower's expectations as to the prospects of returns on investment financed by borrowing. Only so long as the divergence remains within a certain limit, can the existing loan arrangements continue without imposing serious quantity-rationing on the loans.

6. Since the divergence in expectations is not empirically observable, any assessment or prediction about the viability of external debt has to look for (or devise on the basis of economic calculations) various indicators or symptoms of such divergence that are empirically observable. This would need to be the basic aim of any '*early warning system*' for external debt crises. However, the problem is further complicated by three practical considerations. *First*, the group of lenders to the borrowing country is usually not homogeneous. Consequently, expectations may diverge among the lenders themselves. In addition, if the borrowers are likewise a heterogeneous group, e.g. private banks, corporations and government in the borrowing country, expectations will also diverge among the borrowers themselves. This means that it would not be possible to measure in any 'simple' way the degree of divergence between the lenders' and the borrowers' expectations about the repayment of loans; some statistical measure would have to be devised (e.g. based on 'mean' expectations and its 'dispersion' among or across groups, etc.).

*Second*, the divergence in expectations even within the group of lenders or borrowers gives rise to the possibility of a problem similar to '*free-loading*'. A particular lender, for example, may be the first to recall his loan, as expectations about repayment deteriorate, in the hope that he will be able to recover his loan while other lenders continue to lend, thus in effect making repayment of his loan possible. It also bears an affinity to the one-shot 'prisoners dilemma' game, insofar as a debt crisis could be averted if all the lenders continued to lend in a co-operative manner. But, if some withdraw in order to impose quantity-rationing and recall their debts, a crisis becomes inevitable for want of co-operation. Syndicated lending by commercial banks (to several Latin American countries) with a cross-default clause, which prevents any single lender from unilaterally declaring the borrower a defaulter, was mainly devised to deal with such problems arising from the lack of co-operation between lenders in loan arrangements.

*Finally*, in particular a lender's ability to act and disturb ongoing loan arrangements on the basis of his individual expectations depends significantly on the *degree of fragility of the debt composition*. The composition of external debt differs not merely in terms of different interest rates charged and the currency denomination of the debt, but also in terms of the *time structure of the maturities* of the various debts. It has been conventional to distinguish between short- and long-term debt (e.g. of less and more than one year respectively,

according to the classification used in the 'world debt tables' of the World Bank) as a way of capturing this maturity structure. Nevertheless, this is increasingly recognized to be unsatisfactory, because many forms of *portfolio investments*, especially by institutional investors, may apparently be in long-term ownership of financial assets (e.g. stocks and shares, etc.) which can be liquidated almost instantly in the capital market. As a result, the time-structure of debt as a possible source of fragility of the ongoing loan arrangements is not only dependent on the ratio of short- to long-term debt in terms of maturity. With internationally integrated capital markets in many developing or transition economies, it depends perhaps even more crucially on how 'footloose' many of these debts are. It is typical statistical practice for national governments in borrowing countries to report the *maturity structure of debt in terms of original loan agreements*, and multilateral agencies, particularly the World Bank, consolidate this information from national sources. By way of contrast, the Bank for International Settlements to which the lending countries report, consolidates information in terms of the *residual maturity structure of debts*, i.e. the time left for the debts to mature. Residual maturity provides probably more information about the degree of fragility of the debt structure in terms of original loan arrangements. Nevertheless, as already mentioned, even this is inadequate insofar as many apparently long-maturity financial investments, held in the portfolio of institutional investors in particular, can be liquidated at very short notice in an open, internationally integrated capital market. It thus follows that a borrowing country's vulnerability to a debt crisis depends in some crucial ways, not only on the country's ability to repay, but also its ability to repay *in time*, i.e. according to the time structure of the debt. In turn, this time structure depends not only on the time structure envisaged in the original debt contracts (i.e. the 'original' and 'residual' maturity mentioned above), but also on the proportion of debt (accumulated 'portfolio investments' in short) which can be liquidated at very short notice insofar as these debts are marketable in domestic or international capital markets.

7. One of the most serious problems of financial globalization arises mainly from this consideration. 'Hot money' flows in the above sense often provide a country with the option of expanding faster and meeting its current account deficits with capital inflows held by the lenders in easily marketable debt instruments. At the same time, however, they also heighten the vulnerability of that growth process, because hot money can just as easily flow out as it flows in. This is where both the opportunity as well as the danger of *capital account convertibility* lies for a developing/transition economy. It should also be mentioned that a high degree of capital account convertibility might also expose a country to manipulative speculations. For instance (as some suggest was recently the case with the Hong Kong dollar), a major foreign institutional investor may 'sell short', i.e. first sell foreign currency and cause an inflow of hot money into domestic banks against domestic currency. This creates expectations of a 'strong' currency and the domestic currency appreciates. The domestic currency is then resold 'short' at that appreciated exchange rate to make profits in foreign exchange, thus leading to a larger outflow of capital. (For

example,. 'short selling' USD 20 at 15 units of domestic currency per dollar yields USD  $20 \times 15 = 300$  units of domestic currency. This artificial demand for domestic currency induces the domestic exchange rate to rise by, say, 10 units of domestic currency per dollar. Now 'short selling' domestic currency worth 300 to buy 30 dollars results in a *net* capital outflow of  $(30-20) \times 10$  dollars.) It follows that such dangers of speculative manipulation of the exchange rate which comes almost of necessity with capital account convertibility, are crucially linked to the question of external debt viability. It is tempting to argue that a sufficient level of foreign exchange reserves is the best precaution. Paradoxically, however, the larger the foreign reserves held, which earn relatively low or no interest, the less the country is able to seize the opportunity to use foreign capital inflow to accelerate the pace of economic growth. It is somewhat akin to curing the disease by killing the patient. This leads to the *third analytical proposition*: short-term capital inflow cannot *both* finance higher growth *and* make the economy less vulnerable.

8. The main point of our discussion about the viability of foreign debt, around which the analytical/algebraic arguments of the next section are built, may be summarized as follows:

- (i) A debt crisis is triggered off by quantity- rather than price-rationing of debt.
- (ii) Such quantity-rationing is the outcome of increasingly divergent expectations between the lender and the borrower. It is often aggravated by divergence of expectations among the lenders themselves.
- (iii) Expectations about repayment relate not only to the borrowing country's ability (or willingness) to repay ultimately, but also to repay *in time*, i.e. debt obligations must be considered in terms of both the amount and timing of repayment.
- (iv) Expectations about repayment are open to speculative manipulation, especially if the country has limited exchange reserves. Allowing an inflow of 'hot money' to augment reserves damages growth prospects on the one hand. On the other hand 'hot money' used to finance higher growth exposes an economy to greater speculative attacks on its currency. This, in essence, is the dilemma of 'hot money' flows.

## **2 Analytical aspects of viable external debt**

9. A county which is able to borrow in the international market at some fixed *rate of interest* ( $i$ ) would, at some stage in the future, face quantity-rationing from the lenders, and its source of external finance would dry up if its debt burden grows indefinitely large in relation to its ability to repay. Thus, a growing divergence of expectations between the lenders and the borrowers would result, if the servicing of growing debt requires an *increasing proportion* of GDP to be used for that purpose, and GNP ultimately begins to fall even if GDP rises. A first approximation to analyse this problem is to look at the time-path of the relation between the stock of external debt and GDP, assuming a constant interest



rate ( $i$ ) and a constant *growth rate in GDP* ( $g$ ). In order to maintain that constant growth rate of GDP, it may be assumed that any gap between *investment* ( $I$ ) and *saving* ( $S$ ) is financed by *foreign borrowing* ( $B$ ) at that given interest rate ( $i$ ). In discrete time, the stock of external debt ( $D$ ) at time  $t$  is given as

$$D(t) = [I(t) - S(t)] + [I(t-1) - S(t-1)](1+i) + [I(t-2) - S(t-2)](1+i)^2 + \dots + [I(1) - S(1)](1+i)^{t-1} + [I(0) - S(0)](1+i)^t$$

where

$$D(t) = \sum_{j=0}^t [I(t-j) - S(t-j)](1+i)^j \quad (1)$$

Since

$$g \equiv \frac{\Delta X(t-1)}{X(t-1)} = \frac{\Delta X(t-1)}{I(t-1)} * \frac{I(t-1)}{X(t-1)}$$

where  $X$  denotes GDP, it follows,

$$I(t-1) = g v X(t-1) \text{ or } I(t) = g v X(t)$$

where

$$v = \frac{I(t-1)}{\Delta X(t-1)} = \text{incremental capital - output ratio}$$

assumed constant (and has a one-period lag for investment to mature).

Moreover, assuming savings to be a constant proportion of GDP for simplicity,

$$S(t) = sX(t), \quad 1 > s > 0$$

we obtain

$$I(t) - S(t) = (gv - s) X(t)$$

or

$$[I(t-j) - S(t-j)] = (gv - s) X(t-j)$$

or

$$[I(t-j) - S(t-j)] = \frac{(gv - s) X(t)}{(1+g)^j} \quad (2)$$

Using (2) in (1),

$$\frac{D(t)}{X(t)} = k(t) = (gv - s) \left[ 1 + \left( \frac{1+i}{1+g} \right)^2 + \dots + \left( \frac{1+i}{1+g} \right)^t \right]$$

or,

$$k(t) = \frac{(gv - s)(1+g)}{(g - i)} \left[ 1 - \left( \frac{1+i}{1+g} \right)^{t+1} \right] \quad (3)$$

It could also be written in a slightly different form,

$$\frac{D(t)}{X(t+1)} = \tilde{k}(t) = \frac{(gv - s)}{(g - i)} \left[ 1 - \left( \frac{1+i}{1+g} \right)^t \right] \quad (3a)$$

since  $X(t+1) = (1+g)X(t)$ .

From (3) and (3a) it follows that the ratio of external debt to GDP, i.e.  $k(t)$  and  $\tilde{k}(t)$  respectively, tend to a constant, positive value as  $t$  tends to infinity, i.e.

$$k(t) \rightarrow \frac{(gv - s)(1+g)}{(g - i)}, \quad \text{if } g > i \text{ for } t \text{ large} \quad (4)$$

and

$$\tilde{k}(t) \rightarrow \frac{(gv - s)}{(g - i)}, \quad \text{if } g > i \text{ for } t \text{ large} \quad (4a)$$

Obversely, for  $g < i$ ,

$$\tilde{k} \text{ and } k(t) \rightarrow +\infty \quad \text{for } t \rightarrow \infty. \quad (5)$$

Therefore, the *first condition* for debt viability, i.e. its sustainability over time in a 'perfect' capital market with a constant rate of interest, is that *the steady rate of growth (g) must exceed the constant rate of interest (i)*. Otherwise, at some stage, lenders' expectations would become pessimistic enough to impose quantity-rationing on lending, as the ratio of debt to GDP becomes indefinitely large.

10. The *continuous time* analogue can be stated briefly.

$$B(t) = (gv-s)X(t-T)e^{iT}$$

so that the stock of debt is given as,

$$D(t) = \int_{T=0}^{T=t} (gv - s)X(t)e^{(i-g)T}$$

to yield,

$$k(t) = \frac{D(t)}{X(t)} = \frac{(gv - s)}{(g - i)} [1 - e^{(i-g)t}], \quad g \neq i \quad (6)$$

and

$$k(t) = \tilde{k}(t) \rightarrow \frac{(gv - s)}{(g - i)}, \quad g > i \text{ as } t \rightarrow \infty \quad (7)$$

If  $i > g$ , then  $k(t)$  or  $\tilde{k}(t)$  goes to (plus) infinity, by the same calculations for  $t$  sufficiently large.

11. Under steady growth, the above analysis can be extended easily to situations where investment has different *gestation-lags*, and *life-time of capital equipments* are finite (and arbitrarily given). This involves 'correction' of the incremental capital-output ratio ( $v$ ), while rest of the analysis remains the same. The technological capital-output ratio  $\mu$  relates *net* investment of time ( $t-\theta$ ) to increment in output between ( $t + i$ ) and  $t$ , i.e.,

$$m = \frac{I_N(t - \theta)}{\Delta X(t)} \quad (8)$$

where,  $\theta$  = the length of gestation-lag

$I_N$  = net investment i.e. gross investment  $I$  minus replacement Investment  $I_R$ ,

so that,  $I_N = I - I_R$ .

If  $n$  = life time of capital equipment, then

$$I_R = I(t - n) = \frac{I(t)}{(1 + g)^n}$$

Hence,

$$I_N = I - I_R \quad \text{i.e.} \quad I_N(t) = \left[ 1 - \frac{1}{(1 + g)^n} \right] I(t)$$

and

$$I_N(t-q) = \frac{I_N(t)}{(1+g)^q} = \left[ 1 - \frac{1}{(1+g)^n} \right] \frac{I(t)}{(1+g)^q} \quad (9)$$

The *statistically observed* incremental capital output ratio is given by,

$$v = \frac{I(t-1)}{\Delta X(t-1)} = \frac{I(t)}{\Delta X(t)}$$

Consequently from (8) and (9), the *relation between the statistically observed and the technologically specified ratio* is given by,

$$\frac{m(1+g)^q}{1 - \frac{1}{(1+g)^n}} = n \quad (10)$$

Using (10) in our earlier equation (2), we may examine the *additional requirement* of external borrowing in the presence of a longer gestation lag and higher requirement of replacement investment due to shorter durability of capital goods.

12. Let the technological incremental capital output ratio be  $\mu = 3:1$  and the savings ratio  $s = 0.2$ . Together, they imply that the economy can maintain 6.7% growth in GDP without foreign borrowing. However, suppose,  $g = 10\%$  is maintained through foreign borrowing. The following computations show the impact of the length of the gestation-lag ( $\theta$ ) and life-time of capital goods ( $n$ ) on requirements of foreign borrowing as a percentage of GDP for maintaining the given 10% growth rate.

Table 1

For $\mu = 3:1$ ; $s = 0.2$ ; $g = 0.1$			
% of GDP, borrowed externally at different parameter values			
capital goods durability	at gestation lag		
	$\theta = 0$	$\theta = 2$	$\theta = 4$
$n = \infty$	10%	16.3%	23.92%
$n = 10$	28.8%	39.1%	51.5%
$n = 8$	46.7%	48.1%	62.4%

Although a longer gestation-lag or shorter durability of capital goods increases the capital inflow required to maintain a specified level of growth, as is clear from the above table, it

does not in essence alter our previous argument of the need for the rate of growth to exceed the rate of interest for the long-run sustainability of external debt. It only increases the long-term steady state value of the constant ratio between debt to GDP, i.e. the value of  $k$  or  $\tilde{k}$ . This is easily seen by inserting (10) into (4), (4a) or (7) to obtain,

$$\tilde{k} = \frac{1}{(g-i)} \left\{ \left[ \frac{g\mu(1+g)^q}{1 - \frac{1}{(1+g)^n}} \right] - s \right\} \quad (11)$$

In practical terms, however, the problem can be more acute. Because, the confidence of the lenders must not be shaken (i.e. the country should be able to borrow all its requirements at a constant rate of interest) despite the fact that the debt to GDP ratio settles down to some higher constant value  $k$ .

13. The problem of lenders' confidence can be illustrated more clearly by considering the *time-path* of debt, i.e. the *rate of growth of debt*,  $(dD/dt)/D = G$ , in relation to the rate of growth of GDP,  $(dX/dt)/X = g$ , over time. From logarithmic differentiation of (6), we obtain

$$G = g + \left[ \frac{(g-i)}{e^{(g-i)t} - 1} \right] \quad (12)$$

Since the square-bracketed term on the right hand side of (12) is positive for  $g > i$ , it follows that the growth rate of debt would be higher than the growth rate of GDP; but it will gradually decrease as  $t$  becomes large, with the square bracketed term going to zero, as  $t$  becomes arbitrarily large, and  $G$  tending to  $g$ . In other words, *during the early periods, the lenders will have to have the confidence to lend at a considerably higher rate of growth than the growth in GDP*. In this sense, sustaining lenders' confidence is perhaps more problematic in the initial stages of the growth process, with the problem aggravated particularly by the presence of gestation lags. It also suggests that a process of growth dependent on foreign capital inflow is likely to be more viable, if projects with long gestation lags as well as short-term capital as a source of finance are not heavily concentrated in the early phases of the growth process.

14. In order to generalize the preceding analysis beyond GDP growth, we explicitly introduce net factor payment ( $Z$ ), linking GNP( $Y$ ) to GDP( $X$ ), i.e.

$$Y = X - Z.$$

In continuous time,

$$\dot{X} = (1/v)I = bI \quad , \quad b \equiv 1/v$$

$$S = sY$$

and

$$I = S + F$$

where F = net foreign borrowing.

The current account deficit is supposed to be covered by net foreign borrowing without any change in reserve, i.e.

$$M + Z - E = F$$

and

$$\dot{Z} = iF$$

Moreover, we assume, export and import to be proportional to GDP, i.e.

$$M = mX$$

$$E = \epsilon X$$

From the above equations, we obtain a linear system of differential equations, linking GDP(X) to net factor payment (Z) over time, i.e.

$$\dot{X} = b(s+h)X + b(1-s)Z, \quad h = (m - \epsilon) \quad (13)$$

$$\dot{Z} = ihX + iZ \quad (14)$$

Although the system (13) and (14) has a trivial equilibrium at (0,0), this equilibrium is unstable so long as  $h = (m - \epsilon) > 0$ . Because, with  $h > 0$ , the trace of the relevant matrix,  $T = b(s+h) + i > 0$  as a *sufficient* condition, while the determinant  $\Delta = bsi(1+h) > 0$ . However,  $h > 0$  is not necessary and sufficient, suggesting other possibilities.

Rewriting the relation between GNP(Y) and GDP(X) as,

$$Y = (1-u)X, \quad u = \frac{Z}{X} \quad (15)$$

we obtain through logarithmic differentiation

$$\frac{\dot{Y}}{Y} = \frac{\dot{X}}{X} - \frac{\dot{u}}{1-u} \quad (16)$$

It follows that the growth of GNP may become zero or even negative despite positive growth in GDP, if

$$\frac{\dot{u}}{1-u} \geq \frac{\dot{X}}{X}, \text{ or } \dot{u} \geq (1+u_t)g_t, \quad 1 > u > 0,$$

where  $\dot{u}$  is approximately  $(u_t - u_{t-1})$ .

It is thus important to see how the time path of the ratio of net factor payment to GDP (i.e.  $u$ ) behaves over time.

From (15),

$$\frac{\dot{u}}{u} = \frac{\dot{Z}}{Z} - \frac{\dot{X}}{X} \quad (17)$$

so that from (13) and (14) we obtain the quadratic equation on suitable substitution,

$$\dot{u} = -b(1-s)u^2 + [i - b(s+h)]u + ih = Q. \quad (18)$$

From (17) and (18), if  $Q \geq (1-u)g_t$ , GNP growth rate becomes negative, despite positive growth in GDP at  $g_t$  through foreign borrowing.

The two roots of the quadratic (18) at zero, define the stationary values of  $u$ , at which GDP and GNP grow at the same rate. The roots  $\lambda_1$ , and  $\lambda_2$ , given by

$$\lambda_1, \lambda_2 = \frac{[i - b(s+h)] \pm \sqrt{[i - b(s+h)]^2 + 4bih(1-s)}}{2b(1-s)}$$

are real and positive if

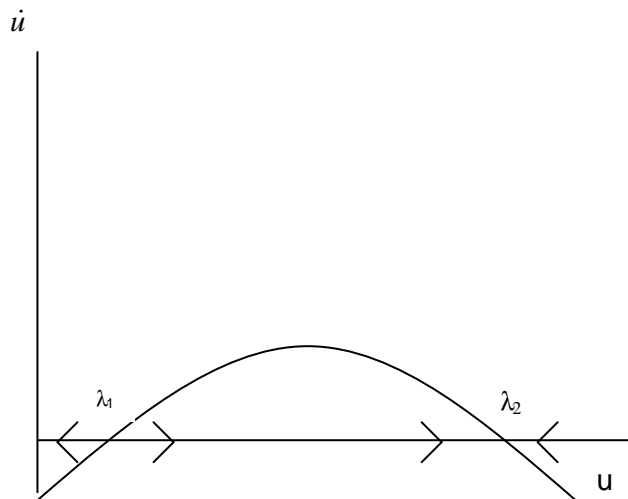
$$i - b(s+h) > 0 \quad (19)$$

$$4bih(1-s) < 0, \text{ i.e. } h < 0, \text{ or } (\varepsilon - m) > 0. \quad (20)$$

Thus, from (20) *even if the propensity to export exceeds the propensity to import, the system may settle down to an equilibrium position with a constant proportion of net factor payment to GDP, provided (19) holds, i.e. the country continues to be a net borrower without explosive external debt. This is shown in the following phase diagram, where the larger root ( $\lambda_2$ ) is seen to be stable, but the smaller root ( $\lambda_1$ ) is unstable.*

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<sup>6</sup> Assuming  $[i - b(s+h)]^2 > |4bih(1-s)|$ .



The condition (19) can be rewritten as,

$$i + b(\epsilon - m) > sb, \epsilon > m > 0 \quad (21)$$

which implies that the total 'service charge' per unit of debt consisting of interest rate ( $i$ ) plus net export over import per unit of investment resulting in additional output flow, as measured by the incremental output capital ratio ( $b$ ), i.e.  $b(\epsilon - m)$  has to exceed the autarkic rate of growth without foreign borrowing, i.e.  $sb$ . This bears an obvious correspondence to the steady state growth case analysed earlier, which considered only the relation between the constant growth rate and the interest rate. Here, complications are caused by export, import and net factor payment which make the growth rate not necessarily constant.

15. The analysis so far has been concerned with the question of the viability of external debt, looked at from the point of view of the *solvency* of the borrowing country. This means that the country concerned has to generate enough domestic resources through economic growth so as to be able to service its debt burden, without the external debt burden exploding into a crisis. To keep the analysis trackable, we assumed that no crisis of confidence on the part of the lenders would result in quantity-rationing being imposed on the borrowers, and the borrowing country would be able to borrow as much as it requires at a constant rate of interest so long as it satisfies the *solvency criterion*, i.e. the constant rate of growth exceeding the constant rate of interest in the simpler case (see conditions 4, 4a and 7), or the 'total service cost' per unit of borrowing not exceeding the autarkic rate of growth (e.g. conditions 19 and 21). However, the criterion of solvency does *not* ensure that the borrowing country would always be in a position to pay back *in time*, i.e. no serious 'cash-flow' problem would arise in terms of its external receipts and payments. In other words, it rules out the problem of serious *maturity mismatch* between its structure of



foreign assets and liabilities, which may result in *temporary illiquidity*. Put differently, a country may become solvent if allowed enough time to borrow at a (constant) rate of interest, but may appear insolvent, because at a particular point of time its cash receipts in foreign exchange is not adequate to meeting its cash repayment obligations. This is the *liquidity criterion* of external debt.

16. The illiquidity problem could be overcome by running down the foreign exchange reserve on a temporary basis, provided adequate reserves exist. However, this would not provide a solution, should the reserves be inadequate or the maturity mismatch persist over a sufficiently long period of time. Denoting  $\Delta R$  as *the change in reserve*, we may write the cash receipts minus payments obligation at time  $t$  as,

$$\Delta R(t) = [E(t) + B(t)] - [M(t) + Z(t) + B(t - \Phi)] \quad (22)$$

where  $E$  = export,  $B$  = foreign borrowing,  $M$  = import,  $Z$  = net factor payment, and  $\Phi$  is the average maturity period of repayment, i.e. borrowing of time  $(t - \Phi)$  has to be repaid at time  $t$ . If  $i$  = rate of interest, then

$$Z = i \int_{t-\Phi}^t B(t) dt = i[D(t) - D(t - \Phi)] \quad (23)$$

*Avoidance of maturity mismatch over time* requires  $\Delta R(t) \geq 0$ . Using Taylor's approximation (up to the linear term), we write,

$$B(t - \Phi) = B(t) - \Phi B'(t)$$

$$D(t - \Phi) = D(t) - \Phi D'(t) = D(t) - \Phi B(t).$$

These approximations allow a rewriting of *the liquidity criterion* (22) as

$$\Delta R(t) \geq 0,$$

implying

$$E(t) + B(t) \geq M(t) + i[D(t) - D(t) + \Phi B(t)] + B(t) - \Phi B'(t)$$

which simplifies to

$$\Phi \geq \frac{(m - e)}{[r(t) - i]a(t)} \quad (24)$$

where  $\Phi$  = average maturity period of foreign loan,

$m$  = propensity to import out of GDP,

$\varepsilon$  = propensity to export out of GDP,

$r(t) = B'(t)/B(t)$  = rate of growth of foreign borrowing at time  $t$ ,

$a(t) = B(t)/X(t)$  = ratio of foreign borrowing to GDP at time  $t$ .

In the above formula (24), if foreign borrowing has a higher rate of growth than the interest rate, *net* capital inflow over the servicing cost of borrowing finances the trade deficit to define the maturity period. For instance, if  $m = 0.3$ ,  $e = 0.21$ ,  $r = 0.2$  and  $i = 0.1$ , then  $a(t) = 0.3$  implies that  $\Phi \geq 3$  years. A higher trade deficit, e.g.  $m = 0.34$  and  $e = 0.22$  with other parameter values remaining the same, requires an average maturity period  $\Phi \geq 4$  years. Obversely, a higher ratio of foreign borrowing to GDP, i.e. higher  $a(t)$  allows a given trade deficit to be financed more easily through capital inflow, even if the maturity period of debt is on average shorter. Thus, with  $m = 0.34$ ,  $e = 0.22$ ,  $r = 0.2$  and  $i = 0.1$  (as in the last arithmetic example), but with higher  $a(t) = 0.6$ ,  $\phi \geq 2$  years, to avoid maturity mismatch by condition (24). Finally, it should be noted that condition (24) might serve as an *approximate quantitative criterion of liquidity*, only so long as the right hand side of the inequality in (24) is positive. This implies cases where import surplus ( $m - t > 0$ ) is met by borrowing at a faster rate than the interest cost of borrowing ( $r - i > 0$ ) or cases where an export surplus ( $m - \varepsilon < 0$ ) is eroded by the higher interest cost over additional borrowing over time ( $r - i < 0$ ).

### 3 Directions for statistical analysis

17. In the light of the preceding analysis of Sections 1 and 2, we may now formulate the statistical analysis needed to examine the viability of external debt for a developing or transitional economy.

#### (A) Solvency criterion

As already discussed in Section 2, the criterion in various ways, i.e. under steady and non-steady growth in GDP, revolve around a *comparison of the rate of growth of GDP ( $g$ ) and the rate of interest ( $i$ )* on externally borrowed finance. To consider the rate of growth over a longish stretch of time (e.g. at least 10 quarterly observations) we regress the logarithm of GDP against time through the *ordinary least square technique*, and treat the slope of the regression line as the *estimated average growth rate of GDP*.

The analysis or estimation of growth rate through ordinary least square may raise some special problems in case of statistical 'outliers', e.g. in economies where the growth rate fluctuates 'sharply' from period to period. Since the solvency criterion is essentially about the additional resources generated through growth in GDP in relation to the additional service cost of growing debt due to interest charges, a *complementary* method of

estimating the average growth rate is to consider each period's growth, and average it via the geometric mean, i.e.

$$X_0(1 + g_0)(1 + g_1) (1 + g_2) \dots (1 + g_{n-1}) = X_0(1 + g)^n$$

or

$$(1 + g) = \sqrt[n]{(1 + g_0)(1 + g_1)\dots(1 + g_{n-1})} \quad (25)$$

Computation of average growth rate  $g$  according to (25) is different from the least square technique, insofar as it is likely to be more sensitive to the base or initial value of  $X_0$  chosen.

Considering an *average interest rate* on externally borrowed finance is also problematic because of the 'noise' term associated with amortization payments. Three methods, should be used:

(i) *Direct estimate*, i.e. finding out from the national central banks and lending institutions the rate at which the country has been borrowing. If loans of different maturities from different sources etc. carry different interest rates, a *weighted average interest rate* where the weights represent the composition of debt needs to be taken.

(ii) *Regression method*: Regress gross factor payments against debt, and the slope of this line is treated as the 'average service cost' or the rate of interest (including amortization, on current account of the balance of payments) on foreign borrowing.

(iii) *Geometric mean*: As in equation (25), we consider period-to-period growth in gross factor payments to calculate the rate of interest (i.e. service cost) on external borrowing, i.e. corresponding to (25),

$$Z_0(1+i_0)(1+i_1) \dots (1+i_{n-1}) = Z_0(1+i)^n$$

$$1 + i_0 = \frac{Z_1}{Z_0}, (1 + i_1) = \frac{Z_2}{Z_1} \quad \text{etc., to yield,}$$

$$(1 + i) = \sqrt[n]{(1 + i_0)(1 + i_1)\dots(1 + i_{n-1})} \quad (25a)$$

Note that in the case of countries which hold substantial foreign reserves in income-earning foreign assets, the same analysis should be repeated to obtain the net service cost, i.e. net interest payment, by regressing or taking the geometric mean of the net factor payments.

According to condition 4, (4a) or (7), the *solvency criterion* boils down to a comparison of the average growth rate of GDP with the average gross and net service cost or interest on external borrowing.

To apply condition (18) and (21) to situations dealing explicitly with non-steady growth in GDP, we calculate export, import and savings propensity. We can calculate them as simply average propensities, i.e. ratios of import and of export to GDP period by period, and then either averaging it out over the relevant periods or taking the simple arithmetic average.

We should also regress export and import against GDP to see whether there is a trend term, and also how the *marginal* propensities given by the slopes of the regression line compare with the average propensities used in the algebraic derivation. In the same way, savings propensity needs to be calculated, but regressed against GNP; moreover, the savings to GNP ratio is the relevant value for the analysis. Incremental capital output ratio may be calculated by regressing increase in output against investment with one-period lag and estimating the slope. If one-period lag does *not* give the best fit, the optimal lag length may be chosen to make use of formula (10). This analysis could be complemented by calculating annual (i.e. per period) incremental capital output ratios, and taking the mean value of those ratios.

#### 18. (B) *Liquidity criterion*

The period to period growth rate in external borrowing ( $r(t)$ ), and the ratio of foreign borrowing to GDP in each period,  $a(t)$  may be calculated. By use of the equality condition in (24), we get an idea of the permissible maturity period of loan on an average, i.e.  $\phi$  which would satisfy the (crudest) liquidity criterion, and avoid serious maturity mismatch. If  $\phi$  is seen to be rising over time, it suggests problems with sustaining the liquidity position. This analysis could be more practically oriented if information were also available on the average residual maturity of a country's external debt (see Section 1). Moreover, a decrease in the value of residual maturity over time would also suggest that problems might arise owing to the economy's illiquid position.

#### 19. (C) *Divergent expectations* (among lenders and borrowers)

Since expectational variables are empirically unobservable, we need to approach this problem indirectly, *in addition* to examining the solvency and the liquidity criteria (see Section 1 for discussion). Two criteria, based on economic reasoning and historical experience (especially recent experience in East Asia, 1997/98) suggest themselves:

(i) If exchange rate *appreciation* of the domestic currency is seen to be associated with an *increase in net external borrowing*, this might indicate an artificial, economic configuration. Empirically, a systematic tendency of *current account deficit correlated positively with an appreciating or even non-depreciating domestic currency* over a number of periods

suggests an artificial configuration of this kind, which may be unsustainable owing to divergent expectations among borrowers on the one hand and lenders on the other. It bears emphasizing that *irrespective* of the economy's reserve position, this criterion suggests the possibility of divergent expectations leading to a crisis.

(ii) A complementary indicator would be the *time path of the ratio of foreign exchange reserve held by the borrowing country to the magnitude of current account deficit*. In a rough manner, this ratio would indicate the duration or length of time over which the country is able to sustain a current account deficit by running down reserves, without taking recourse to more fundamental changes in its trade and production structure. A tendency of this ratio to drop over time might be a signal that the lenders' expectations may diverge increasingly from those of the borrowers (see Section 1), paving the way to a debt crisis. Criteria C(i) and C(ii) – which hint at divergent expectations – are to be treated as complementary in empirical work. They are not foolproof by any means, but might provide indications of an artificial economic configuration which is not sustainable over time.

Finally, it should be mentioned that criteria (A), (B) and (C) – which attempt to capture the problems of solvency, illiquidity and coherence of expectations respectively among lenders on the one hand and borrowers on the other – are *complementary* criteria. They should be considered and examined together in order to arrive at an informed opinion about whether the borrowing country has a viable external debt position over time.

## **Statistical Appendix**

In order to get an idea about the sustainability of the current debt situations and of the probability of a debt crisis evolving in Eastern European countries, we adopted a three-step approach to this problem, with each step providing some specific insight into each country situation. But like pieces in a puzzle all steps have to be put together to get an informed opinion about whether or not the East European countries have a viable external debt position over time.

A. In the first step we assumed that for avoiding a debt crisis in the long run the GDP growth rate has to be higher than the interest rate paid on foreign debt. The GDP growth rate has been calculated as a geometric mean for 1994-1999. The calculation of the interest rate has, however, turned out more complicated because required data for the private sector in distinction to the Government sector were not available. Thus, we have chosen a different approach, namely to estimate total service payments  $Z$  of a country for a given year and total stock of foreign debt  $D$  in the same year. Having both estimates we calculated the interest rate  $i$  as the  $Z/D$  relation.

It is clear that this method of estimating the ruling interest rate might be criticized, since the reported flows of service payments might not reflect the 'true' service payments (e.g. a country may be unable to service its debt fully or it is already subject to some special agreements such as a debt moratorium). From this point of view, the interest payments reported are likely to be lower than the 'true' service payments at least for some countries, and therefore also the interest rate  $i$  to be compared with the growth rate might be too low. The other possibility was to take the LIBOR (London Interbank Offered Rate) + some premium depending on the creditworthiness of the country concerned. The reason why we estimated the interest by aggregating the actual debt service payments is the following: if a country is really not able to fully service its debt, once a debt crisis has already occurred, there is a (tacit and maybe only one-sided) agreement that the country pays back as much as it can, on the condition that the lower payments make it possible for the country to fully service its debt in the future. Hence the viability criterion we have used leaves open the question whether at a 'true' interest rate in the future the country concerned would be able to service its debt.

Table 1 shows a comparison between GDP growth rates and the estimated interest rates. Two points relating to the interest rate should be noted here. First, in our calculations we have differentiated between gross and net interest rates. While the gross interest rate

Table 1

**Comparison between GDP growth rate and interest rates**

		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Avg 94-99
<b>Czech Republic</b>	GDP growth	4.5	-1.2	-11.6	-0.5	0.1	2.2	5.9	4.3	-0.8	-1.2	-0.4	2.9	<b>1.6</b>
	gross interest rate	.	.	.	.	5.5	5.1	5.3	6.5	8.9	6.3	6.8	.	<b>6.5</b>
	net interest rate													
<b>Hungary</b>	GDP growth	0.7	-3.5	-11.9	-3.1	-0.6	2.9	1.5	1.3	4.6	4.9	4.2	5.2	<b>3.2</b>
	gross interest rate	.	6.3	6.7	6.3	6.2	6.5	7.0	8.3	9.6	7.3	5.1	.	<b>7.3</b>
	net interest rate	.	5.4	5.4	4.7	4.4	4.3	4.7	4.2	4.0	3.4	2.5	.	<b>3.9</b>
<b>Poland</b>	GDP growth	0.2	-11.6	-7.0	2.6	3.8	5.2	7.0	6.0	6.8	4.8	4.1	4.0	<b>5.6</b>
	gross interest rate	.	14.5	4.0	9.1	8.7	5.9	3.2	3.5	3.7	4.0	3.6	.	<b>4.0</b>
	net interest rate	.	12.3	3.3	7.7	7.4	4.8	1.3	0.7	0.7	0.7	0.7	.	<b>1.5</b>
<b>Slovak Republic</b>	GDP growth	1.0	-2.5	-14.6	-6.5	-3.7	4.9	6.7	6.2	6.2	4.1	1.9	2.2	<b>5.0</b>
	gross interest rate	.	.	.	.	.	4.9	3.5	3.0	3.8	4.4	5.4	.	<b>4.2</b>
	net interest rate	.	.	.	.	.	3.3	0.4	0.5	1.1	1.1	2.9	.	<b>1.5</b>
<b>Slovenia</b>	GDP growth	-1.8	-4.7	-8.9	-5.5	2.8	5.3	4.1	3.5	4.6	3.8	5.2	4.6	<b>4.4</b>
	gross interest rate	.	.	.	7.3	8.0	5.7	4.7	5.8	6.4	5.0	4.9	5.4	<b>5.4</b>
	net interest rate	.	.	.	2.1	2.4	1.3	-0.2	1.3	1.7	0.7	0.8	1.4	<b>0.9</b>
<b>Bulgaria</b>	GDP growth	-1.9	-9.1	-11.7	-7.3	-1.5	1.8	2.9	-10.1	-7.0	3.5	2.4	5.8	<b>-1.2</b>
	gross interest rate	.	5.9	12.9	1.3	1.4	3.0	3.5	8.0	0.2	2.0	2.0	.	<b>3.1</b>
	net interest rate	.	5.1	4.3	0.6	0.9	2.1	2.6	5.9	0.2	0.0	-0.2	.	<b>1.8</b>
<b>Romania</b>	GDP growth	-5.8	-5.6	-12.9	-8.8	1.5	3.9	7.1	3.9	-6.1	-4.8	-2.3	1.6	<b>0.2</b>
	gross interest rate	.	1.7	6.1	9.0	0.9	3.3	4.0	4.6	4.3	3.8	6.8	.	<b>4.5</b>
	net interest rate	.	-19.2	0.2	5.7	0.7	1.8	3.0	3.8	2.6	2.0	6.1	.	<b>3.2</b>
<b>Croatia</b>	GDP growth	.	-7.1	-21.1	-11.7	-8.0	5.9	6.8	5.9	6.8	2.5	-0.4	3.7	<b>4.6</b>
	gross interest rate	.	.	.	.	-10.6	5.8	5.2	6.1	4.3	4.4	5.6	5.2	<b>5.2</b>
	net interest rate	.	.	.	.	-5.9	3.9	1.5	2.2	0.4	1.3	3.7	2.4	<b>2.2</b>
<b>Russia</b>	GDP growth	.	-3.0	-5.0	-14.5	-8.7	-12.7	-4.1	-3.4	0.9	-4.9	5.4	8.3	<b>-3.3</b>
	gross interest rate	.	.	.	.	.	-3.9	2.5	4.9	8.7	15.4	12.8	5.5	<b>6.8</b>
	net interest rate	.	.	.	.	.	-1.4	1.1	2.7	5.6	11.3	8.7	3.3	<b>4.7</b>
<b>Ukraine</b>	GDP growth	.	-4.0	-8.7	-9.9	-14.2	-22.9	-12.2	-10.0	-3.0	-1.9	-0.2	5.8	<b>-8.7</b>
	gross interest rate	.	.	.	.	.	.	.	4.0	5.3	9.6	10.2	9.8	<b>7.3</b>
	net interest rate	.	.	.	.	.	.	.	3.4	4.2	8.5	9.3	8.7	<b>6.3</b>

takes into account only interest payments of each country, the net interest rate takes into account interest receipts as well. Subtracting interest receipts from interest payments results in the net interest rate.

Second, we have adjusted the interest rate for the change in the exchange rate and the change in the domestic price level, in order to get the 'real cost', i.e. in terms of domestic output, of servicing the foreign debt.

Where it was possible we included data from 1990 to 2000 and also calculated a 1994-1999 average for each category to cover all countries except Ukraine, for which we calculated a 1996-1999 average.

Table 1 makes it possible to compare the growth rate and the interest rate for each country. It turns out that only two countries (Poland and Slovakia) show an average growth rate higher than the average gross real rate of interest. However, at the average net rate of interest five countries fulfil our viability criterion.

Table 2

<b>Gap between growth rate and interest rates</b>			
	<b>GDP – interest rate gross</b>		<b>GDP – interest rate net</b>
Ukraine	-16.0	Ukraine	-15.1
Russia	-10.0	Russia	-8.0
Czech Republic	-4.8	Romania	-3.0
Bulgaria	-4.4	Bulgaria	-3.0
Romania	-4.3	Hungary	-0.6
Hungary	-4.1	Czech Republic	0.5
Slovenia	-1.0	Croatia	2.4
Croatia	-0.7	Slovak Republic	3.4
Slovak Republic	0.8	Slovenia	3.5
Poland	1.7	Poland	4.2

In Table 2 we go beyond a simple comparison by calculating the difference between the average growth rate and average interest rate for each country. Hence we get not only the sign but also the size of the gap – positive if the country is likely to have no problems servicing its debt in the future and negative if such difficulties may be expected. Of course a negative sign is unavoidable if the GDP does not increase.

The interpretation of these tables depends very much on the choice of the rate of interest. The gross interest rate gives quite a pessimistic view of the East European countries, because in this case eight countries would have problems servicing their debt, with Ukraine and Russia doing very poorly. The net interest rate lets us see things a bit more



optimistically, for in this case five countries seem to be on the safe side, and only Ukraine, Russia, Romania, Bulgaria and even Hungary seem still to be in a dangerous position.

B. Following the theoretical discussion in the main part of Bhaduri (1999) we have estimated two further indicators which may inform us about the possibility of a debt crisis in a specific country.

In Bhaduri's words: 'In the ideal world of perfect capital markets where a country can borrow an unlimited amount at a constant interest rate, it can continue to borrow to meet its debt servicing obligations. [. . .] In principle, such a show can go on indefinitely. In practice, it invariably comes to an end, when the lenders' confidence collapses as the borrowers' debts mount.' (See Bhaduri, 1999, section II.) This is true not only for a mounting debt because (quantity) rationing of loans could also occur when the lender has an increasingly pessimistic assessment (compared to the borrower) of the prospects of investment financed by foreign debt, and therefore believes that the borrower would not be able in future to repay his debt (see Bhaduri, 1999). The problem here is that the lender and the borrower have different expectations concerning the prospects of the borrower's investments. This will happen if the borrower still wants to borrow but the lender denies further lending, because his expectations are worse than those of the borrower. Hence it is of major importance for the borrower, who wants to continue to borrow in order to meet his debt obligations, that the lender has the same expectations about the future profitability of investments as he has.

The question to be analysed is that of the existence of divergent expectations between lenders and the ten East European countries as borrowers. Since expected variables are empirically unobservable, we approached this problem indirectly by looking at the current account balance and the exchange rate.

First, we took into consideration the fact that a systematic tendency towards a current account deficit correlated positively with an appreciation, or even non-depreciation of the domestic currency over a number of periods suggests an artificial configuration. Indeed in that case the appreciation of the domestic currency is associated with increased net external borrowing, a situation which may not be sustainable due to diverging expectations among borrowers, on the one hand, and lenders, on the other (Bhaduri, 1999).

In order to test empirically this hypothesis we have simply multiplied the current account balance (as a percentage of GDP) with the change in the exchange rate (NCU/USD). Thus, when there was a current account surplus (a plus sign) and an appreciating currency (a minus sign) we got a negative number; we also got a negative number when there was a current account deficit along with a depreciating currency.

Usually a country's currency is expected to depreciate in the presence of a current account deficit, and the other way round if the country has a current account surplus. Hence the negative numbers in our exercise represent a normal rather than an artificial configuration. These results are shown in Table 3 by asterisks without any numbers, because actual figures are of minor importance. For positive signs related to an artificial configuration (an appreciating currency with a current account deficit or a depreciating currency with a current account surplus) the situation is different. The larger the size of the deficit combined with an appreciating currency, the more artificial and less sustainable the combination. Therefore we have given weights to positive signs: the higher the weight the more dangerous the existing artificial situation. Additionally the weights also indicate what kind of artificial situation the country actually is in; thus a situation where a country runs a current account deficit but at the same time appreciates can be identified through the negative value of the weight. In the case of a current account surplus going *pari passu* with depreciation the weight takes a positive value.

Table 3

	Indicator for diverging expectations I										
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Bulgaria	-2	*	*	*	*	*	4	98	*	*	*
Croatia	*	*	108	77	10	-7	*	*	*	*	*
Czech Republic	*	7	-1	1	-2	-2	*	*	*	*	*
Hungary	0	1	1	*	*	*	*	*	*	*	*
Poland	8	*	*	*	1	4	*	*	*	*	*
Romania	*	*	*	*	*	*	*	*	*	*	*
Russia				30	7	5	3	1	0	32	21
Slovak Republic				*	5	*	*	*	*	*	*
Slovenia	12	2	22	2	5	0	0	0	*	*	*
Ukraine				*	*	*	*	*	*	9	6

*Note:* Positive and negative numbers are indicators of an artificial situation, as described in the text; asterisks represent a normal state.

The results show that in the past there were strongly divergent expectations in Russia, Croatia, the Czech Republic and Slovenia, though for Russia the expectations seem to diverge most strongly and over the longest period. Romania was the only country for which no divergent expectations could be detected.

C. Second, we approached divergent expectations by observing the ratio of foreign exchange reserves held by the borrowing country to the current account deficit. In a rough manner, this ratio would indicate the length of time over which the country is able to sustain a current account deficit by running down reserves, without taking recourse to more fundamental changes in its trade and production structure.

A falling tendency of this ratio over time might be a signal that the lenders' expectations may diverge increasingly from the borrowers' expectations, which might lead to a debt crisis. We calculated these ratios as the sustainability index of the current account deficit in days and put the results in Table 4. It can be seen that Russia will have no problems in this respect, because it is running a current account surplus. The Slovak Republic, Romania, Croatia and Ukraine performed badly, although for these countries, except for Romania, the situation improved during 1999 and 2000. In the case of Romania, its increasing reserves to current account deficit share might be a positive sign for the future.

## **Reference**

Bhaduri, Amit (1999), 'Capital movements, debt and long-term growth', mimeo.

Table 4

## Indicator for diverging expectations II

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Avg. 92-99
Bulgaria	.	.	1569	949	218	11463	2279	surplus	surplus	15920	1620	1646	4871
Croatia	.	.	.	surplus	surplus	surplus	480	776	399	672	725	2430	913
Czech Republic	.	.	.	1011	surplus	2896	3738	1060	1111	3448	2987	2030	2285
Hungary	438	surplus	surplus	surplus	712	632	1768	2127	3136	1484	1904	2747	1814
Poland	644	surplus	536	1036	545	surplus	surplus	4864	1813	1504	863	1011	1662
Romania	.	3	75	22	13	505	69	78	375	169	430	646	256
Russia	.	.	.	surplus	surplus	surplus	surplus	surplus	surplus	surplus	surplus	surplus	surplus
Slovak Republic	.	.	.	.	285	surplus	surplus	606	665	538	1273	2093	910
Slovenia	.	.	surplus	surplus	surplus	surplus	6686	surplus	surplus	9022	1478	1969	4789
Ukraine	.	.	.	276	71	209	339	609	645	223	surplus	surplus	339

Note: The figures represent how long the current account deficit could be sustained out of foreign exchange reserves (in days); 'surplus' denotes a current account surplus.

*Amit Bhaduri*

## **Capital Flows, the Balance of Payments and the Exchange Rate:**

**An analysis of the opportunities and dangers of capital flows  
with special reference to the economies in transition in Eastern Europe**

### **1 Introduction**

The former centrally planned economies are making their transition to the market system at a time when the 'globalization of capital' is also progressing at an extraordinarily rapid pace. Multinational corporations, banks and other financial institutions are major players in this process. It is characterized by overwhelmingly large private capital flows. The daily volume of foreign exchange transactions is estimated currently at nearly 1.5 trillion dollars in spot and future markets together, including various 'options' – and 'derivatives' related financial transactions. Less than 2 per cent of this volume of transactions is related to trade, and a similarly small percentage is accounted for by foreign direct investment. The overwhelmingly large proportion of this transaction is in the form of 'footloose' capital, often of a short-term nature (see Neal, 1990).

This process of capital globalization both offers unprecedented opportunities and poses threats to the economies in transition for two special reasons. First, their historical legacy has left them with a very large and usually badly functioning public sector. Privatization programmes prove to be a convenient and powerful way of attracting private foreign capital so long as deregulation of the public sector continues. While this provides opportunities for faster growth through a relaxation of foreign exchange constraints, it is intertwined with the danger that these capital inflows may lead to an artificial appreciation of the domestic currency. This means not only a decline in price competitiveness in international trade, thus calling for more capital inflow to cover the current account deficit. It might also stimulate speculative capital inflow encouraged by the home currency appreciating over the short term. This, however, is unlikely to be a stable economic configuration; because, as international indebtedness grows through such capital inflows, confidence in the currency is eroded through expectations of a future devaluation. This leads ultimately to an outflow of capital, and the 'mania' of lending to a country turns into a 'panic' of sudden withdrawal of lending, leaving the country in the grip of a financial crash (Kindleberger, 1978). With some variations, this story line has repeated itself frequently in the recent past in Latin America and South-east Asia. It may repeat itself once more in Eastern Europe, unless the nature of the problem is adequately understood. Therefore, the interrelation between short-term foreign capital inflows driven by exchange rate expectations modified by interest rate differentials (see Dornbush, 1976), and the nature of the economic instability it generates in the exchange rate and the balance of payments needs to be

investigated, both analytically (see Krugman, 1979; Diaz-Alejandro, 1985; Flood and Garber, 1984) and empirically.

Section 2 of this paper outlines an analytical model to facilitate such an investigation with its examination of the dynamic interaction between capital inflow, the current account and the exchange rate over time (with reference to some special features of the experience in Eastern Europe). Section 3 shows that the dynamics of both the balance of payments and the exchange rate are analytically interrelated in such a manner that the stability/instability property of one implies that of the other. The final Section 4 concludes with some observations and policy implications that may be inferred from this analysis.

## 2 The analytical framework: capital flow–current account dynamics

We follow the usual practice of using the US dollar as the accounting unit. Therefore,  $r$  = the exchange rate, i.e. the amount of domestic currency per unit of dollar. Thus, a higher  $r$  implies a 'weaker' or cheaper domestic currency in US dollar terms. Moreover, measuring all the relevant magnitudes such as foreign capital ( $D$ ), consisting of a real and a financial part, and reserve ( $R$ ) in dollar units, we avoid some unnecessary accounting complications due to the revaluation of these stocks in domestic currency.

Let,  $M$  = import,

$E$  = export,

$Z$  = net factor payment,

so that the current account deficit ( $B$ ) is given definitionally as

$$B = (M - E) + Z = T(r) + Z \quad (1)$$

where  $T(r)$  = net import, which would be a decreasing function of  $r$ , i.e. the trade balance improves through depreciation if the usual Marshall-Lerner conditions on trade elasticities are satisfied, giving (for simplicity in the linear case),

$$\frac{dT}{dr} \equiv T'(r) = -b, \quad b > 0. \quad (2)$$

The net factor payment, especially in the case of Eastern Europe, is the outcome of a complex set of forces. Owing to the ongoing privatization programme, payment of

dividends is an increasingly important item in foreign-held equity capital.<sup>7</sup> In addition, the cost of debt- servicing through interest payments is an important item. The interest earned on reserves needs to be deducted from debt servicing, especially as holding large reserves from accumulated capital inflows has turned out to be quantitatively significant.<sup>8</sup> A more elaborate accounting along these lines would be

$$Z = (1-I)r K_f + i_b (D-K_f) - i_l R$$

where  $K_f$  = equity capital held abroad,  $(1-I)$  = fraction of profit distributed,  $r$  = rate of profit,  $i_b$  = borrowing rate of interest, charged on foreign debt  $(D-K_f)$ , and  $i_l$  = lending rate of interest.

Thus

$$\frac{dZ}{dt} \equiv \dot{Z} = (1-I)r \dot{I}_f + i_b \dot{D} - i_b \dot{I}_f - i_l \dot{R} \quad (3)$$

where  $I_f$  = foreign direct investment (FDI),

$\dot{D} \equiv F$  = gross capital inflow,

$\dot{R}$  = change in reserve,

which definitionally equals

$$\dot{R} = F - B. \quad (4)$$

Hence (3) reduces to

$$\dot{Z} = [(1-I)r - i_b] \dot{I}_f + (i_b - i_l) F + i_l B \quad (5)$$

or,  $\dot{Z} = c \dot{D} = cF$  (6)

where  $c = (i_b - i_l) + [(1-I)r - i_b](I_f / F) + i_l (B / F)$  (7)

with  $c$  = weighted cost of foreign gross capital inflow given by (7).

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<sup>7</sup> See Hunya and Richter (1999, p. 2), where they observe that in 1998 'more than one-third of the deficit increase (in the current account by USD 1.3 billion, resulting in a total current account deficit of USD 2.3 billion or 4.8 per cent of GDP) was due to the transfer abroad of income from foreign direct investment (FDI)'. See also Table 2 for a cross-country comparison.

<sup>8</sup> E.g. in 1998, international reserves held by the National Bank of Poland grew by USD 6 billion, of which more than 80 per cent was held as short-term liquidity (Awi Ski, 1999, p. 2).

The movements in the exchange rate may be assumed to be governed by the usual demand-supply relation in the foreign exchange market, i.e.

$$\frac{dr}{dt} \equiv \dot{r} = q [B - F] \quad (8)$$

where  $q$  = speed of adjustment in the foreign exchange market, reflecting both the degree of deregulation and intervention by the central bank.<sup>9</sup>

Differentiating (1) with respect to time, and using (2), (6) and (8), we obtain the movements over time in the current account of the balance of payments as

$$\dot{B} = -bq B + (c + bq) F \quad (9)$$

Note from (7) that  $c$  changes over time if the weights change.<sup>10</sup> For expositional simplicity, we assume however that  $c$  is given (otherwise (5) may be used in a computationally more complex model).

We focus on the influence of the exchange rate on capital flows by abstracting from other factors such as cross-border interest or tax differentials. Thus, the gross capital flow is represented as consisting of two parts: a long-term flow  $L$ , uninfluenced by exchange rate expectations, and a short-term flow, driven entirely by exchange rate expectations,

$$F = L + a (r - \hat{r}), \quad a > 0 \quad (10)$$

where  $\hat{r}$  = the expected exchange rate. Thus,  $(r - \hat{r}) > 0$  implies expected appreciation of the domestic currency which stimulates capital inflow in anticipation of capital gains on foreign exchange transactions; obversely,  $(r - \hat{r}) < 0$  retards capital inflow for fear of capital loss on foreign exchange transactions.

The expected exchange rate depends on the external asset ( $R$ ) and liability ( $D$ ) position of the economy. Thus, other things being equal, a larger external debt strengthens market sentiments about future currency depreciation, while a larger reserve encourages sentiments about future appreciation. Formally

$$\hat{r} = H(D, R)$$

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<sup>9</sup> To interpret  $q$ , note that by virtue of (4) and (8) the rate of depreciation of the home currency is proportional to the rate of reserve depletion, i.e.  $\dot{r} = -q R$ . Thus, excess demand for foreign exchange ( $B - F$ ) in the spot market is met by reserve depletion, and  $q$  represents the extent to which the central bank allows the home currency to be depreciated in response to reserve depletion. Thus, small  $q$  means more regulation, and less depreciation of the home currency.

<sup>10</sup> See footnote 1; between 1997 and 1998 the weights seem to have changed dramatically in Hungary as a result of profit repatriation.



or 
$$\frac{d\hat{r}}{dt} \equiv \dot{\hat{r}} = \frac{\partial H}{\partial D} \dot{D} + \frac{\partial H}{\partial R} \dot{R}. \quad (11)$$

Using (4) in (11),

$$\dot{\hat{r}} = (m - n) F + n B \quad (12)$$

where

$$\frac{\partial H}{\partial D} = m > 0 \quad \text{and} \quad \frac{\partial H}{\partial R} = -n, n > 0$$

with  $m$  and  $n$  assumed constant for the time being over the relevant range, for algebraic simplicity.

Differentiating (10) with respect to time, and using (8) and (12), we obtain the time movement in capital inflow as.

$$\dot{F} = a(q - n) B - a[q + (m - n)] F. \quad (13)$$

Equations (9) and (13) together define the basic dynamical system, depicting the interaction over time between the current account ( $B$ ) and capital inflow ( $F$ ).

The system has its equilibrium at the origin ( $B = 0, F = 0$ ) with no current account deficit or capital inflow. The equilibrium at the origin is asymptotically stable provided the trace ( $t$ ) is negative and the determinant ( $\Delta$ ) positive, i.e.

$$t < 0, \text{ implying } q [1 + (b/a)] + m > n \quad (14)$$

$$\Delta > 0 \text{ implying } a [q (bm - c) + cn] > 0. \quad (15)$$

Together, (14) and (15) restrict the value of  $n$  for stability in the open interval,

$$P = \{q [1 - (b m/c)]\} < n < \{q [1 + (b/a)] + m\} = Q. \quad (16)$$

Note moreover the length of this interval is given by

$$I = (Q - P) = m + q b[(1/a) + (m/c)]. \quad (17)$$

We are now in a position to interpret economically the formal results. From partial differentiation with respect to the relevant variable, it follows from (17) that, given the value of  $n$ , the interval increases in length with  $b$ ,  $m$  or  $q$ , but decreases as  $a$  or  $c$  increases. This means that greater improvement in the trade balance in response to depreciation (i.e.

higher  $b$ ), a stronger depressing effect of higher debt on the expected exchange rate depreciation owing to a more cautious attitude on the part of the lenders (i.e. higher  $m$ ) as well as greater adjustment in the spot foreign exchange rate to demand–supply disequilibrium met through change in reserve (i.e. larger  $q$ ) would tend to increase the (measure-theoretic) probability of the system being stable. On the other hand, however, not only would a higher servicing cost of external debt (i.e. larger  $c$ ), but also a stronger response of capital flows to expected change in the exchange rate (i.e. larger  $a$ ) reduce the probability of the system being stable. Interestingly, the model suggests that whereas raising the extent of exchange rate response ( $q$ ) to the demand–supply disequilibrium reflected in the change in the reserve position through greater deregulation and less intervention may help in stabilizing the interactive current account and capital flow dynamics, it might need to be combined with greater regulation on short-term capital flows (i.e. lowering the value of  $a$ ). This also suggests that the debate should not be about regulation versus deregulation, but the correct mixture of regulation and deregulation needed to stabilize the current account in a regime of short-term capital flows (see Section 4).

On the other hand, if we treat all other parameter values ( $a, b, c, q, m$ ) – except  $n$  – as constant, it will be noted from (14), (15) and (16) that the system, while stable for some values of  $n$  (satisfying (16)), is unstable for higher values of  $n$ . Thus, as  $n$  becomes larger, the system tends to be unstable. A larger value of  $n$  in economic terms means that a minor change, e.g. decrease in reserves, leads to expectations of a relatively large future depreciation in the exchange rate. Thus when reserves are already at a ‘dangerously’ low level, a further depletion of reserves raises expectations of a major devaluation and strongly discourages capital inflows. As a result the currency depreciates, but this does not improve the trade balance sufficiently (violating condition (14)), and the reserves are depleted even further in an unstable downward spiral. This is how the model captures the phenomenon of the ‘mania’ of lending and capital inflow turning into a ‘panic’ of withdrawals from lending and capital outflow. In our model, this is governed by the lenders’ sensitivity to variations in the reserves, as the parameter  $n$  undergoes a change at different levels of reserves.

As a final point it may be noted from (14) that as  $n$  increases, the trace  $t$  turns from negative to positive, while the determinant  $\Delta$  remains positive at that critical value of  $n$  for which  $t = 0$ . Applying the negative criterion of Benedixon, the existence of a ‘limit cycle’ cannot be ruled out. However, it is a difficult mathematical task to prove its existence in a specified non-linear system. If, however, such a limit cycle exists, it would mean that both capital flow and the current account may also undergo sustained fluctuations over time – the ‘mania’ of capital inflow and the ‘panic’ of capital outflow alternating at intervals over time.

### 3 The accompanying dynamics of the exchange rate

Although we have so far examined only the interactive dynamics of the current account and capital flow, together they also imply the accompanying dynamics of the exchange rate. The exchange rate would exhibit qualitatively the same type of stability and instability properties that we have elaborated formally in the previous Section. In order to establish this formally, we use the explicit linear form of the current account in (2), i.e.

$$B = K - br, \text{ and } K = \bar{B} + cD. \text{ }^{11}$$

Using (8), (10) and (13), this permits us to write the dynamical system of actual and expected exchange rate as

$$\dot{r} = q [(K - L) - (a + b)r + a\hat{r}] \quad (18)$$

$$\dot{\hat{r}} = (m - n)L + nK + [a(m - n) - nb]r - a(m - n)\hat{r}. \quad (19)$$

The equilibrium attained at  $\dot{r} = 0$ ,  $\dot{\hat{r}} = 0$ , yields equilibrium value.

$$r^* = (K/b), \quad \hat{r}^* = (L/a) + (K/b). \quad (20)$$

Note that the actual ( $r^*$ ) and the expected ( $\hat{r}^*$ ) exchange rates are *not* equal, if  $L \neq 0$  in equilibrium. From (10), this means that in equilibrium, the short-term capital flow induced by expectations of change in the exchange rate offsets exactly the long-term capital flow ( $L$ ) so that the overall capital flow remains zero ( $F = 0$ ), and the current account is also exactly balanced ( $B = 0$ ). This again characterizes the origin ( $B = 0$ ,  $F = 0$ ) as equilibrium, as in Section 2.

Since (18) and (19) entail a non-homogeneous system, we make the comparison easier by transforming it into a homogeneous system and considering deviations from the equilibrium values given by (20).

Let,

$$x = (r - r^*) = r - (K/b)$$

$$Y = \hat{r} - \hat{r}^* = \hat{r} - (L/a) - (K/b)$$

so that on recomputation (18) and (19) yield the homogeneous system:

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<sup>11</sup> We get  $B = K - br$  by integrating (2) where  $K$  is the maximal current deficit with  $\bar{B}$  at  $r = 0$  (implying an extreme appreciation of currency) at given  $cD$ .

$$\dot{x} = -[q(a+b) + (ca/b)]x + [qa + (ca/b)]y \quad (21)$$

$$\dot{y} = [a(m-n) - bn - (ca/b)]x + [(ca/b) - a(m-n)]y. \quad (22)$$

It is easy to check that the trace and the determinant of (21) and (22) are exactly the same as those of the earlier dynamical system (9) and (13), i.e. from (21) and (22), trace  $t = -q(a+b) - am + an$ , which is the same as in condition (14); and determinant  $\Delta = a[q(bm - c) + cn]$ , which is the same as in condition (15).

It follows that the characteristic roots of (21) and (22) are the same as those of (9) and (13) and therefore the two systems are equivalent in all their qualitative dynamic properties. Economically therefore, the time behaviour of the exchange rate will be characterized by the same stability/instability regimes discussed in Section 2 along with the same interpretations of the role played by the economic parameters ( $a$ ,  $b$ ,  $c$ ,  $m$ ,  $n$ , and  $q$ ) characterizing the system.

#### 4 Conclusions: some implications of the analysis

1. The question of deregulating the foreign exchange (spot) market should not be viewed in isolation. While a larger measure of adjustment ( $q$ ) of the exchange rate to changes in reserves caused by demand and supply disequilibrium in the foreign exchange market exerts a stabilizing influence in isolation, it can become destabilizing when short-term capital flows also respond strongly (i.e. relatively large value of parameter 'a') to expectations of variations in the exchange rate. Thus, some regulation of short-term capital flows together with greater deregulation of the (spot) market for foreign exchange might provide the correct perspective on the policy mix to be followed rather than a simplistic debate about regulation versus deregulation.
2. From our analysis the lenders' reaction to changes in the level of foreign exchange reserves (parameter  $n$ ) appears to be a critical variable. A 'dangerously' low level of reserves might make lenders react strongly to a further minor depletion in reserves, making both the balance of payments and the exchange rate unstable. When the balance of payments current account is already in deficit and the improvement in the trade balance due to currency depreciation is relatively small (i.e. parameter  $b$  is small), a dangerously low reserve threatens to plunge the economy into serious instability, i.e. a head-long crash, without a self-correcting market mechanism.
3. It is not always realized that, so long as public sector assets exist on a large enough scale and the policy continues to privatize those assets by selling them to foreign buyers, these public sector assets might act as a proxy for reserves. With adequate reserves in the form of 'marketable' public sector assets, the response of foreign lenders to a small depletion in liquid reserves may not be strong (i.e. 'n' small in the

model), and the regime of exchange rate and current account appears reasonably stable. However, when little remains to be privatized, the picture and the lenders' response may change rather sharply – a further small depletion in reserves may trigger off serious instability characterized by a continuously depreciating currency and widening current account deficit, resulting ultimately in an economic crash. Note moreover that net factor payments especially in the form of repatriation of profits also increase if the privatized (former public) enterprises are mostly held by foreign equity holders. This accentuates the problem of instability insofar as a larger capital inflow is needed to cover the larger current account deficit and stabilize expectations about the exchange rate. Such larger capital inflows, however, might become all the more difficult to attract, when little remains to be privatized in an economy.

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## **Modernization Strategy, Crises and Adjustment in Latin American Economies**

Starting in Chile after the overthrow of President Allende's Socialist government in 1993, the semi-industrialized economies<sup>12</sup> in Latin America have carried out a steady process of overhauling their previous economic strategies. Protection of domestic producers, support of the internal market and government intervention have been replaced by opening up the domestic market to imports, giving priority to external over domestic sales and retrenching the economic role of the state. Simultaneously, the domestic financial sector has been liberalized and deregulated; restrictions on the movement of capital have been abolished.

Under this new modernization strategy, these economies have in fact achieved growth. However, this has usually led to increasing external imbalances and crises, followed by drastic adjustment packages. The latter, though conceived and rationalized by national economic authorities, have also followed the general pattern of adjustment to external shocks recommended by the main international agencies, especially the International Monetary Fund.

The objective of this paper is to provide a theoretical reflection on this modernization strategy on the basis of experience in Latin America, with the aim of deriving some general lessons for other countries or regions which may be pursuing, or intend pursuing, a similar strategy. We will start our investigation by analysing the reasons why the new pattern of growth has so frequently led to foreign-exchange crises. In order to do so, we will consider the underpinnings and consequences of the most important measures undertaken in those economies. We shall refer to: financial liberalization; opening of domestic markets to import competition; and the priority given to foreign over domestic markets. In a second stage, we shall consider the rationale behind and the consequences of the adjustment package introduced to cope with the crises.

The semi-industrialized economies of Latin America are far from homogeneous; and over the past years their economic policies and the results achieved hitherto have been disparate. Nevertheless, we will try to detect stylized traits of their common experience. In so doing, we shall take as our points of reference two national cases: that of Chile during the period 1977-1981 and that of Mexico during the period 1988-1994<sup>13</sup>. Since we are interested in the theoretical aspects involved, we shall not enter into a detailed account of

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<sup>12</sup> We refer basically to Argentina, Brazil, Chile, Colombia, Mexico, Uruguay and Venezuela.

<sup>13</sup> Mexico also introduced an adjustment package in 1982 and 1983, very similar in nature to the more recent one.

their evolution nor bring to light their specificity or differences; rather emphasis will be placed on the most common and outstanding features of their experience.

## **1 Financial modernization, trade openings and growth**

The basic tenets of financial modernization stem from the idea that in order to stimulate higher rates of output growth, the level and rate of savings and investment should be raised and investment efficiency should be improved. First and foremost, it is claimed that financial modernization will abolish pre-existing financial repression and raise real interest rates<sup>14</sup>. Higher interest rates will increase private savings – owing to the substitution of future for present consumption – while simultaneously more financial resources will be channelled towards the formal financial sector, which is supposed to be more efficient than the informal sector. Greater availability of financial resources will thus stimulate private investment.

Second, it is maintained that higher interest rates will also attract foreign funds and expand foreign savings, thus leading to an increase in total savings and investment.

Finally, it is claimed that investment will become more effective. On the one hand, diminishing the extent of government involvement will free funds which, in turn, will lead to substituting private (highly productive) for public (less productive) investments. On the other hand, only private projects with high enough rates of returns will be financed and implemented.

In keeping with the strategy of financial modernization, the management of assets and liabilities was liberalized and mandatory reserves eliminated; interest rates were freed and banks were permitted to borrow abroad without restriction, while non-residents were allowed to invest in domestic financial assets with practically no encumbrance.

The liberalization of capital movements did not bring about a massive upsurge in foreign direct investment in Latin America, but it did attract a large inflow of short-term financial resources. This inflow was extremely helpful in the struggle against inflation, insofar as the anti-inflationary strategy had been largely based on depreciating the nominal exchange rate below the rise in domestic prices: hence, on real currency appreciation. It proved possible to finance the loss in competitiveness and the ensuing deterioration in the current account thanks to the inflow of foreign short-term capital and a capital account surplus.

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<sup>14</sup> Interest rates will rise for depositors, but much less so for borrowers, since the latter are usually forced to borrow in the informal credit market where interest rates are normally very high.

The inflow of short-term capital and the consequent demand for financial assets raised the dollar value of shares and equity in large firms as well as private wealth; it also allowed real interest rates to be lower than they would probably have been otherwise. Hence, they stimulated higher private spending decisions.

A part of the 'extra' spending decisions went into investment. The rise in value of the firms' capital probably reduced the risk of new investments; it also left firms with an untapped indebtedness disposition, because the ratio of commitments to their own capital resources declined when the value of the latter rose. An additional stimulus to private investment resulted from the appreciation of the domestic currency, which reduced the debt burden of firms indebted in dollars as well as the supply prices of imported capital goods.

Financial modernization also revitalized consumption. Consumption of the higher-income-bracket groups skyrocketed owing to the rise in the capital value of financial assets and to the availability of foreign sophisticated goods that had not been available previously. However, mass consumption was also encouraged since the formerly very expensive imported goods became cheaper. The appreciation of the domestic currency intensified the pressure of foreign competition and profit margins of domestic producers had to be lowered. Thus, a shift away from profits took place and the share of wages in output rose.

Additional private spending decisions turned into effective spending because the financial sector was able to respond to the extra demand with increased supply. The deregulation of the financial domestic sector expanded the possibilities for banks in terms of managing assets and liabilities, reducing their reserve requirements and introducing new innovative financial tools<sup>15</sup>.

Inasmuch as credit rationing seems to be pervasive in Latin America and given the high concentration of the banking system, real interest rates and the differential between the interest rates for loans and deposits rose considerably. However, since bank loans to the private sector greatly expanded, some of the previously unsatisfied borrowers could now obtain finance through the formal credit market with real interest rates probably lower than those in the informal market. In other words, a larger part of latent demand for credit could now manifest itself as actual demand, with the supply of credit adjusting to increased demand<sup>16</sup>.

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<sup>15</sup> New investment was not financed to any large extent through the equity market, which actually did not grow in step with financial modernization. Rather, firms went into debt both with domestic banks and (in the case of large firms) with the international capital market.

<sup>16</sup> A detailed study on Mexico revealed that between 1986 and 1993 the share of consumer credit (residential construction plus other consumer credit) in domestic bank credit rose from 10.8% to 27.6% (Danby, 1997). However, as the author himself acknowledges, large firms increasingly took recourse to foreign credit which was much cheaper than domestic credit.



An outcome of the process was a massive rise in indebtedness of the non-bank private sector towards the banking sector. Firms and individuals became much more dependent on the overall evolution of the economy and the stability of the financial system, in order to be able to both serve their outstanding debts and renew debts. A situation of domestic financial fragility thus developed, coupled with a rise in the share of non-performing loans over total loans for the most part attributable to the substitution of private for government loans in the banks' balance sheets.

The factors underpinning the opening-up of trade, the second fundamental measure undertaken in these economies, are relatively well known. According to the basic theory, an opening-up of trade should yield both static and dynamic benefits. Dynamic benefits would be the consequence of intensified competition, which would invigorate investment and technical progress. Static benefits would come about as a result of lower prices as well as competition through imports, which would tend to reduce domestic costs, profit margins and domestic prices. Lower domestic prices would generate a real depreciation of the domestic currency; that would invigorate exports. Lower profit margins would stimulate a rise in the share of wages in value-added, thus contributing to equalizing income distribution.

Static benefits would result also from the working of the law of comparative advantages. Lower tariffs and elimination of import restrictions would tend to bring relative domestic and relative international prices closer together. Relative prices and profitability of goods where the country enjoyed no comparative advantage would fall while relative prices and profitability of goods in countries with comparative advantage would rise; new investments would be channelled towards sectors and branches that enjoy a comparative advantage. Given the factor endowment in those economies, characterized by an abundance of labour and scarcity of capital, the average capital-output ratio would decline while the level (or the rate of growth) of labour productivity would drop, thus increasing the absorption of labour. Thus, the same rate of growth of output will be achieved with a higher rate and level of consumption and a greater rate of increase in employment; or put otherwise, a higher rate of growth of output and employment could be attained with the same level and rate of investment. Owing to the higher demand for labour, the share of wages in output would be further enhanced while the share of capital would be reduced (Stolper-Samuelson theorem).

The reduction of tariffs and the drastic decrease or elimination of non-tariff controls brought about the liberalization of imports (and exports). Following liberalization, the weight of exports and imports in overall supply and demand increased dramatically.

The liberalization of imports permitted the attainment of some very important short-term objectives. Thus, free access to, and the lower cost of, imported inputs whose tariffs were

reduced helped to foster the strong growth of exports and contributed to an increase in the weight of manufacturing exports in total exports<sup>17</sup>. On the other hand, the pressure of competition from imports that occurred in the wake of opening up the domestic market to imports coupled with the real appreciation of the domestic currency encouraged a reduction in profit margins<sup>18</sup>.

The opening-up process was also accompanied by palpable growth of the import coefficient and total imports, as well as by a worsening of the current account deficit. Imports of consumer goods skyrocketed. However, the enormous increase in the import of inputs and capital goods was the most important factor behind the rise in the import bill.

The pronounced growth in imports was partly due to the real appreciation of the domestic currency and the liberalization of imports. Two additional factors, however, also contributed to that rise.

In the first place, the possibility of buying imported goods previously prohibited or whose prices were excessive, stimulated consumption and hence the imports of those goods. In the second place, firms had to compete on a larger scale in the highly demanding international market, even when the domestic market became more exacting after opening up to the competition of imports. Thus, new requirements, such as the utilization of higher quality, standardization of parts and components and observance of delivery dates, etc., compelled firms to increase their imports of capital good and of inputs.

The process of modernization and structural change also contributed to accelerating the growth rate of labour productivity. On the one hand, in order to confront more competitive markets, national firms had to invest more, adopt modernization measures and introduce organizational changes. This brought about a rise in the rate at which labour productivity increased at the level of each individual enterprise and each branch of economic activity. On the other hand, a change occurred in the structure of demand; it augmented the relative weight in production of the high-productivity branches and sectors. Via a composition effect, this induced a rise in the average rate of labour productivity growth. Lastly, although not in terms of importance, numerous small firms where the productivity of labour was below average folded owing to the pressure of competition from imports and the revamped national enterprises. This also contributed to a rise in the average rate of labour productivity growth.

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<sup>17</sup> Manufacturing exports grew strongly in the case of Mexico. In the case of Chile it was mostly exports of primary goods that rose.

<sup>18</sup> The dynamic benefits expected of the opening up to imports, associated with the change in the productive and commercial structure in favour of labour-intensive goods, do not seem to have been reached. For example, in the Mexican economy, where manufacturing exports led the export boom, the previous pattern of exports, based on capital-intensive goods, has not been modified. In the case of Chile, on the other hand, export growth has been led by exports based on natural resources.

The main macro-economic effects of the modernization strategy can be summarized as follows. The modernization strategy contributed both to a stimulation of growth in demand and an ever-increasing current account deficit.

The growth rate of output was, however, relatively low, especially when weighted against the expansion of the autonomous components of demand. The reason is to be found in the increase in the import coefficient, which sucked part of the domestic demand away from the internal market and reduced the multiplier effect of autonomous expenditure. In other words, the domestic multiplier effects of autonomous expenditure, and more particularly that of exports, fell owing to the displacement of finished goods by imports and the drop in the degree of national integration.

Employment growth was also negatively affected during the modernization strategy, and actually it was far below previous experiences of growth renewal. The reason for this lies both in the decline in the output growth rate and the acceleration of the rate of labour productivity growth. The open rate of unemployment did not increase markedly owing to the lack of unemployment insurance in Latin America, yet disguised unemployment swelled. The drop in the employment absorption rate in the formal sector of the economy contributed to a worsening of income distribution. In fact, its negative effect more than offset the positive effect of the rise in the share of wages in value-added. Thus, despite the latter rise, income distribution worsened under the modernization strategy.

As we all know, the persistent and growing current account deficit finally provoked a foreign-exchange crisis. To conclude this section, it is important to emphasize that the deficit was to a large extent caused by the private sector, and specifically by an increase in private investment not matched by a rise in private savings. This can be easily understood on the basis of the accounting identity whereby the government deficit plus the excess of private investment over private savings equal the current account deficit. Since the modernization strategy precluded government deficit, government accounts have been kept roughly in balance and, in general, government deficit has not been an important factor governing the current account deficit. Moreover, generally speaking the rate of private savings did not rise, but fell in fact. Thus, in Latin America's recent experience financial modernization yielded higher foreign savings, but failed to raise private savings. The latter occurred despite the relatively high rate of growth in private investment, which under different conditions should have contributed to higher savings.

## **2 Savings and investment during the crisis in Latin America**

Both the economic authorities of today and some of their critics would seem to subscribe to one key explanation of the causes underlying the crisis in Latin America. Their explanation

places the blame on insufficient internal savings and investment as the ultimate cause of the growing current account deficit that has led to the crisis.

This prevailing view of the crisis derives from the accounting identity, whereby the current account deficit equals the surplus of private investment over private saving plus the budget deficit. In order to be able to discuss this dominant perception more fully, it seems useful to present that identity in full.

The gross domestic product (GDP)  $Y$  equals private consumption  $C^p$ , plus private investment  $I^p$ , plus the trade balance  $X-M$ , plus government expenditure  $G$ :

$$Y = C^p + I^p + X - M + G \quad (1)$$

Let  $T$  be personal taxes. Then

$Y - T = Y^p$  : personal disposable income

$Y^p - C^p \equiv S^p$  : private savings

$T - G \equiv S^g$  : government savings

$M - X \equiv S^f$  : foreign saving = current account deficit<sup>19</sup>.

Upon re-ordering terms:

$$S^f = -S^g + (I^p - S^p) \quad (2)$$

or

$$S^p = -S^g + I^p - S^f \quad (2a)$$

From the above it would appear that had private savings been higher, the external deficit would have been reduced – and the crisis avoided.

However, this outlook is not very helpful when analysing the evolution of savings, because it is based on an ex-post identity which does not reveal how savings come into being. Thus, it seems better to re-consider the aggregate demand and savings equations. These can be rewritten as follows:

$$Y = Y(X, I^p, G, w, s, \tau, m) \quad (1a)$$

and

$$S^p = G + I^p + X - \tau Y - mY \quad (2b)$$

where  $w, s, \tau, m$  denote the ratio of wages, total savings, taxation and imports, over GDP, respectively, and where it can be shown that<sup>20</sup>:

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<sup>19</sup> The analysis has been simplified by equating the current account deficit with the trade deficit.

$$Y_1 > 0, Y_2 > 0, Y_3 > 0, Y_4 > 0; Y_5 < 0, Y_6 < 0, Y_7 < 0.$$

Let us consider now the effects of an increase in the overall saving coefficient  $s$ , on the basis of equation (1a) and (2b). It can easily be seen that *ceteris paribus*, this rise would have permitted a rise in private savings through a reduction in the current account deficit (a fall in  $S^f$ ). Indeed, since private investment, exports and government expenditure are given in any short-run context, the rise in private savings will come about exclusively on account of the negative impact on effective demand and output<sup>21</sup>. Thus, a larger savings coefficient would have reduced the demand for imports and the external deficit, because output would have been lower; as would employment, profits, wages and the degree of capacity utilization. Also, lower output would increase the budget deficit, which would also tend to increase private savings. The current account deficit might have been avoided, but only because the macro-economic situation would have been more depressed at the outset.

The mainstream explanation for the determinants of the crises is thus flawed, in that private savings were diminished because the current account was in deficit, and not the other way round.

An alternative interpretation of the origins of the external deficit that avoids this inconsistency, is somewhat Keynesian-structuralist in character. It acknowledges the dependency of savings on investment and emphasizes the insufficient rate as well as the misallocation of investment (see for example Ros, 1995).

The logic underlying this interpretation seems to be the following. On the one hand, the high interest rates necessary to sustain the high value of the domestic currency discouraged overall investment. On the other hand, the real appreciation of the currency depressed the profitability of, and shifted investments away from, the tradable goods sector.

If the rate of investment had been higher and the share of investment allocated to the tradable goods sector larger, so the argument goes, the productive capacities would have been enlarged and, simultaneously, the rate of technical progress would have been raised. The former would have ensured greater elasticity of supply and the latter would have reduced costs and enhanced competitiveness. Thus higher and better allocation of investment would have stimulated exports and helped reduce the import coefficient.

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<sup>20</sup> Where  $Y_1$  stands for the first derivative of  $Y$  with respect to exports,  $Y_2$  for the first derivative with respect to private investment, etc. The sign of the partial derivatives follow from:  $C = Y(1-w)(1-\tau)(1-s) + wY(1-\tau)$ ;  $M = mY$ ;  $T = \tau Y$ . We assume workers do not save.

<sup>21</sup> In a private and closed economy a rise in the rate of saving will not raise total savings in the short run. In fact, since profits equal investment plus capitalist consumption, it may even provoke a fall in savings in the medium and long run inasmuch as it causes profits to decline. By the same token, in an open economy, where savings are equal to capitalist expenditure plus the budget deficit plus the trade surplus, a rise in savings will raise total savings in the short run, but may depress savings in the medium and long run.

However, the above reasoning is not without its problems.

First, it would not seem to be borne out by facts in any convincing manner. On the one hand, there is no evidence of lack of productive capacity at the level of the economy as a whole, which might have hampered production – indeed rather the opposite seems to be the case. In fact, in both Chile in the period 1977-1981 and in Mexico in the period 1987-1994, the capital-output ratio either rose (Chile) or remained at a higher-than-average level (Mexico); this suggests the existence of idle capacities (Hofman, 1997). On the other hand, investment grew rapidly and there is no strong evidence of its having been misallocated. For example, in Mexico, between 1988 and 1994 gross total fixed investment, machinery and equipment and private investment, all grew at relatively fast rates (7.5%, 11.2% and 9.2% annual rates respectively), outstripping the rate of output growth (3.9%). At the same time, the share of investment allocated to the tradables sector rose (from 27.4% to 42.5% of total investment, between 1987 and 1993) – and this despite the major appreciation of the peso. In Chile, gross total fixed investment grew at an annual rate of 18% between 1977 and 1981 (with output growing 7.4% annually), while the share of investment in machinery and equipment in total investment grew from 5.9% in 1977 to 7.3% in 1981.

Secondly, it is very doubtful whether speedier investment growth would have ensured important gains in competitiveness in the short term, because the effects of investment on technical progress are delayed somewhat.

Finally, the import coefficient of investment in Latin America is relatively high. Thus, the average import coefficient would probably have grown, and not diminished, if investment had grown faster. Hence, as can be seen from equation (1a), *ceteris paribus*, if investment (and total savings) had been higher, output, employment, wages and profits, would also have been greater. At the same time, this would have brought about a greater demand for imports and a larger external deficit. The macro-economic situation would have been improved, but the trade deficit would have been unsustainable.

Nevertheless, there is an important element of truth in the structuralist part of the previous argument insofar as productive capacity was actually lacking and the lack was not made good through new investment. This lack of productive capacity, however, did not affect the overall economy or the tradables sector in general, but rather some specific branches and activities.

As stated previously, the recent economic process of Latin America has been accompanied by a marked growth in exports, especially in exports of manufactures. Export growth has been supported by a rapid process of capital accumulation in the exporting branches or firms. However, this has also been accompanied by an enormous growth in

imports of inputs and raw materials, especially those utilized in the manufacture of export goods<sup>22</sup>. This disproportionate growth suggests that investments lagged behind requirements in the import-substituting factories and branches – in contrast with what had occurred in Latin America in previous stages of its economic evolution.

The above points can be summarized as follows. Low private savings did not provoke the growing and persistent current account deficit, nor did they cause the crises: low private savings were the consequence, not the cause, of the foreign deficit. Nor would a higher rate of investment have prevented the current deficit from swelling; had that rate been higher, the deficit would have been higher as well. The explanation for the deficit must be sought in the opening-up of the domestic market to imports, on the one hand, and in the appreciation of the domestic currency and the subsequent loss of competitiveness on the other. An additional structural factor was also very important: the lack of industrial policy. An industrial policy could have allocated investments to those branches and firms capable of producing the inputs and capital goods required in the new context. The modernization strategy did not require a much higher rate of investment; however, it did call for a better allocation of investment.

### **3 The foreign exchange crises**

Prior to the crises, neither governments nor the international financial agencies displayed any concern over the persistent growth in the current account deficit<sup>23</sup>. This misapprehension is partly explained by the argument that foreign savings are safe and beneficial for growth, when accounted for by the excess of private investment over private savings, rather than by a government deficit. Another reason stems from the difficulties associated with evaluating the soundness or otherwise of foreign indebtedness, given that the fundamentals seem satisfactory and the signs emerging from the market are normally far from clear. On the one hand, investment has grown and capacities have expanded. On the other hand, exports normally keep growing at a relatively fast rate for a certain period of time at least, despite the currency appreciating. Third, inflationary tendencies have been kept under control thanks to appreciation. And finally, inflows of short-term foreign capital continue to grow.

Besides, for both economic and political reasons, it may not be easy for the economic authorities to depreciate the domestic currency in order to redress the foreign balance.

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<sup>22</sup> For example, in the case of Mexico, according to a recent estimate the import coefficient of the export industry (excluding the in-bond sector), defined as the value of imports of inputs over the value of exports, grew from 8.6% in 1983 to 61% in 1994 (Vázquez, 1995).

<sup>23</sup> The following statement, made two weeks before the devaluation and the crisis in Mexico, the Governor of Mexico's Central Bank, is typical: 'The size of the current account deficit is, in a certain manner, the measurement of the country's success, not of its failure... the greater the success of Mexico as an attractive country for investment, the larger the current account deficit will be'.

Latin American economies are characterized by strong oligopolies in the banking sector, as well as a huge latent demand for credit. Thus, unless some controls are imposed on the inflow of short-term foreign funds – controls which for the most part are not broadly accepted – a significant excess in the domestic over the international real interest rate may persist for quite some time. Thus, the attractiveness of a country to foreign investors may be maintained, together with the swelling of its reserves with foreign exchange, which tends to lead to the domestic currency appreciating.

On the other hand, financial liberalization introduced two economic actors committed to defending a 'strong' domestic currency.

The dollar-denominated debt of the banks greatly expanded. This increased the banks' exposure to the volatility of foreign-exchange markets and heightened their interest in avoiding currency depreciation. Foreign investors in the domestic financial market were in a comparable situation – at least up until the time they shifted from domestic-denominated to dollar-denominated assets.

Of course, the persistent overvaluation of the domestic currency cannot be solely attributed to bankers and foreign investors, because governments were also interested in maintaining a strong domestic currency and avoiding a major depreciation.

Indeed, the authorities probably recognized that a major depreciation might inject chaos into the economy – thus damaging their image and even the future of their model. Depreciation of the currency would gravely affect domestic costs as well as expectations. Thus, it would not only unleash strong inflationary pressures, but might also trigger other changes which could be difficult to control (for example, stimulating capital flight). Price stability and a steady value of the domestic currency have been normally used as expressions and symbols of an economic strategy's success. One may conjecture that government authorities were well aware that depreciation beyond certain rather small value was likely to shake severely the trust on which the whole economic strategy was founded and on which expectations were based.

In other words, institutional reforms and government measures allowed a situation marked by both domestic and external financial fragility to develop, because private debt rose exponentially, and furthermore foreign-denominated liabilities weighed heavily in the balance sheets of private agents. But then the government had very limited manoeuvring space in the face of a run on the domestic currency, other than reverting to extremely restrictive demand policies. Had the latter been implemented, the crisis might perhaps have been averted. The cost, however, would have been a drop in the level of economic activity – milder perhaps than the one ensuing from the crisis, but very drastic all the same.



It is not difficult to specify a model capable of explaining a balance-of-payments crisis and the collapse of the domestic currency under conditions of imperfect information and a collapse in confidence. One only has to conceive a situation where an accepted reference value for a certain key variable does not exist, and where expectations among investors are not independent of each other. 'The essence of the situation is the asymmetry which makes of one person the imitator of the other the imitated or opinion leader ... There will be clusters of expectations round an opinion leader. These clusters usually will be unstable as opinion shifts to new leaders ... If the imitation concentrates and leads to agglomerations in one or another direction, the market will become bearish or bullish as the case may be ... The most extreme loss of independence occurs in a crash. Here one opinion has come to dominate and the other condition for steady state, the existence of a belief in certain limits or standards, has also disappeared' (Steindl, 1990, pp. 374-5).

Under these types of situation, we may safely posit that the supply of foreign saving ( $S^{f,s}$ ) could change in time according to the following simple rule:

$$\frac{dS^{f,s}}{dt} = \begin{cases} > 0 & \text{for } (r > r^*), \text{ and } \Sigma(s^f) \leq k \\ < 0 & \text{for } \Sigma(s^f) > k \end{cases} \quad (3)$$

In other words, foreign capital is forthcoming, provided the domestic interest rate  $r$  exceeds the international interest rate  $r^*$ . It is also required that the accumulated current account deficit as a share of output  $\Sigma(s^f)$  (or in absolute value,  $\Sigma(S^f)$ ) remain below a certain value  $k$ , where  $k$  is the 'sustainable' accumulated current account deficit. However, when that value is exceeded, a swift reversal of capital flows takes place and they turn negative, even if the domestic interest rate exceeds the international rate. Alternatively, the value of the sustainable current account deficit, which is based purely on convention, can itself drop, bringing about a foreign-exchange crisis.

It goes without saying that the foreign-exchange crisis will also give rise to a run on, and a collapse of, the domestic currency, in tandem with accelerating inflation and massive capital flight from domestic savers, thus reducing import capacity still further.

In the case of Latin America, we may posit that during the initial stage, accumulation of an increasing current account deficit did not pose grave problems. Governments acquired increased legitimacy and the countries involved enjoyed an excellent press. However, at a later stage, together with the accumulation of an ever-increasing current account deficit, its sustainable value was also reduced owing to adverse economic and political events, national and international.

Thus, the crisis was the consequence of the simple unfolding of economic expansion, in the context of ever-increasing external financial fragility. Under financial fragility, even a moderate growth rate and an unchanged government policy stance become extremely risky.

In actual fact, the previous growth path may not be sustainable any longer under the existing institutional framework – i.e. in a financially very open economy – because the danger exists that investors might easily switch from domestic-denominated to dollar-denominated financial assets. Furthermore, in the context of Latin America, this danger has a 'structural' basis. Income is highly concentrated in very few hands; this implies a potentially important source of savings, which also offers potential for speculation. A change of mind on the part of the 'opinion' leaders and few wealthy investors may bring about dramatic changes in the overall situation.

#### **4 The adjustment package**

An analysis of the adjustment package designed to address the crisis is given below. As a preliminary step, however, it would seem useful to consider in general terms the consequences and alternatives open to an economy confronted by an external shock, which is precisely what an external crisis is.

##### **4.1 External shocks and the transfer problem**

An external shock reduces import capacity and may force the country affected to reduce imports. Probably because many imports are indispensable, it has been argued sometimes that the economic downturn and the protracted stagnation that has normally occurred in Latin America in the wake of the shocks, were the consequences of those same shocks. However even shocks as big as those that these countries suffered, do not necessarily have to provoke a drop in output or give rise to a long-term stagnation. This is a point of the utmost importance which we shall now clarify in conceptual terms.

We start with the equation for the gross domestic product (GDP):

$$Y = C^p + I^p + G + X - M \quad (1)$$

We denote by absorption the internal expenditure on goods and services. In accounting terms, the absorption equals the GDP plus the surplus of imports over exports (or less the surplus of exports over imports). Denoting absorption by  $A$ , and by  $-S^f$  the trade balance, we have:

$$Y = A + S^f \quad (1b)$$

$$A \equiv I^p + C^p + G \quad (4)$$

thus:

$$A > Y \text{ if } S^f > 0.$$

Prior to the external shocks, the countries of Latin America were recipients of net external savings. The shock, however, not only put an end to the flow of foreign credit, but it also forced those countries to pay for their accumulated debt. In other words, external savings turned into foreign dissavings. The countries in the Latin American region thus had to effect foreign transfers.

As previously stated, the government and many analysts imputed the collapse of these economies to the external shocks and the need to transfer resources abroad. We argue that their interpretation is incorrect or at least misleading.

In order to study rigorously the effects of an external shock and foreign transfers, we will carry out a simple analytical exercise investigating the effects on output and absorption of an external shock that provokes a drop in external savings.

Assume that the external saving was positive in a base year, the year zero. Suppose also that in that year real output was equal to the output of full use of capital – i.e. the output that could be attained under full utilization of the capital equipment. Also suppose that in year 1 external savings are zero, and that the output of full use of capital remains unchanged. We shall denote by  $Y^k$  the output of full use of capital, and we will express the year of reference with a sub-index:

$$\begin{aligned} &\text{if } S_0^f > 0, \text{ then } A_0 > Y_0, \\ &\text{if } Y_0 = Y_0^k = Y_1^k, \text{ and if } S_1^f = 0 \text{ then } A_1 < A_0. \end{aligned}$$

Thus, if the productive capacities were fully utilized prior to the external shock, it will be necessary to reduce the internal expenditure in order to effect the transfer. This reduction requires a change in the structure of production, and above all calls for a reallocation of sales.

In the short run, the frictions induced by the reallocation of productive resources and in the sales markets will normally bring about a drop in both output and the degree of utilization of the capital equipment available. Hence, owing to those frictions and difficulties, the following will happen:

$$Y_1 < Y_0 \text{ and } v_1 < v_0,$$

where the difference between the effective output and the output of full use of capital defines the degree of unemployment of those capacities,  $v$ , i.e.:

$$v \equiv (Y - Y^k) / Y^k \quad (5)$$

However, the contraction of output and the decline in the degree of utilization of the capacities need not be of long duration. With appropriate stimuli, firms could modify the output-mix, and they could also redirect sales (that is, increase foreign sales or replace goods previously imported by home-made goods, or both). So, after a certain lapse of time, the past level of output could be attained (or even surpassed, if productive capital grows).

On the other hand, if idle resources exist at the moment of the shock, the external transfer could be paid for with an expansion of production and exports. In fact, that expansion can be obtained 'free' (i.e., without needing to invest resources) if the degree of utilization of the unemployed resources rises. In symbols:

$$\text{if } Y_0 < Y^k_0 = Y^k_1, \text{ and } S^f_0 > 0, S^f_1 = 0;$$

$$Y_1 < Y_0 \text{ if } v_1 < v_0,$$

$$Y_1 = Y_0 \text{ if } v_1 = v_0,$$

$$Y_1 > Y_0 \text{ if } v_1 > v_0.$$

On the other hand,

$$A_1 < > = A_0, \text{ depending on whether } v_1 \leq v_0, \text{ or } v_1 > v_0.$$

Obviously, the optimal pattern would be to address an external shock and the foreign transfers by taking advantage of greater and better utilization of the equipment and productive resources available. This, however, would demand an adequate combination of macro- and sectoral economic policies. In any case, a crucial question in evaluating an economic strategy is whether the strategy contributed to greater and better utilization of resources. This is the criterion that is taken as our reference in the following analysis.

It is argued below that even though having been instrumental in coping with the external deficit, the economic policies implemented in Latin America to address the crises have given rise to a major recession, coupled with falling real wages and worsening income distribution. These effects of the adjustment strategy stem from its contractionary impact on aggregate supply and demand, which have led to a significant drop in the degree of utilization of productive capacities, even when the firms' supply function has also been impaired.

## 4.2 The logic of the adjustment package

The crises have been addressed by adopting very orthodox economic measures, such as

- (1) freeing the exchange rate,
- (2) cutting back public expenditure,
- (3) capping the growth of nominal wages,
- (4) reducing bank credit.

The following model can be used to present a systematic exposition of the hypothesis and implicit assumptions behind the adjustment strategy:

$$S^f = S^f(e, Y^*, D) \quad (6)$$

with  $S^f_1 < 0, S^f_2 > 0, S^f_3 > 0$

$$e = E(p^*/p) \quad (7)$$

$$p = p(D/Q, E, W) \quad (8)$$

with:  $p_1 > 0, p_2 > 0, p_3 > 0$

$$dE/dt = g[\Sigma(s^f/k), f] \quad (9)$$

with  $g_1 > 0$

$$Q \equiv Q^d + M \quad (10)$$

$$D \equiv G^p + G + X \quad (11)$$

$$G^p = G^p(H, r, W^r, \tau) \quad (12)$$

with  $G^p_1 > 0, G^p_2 < 0, G^p_3 > 0; G^p_4 < 0$

$$Q^d = Q^* \quad (13)$$

$$\Sigma(s^f) > k \quad (14)$$

$$f > 0 \quad (15)$$

Equation (6) makes the current account deficit  $S^f$  depend on the real exchange rate  $e$ , the level of output of our trading partners  $Y^*$ , and aggregate demand  $D$ . Equation (7) defines the real exchange rate  $e$  as a function of internal and international prices  $p$  and  $p^*$ , respectively. Equation (8) posits that internal prices  $p$  depend on the relationship between demand and aggregate supply  $D$  and  $Q$  respectively, on the nominal exchange rate  $E$ , and on nominal wages per worker  $W$ .

Equation (9) states that the nominal exchange rate varies in time, depending on the  $\Sigma(s^f/k)$  relationship, where  $k$  is the level of the sustainable current account deficit, and on  $f$ , a

vector of variables associated with expectations. The first derivative of  $g$  is positive, and expectations depend on conventions and, thus, can vary unexpectedly.

Equation (10) defines aggregate supply, equal to domestic supply  $Q^d$ , plus imports  $M$ . Equation (11) defines aggregate demand as the sum of private expenditure  $G^p$ , plus government expenditure  $G$ , plus exports  $X$ . Equation (12) states that private expenditure depends on the availability of credit  $H$ , the interest rate  $r$ , real wages per worker  $W^r$ , and the share of taxes in GDP  $\tau$ .

Equations (13), (14) and (15) establish the conditions assumed by the authorities for the national economy at the moment of adjustment. On the one hand it is assumed that actual domestic supply  $Q^d$  is equal to its potential level  $Q^*$ . On the other, it is supposed that the actual current account deficit is above the sustainable deficit. Lastly, it is recognized that there are firm expectations of devaluation ( $f > 0$ ) at work, which have their own inertia.

The Central Bank's withdrawal from the foreign exchange market unleashed a strong devaluation on account of the excessive current account deficit and expectations of currency depreciation. The latter would eventually bring the external balance to its level of equilibrium. Purportedly, it would also stimulate aggregate demand because exports would grow even when import substitution was stimulated.

Since the domestic supply is assumed to be at its potential level and imports are greater than those that can be financed, demand exceeds supply and inflationary pressures remain unchecked. In order to cope with inflation and redress the external sector, it is necessary to contract aggregate demand by raising taxes and reducing both government expenditures and loans to the private sector, while putting a cap on the growth of money wages.

Today the main results achieved with this set of economic policy measures are relatively well known. Output, real wages and investment all tend to fall dramatically. The external imbalance is redressed and exports rise, particularly when manufacturing exports weigh heavily in total exports, and when these exports are mostly made by subsidiaries of multinational firms. However, the decline in imports results mainly from the drop in output, with little or no substitution of imports and hence without a drop in the import coefficient.

These results have surprised both the authorities and the international financial institutions that recommend and support this type of adjustment strategy. None the less, these negative consequences should not surprise anybody, since they are the consequence of deficiencies in the adjustment strategy. These deficiencies are analysed below and consideration is given to both the supply- and demand-side effects.

### 4.3 Demand and supply outcomes of the adjustment package

As mentioned previously, depreciation of the domestic currency is a basic component in the adjustment package. Depreciation – assuming wages are kept constant or rise moderately – would make domestic goods competitive and if the Marshall-Lerner condition is fulfilled, it will improve the trade balance. It is usually held that owing to that improvement, currency depreciation will also increase aggregate demand.

Whether depreciation is indeed expansionary in advanced economies is a point we shall not discuss here. Theoretical arguments and empirical studies alike, however, suggest this assumption does not necessarily hold in Latin America and other semi-industrialized economies. Indeed, depreciation seems to affect domestic demand negatively, even when obstacles to expanding or redirecting supply limit its potential benefits for domestic producers. We shall first consider the demand aspects involved.

On the one hand, the initial price hike triggered by depreciation can provoke uncertainty as to the future stability of prices and the exchange rate; this will probably depress private investment. This holds particularly true when drastic currency depreciation and galloping inflation occur after a period of stability, and when on account of the rupture in the previous optimistic scenario, a dramatic worsening of expectations predominates.

Investment can be further discouraged through a rise in the debt ratios of firms – especially when they are indebted in foreign currency – and through a rise in the interest rate. Unless banks are willing to expand lending and monetary policy accommodates that move, firms will find it difficult to finance their extra needs in terms of both working and fixed capital. Finally, depreciation raises the supply price of imported capital goods, thus reducing expected profitability.

No wonder then that the common pattern has been for crises in Latin America to be characterized primarily by a huge decline in private investment<sup>24</sup>. Moreover, following this decline a fall in capital profitability does not seem to lag far behind; to all practical purposes, it is an immediate response to a sudden deterioration in financial conditions and expectations.

On top of all that, currency depreciation also depresses private consumption. Higher-income bracket groups may not be terribly harmed by the inflation shock induced by depreciation, because they can reduce their savings as against expenditures. However, since money wages are normally not fully adjusted to past inflation, consumption per

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<sup>24</sup> In Mexico private investment, which had grown almost 10% between 1993 and 1994, fell 31% between 1994 and 1995. In Chile, total investment grew 17% between 1980 and 1981, only to fall 34% in 1982.

worker will fall. The fall in real wages will prevent the wage-price spiral from developing fully into hyperinflation. None the less, income distribution will worsen.

In sum, both private investment and domestic consumption are reduced when the currency depreciates. Some evidence shows that these negative effects on internal demand are not normally offset by an improvement in the trade balance brought about by depreciation<sup>25</sup>. The price elasticity of demand for exports and import substitutes may be quite high, but supply limitations normally limit the capacity of domestic producers to take full advantage of latent demand and higher profit margins.

Indeed, these economies usually have large unutilized capacities in the manufacturing sector, although capacities may be insufficient or inadequate in specific industries or in other sectors such as infrastructure or agriculture. Thus, bottlenecks normally appear during the early stages of output expansion; this prevents them from providing a full-scale response to potential demand. Furthermore, exports and even import substitution may be limited because firms may not have adequate marketing channels that they need to gain access to potential customers. Thus, they may be unable to substitute foreign for domestic demand when the latter contracts.

Despite ample evidence that points out that depreciation of the domestic currency may actually be contractionary, the adjustment package takes for granted that it (depreciation) will expand demand. To offset this presumed result, the authorities reduce government expenditure; in particular they try to get rid of any existing budget deficit.

Theoretical arguments as well as empirical evidence show that reduction in public expenditure normally depresses demand. This effect, however, has been compounded in the experience of Latin America because the composition of government revenue also changes under the adjustment strategy. The common pattern in the region has been for taxes levied on the population to rise through increases in value-added tax and in prices of publicly owned firms – which are ultimately passed on to consumers. However, taxes levied on higher-income bracket groups and business profits remain constant or are even cut back. Thus, the share of taxes that affects private savings falls, while the share of taxes affecting private expenditure increases. As a result of these changes, the contractionary effect on internal demand of the decline in government expenditure magnifies.

Consideration should also be given to the effects of the adjustment package on aggregate supply. These, as will be argued shortly, are closely related to credit restriction.

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<sup>25</sup> The Krugman and Taylor paper (1978), where these problems are formally analysed, is still worth reading. See also Taylor (1988) and, on the Mexican experience, see for example López (1991) and Castro et al. (1997).



In the adjustment package, cutbacks in bank loans are prominent. Thus, immediately after the onset of a crisis, the Central Bank normally announces that domestic credit in real terms will be reduced and monetary policy in general tightened. Of itself, the announcement and implementation of a restrictive monetary policy would lead to a curtailment of credit and a rise in interest rates. This basic tendency, however, is magnified because the banks' lending capacity and expectations worsen owing to the deterioration of their balance sheets ensuing from: (a) the rise in non-performing loans caused by the crisis; and (b) the increase in servicing their debts contracted in foreign currency. Thus, credit restriction and credit rationing take place on a large scale; this not only depresses demand by contracting fixed investment and consumption of durable goods, but also decreases aggregate supply, thus further intensifying the decline in demand. An elaboration on this assertion is given below.

Post-Keynesian economics sometimes downplays the importance of supply conditions when analysing the short run, concentrating instead only on demand (see however Bhaduri, 1992 and Laski, 1996). This emphasis, which contrasts with New-Keynesian economics (Blinder, 1987; Greenwald and Stiglitz, 1993), seems perfectly valid for a highly developed closed economy, where ample supply exists in all branches of the economy, and where supply adjusts to demand below full employment. This is clearly the case when demand falls less than supply during the downswing or rises more than supply during the upswing. Under such circumstances firms will see their stocks of finished and semi-finished products diminish; they will be motivated to expand supply in order to replenish stocks. But this also holds true when demand drops more than supply during the downswing or rises less than supply during the upswing, whereupon stocks pile up and supply decreases.

Supply conditions, however, do take on importance in an open economy, and particularly so in a developing economy. In fact, when a crisis rather than a simple business downswing occurs in such an economy, aggregate demand is also affected. For example, if supply capacities are limited and if supply conditions deteriorate further during a crisis, exports and import substitution will be lower than they might have been<sup>26</sup>. The trade balance will thus improve less than otherwise, while the drop in final demand and output will be consequently larger, owing to both the smaller trade balance and the diminished value of the internal multiplier of the trade balance.

The worsening in the supply conditions of firms during the adjustment package can be explained as follows. In the first place, the rise in real interest rates worsens their equity position owing to higher debt servicing. A second factor is the restriction on credit because many small and medium-sized firms are credit-rationed. Last, but not least, production risks increase. Managers facing either productive or financial investments are thus more likely to opt for the latter because these are relatively more profitable and less risky.

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<sup>26</sup> It is recalled that price and income elasticities of exports and imports depend on elasticity of both demand and supply.

Deterioration in supply conditions brings about a leftward shift in the supply function; this, in turn, induces a leftward shift in the demand function. This is a consequence of the reduction in output, and the subsequent drop in employment, wages and the demand for intermediate and wage goods.

It is useful to analyse the preceding arguments graphically. Consideration will be given to the cumulative effects of a depreciating domestic currency, worsening expectations and credit restrictions. A distinction is also made between two types of sectors: the 'open' and 'closed' sectors. On the one hand, it is the 'open' sector that competes directly with the external producers in the internal or external markets. Here the price is given, and the internal price in domestic currency rises with the depreciation of the currency. For the sake of simplicity, it is also assumed that demand in this sector does not change with either the depreciation of the currency (or with a contraction of public expenditure); the demand curve is perfectly elastic for the given price.

On the other hand in the 'closed' sector, it is assumed that producers that do not compete with their international counterparts enjoy a monopoly situation and face a demand curve with a downward slope. Here we may suppose that following currency depreciation, the introduction of a restrictive macro-economic policy and the contraction of private domestic demand, the demand curve shifts left.

Figures 1 and 2 below illustrate the situation of the open sector and the closed sector, respectively. In both graphs, short-term aggregate production (for given productive capacities) is on the horizontal axis, and the price and the cost of a unit of production (also in the short term) is on the vertical axis. In the open sector, a given international price  $p_0$  is assumed. The straight line for the price also determines the demand, since it is assumed that at a price equal to or lower than  $p_0$  any producer can sell any amount desired. In the closed sector, the demand curve features a negative slope, and we denote the original curve as  $D_0$ .

The aggregate short-term supply curves are u-shaped for the following reasons. Assume constant unit direct costs (up to the limit of their capacity) for each individual producer, and ample spare capacities in low-cost firms. This, in itself, would make for a horizontal aggregate supply curve. However, profit margins tend to rise at both low and at high levels of production and capacity utilization. At low levels of utilization, overheads rise in relation to prime costs; this induces 'a rise in the degree of monopoly because of a tendency to 'protect' profits' (Kalecki 1991 [1954]: 217). On the other hand, higher production requires greater credit to finance working capital which, in turn, entails higher risks and probably a higher interest rate as well (i.e. Kalecki's 'principle of increasing risk', and Keynes's 'borrower's risk' (1936)). This translates into a rise in the profit margin. Profit margins and

supply curves shift upwards, if expectations deteriorate or if the rate of interest rises, or credit becomes more rationed.

Each sector's supply has an upper limit  $Q^*$ , which is reached when the productive capacities of the entire sector are fully utilized or when smaller firms cannot obtain credit. At that point the cost curve becomes parallel to the vertical axis. Initially in both graphs the cost curve is denoted as  $O_0$  and by assumption production  $Q_0$  is lower than potential output.

Assume the domestic currency depreciates. The price curve shifts upwards and the price in domestic currency rises to  $p_1$ . The cost curve, however, also shifts upwards (the  $O_1$  curve of the graph). If the depreciation did not affect expectations and access to credit, then the shift would be small, and could be explained solely by the higher price of imported inputs and the firms' worsening financial situation.

However, when depreciation occurs under chaotic circumstances, as is usually the case following a crisis, and is coupled with a restrictive monetary policy, the shift is greater. The firms' worsening financial situation, credit restrictions and the deterioration of expectations tend to contract supply. Consequently, production drops to  $Q_1$ , both the degree of capacity utilization and employment fall.

Figure 2 depicts how the closed sector is even worse off, when demand contracts: output falls more than in the case of the open sector. The price can fall or rise (in the graph it is assumed that it does not change).

The above reasoning shows why the strategy adopted to address the external bottlenecks and the crisis has such a negative effect on the supply side of the economy. During the crisis owing to credit restrictions, firms are unable to take advantage of the competitive gains brought about by the depreciation of the currency and the rise in the price-cost ratio.

Exports may be not much affected. If they come from large and financially solid firms closely linked with foreign capital, they will have easy access to credit and will have the marketing capacities to place larger sales abroad<sup>27</sup>. However, firms producing for the domestic market, which are usually smaller and financially weaker than firms catering to the world market, will be greatly affected by the contraction of and rise in the price of credit. This, plus worsening expectations, will force them to contract supply. To the extent that the

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<sup>27</sup> The different composition of sales in the industrial sector is probably an important factor behind the different behaviour of exports after the crisis in Mexico and Chile. In the former, two years after the crisis (that is, in 1997) exports were 32% higher than when the crisis erupted, while in the latter two years after the crisis (in 1983) they had practically not grown at all. Incidentally, the prevalence in Korea of nationally owed firms amongst exporters, which depend mostly on domestic credit, may account for the stagnation of exports in this country after the recent crisis.

latter type of firms weigh heavily in the industrial sector, overall supply is likely to shrink severely in the course of the adjustment process.

#### 4.4 The macro-economics of contracting adjustment

The macro-economic effects of the adjustment package are summarized below. In order to present a systematic analysis, it is useful first to specify a simple model (López 1998). Effective demand  $Y^d$  determines the level of the output  $Y$ :

$$Y = Y^d = Y^d(X, I^p, G, w, s, \tau, m) \quad (1a)$$

$Y^x$ , the level of the output at external equilibrium, can be expressed as follows:

$$Y^x = Y^x(Y^*, e, \delta, \psi) \quad (16)$$

with (by assumption):

$$Y^x_1, Y^x_2, Y^x_3 > 0.$$

$Y^x$  depends on world demand,  $Y^*$ , on the competitiveness of internal goods, which is established by the real rate of exchange  $e$ , on the supply conditions of domestic firms,  $\delta$ , and on a vector of other variables  $\psi$  which determine the sustainable current account deficit.

We now examine the processes determining internal prices  $p$ , profit margins  $\mu$ , and the share of wages in value-added  $w$ . With respect to prices, two types of sectors are distinguished. In the 'open' sector the price  $p^o$  is given and is equal to the world price in domestic currency  $p^*E$ . In the 'closed' sector we simply posit that firms fix their prices by adding a mark-up to their unit prime costs:

$$p^o = p^*E \quad (17)$$

$$p = p(W, E, \mu, \pi, \bullet) \quad (18)$$

with  $p_1, p_2, p_3 > 0, p_4 < 0$ .

That is, internal prices in the closed sector depend on money wages  $W$ , the nominal exchange rate  $E$ , the unit profit margin  $\mu$ , labour productivity  $\pi$ , and a vector of other non-modelled variables  $\bullet$ . We also assume that unit profit margins depend on the supply conditions of firms  $\delta$ , on the level of output  $Q$ , and on the real exchange rate  $e$ . A higher real exchange rate tends to raise profit margins because higher import prices diminish the pressure of foreign competition in the domestic market. Thus:

$$\mu = \mu(\delta, Q, e) \quad (19)$$

with  $\mu_1 < 0, \mu_2, \mu_3 > 0$ .

If we assume firms adjust prices immediately while wage adjustments lag behind, from (17), (18) and (19) the share of wages in the value-added  $w$  can be expressed as follows:

$$w = w(e, \delta, Q) \quad (20)$$

with  $w_1, w_2 < 0, w_3 > 0$ .

If we further assume workers demand a constant real wage, it also follows that any shock which leads firms to raise their prices will drive a wedge between real wages demanded and real wages perceived. It seems safe to assume that workers will seek higher money wages in the next round of negotiations. If wages are adjusted a wage-price spiral will develop, yet real wages will not recoup the previous loss.

The distributive equilibrium is now defined as the locus of points where workers are satisfied with the real wage being earned, and where capitalists are content with the profit margin obtained (Carlin and Soskice, 1992). The distributive equilibrium determines a situation in which the inflation rate is constant, since entrepreneurs are satisfied with their margins and workers with their real wages.

A simplified account of the effects of the external shock and the adjustment package is given below with the help of Figure 3, where we plot the above relationships in the  $e$ - $Y$  plane. Output at external equilibrium  $Y^*$  is upward sloping, and to the right of the curve the economy is in external deficit. The distributive equilibrium curve, denoted as  $F$ , is also upward-sloping. With higher output, firms accept a lower profit margin: given the real wage (and labour productivity) domestic prices and money wages can fall, and there is room for a higher real exchange rate<sup>28</sup>. Above the curve there is inflation, inasmuch as money-wage demands are rising. The demand curve  $Y^d$  is downward-sloping because a higher real exchange rate is associated with a lower share of wages in the value-added<sup>29</sup>. Finally, output at full utilization of the productive capacities  $Y^K$  is drawn as a vertical line, since it does not depend on the real exchange rate.

The external shock shifts the curve of output at external equilibrium leftwards, from  $Y^*_0$  to  $Y^*_1$ . It also worsens expectations. That by itself would bring about a rise in profit margins and a fall in the share of wages in the value-added, but this effect is amplified on account of the credit restriction. As a result, the  $F$  curve of distributive equilibrium shifts to the right, from  $F_0$  to  $F_1$ : in order to maintain the distributive equilibrium at a given level of output, the real exchange rate would have to fall. Finally, the aggregate demand curve shifts leftwards. This is primarily the consequence of the drop in private investment. However, the shift is

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<sup>28</sup> It is assumed that idle capacities are ample, and the supply curve is in its downward-sloping section.

<sup>29</sup> A higher real exchange rate depresses  $w$  on two counts. First, the relationship between prices of raw materials and total wages rises (Kalecki). Second, profit margins rise with the real exchange rate.

greater owing to the contractive fiscal and monetary policy being implemented to address the external shock.

If the government tries to defend the previous real exchange rate  $e_0$ , output would fall from point A to point C. If, instead, it tries to raise the real exchange rate to  $e_1$ , the fall would be to point D. In either case, the result would be a decline in both output and employment. The external imbalance will be redressed, and an external surplus can actually be achieved. However, the degree of utilization of the productive capacities will be diminished.

The drop in output will be coupled with inflationary pressures. In fact, B is the only point where the curves  $Y^d$ ,  $Y^x$  and F of the distributive equilibrium, coincide, while above the F curve inflationary pressures predominate. These pressures will prevail for as long as workers bargain for, and achieve, rises in money wages.

If and when workers accept a fall in their real wage, money wages will stop rising. The F curve will shift upwards, say to a point like C or D. At any of these points, a lower real wage and a lower share of wages in the value-added will allow a rise in the real exchange rate and check inflation. As the experience of Latin America shows, the period before inflation is ultimately brought under control may be protracted and real wages may have to fall dramatically for inflation to subside<sup>30</sup>. Furthermore, output, the degree of utilization of the productive capacities and employment will fall. The fall may indeed be dramatic, as in Chile in 1982 (when GDP fell 14%) or in Mexico in 1995 (when GDP fell 7%).

Supporters of the adjustment package sometimes accept that their policies will bring about a decline in output, but they argue that the fall is inevitable in any case because the country was living 'beyond its means' or that the fall will be short-lived, or both. Growth of exports, so the argument goes, will rather sooner than later drag domestic and aggregate demand along with it, when external constraints are lifted. The supporters of the adjustment package also tend to cite the cases of Chile and Mexico, where growth resumed after a dramatic downfall.

Without going into a deep discussion, it can be simply said that their interpretation of the above-mentioned experiences is misleading.

In Chile, growth in fact resumed from 1984 onwards (with a pause in 1985) but only because both the external situation and the economic strategy changed. Probably for political reasons, between 1982 and 1987 external constraints were lifted thanks to a dramatic increase in foreign lending on the part of multilateral agencies<sup>31</sup>. The government

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<sup>30</sup> In Chile real wages fell 15% between 1981 and 1985. In Mexico, they fell 15% (seasonally adjusted) between the last quarter of 1994 and the third quarter of 1995.

<sup>31</sup> From 1987 onwards an additional factor was the steady rise in the international price of copper, Chile's main export.

was able to expand its gross external debt, which rose from USD 6.6 to 16.4 billion. Furthermore, external debt servicing was renegotiated on very favourable terms and the share of export revenues devoted to servicing the foreign debt fell from 83.8% in 1981 to 48.7% in 1986. Finally, a rather more expansionary fiscal policy was introduced, coupled with an increase in tariffs that enhanced protection to domestic producers.

In Mexico, growth also resumed after the dramatic slump in output in 1995. During 1996 and until mid-1998, relatively high rates of output growth were attained, averaging about 7% on an annual basis. That recovery was possible, however, only because oil prices went up and dramatically swelled government revenues. Thus, public expenditure could be raised without incurring a deficit.

In short, in both Chile and in Mexico output recovery did not come about as a result of the somewhat delayed, but spontaneous working of the beneficial effects of the adjustment package. Rather, the external conditions became favourable once more and the output curve under conditions of external equilibrium thus shifted rightwards. Government policies changed; government demand expanded and thus the demand curve also shifted rightwards. In either case, the government and not the market led the recovery.

It is not difficult to understand why government intervention is indispensable to recovery. The crisis affects not only workers, but also enterprises. The drop in both private investment and the budget deficit tends to contract profits: a contraction that may not be offset by the rise in the external surplus<sup>32</sup>. And even if the export surplus rises enough for profits to increase, the degree of utilization of productive capacities will probably decline owing to the shift to profits and the consequent expansion in the savings coefficient. Thus, firms will not be encouraged to enlarge their productive capacity through new investments. The experience of Mexico in the period 1982-1986 shows that following a contracting adjustment package, there is every likelihood of a stagnation scenario that might well be protracted.

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<sup>32</sup> It is recalled that profits are equal to the sum of private investment and capitalist consumption, plus the government deficit plus the trade surplus.

Figure 1

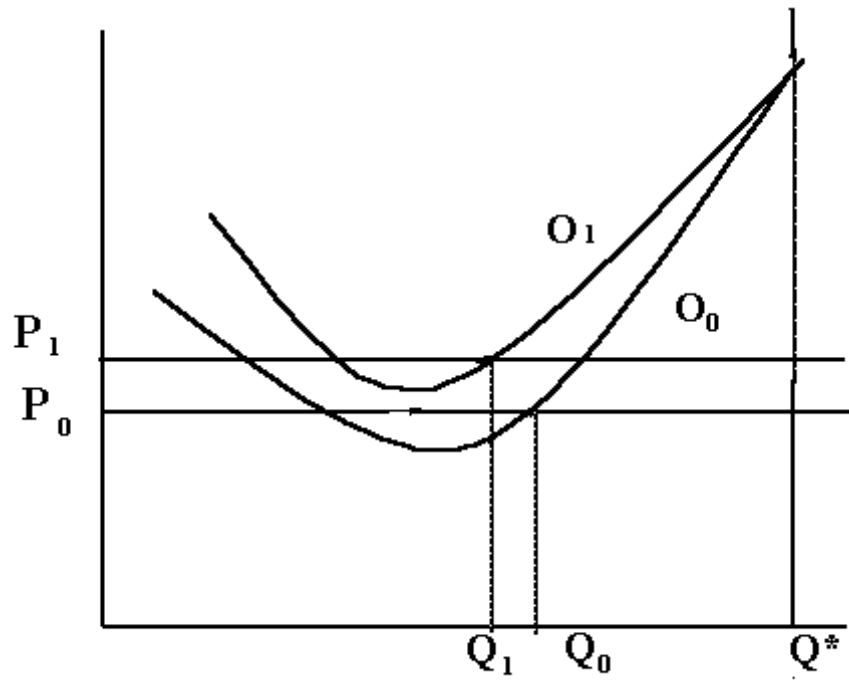


Figure 2

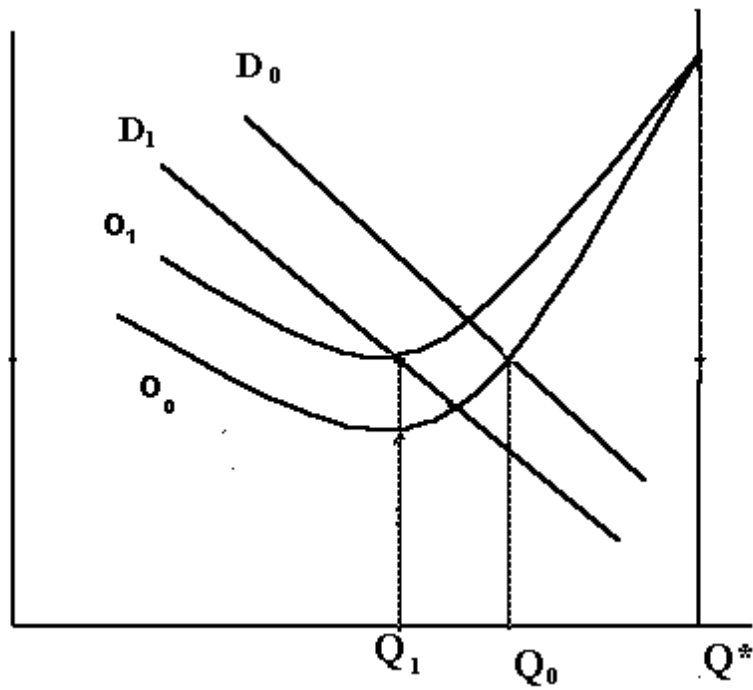
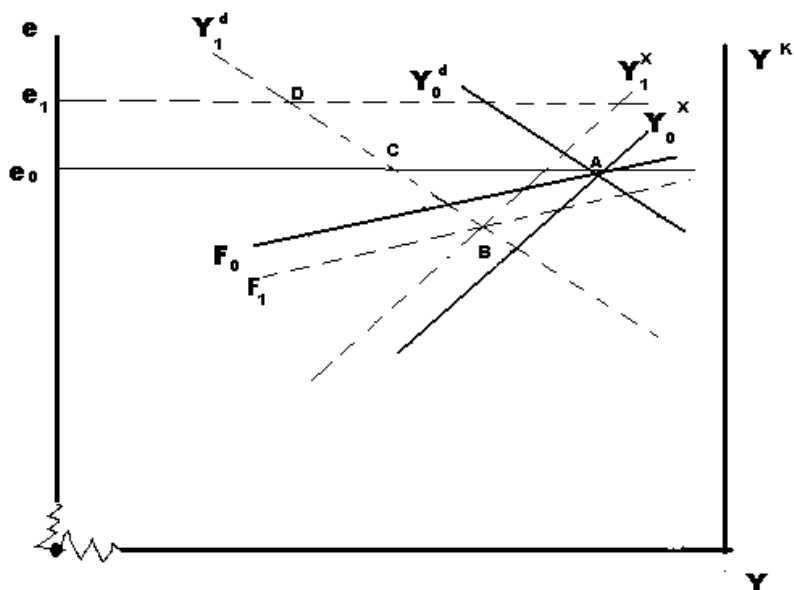




Figure 3



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## **Sustainability of Poland's 'Import-Fed' Growth**

### **1 Foreign trade performance in the 1990s**

During the last decade Poland's foreign trade contributed positively to GDP growth only twice. In 1990 a massive expansion of exports coupled with a dramatic contraction of imports undoubtedly moderated the scale of the overall GDP decline. Then, in 1994, as exports accelerated and trade deficits relative to the GDP narrowed, Poland's growth moved into high gear (see Table 1).

There were many factors behind the trade performance in 1990, including the abrupt decline in domestic aggregate demand. Importantly, in 1990 there was a very strong devaluation of the Polish zloty (PLN), actively encouraging exports and discouraging imports.

From 1991 through 1993 exports kept falling – and imports grew at very high rates. In effect the high 1990 trade surplus (8.1% of the GDP) turned into deficit (5.3%) in 1993. There is little doubt that the steady expansion of imports during that period had little – possibly nothing – to do with the GDP developments. The standard wisdom, linking strong expansion of imports to strong expansion of the GDP, did not apply. That was best visible in 1991 when imports rose by close to 40% despite continuing strong contraction of the GDP. Also in 1992-93 the GDP recovery was too weak to have generated, by itself, much of the increase in imports. The developments, on both import and export sides, primarily reflected the continuing strong real appreciation of the zloty. The appreciation itself was a by-product of the exchange rate policy which tried to 'import' foreign price stability and productive efficiency by exposing the domestic economy to foreign competition. While it is quite difficult to assess the extent to which the 1991-93 real appreciation helped reduce inflation and enhanced production efficiency, it had a predictable effect on trade and current account deficits. In response to those (and also amid the demands for giving the domestic producers more chance to adjust) the authorities sporadically intervened by devaluing the zloty more than implied by the pre-announced crawling-peg mechanism (in place since mid-1991). One such devaluation in the second half of 1993 resulted in real depreciation of 3.7% in 1994. In 1994 both export and import prices rose faster than producer prices in industry, implying slightly better conditions for exporters and the domestic producers of import-competing goods – and slightly worse conditions for the importers (see Table 2).

Table 1<sup>33</sup>

## Selected data on Poland's foreign trade (%)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Imports/GDP	16.2	20.3	19.1	21.8	23.9	23	27.8	29.6	29.6	29.8	31.1
Exports/GDP	24.3	19.5	15.6	16.5	19.1	18.1	18.3	18	17.9	17.8	20.1
Trade balance/GDP	8.1	-0.8	-3.5	-5.3	-4.8	-4.9	-9.5	-11.6	-11.7	-12.0	-11.0
<i>(Official + 'unofficial' trade balance)/GDP</i>		.	.	0*	3.6*	1.3*	-4.8*	-7.4*	-8*	-9.7*	-8.5*
Imports/Exports	66.5	104	122	132	125	127	152	164	165	168	154
Imp./Exp., industrial goods	75.2	109	126	131	124	126	149	164	164	168	147
GDP growth rate, real	-11.6	-7	2.6	3.8	5.2	7	6	6.8	4.8	4.1	4.0
Exports growth rate, real	13.7	-2.4	-2.6	-2.4	18.3	16.7	9.7	13.7	9.4	2.0	25.3
Imports growth rate, real	-17.9	37.8	13.9	20	13.4	20.5	28	22	14.6	4.4	10.8

\* estimate

*Remark:* The trade data in Table 1 (and throughout the whole text) refer to 'official trade', reflected in the customs statistics. For many reasons these data differ, quite systematically, from the data on the trade payments quoted in the Balance of Payments statistics. Besides the 'official trade', Poland conducts also 'unofficial trade' consisting of sales of goods and services to shoppers from the neighbouring countries. Available estimates for the 'net unofficial trade' exist for 1994 and onwards (in 1991-92 this net trade was probably insignificant).

<sup>33</sup> Unless otherwise stated, all statistical data quoted in this text come from official Polish statistics.

Table 2

**Ratios of export prices to industrial producer prices (PP), ratios of import prices to PP,  
terms of trade, real exchange rates**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Import prices/PP (previous year = 1)		0.92	0.87	0.88	1.02	0.95	0.99	1.01	0.94	1.02	0.98
Index, 1990 = 1		0.92	0.8	0.7	0.72						
Index, 1994 = 1						0.95	0.94	0.97	0.9	0.92	0.90
Export prices/PP (previous year = 1)		0.85	0.95	0.95	1.03	0.97	0.96	1	0.99	1.03	0.94
Index, 1990 = 1		0.85	0.81	0.77	0.79						
Index, 1994 = 1						0.97	0.93	0.94	0.93	0.96	0.90
Terms of trade (previous year = 1)		0.91	1.1	1.08	1.01	1.02	0.97	0.99	1.04	1.01	0.96
Index, 1994 = 1						1.02	0.99	0.98	1.03	1.04	1.00
Real exchange rates											
Index, 1989 = 1											
CPI-based	1.155	0.764	0.757	0.678	0.667						
PPI-based	1.096	0.877	0.923	0.849	0.880						
Index, 1994 = 1											
CPI-based						0.943	0.865	0.843	0.807	0.820	0.725
PPI-based						0.961	0.941	0.939	0.936	0.955	0.881

*Remark:* Real exchange rates (calculated at WIIW) are against the ECU/EUR.

The change in price trends surfacing in 1994 helped exports and somewhat moderated the growth of imports. Certainly, it would be wrong to see the improvements in 1994 as solely due to the real appreciation being checked. Other, possibly more important, factors were at work as well. The good business climate in Western Europe stimulated the demand for Polish exports (hence adding to both volume *and* prices of exports). Also exports to Russia expanded very strongly. Some 'asymmetric' liberalization of Poland's exports to the EU (stipulated by the Association Agreement) and the introduction of more restrictive import barriers (including a 6% import surcharge tax) were of importance, too. Besides, by that time the overall economic stabilization had already been largely achieved and major institutional changes successfully instituted. (Among others, the problems over bad debts were sorted out throughout the economy, much of the state-owned sector was either privatized or restructured and forced to play by the market rules).

Factors other than price developments continued to have positive effects on exports and imports also in 1995. However, later on they have been losing in importance. The premium on the achievement of stability and institutional change was largely a one-time effect. Moreover, since 1995 Poland's import barriers erected earlier on have been progressively dismantled so that the advantages of the initial 'asymmetry' implied by the Association Agreements have been evaporating.<sup>34</sup> Poland's improved creditworthiness (conclusion of agreements with the London and Paris Clubs over reduction and rescheduling of huge, long non-serviced foreign debt) opened access to trade (import) credits. Undoubtedly, all that has accelerated imports.

The trade performance after 1994-95 reflected both the variations in foreign demand for Polish exports (and in export prices) and the generally very strong uninterrupted expansion of Poland's GDP, which lasted into 1999. Overall, the trade trends were hardly positive during that period. As can be seen from Table 1, there was a deterioration in all relevant indicators. Compared with 1993, the situation in 1996-98, and even more so in 1999, must be judged quite bad. This is best reflected in the fact that the exports/GDP ratio changed little (from 16.5% to 17.8%), whereas the imports/GDP ratio rose tremendously (from 21.8% to 29.8%). However, in 1993 the authorities could, and did, do something to ameliorate the situation without impairing the GDP growth. In particular, they could, and did, devalue the zloty. That action has not been possible in late 1990s because the exchange rate mechanism has evolved radically. Since 1995 the authorities have progressively abdicated direct responsibility for the exchange rate – and actually lost any meaningful direct control of it. The only remaining tool, the level of interest rates, is used primarily to control inflation. The high capital inflows, starting in 1995 (in response to the

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<sup>34</sup> Effective tariff protection rate (allowing for import surcharges and customs duties with suspensions) in 1995 stood at 18% (calculated by the Corden method). In 1996 that rate was 13.5%, in 1997 7.5%, in 1998 less than 6%. (The import surcharge tax was phased out in 1977). Parallel to this, the non-tariff barriers on imports from the EU have become less and less restrictive (see the yearly reports on Poland's foreign trade by the Foreign Trade Research Institute, Warsaw). By 2000 the tariff rate calculated as ratio of customs revenue to imports stood at 2.3%.

liberalization of capital flows, high domestic interest rates, Poland's improved creditworthiness and the strength of the zloty) have generally resulted in the zloty losing out (nominally) against the foreign currencies at a remarkably slow pace. In real terms the zloty exchange rates never returned to their 1994 levels (staying at levels implying persistent appreciation). As can be seen from Table 2, from 1995 through 1999 prices of imports relative to the domestic industrial producer prices were consistently lower than in 1994. *Imports have been becoming cheaper relative to the domestic industrial goods throughout that period.* Similarly, in the same period export prices relative to prices of domestic industrial goods kept falling after 1994. *Profits earned on exports must have been declining relative to profits to be made on domestic sales.*

As can be seen from Table 2, the developments in price ratios (exports/producers', imports/producers') during 1995-98 are similar in character (but not in magnitudes) to those observed during 1991-93.

As earlier indicated, during 1995-98 factors other than the price trends have played a role in determining exports and imports. However, the price trends themselves seem also economically consistent with the observed trends in exports and imports. Simply put, imports would not have been expanding so strongly without being able to out-compete domestic production with lower prices. By the same token, export growth would not have been slowing down as much as it did without export activities becoming less and less profitable.<sup>35</sup>

The weakening of the currency that occurred in 1999 was related to the sentiments of the international capital markets, suffering from currency crises in many 'emerging markets' (including Russia). The resulting real depreciation was coupled with a noticeable slowdown of GDP growth. Growth was curbed by harsh measures (fiscal as well as monetary) which sought to stop growing trade deficits by lowering domestic demand. The weakening currency and deceleration of growth had some effect on trade – the expansion of imports was moderate in 1999. The restrictive fiscal and monetary policy was continued in 2000. It was successful in radically braking growth of private consumption and gross fixed investment – which was accompanied by an abrupt rise in unemployment. Nonetheless, this policy was successful in achieving high growth of exports, and that despite renewed real appreciation. However, this was accomplished (partly because of the exceptionally good business climate abroad) at a rather high cost. Besides, the policy does not seem sustainable if only because sooner or later it will be impossible to continue unprofitable export activities.<sup>36</sup>

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<sup>35</sup> Unprofitable exports of coal and steel products (by 2000 still accounting for about 8% of total exports) supplied largely by not yet restructured state-owned firms, have been supported by hidden subsidies. Without these subsidies the overall export volumes and values would have been lower in recent years.

<sup>36</sup> A significant (about USD 1 billion) part of improvement on exports came as the result of a single greenfield FDI factory (Isuzu diesel engines) starting operation.

## 2 The role of imports of investment goods

The conventional belief is that the zloty will retain its strength (or even strengthen further) possibly for quite a long time – and, at the same time, that the GDP will continue to grow rather fast. Yet the combination of high GDP growth and strong currency is likely to result in even higher trade deficits. Such deficits may surely be sustained for some time, as long as high inflows of capital continue. But capital inflows are unlikely to continue indefinitely, if only because the stock of saleable state-owned assets is limited. In the medium run the growing deficits have to result in a slowdown of GDP growth (as in 1999), or in a weakening of the currency. In extreme cases the high growth/strong currency combinations have the potential to provoke *recessions combined with currency crises*.

High GDP growth combined with strong currency can certainly be sustained provided exports keep rising strongly, outpacing imports, so that one has to do with 'export-led growth'. This, of course, has not been Poland's case (and not even Hungary's, whose foreign trade performs vastly better than Poland's). Usually, the 'export-led' growth involves not merely the expansion of 'traditional' exports, but also a sustained improvement in their structure and much higher export prices reflecting upgraded quality. So far nothing suggests that the structure of Poland's exports improves decidedly, away from low-value to high-value added goods.<sup>37</sup> Moreover, the progress on improving the average quality of Polish exports (reflected in the ratios of prices of individual items of Polish exports to the EU to the average prices of the respective total EU's imports) has been less than impressive.

Polish *imports* are much more technology-intensive than exports. In 1997 the share of technology-intensive imports stood at 21.3% (of which of the 'hard-to-imitate' goods at 15.1%).

Arguably, massive imports of technology-intensive goods (particularly investment goods) may in due time generate production capacities capable of supplying rising high-value exports. Seen in this light, the huge, and rising, trade deficit could represent a transient and necessary phenomenon.

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<sup>37</sup> This is amply evidenced by many sources, including *WIIW Structural Report 2000*. A recent study prepared by Poland's Ministry of Strategic Issues indicates that the share of 'natural-resources-intensive' goods in Polish exports, which stood at 47.5% in 1993, fell to 45.7% in 1998. The share of technology-intensive goods rose from 3.9% to 6.7%, of which the share of goods that are 'hard to imitate' from 0.7% to 0.8%.



Table 3

**Imports, by use, and the shares (%) of imports by use in investment outlays,  
intermediate consumption and private consumption**

	1994		1995		1996		1997		1998		1999		2000	
	USD mn	%	USD mn	%	USD mn	USD mn	USD mn	%	USD mn	%	USD mn	%	USD mn	%
Total imports of which	21569	100	29050	100	37136	45911	45911	100	47054	100	45911	100	45900	100
investment goods	2955	13.6	3972	13	5213	6933	6933	15.1	7903	16	6933	15.1	7200	14.7
intermediate goods	14279	66.3	19875	68.4	24901	29567	29567	64.4	29880	64.1	29567	64.4	32500	66.3
consumer goods	4160	19.3	5164	17.8	6849	9321	9321	20.3	9192	19.7	9321	20.3	9200	18.8
<i>shares</i>														
imports of investment goods/investment outlays	19.8		19.5		21.5		23.6		23.2		21.9			
imports of intermediate goods/intermediate consumption by non-financial corporate sector	18.5		19.3		21.6		23.3		23.3		23.9			
imports of consumer goods/private consumption	7		6.8		7.7		8.8		9.2		9.5			

Available information on the structure of Polish imports suggests that the share of investment goods in imports is surprisingly low (see Table 3).

*The present trade deficits do not seem to represent investments which in due time could produce export surpluses.* Trade deficits – *without counting imports of investment goods* – relative to the GDP have been high and rising in recent years (from 1.5% of the GDP in 1994 to 6.4% in 2000). Such an explosive rise in the share of the trade deficits (with imports of investment goods deducted) in the GDP is certainly 'unhealthy'. The GDP growth achieved in such circumstances can be described as 'import-fed growth'.

The share of investment goods in imports has increased only slightly since 1994, and so did its weight in domestic investment outlays. Moreover, it is *not* higher than in the old years of central planning. For example, in 1980 that share was 17.3% (the share of intermediate inputs was over 68%, the share of consumer goods 11.2%). Throughout the 1970s the share of investment goods must have been much higher, probably in the 25-35% range.

The experience of the 1970s seems strangely relevant now. In the 1970s Poland tried to modernize through massive imports of Western capital goods and technology. Huge trade and current account deficits were financed by capital flows (in the form of Western credits). The foreign debt thereby accumulated was to be repaid by rising exports generated by the new, modern, production capacities. The strategy collapsed, forcing Poland's default on foreign debt (1982-93). To a great measure this happened because the output produced with the new capacities and technologies turned out to be highly import-intensive. Export revenues did not meet the expectations – but the payments for imports of intermediate goods surpassed all expectations. One lesson of the 1970s is that even high imports of investment goods do not guarantee success. This is so because the production capacities so created may enhance the economy's dependence on intermediate imports. Of course, much lower imports of investment goods need not imply a reduction in that dependence either.

The possibility that the imports of investment goods only enhance the Polish economy's dependence on imports of intermediate inputs may be as real now as it was in the past. In particular, the rising significance of foreign direct investment does not seem to improve the situation (see Table 4).

As can be seen, the foreign sector, which generates about one fourth of the corporate sector's revenue (and probably as much as 5-7% of Poland's gross value added) is directly

responsible for over 60% of Poland's trade deficit.<sup>38</sup> Its import/export ratios are much higher than the overall ones. Also, on the crucial issue of the import intensity of production, the foreign sector seems to fare quite badly. The available data for 1997 indicate that the import intensity of output in firms with foreign participation is roughly more than twice the overall average level.<sup>39</sup>

Table 4

**Shares of (non-financial) firms  
with foreign participation  
in Poland's exports, imports and trade deficit**

	1994	1995	1996	1997	1998	1999
Exports	25.0	30.0	33.8	43.0	47.9	51.6
Imports	32.9	37.1	42.2	49.9	53.4	55.8
of which						
investment goods				50.0	50.0	
intermediate goods				47.8	52.9	63
consumer goods				57.0	58.2	
Trade deficit	64.6	63.6	58.3	60.3	60.6	62

*Memoranda items:* shares of firms with foreign participation in the corporate sectors' revenues, employment and investment revenues

revenues		20.0	22.6
employment		10.0	12.5
investment outlays	32	39.4	

*Remark:* The high shares of the foreign sector in investment imports and investment outlays overstate the importance of that sector as far as the possible generation of new export capacities is concerned. Less than half of the sector's investment outlays is in industry, more than half is in the service sector (notably retail trade) which will never contribute to any exports (but actively to imports).

*Sources:* *Foreign Investments in Poland*, Foreign Trade Research Institute, Warsaw 1999; S. Uminski, 'Handel zagraniczny przedsiębiorstw z udziałem kapitału obcego', *Gospodarka Narodowa*, no. 10/1999.

### 3 Price developments and imports: a more detailed analysis

Since 1994 imports of consumer goods have been rising faster than total private consumption of goods (domestically produced and imported, combined). This should not come as a surprise: with rising real incomes the demand for higher-quality imported goods which have no domestic substitutes must also be rising. The problem is that households'

<sup>38</sup> Recent estimates suggest that in 1999 that share increased to about 62%. In 2000 the share seems to have dropped to around 51%. A part of this had to do with sharp increases in prices of raw materials (oil and gas) imported almost exclusively by the domestic-owned sector. Besides, in 2000 a few large foreign greenfield factories designed to supply mother companies with essential inputs (e.g. diesel engines) started operation.

<sup>39</sup> As can be seen from Table 4, the share of foreign firms in intermediate imports was about 47.8% in 1997 – and the share of their revenues (largely the income from sales of products and commodities) about 22.6%. Thus the import intensity of intermediate inputs for these firms was 2.11 times higher than average ( $2.11 = 47.8/22.6$ ). (In actual fact, the situation is even worse because the foreign sector imports – and then sells on the domestic market – a disproportionately higher share of *consumer* goods. The import intensity of intermediate inputs and consumer imports combined, calculated for foreign firms is about 2.2 times higher than average.

real incomes (and total private consumption of goods) have not risen as explosively as consumer imports (see Table 5).

In the period under consideration total private consumption rose, on average, 5.2% per year – and consumer imports by 19%. The discrepancy between both items is at least partly due to the differential developments in prices of total private consumption of goods and of imported consumer goods. Indeed, as can be seen from Table 5, consumer *imports* have become *cheaper* than, on average, all consumer goods.

The differential price developments, reflecting primarily the ongoing real appreciation of the zloty, must have retarded the growth of consumption of *domestically* produced goods, and hence the growth of production of domestic consumer industries. No doubt this has been forcing adjustments in some domestic consumer-goods factories, possibly leading to higher efficiency. Other outcomes are equally possible: contraction of profits and financial problems eventually resulting in contraction of output and *lower* efficiency.<sup>40</sup>

Table 5

**Volume and price indices for imports of consumer goods  
and private consumption of goods**  
(previous year =100)

	1994	1995	1996	1997	1998	1999	2000	Index 2000/1994
Private consumption (goods)	104.4	103.3	108.3	106.8	104.7	106.0	102.6	135.9
Price index, consumer goods	132.1	127.2	119.8	113.7	109.7	105.5	109.6	219.7
Imports, consumer goods	110.4	113	130	120.7	112.5	108.1	109.5	286.5
Price index, consumer imports	126.4	117.8	112.6	117.6	109.1	106.6	98.9	179.2

Overall, the situation of the domestic producers of intermediate inputs has been similar to that of producers of consumer goods (see Table 6).

As can be seen, the overall intermediate consumption of goods (excluding purchased services) in the non-financial corporate sector rose 75% (1999 over 1994). At the same time imports of intermediate goods increased 132%<sup>41</sup>. Of course this can, at least partly, be explained by rising demand for higher-quality imported components. On the other hand there is no denying that the imported inputs have become much *cheaper* relative to the domestic ones. The ongoing real appreciation of the zloty must have had similar consequences for the domestic producers of intermediate inputs as for the producers of

<sup>40</sup> In actual fact, since 1996 profitability indicators have been deteriorating – not only in consumer goods industries, but generally throughout manufacturing and mining. In 1998 a number of branches of manufacturing recorded net losses, for the first time since 1993. Profitability worsened further in 1999 and 2000.

<sup>41</sup> At constant prices of 1994 the import intensity of industrial production rose 66%. Import intensity of manufacturing production (calculated at current prices) rose from 0.2 prior to 1995 to 0.3 in recent years.

consumer goods. It is also worth noting that producer prices in total industry generally rose faster than prices of imported inputs. This must have slowed down the decline in profitability of firms using imported intermediates. On the other hand, because export prices fell behind the producer prices, profits on export activities must have been declining.

Table 6

**Volume and price indices for imports of intermediate goods,  
intermediate consumption in non-financial corporate sector and industrial sales**

volume and price indices for exports

(previous year, or the same period of previous year =100)

	1994	1995	1996	1997	1998	1999	2000	Index 2000/1994
Intermediate consumption	110.9	112.2	110.4	112.8	107.6	104.6		174.6 <sup>1)</sup>
Price index, intermediate consumption	129.2	126.8	114.5	110.5	108.5	106.4		185.1 <sup>1)</sup>
Industrial sales	112.1	109.7	108.3	111.5	103.5	103.6	106.8	137.4
Producer price index, industry	125.3	125.4	112.4	112.2	107.3	105	107.8	192.4
Imports, intermediate goods	116.8	124.2	126.2	119.9	115.2	107.5	110.8	285.5
Price index, intermediate imports	126.5	119.3	110.6	112.8	99.6	104.7	98.7	152.9
Exports	118.3	116.7	109.7	113.7	109.4	102	125.3	203.2
Price index, exports	128.8	121.2	108.1	112.9	106.8	108.2	101.2	173.0

Note: 1) Index 1999/1994.

The persistence of the price developments elicited in Tables 5 and 6 may have had some positive (as well as negative) effects described above. One cannot be surprised if these developments have, in addition, resulted in technological adaptations implying substitution of domestically produced intermediate inputs with the imported ones. If such adaptations have indeed taken place on a large scale, the domestic economy may have become 'addicted' to imports. This can have grave consequences. When, one day, real depreciation sets in, the application of imported inputs can become too expensive, even in the export activities. And the application of the domestic intermediate inputs may turn out to be technologically impossible. (Alternatively, domestic inputs may no longer be available because their producers may already be extinct). The situation observed in 1999 seems to illustrate the likely effects of a real depreciation following an extended period of over-appreciated currency. The adjustments in 1999 involved: (a) stagnation of production and marked decline in profits; (b) stagnation of imports; (c) decline in exports. Decline in exports, despite relatively stronger export prices, is the most remarkable phenomenon suggesting very high import-intensity of export production. With more expensive imports, much of export production may have generated lower (or negative) profits, despite higher export prices.

#### 4 Concluding remarks

The performance of Poland's foreign trade contrasts starkly with that of Slovenia, another transition country. Slovenia's trade balance/GDP ratio fell from -6.3% in 1995 to -5.4% in 1998. In the same period its imports/exports ratio fell from 114% to 112%. The share of intermediates in imports fell from 61% to 57%, and the share of investment goods in imports rose from 17% to 17.9%. Of course, Slovenia is a much more developed country (with GDP per capita more than twice the Polish level). The technology of the Slovenian industry is much more advanced. Also, Slovenia has been growing at a slower pace than Poland (on average 4% p.a. over the last five years, against Poland's 6.1%). There can be little doubt yet that whereas Poland's 'import-fed' growth does not seem sustainable, Slovenia is likely to go on sure and steady – provided it sticks to its exchange rate policy. (That policy stipulates continuing *strong real depreciation*. The PPI-based real exchange rate of the Slovenian currency rose by 23% (1998 over 1995), the CPI-based exchange rate by 10%.)

The negative tendencies in Poland's foreign trade are likely to continue. Given the international treaties (in particular with the EU), the Polish authorities will resort to protectionist measures under very grave circumstances only. An active long-term export-oriented industrial policy is also unlikely to be adopted: so far no such policy has been even formulated. An active long-run import-substitution industrial policy has been conducted in few areas only (notably in oil processing and petrochemicals).

Something can be done as far as the institutional arrangements are concerned. Support to export crediting and insurance is certainly too low, and surely depresses the growth of Polish exports.<sup>42</sup> It can be doubted yet whether much can be achieved that way. As long as interest rates administered by the monetary authorities stay at very high levels, in the final instance the support to crediting and insurance would cost a lot of money. The fiscal authorities, which deny money to satisfy even more urgent public needs, are not really prepared to pay the bill.

Left to themselves, the negative tendencies will sooner or later<sup>43</sup> 'correct themselves': through either a halt in the GDP growth, or a suitably strong devaluation, or both. The problem is that the act of 'spontaneous correction' may take on devastating dimensions. Surely, it would make sense to engineer the correction in advance. But, such 'engineering' would require definite changes in the monetary and exchange rate policy. Currently, no

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<sup>42</sup> Because of high interest rates Polish exporters can afford crediting less than 3% of their exports. This share is much lower than in other advanced transition countries, and incomparably lower than in the West (in Germany about 25%). By contrast about 15% of Poland's imports are delivered on credit terms.

<sup>43</sup> In recent years the current account deficit was financed by capital inflows, including the privatization revenue. The latter source is likely to dry up in three to four years. At about that time Poland is due to start huge payments on its foreign debt (as agreed with the London and Paris Clubs in the early 1990s). Unless Poland is a EU member (and has access to EU subsidies) by that time, it will face a rather difficult payment situation.

change can be detected in the monetary policy. And the recent decision to introduce the 'pure float' exchange rate regime will do nothing to prevent further real appreciation following the expected high capital inflows.

## **Nominal Wage Growth, Exchange Rate and Productivity\***

### **1 Introduction: some basic facts**

#### **1.1 Nominal wage growth in CEE manufacturing**

Inflation in the Central and East European countries (CEECs), though gradually falling, has recently been much higher than in the EU. Under such conditions, average nominal wages in the CEECs are bound to be rising rather fast too. Whether rising nominal wages universally 'cause' inflation, or whether rising prices universally 'cause' rising wages, cannot be conclusively answered. Wages and prices 'spiral' through cost-price and demand-pull adjustments. There are many interfering country-specific factors. The spreads between price indices and the indices of nominal wages have not followed a uniform patterns across the CEECs (see Table 1).

With roughly the same inflation rates the nominal wage in Poland rose much faster than in Hungary (in the latter country the real wage hardly increased). As in Poland, also in Slovenia, Slovakia and the Czech Republic rising wages were not fully reflected in prices. The opposite happened in Romania and Bulgaria: there inflation was higher than nominal wage growth rates. Clearly, rather different 'transmission mechanisms' linking wages and prices are at work in different countries. Of course, it is not our immediate purpose to elaborate on these mechanisms – we will come back to inflation prospects later. What seems important are just two observations:

- (1) Inflation will be subsiding in the CEECs relatively slowly: deceleration to the average EU levels may take some time.
- (2) The average nominal wage is likely to keep rising, generally in line with the overall inflation, though some variations in this tendency may occur over time.

#### **1.2 Labour productivity and unit labour costs**

Generally, labour productivity (real gross value added per employee) in manufacturing has been rising everywhere in the CEECs considered in this paper (see Table 2).

Again, the factors underlying productivity growth are quite different across countries. In Bulgaria and Romania productivity gains have been due to falling employment under falling (or stagnant) output. In Poland and Slovakia productivity gains have been due to rising output at practically unchanged employment levels and in Hungary, Slovenia and the

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\* This text was presented at the conference 'Cohesive growth in the enlarging Euroland: Patterns, problems and policies', Berlin, 7 to 9 June 2001.



Czech Republic employment cuts and output increases both have contributed positively to productivity improvement.

Interestingly, there is no obvious link between changes in unit labour costs and other sets of indicators. Observe for instance that rising labour productivity is differently 'rewarded' (in terms of real wages). The strong gain in the Hungarian productivity was not rewarded at all (real wage growth was about zero). Strong gains in Poland were rewarded (relatively ungenerously), with a 4.3% real wage growth. Weaker gains in the Czech Republic, Slovenia and Slovakia were rewarded more generously (real wage rising 4%, 3.5% and 3.1% respectively). Gains in Romania and Bulgaria were 'punished' with falling real wages (-3.3% and -2.4% respectively). This observation may be important because one hears sometimes opinions about a kind of causality running from rising labour productivity to rising real wages.

Table 1

<b>Average yearly growth rates (%) of nominal wage in manufacturing and of selected prices</b>					
Country	Period	Average wage	Producer prices manufacturing	Consumer prices	Deflator of GVA <sup>1</sup> in manufacturing
Bulgaria	1999/96	138	136	144	124
Czech Republic	1998/92	15.7	6.7	11.2	8.8
Hungary	1998/92	21.3	17.2	21	14.9
Poland	1999/92	26.6	17.5	21.4	9.5
Romania	1998/92	92.3	87.5	99.3	88.3
Slovakia	1999/95	10.6	3.9	7.3	3.7
Slovenia	1999/92	17	9.9	13	12.1

Note: 1) Gross value added.

Source: WIW.

The most striking difference is between Poland and Hungary, the two countries with the most impressive productivity growth rates. In Poland unit labour costs (ULCs) rose by 3.6% p.a. while in Hungary they declined by 5% p.a. Whatever the reason for this difference, in Poland the share of wages in gross value added has been rising whereas the Hungarian share has been contracting rather strongly. Quite likely this also says something about the reasons for the strong growth of output in Poland: with rising labour income the *domestic* demand (primarily private consumption) may have been sufficiently strong to support production at little changed employment levels. But at the same time rising Polish ULCs may have reduced external competitiveness. In Hungary the stagnating labour incomes may have prevented a similarly strong expansion of domestic demand and output and the maintenance of employment. However, with falling labour costs the Hungarian manufacturing may have been gaining external competitiveness. In the remaining

countries the gains in ULCs may have been too low to increase external competitiveness sufficiently. At the same time, the losses on ULCs were too small to generate sufficiently strong domestic demand.

Table 2

**Average yearly growth rates (%) of output, employment, labour productivity  
and unit labour costs in manufacturing**

Country	Output (GVA) real	Employment	GVA per employee	Gross output per employee	real ULC (nom. wage bill)/ nom. GVA
Bulgaria	-5.1	-5.4	0.2	-5.5	0.5
Czech Republic	3.1	-1.5	4.8	6.4	1.5
Hungary	8.0	-2.7	11.1	11.4	-5
Poland	11.2	-0.3	11.5	10.9	3.6
Romania	0.7	-6.1	7.3	4.4	-4.5
Slovakia	3.9	0.3	3.7	4.9	2.9
Slovenia	2.9	-3.6	6.7	5.3	-2.2

Source: WIIW. (The rates are for the same periods as in Table 1).

### 1.3 On external competitiveness

The eventual effects of changing ULCs on external competitiveness must be seen in a broader international (primarily the EU) context. There are three facts to be mentioned here:

- (1) Overall, the ULCs in EU manufacturing keep falling, though at modest rates (in Germany by about 1.1% over the period 1992-1999). On that ground alone, all CEECs except for Hungary, Slovenia and Romania have been losing out on competitiveness to the EU – even more than suggested by the ULC growth rates in Table 2 (and Hungary, Slovenia and Romania gaining less). However, this is only part of the whole story.
- (2) Observe that the growth rates of real ULCs in Table 2, calculated from movements of the ratio of total wage bill to nominal gross value added, both at current domestic wage rates and prices, are – by construction – the same as when recalculated with the current exchange rates. However, this introduces a certain bias when it comes to comparing them with the ULC dynamics (or absolute position) of the EU countries.<sup>44</sup> This is so because the volume of domestic output expressed at the current exchange rate certainly *overstates* the 'true' volume of output – when this is

<sup>44</sup> In 1996 Hungarian total unit labour costs in manufacturing (the ratio of wage bill plus other labour-related costs to gross value added) was estimated at about 71% of the corresponding Austrian TULC. The highest TULCs were observed in Slovenia (72% of the Austrian level), Poland (66%) and Romania (56%), the lowest in Slovakia and the Czech Rep. (50-51%). No comparable information for Bulgaria is available for 1996.

measured at prices which could be *actually* got on the EU market. As is well known, prices of exports of the transition countries are definitely much lower than prices of comparable exports of the EU countries (this is reflected in the so-called 'price-quality gaps'). Needless to say, these gaps are even higher for the bulk of (tradable) products which are not being exported (presumably because their quality is internationally unacceptable). In effect the real ULC growth rates, as defined, may be taken at face value as adequate measures of changing competitiveness only provided the 'price-quality gaps' for the *whole* output (not only for exports) of the CEECs do not change over time. Whether or not this is the case in each CEEC is debatable. Quite likely the opposite may be true. Quality improvements of the whole EU industrial output may be faster (on account of much higher R&D expenditures in the EU) than those of the CEECs.

- (3) Even if the 'quality' dimension discussed above were of little importance, there are other aspects of changing external competitiveness not reflected by the growth rates of ULCs. In the market (both domestic and the EU) the products of CEE manufacturing compete with foreign goods with prices which do not necessarily reflect the labour costs alone. In so far as the material input-intensities of production in the CEECs improve (that is decline) at lower speeds than in the EU, the costs of the products (adjusted for the exchange rate movements) may rise too fast relative to the costs of the comparable EU products.

#### 1.4 Exchange rates

Real exchange rates (defined as nominal exchange rates deflated by unit labour costs in manufacturing) have been generally falling in all CEECs, excepting Hungary and Poland<sup>45</sup> (see Table 3).

The real appreciation in PPI terms (exchange rates adjusted for the producer prices in industry) was on the whole much more pronounced. In PPI terms all CEECs have had real appreciation, including Hungary and Poland. However, the PPI-adjusted appreciation was not very strong in Slovenia, Hungary and Slovakia (in the latter country however only because of the strong devaluation that took place only in 1999; in earlier years the appreciation was much higher in Slovakia). Strong real appreciation was observed Bulgaria, the Czech Republic and Romania.

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<sup>45</sup> Table 3 may suggest that the Polish real exchange rate has not been appreciating during the period under consideration. This is inaccurate: from 1995 through 1998 there has been a real appreciation (2.8% p.a.) which consumed the effects of depreciation (+3.3% p.a.) over 1992-1995. The general trends towards appreciation in Romania, Slovakia and the Czech Republic were occasionally disturbed, during the periods under consideration, by 'emergency' devaluations taking effects in the Czech Republic in 1997, in Slovakia in 1999, and in Romania in 1994 and 1997. Hungary has had a depreciating currency since 1995, after a costly experience of strong real appreciation in the early 1990s.

One consequence of the real appreciation has been the deterioration of the trade balances, perhaps most spectacular in the Czech Republic and Bulgaria. In Romania the expansion of the trade deficit has been restricted by falling real wages. The moderate magnitudes of real wage changes in Slovenia and Slovakia explain the expansion of trade deficits as well (in Slovakia an improvement on the trade balance occurred only in 1999 – in 1998 it had been twice the 1999 level). In Poland the calculated appreciation rate does not tell the whole truth (see footnote 2). There has been a tendency towards strong real appreciation in Poland as well. And that was reinforced by wage developments – quite strong real wage growth and fast rising real unit labour costs. Only in Hungary did the trade deficit narrow, and this is quite certainly a combined effect of the real exchange rate developments (strong depreciation when adjusted for ULCs, moderate appreciation when adjusted for PPI) and *'frozen'* real wages.

Table 3

**Annual average growth rates (%) of nominal and real exchange rates  
and developments on the trade balance**

Country	ER (vs. euro) nominal	ER PPI deflated	ER CPI deflated	ER ULC deflated	Trade balance (euro billion)	
					1993	1999
Bulgaria	153	-7.6	-11.7	-2	0 <sup>1</sup>	-1.4
Czech Republic	-0.2	-6.5	-10	-6.4	0.3	-2.2 <sup>2</sup>
Hungary	15.4	-2	-5	5.7	-3.2	-2.4 <sup>2</sup>
Poland	13.9	-3	-6	0.3	-3.9	-17.4
Romania	71	-8.8	-14	-4.9	-1.4	-3.2 <sup>2</sup>
Slovakia	3.5	-1	-3.5	-3	-0.2 <sup>3</sup>	-1.0
Slovenia	8.5	-1.3	-4	-1	-0.4	-1.4

Notes: 1) 1997. - 2) 1998. - 3) 1995.

Source: WIIW. (The rates are for the same periods as in Table 1).

## 2 The *real* problems

### 2.1 Pessimistic conclusions

The experience of the CEECs concerning the relationship between wages, productivity and exchange rates has been rather mixed – generally yet leading to rather pessimistic conclusions.

- (1) Rising labour productivity in manufacturing may imply a fall in employment rather than a rise in output. This is not an appealing prospect, not only on account of possible unemployment effects. First of all, the CEECs need a fairly fast rise in output, otherwise the real catch-up (output per inhabitant) will not materialize. This requires a rise in *both* output and productivity.

- (2) Rising labour productivity need not imply an improvement in real ULCs, with obvious negative consequences for external competitiveness.
- (3) Even an improvement in ULCs need not compensate for the differential developments in quality or input-intensity of production.
- (4) An improvement in real ULCs may imply a reduction in domestic demand. Alternatively, such an improvement may enhance external competitiveness, at the cost of stagnation of real wages and domestic consumption.
- (5) A deterioration of ULCs (and an improvement in real wages) may help to sustain domestic demand, but unless this is accompanied by real depreciation it is bound to provoke a fast deterioration of the trade deficit.

## **2.2 A proper 'policy-mix'**

For the CEECs the real problem for the future is to sustain a rather strong rise in domestic demand (i.e. real wages) and hence output while not allowing an excessive increase of the trade deficit (which requires proper evolution of external competitiveness). In short, the 'ideal' would combine the positive features of the Polish and Hungarian experiences. Of course, one can wonder whether such an ideal can function – with good results – in practical life. Quite certainly some additional conditions may have to be fulfilled.

*First* of all, there must exist a possibility of controlling the level of the nominal exchange rate, with a view to preventing undue real appreciation. Only Hungary and Slovenia have followed exchange rate policies aiming at restricting such appreciation. (Until 1995 also Poland kept real appreciation in check through a sliding-peg exchange rate regime). In Bulgaria, with the 'hard fix' of the currency, there has been, after 1996, no possibility whatsoever to prevent any real appreciation, no matter how strong. In the remaining CEECs the relatively free float of their currencies (combined with a relatively high degree of liberalization of capital flows) does not rule out strong real appreciation over rather long periods of time, even if at the same time the trade deficits balloon and the domestic output stagnates.

*Second*, there must exist a possibility of controlling wage developments. Otherwise, too strong growth in nominal wages will imply a too strong rise in ULCs – and the loss of competitiveness. Of course, in CEE economies which are increasingly dominated by the private sector, the governments do not have a direct say on wage developments (at least outside the state-owned sector, and often not even there). What we observe in practice, whenever there is 'excessive' growth of wages and/or a rising trade deficit, is the application of a mix of restrictive monetary and fiscal policies. The idea is then to cool down growth. As far as wages are concerned the underlying idea is that the growth slowdown will reduce the demand for labour, which in turn should moderate wage growth. This of

course can work (though rather slowly and with considerable delay), provided the unemployment generated in the course of the cooling-down operation is so massive as to have an impact on wages. But, the policy misses the point because at the same time it of course hinders output growth. The recent Polish experience (1998-2001) also suggests that the 'cooling operation' may be successful in creating massive unemployment without braking the growth of the average wage. Besides such an operation is likely to be counterproductive on yet another count. The monetary austerity may *lead to excessive currency appreciation* (via induced increase in interest rates). Whatever is 'gained' by way of weakening wages is then lost by way of strengthening the exchange rate.

A more efficient way of controlling real wages does exist, and has proved its value in Austria and many other successful industrial economies. Since the early 1950s, wages in Austria have been effectively controlled through the agreements within the Social Partnership System. The recent successful performance of Ireland can also be attributed, at least partly, to the country's effective Social Partnership System. The obvious advantage of having such a system is that this is capable of preventing stagnation or decline in real wages whenever high unemployment unduly restricts domestic demand and output (through keeping wage rates unduly depressed).

The correct policy-mix would then primarily involve a choice of proper values for wage rates *and* exchange rates. Certainly, no manipulation of the exchange rates alone can produce satisfactory results when wages (and/or prices) run away. This is a lesson from numerous failed stabilization programmes assuming, for example, the application of a fixed exchange rate ('nominal exchange rate anchor'). As a rule these programmes generate unsustainable real appreciation and trade deficits, usually combined with massive losses in output and employment.

It is equally wrong to stake everything on attempts to engineer a fall in wages while letting the exchange rate free. Unless the exchange rate complies with our wishes and properly declines, weak wages will dampen the domestic demand and output – also of services and non-exportable tradable goods – while at the same time not necessarily restoring external competitiveness.

*Third*, the effectiveness of any mix of wage and exchange rate policies could be greatly enhanced by selective protectionism and/or other policies aiming at the promotion of selected export industries (or import-substitution industries). This postulate may however be rather difficult to follow: the CEECs have, rather foolishly, agreed to liberalize their imports from the EU<sup>46</sup> and pledged to restrict meaningful involvement in active industrial policy.

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<sup>46</sup> This is reflected in a dramatic reduction of effective tariff rates. For instance, in Poland the tariff rate (the ratio of customs duties collected to value of imports) fell from 20.6% in 1993 to 4.6% in 1999.

### 3 On convergence to the EU

#### 3.1 The inflation problem

Certainly it would be very advantageous to have very low inflation in the CEECs, provided this could co-exist with high growth of output. In principle one can imagine a low-inflation CEE economy with high growth. The problem is that we have not yet seen such an animal. One reason for this may have been that conventional fiscal-monetary policy mixes, even if successful (which often is not the case) on lowering inflation, have invariably depressed growth as well. The ensuing periods of relaxation of the fiscal-monetary austerity aiming at some growth acceleration, even if successful, bring back higher inflation too. On the whole yet, in all CEECs an overall trend towards lower inflation is visible. There is a possibility that eventually a kind of acceptable compromise between inflation and growth will be worked out in individual CEECs. No doubt such a compromise may alleviate the task of controlling wages and exchange rates. There are good grounds yet to believe that even under very favourable conditions, inflation is likely to be substantially higher in the CEECs than in the EU.

##### *(A) Currency devaluation:*

As long as the maintenance of acceptable levels of external competitiveness requires currency devaluation (whether through systematic adjustments, as until recently in Hungary, or in big-bang jumps forced by accumulating deficits, as in Slovakia, the Czech Republic or Romania in the past), this will have some inflationary consequences through higher prices of imported goods. To some degree then, inflation and devaluation feed on each other. As long as there is inflation, devaluation may have to follow. As long as there are devaluations, there is inflation. Nonetheless this is not necessarily a hopeless situation. In the process the pass-through rates (at which devaluation transmits itself on domestic prices) may be falling (also on account of rising efficiency of utilization of imported intermediate goods). And a gradual fall in inflation may help reduce the levels of necessary devaluations. Of course, it may be argued that with strongly rising labour productivity and falling unit labour costs the external competitiveness need not suffer so that there may be no reason to devalue. Let us hope that this will eventually happen, as it has happened in countries which succeeded in overcoming backwardness (such as Austria and the NICs). But this is not yet the case in the CEECs. As we have seen, even in Hungary (where wages are completely contained and labour productivity and unit labour costs improve impressively) strong devaluation (and comparatively rather high inflation) have been essential.

##### *(B) Tendency towards equalization of the prices of tradable goods:*

At the exchange rates, the domestic prices of tradable goods are relatively very cheap in the CEECs. Certainly, this also reflects their generally lower quality (but also lower production costs and/or lower mark-ups on costs, as well as much lower real disposable

incomes). With overall growth in the CEECs (and their progressing integration with the EU) there will be some tendency towards convergence in the prices of tradable goods. For the CEECs that will mean a *rise* in the prices in question.

*(C) Rising prices of services:*

Services are everywhere in the CEECs relatively even more cheaper than in the EU. Everywhere in the CEECs the prices of services have been rising faster than prices of tradable goods (see Table 4).

The process whereby prices of services increase faster than those of tradable goods is likely to continue in the future, especially if overall there is output growth (in either sector). This may be related to relatively high income elasticity of demand for services in the low-income CEECs. Also, one cannot exclude the appearance of the so-called Balassa-Samuelson effects.<sup>47</sup>

### 3.2 The exchange rate problem

A direct consequence of the high likelihood of inflation being substantially higher in the CEECs than in the EU is the high likelihood of the necessity to adjust, from time to time, or more or less continuously, their exchange rates. This rules out (or should rule out) any early membership in the EMU (let alone adoption of the euro) for most, if not all, CEECs. In this sense the CEECs will remain 'outsiders' for quite a long time, even if formally joining the EU.

### 3.3 The convergence in real income levels

One should forget any significant convergence in real income levels *unless* the EU permits specific national policies to be followed by the CEECs. More specifically, the EU *should discourage* the CEECs from policies expressly aiming at (i) achievement of low inflation and satisfaction of other Maastricht criteria, and (ii) stability of exchange rates.

In addition, it would certainly be very helpful if the EU allowed other policies which in the past made possible convergence within the EU itself. Here one should mention:

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<sup>47</sup> I have some doubts about the applicability of the Balassa-Samuelson effect (as popularly interpreted) to the inflation problem. Empirically, the B-S effect seems to have obtained in a (limited) number of the CEE countries. Namely, in all countries labour productivity in manufacturing (the dominant tradables sector) rose faster than in trade services (the dominant service sector) – but then was *not* coupled with falling relative prices (ratio of GVA deflators) of the two sectors in Bulgaria and the Czech Republic. Moreover, contrary to an essential assumption underlying B-S, wage rates in trade services rose much *faster* than in manufacturing (except in Romania and Hungary). Thus the observed relative price developments may be due to wage developments rather than to productivity trends. (I compare manufacturing with trade services – and not the whole tradables and services sectors – primarily because of the availability of relatively reliable data on wage rates).



- reintroduction (or maintenance) of controls on short-term capital movements (with the goal of reducing unsound appreciation);
- reintroduction of some barriers to some selected imports – also from the EU;
- other forms of active industrial policy.

A CEEC dutifully observing all EU instructions on Maastricht criteria, exchange rate stability, free capital and trade, hands-off policy on domestic industry is very likely to share the fate of the former GDR – the only difference being in the levels of Western subsidies.

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Table 4

**Yearly growth rates (%) of selected prices**

<b>Country</b>	<b>PPI</b>	<b>CPI</b>	<b>GVA deflator Tradables<sup>1</sup></b>	<b>GVA deflator Services<sup>2</sup></b>	<b>Manufacturing</b>	<b>Trade Services<sup>3</sup></b>
Bulgaria	136	144	118	149	124	125
Czech Republic	6.7	11.2	8.8	14.6	8.8	5.7
Hungary	17.2	21	15.6	20.8	14.9	23.6
Poland	17.5	21.4	12.5	23.8	9.5	33.8
Romania	88	99	89	100	88	95
Slovakia	3.9	7.3	3.1	6.8	3.7	6.3
Slovenia	9.9	13	12	15.5	12.1	15.3

*Notes:* 1) Manufacturing, mining and agriculture. - 2) All remaining sectors. - 3) Wholesale and retail trade, repair of motor vehicles.

*Source:* WIIW. (The rates are for the same periods as in Table 1.)

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## **Hungary: FDI, Profit Repatriation and the Current Account**

### **1 New aspects of expanding current account deficit**

In 1998 Hungary's current account deficit deteriorated by USD 1.3 bn and amounted to USD 2.3 bn or 4.8% of the GDP. Until last year the current account had been closely correlated with the trade balance, i.e. the development of the relation between exports and imports explained and to some extent predicted changes in the current account. The remarkable feature of the 1998 current account is that only less than 30% of the deterioration was caused by the trade balance.<sup>48</sup> More than one third of the deficit increase was due to the transfer abroad of income from foreign direct investment (FDI). In addition, one quarter was caused by the deficit on the other services account which is often regarded as a channel for hidden profit transfer. The magnitude of the registered profit repatriation was almost identical with the interest payment on Hungary's foreign debt. Together with some additional profit repatriation appearing on the row of other services, FDI caused a higher burden than foreign debt in terms of income outflows.

The speed at which the current account deficit increased as well as its composition gave rise to discussion among economic decision-makers, domestic and foreign analysts concerning Hungary's vulnerability to further income outflows. This article investigates the role of FDI in the Hungarian balance of payments in an international comparison and its future trend and outlines the possible policy instruments of current account management.

### **2 FDI and the balance of payments**

The main novelty of the 1998 current account was the direct investment income balance with its USD 962 mn deficit (Table 1). It was supplemented by an USD 597 mn deficit on the other services account. As to the capital account, the shrinking net FDI position is remarkable, which covered only 42% of the current account deficit.

The lower net FDI position reflects two new trends: first, the inflow of FDI has slowed down and second, outward FDI of Hungarian companies has accelerated. The flow of inward FDI shrank by some USD 400 mn in 1998 compared to the previous year. This can be explained by diminishing privatization sales. Data for the first nine months of 1998 reveal that the FDI in privatization was close to nil compared with USD 560 mn in the same pre-year period, when this made up more than half the total FDI inflow. The lower FDI inflows in 1998 do not imply that the attractiveness of Hungary as an FDI target has declined, but the sale and thus the acquisition of state-owned assets came to a standstill. The growth-

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<sup>48</sup> All details of the 1998 current account are provisional.

stimulating effect of non-acquisition FDI is a direct one as these investments add to the available investment means in the country. Outward net FDI of Hungarian companies almost doubled and reached USD 462 in 1998. An internationalization of domestic companies can be considered a positive process even if it diminishes the net amount of FDI.

The comparison of the capital account position *net FDI* with the current account position of *net direct investment income* may really look embarrassing. The two positions were identical in 1998, which means that the net FDI merely financed the net profit repatriation. In more detail, inward FDI and the inflow of income from outward FDI was more or less equal to outward FDI plus the outflow of income from inward FDI. If the negative balance of the *other services account* is also brought in relation with foreign investors, then a substantial part of the USD 597 mn deficit registered in this row adds to the current account deficit explained by profit repatriation. Thus the total FDI-related outflow in 1998 may have amounted to about USD 1.5 bn, similar to the amount of inward FDI.

Table 1

**Hungary: Current account positions net, and FDI inflows, in USD mn**

	1994	1997	1998
Current account	-4054	-1007	-2298
Trade balance	-3716	-1732	-2121
Transport + travel	341	1508	1298 <sup>1)</sup>
Other services	-182	-330	-597
Direct investment income	-117	-434	-962
Portfolio and other investment income	-1290	-990	-934
Current transfers	910	973	1018
Inward FDI (investment less disinvestment)	1147	1811	1410
Net FDI (inward less outward)	1095	1646	971
Net FDI in % of the c.a. deficit	27	155	42

*Remark:* IMF data slightly differ from data published by the NBH for 1994 and 1997.

*Note:* 1) Only travel.

*Source:* 1994, 1997 IMF, 1998 NBH preliminary.

The widespread approach of economic policy-makers in Hungary that couples *inward FDI* and *current account deficit* as items which mutually compensate each other and thus provide a guarantee for the preservation of Hungary's external equilibrium needs urgent revision. The main reason for a reconsideration is that the mentioned approach is backward looking and static in as much as it does not reckon with changing behaviour patterns of FDI. A strict separation of investment income balances into one which is *related*, and another one which is *not related* to foreign debt, though justified in a technical sense, may feed illusions; eventually the National Bank or the government will have to

raise credits and increase the foreign debt in order to finance the current account deficit caused by the 'non-debt-related' income outflow. In a broader context it is also wrong to believe that the current account deficit is not connected to the inflow of FDI. FDI to a significant extent creates the current account deficit: it is absorbed by foreign investment enterprises (FIEs) which have at least four specific features with an impact on the current account balance:

- FIEs have more intensive international trade links than the domestic firms both on the import and the export side, thus promote trade.
- Their impact on the trade balance differs according to the main aim of the investment project: –local market seekers, among them FIEs engaged in trade, have generally a negative foreign trade balance;
- efficiency seekers utilize low production costs in the target country in order to export products to other markets – these have usually a foreign trade surplus the size of which depends on the local value added of the exported goods.
- FIEs rely more on imported services than do domestic companies (higher quality, familiar supplier) and thus generate a deficit on the 'other services account' – also used as a channel for tax-free profit transfer.
- Profits generated in FIEs are more often transferred abroad than those of domestic companies although the latter is also possible.

According to press reports, there were two to four major investors who repatriated profits on a massive scale in 1998. Large efficiency-seeking greenfield investors, such as Opel and IBM, are named. In fact these are the companies that on the other hand create a trade surplus, a positive effect on the current account. As most of the large greenfield FDI projects operate in duty-free zones, data for the latter can be taken as a point of reference. In 1997 the duty-free zone companies paid dividends in the amount of USD 432 mn, which was almost identical with the total amount of repatriated dividends that year in Hungary. The foreign trade surplus of these companies, calculated from their income statements as the difference between income from sales and material input, was USD 808 mn in 1997, almost two times the amount of the income deficit they generated.<sup>49</sup>

### **3 International comparison**

Ireland and to some extent Austria and Portugal are the countries in Europe that have implemented a successful catching-up, relying intensively on FDI. In 1996, the output share of FIEs in the manufacturing sector reached 66% in Ireland, and 55% in Austria, compared with 61% in Hungary. Of the export sales of Hungarian manufacturing

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<sup>49</sup> According to customs statistics, the customs-free zones had a share of 26.4% in total exports and of 19% in total imports of Hungary and generated a surplus of almost USD 1 bn.

companies, 77.5% fell on FIEs, in the case of Ireland this share was 83.9%. The Irish current account had a positive balance all through the 1990s due to a significant current transfer surplus and a rapidly growing trade surplus. In 1997 the current account ran a surplus of some USD 2 bn and the trade balance of almost 17 bn. (It should also be noted that this country of 3.5 million people had an export of USD 55 bn compared with USD 21 bn of the three times more populous Hungary.) On the other hand, huge deficits burden the Irish current account: other services USD -8.4 bn, and FDI income -10 bn. The mainly export-oriented foreign sector generates very high transferable earnings and has a decisive role in the country's GDP growth of some 7% p.a. The FDI-related income outflow roughly corresponds to the USD 16.5 bn stock of FDI. This is certainly an extreme case but shows the possible extent of current account movements in a foreign-controlled economy.

In 1997, net FDI had an inward component of USD 2.73 bn and an outward component of USD 1.01 bn in Ireland. For the sake of comparison, in 1997 inward and outward FDI were already equal in Portugal while in Spain outward DI was almost twice as much (USD 10 bn) as inward FDI (5.6 bn). Growing outward FDI seems to be typical of a mature stage of development.

Austria has a large foreign sector that regularly repatriated profits from the country in an average amount of USD 0.8 bn p.a. during the first half of the 1990s, while the inflow of FDI amounted to USD 1.2 bn. Both inward FDI and profit repatriation doubled in the course of EU accession, first in the pre-accession year 1994 and then again in 1996. On average, FDI inflows surpassed the earnings outflow only by 50%. Austria's outward FDI was also on the increase and the net FDI income position improved during 1996-97 due to increasing repatriated earnings from outward FDI. All in all, net FDI in 1997 amounted to only USD 550 mn, while the net outflow of FDI-related income to twice that amount.

Table 2

**Ratio of inward FDI to repatriated income**

	1993	1994	1995	1996	1997	1998
Hungary	35.6	8.7	21.9	7.1	4.5	1.66
Czech Republic	.	.	38.9	19.1	23.0	.
Poland	.	.	23.6	20.7	13.6	.
Austria	1.5	1.5	0.9	2.4	1.4	.
Ireland	0.3	0.2	0.2	0.4	0.3	.
Portugal	9.0	5.5	2.2	2.3	6.2	.
Spain	4.8	4.0	4.3	2.5	1.8	.
Malaysia	1.6	1.1	1.0	1.1	1.2	.
Mexico	1.8	4.5	2.7	6.4	7.7	.

Source: IMF; 1998: NBH.

Leaving aside the net balance-of-payments impact of FDI, the behaviour of direct investment can be studied by simply comparing the amount of the *total inward FDI* registered in the balance of payments with the amount of *repatriated profit* (Table 2). In most countries there is a serious outflow of FDI-related investment income, but the amount of inward FDI is usually higher (rates higher than 1). The only exception is Ireland, where new investments only amount to about one third of repatriated earnings. Countries with a recent take-off of inward investment have usually much higher inflows than profit repatriation (Poland, Mexico, up to recently Hungary). It is most notable that the *capital inflow per income outflow ratio* diminishes over time in most FDI target countries such as Spain, Portugal and Malaysia, just as in Hungary and, to a lesser extent, in Poland.

There appears a clear development pattern of FDI and earnings flows:

- At stage one, inward FDI increases, repatriation and outward FDI are negligible.
- At the next stage, repatriation of inward FDI earnings grow while inflows stagnate and outflows take off.
- At a mature stage, outflows match inflows and the inflow of earnings matches the outflow of earnings.
- For some leading capital-exporting countries, outflows are higher than inflows and earnings repatriated from abroad are significant current account revenues.

It can be concluded that foreign direct investment inflows cannot be treated as *unrequited transfers*: they finance profit-oriented ventures whose foreign owners expect to realize and, to a smaller or larger extent, also to repatriate the generated profit. It is worth recognizing the similarities between FDI and credits raised abroad. Dividends have to be paid to foreign owners just as interests on loans. Invested capital itself can also be repatriated, just as principal due is repaid. The really important difference between loans raised abroad and inward FDI is the more obvious contribution of FDI to the modernization of countries that are lagging behind the most developed core of the world economy. Transfer of technology, management, know-how and other knowledge as well the access to new markets are the main gains associated with FDI. These are considered important growth stimuli and in the case of the central and East European countries they also help economic transformation.

#### **4 Vulnerability and policy options**

It is difficult to assess the vulnerability of Hungary to a further deterioration of the current account due to profit transfer. Profit repatriation depends, first of all, on the availability of profits. These are low in the initial stage of FDI projects. Whether the profits earned are repatriated or reinvested in the country is influenced, on the one hand, by the general investment climate in the country concerned, by profitability prospects in the case of

expansion of the firms' own activities and by the expected yields from financial investment within the country. On the other hand, the prospects for profits from alternative investment abroad, actually in any real or financial segment of the world economy, compete directly or indirectly with reinvesting the profit in the country where it was generated.

For a government to keep profit repatriation low and inward FDI high, there seems to be just one solution: continuous improvement of the investment climate and of the long-term profit expectations of investments. This comprises temporary exemptions from taxation, subsidies provided by the state, a good financial infrastructure with a wide variety of facilities to invest in, transparent and investor-friendly legal regulations, competitive taxation, abundant supply of well-skilled and motivated labour, easily accessible information for investors, low level of corruption, etc. All these, however, provide no guarantee for a low level of profit transfer. Apart from the attractiveness of alternative investment opportunities abroad, profit repatriation may be the result of a firm-specific individual decision reflecting occasionally diverging motives by owners and managers. Considerations may range from evaluating the past, actual and mainly the expected value of the company on the capital markets to operational aspects in the mother and affiliate company.

Coming back to the problem of vulnerability, it would be important to know the likely upper limit of profit repatriation from Hungary in the coming years. As to the size of profits, it will certainly grow if we consider the development patterns of FIEs. Profits for the foreign sector were much lower before 1998 as FDI projects are usually not profitable in the first few years of operation and most FIEs have a history of less than seven years. The problem appears in full scale once the critical quantity of FDI projects comes into a mature stage. But profits may be curtailed if economic growth in Hungary and on its major export markets slow down. As to the rate of repatriation of available profits, in the case of a good and improving investment climate, sustainable growth and consequently ample investment opportunities profit repatriation may be somewhat lower. There is no way to predict the upper limit of future profit repatriation, but the 1998 level cannot be regarded as exceptionally high and it seems realistic to reckon with similar or growing levels of transfers in the coming years.

Traditional economic policy measures usually applied in the case of deteriorating current account deficits may have mostly an indirect and mixed impact on profit repatriation. Devaluation, or – in the case of Hungary – a slower reduction of the pre-announced monthly rate of nominal devaluation of the forint, would somewhat discourage profit repatriation: in foreign exchange terms, less income could be realized from the same amount of forint-denominated profits. An austerity programme may have no clear result concerning the profit prospects in the country. If increasing profit repatriation coincides with declining foreign debt and debt service, that may keep the burden on the current account

more or less unchanged; growing or stagnating foreign debt coupled with growing repatriation clearly increases the resource outflow from the country. In this case the balance of trade of goods and services has to improve to preserve a manageable level of the current account deficit. One up to now not mentioned item, portfolio investment, may substantially influence the financing of the current account deficit in any given year, but it is too volatile to be included into strategic considerations on the external equilibrium. It seems that the trade balance remains the key item to determine a country's external equilibrium and to be influenced by the government. In case of emergency, traditional economic policy instruments will have to be applied to improve the trade balance in order to compensate for the deterioration caused by the profit repatriation.

As the above-mentioned typical development pattern of FDI indicates, Hungary now enters a stage of growing profit repatriation, stagnating FDI inflows and taking off FDI outflows. The coverage of the FDI-related income outflow by net FDI may further deteriorate. That means that the affordable trade deficit for the Hungarian economy will most probably be smaller in the future than it was in recent years.

This leads us back to the role of the foreign sector: the rapidly improving trade balance of the foreign sector in 1997 and 1998 is promising for the future. It is exactly the new competitive export capacities established through FDI that may keep the gap between imports and exports sufficiently small to maintain a manageable level of the current account deficit in Hungary in the years to come.

\* \* \* \* \*

P.S.

It has been two and a half years that we finished the above article. Since then it has become clear that the menacing increase in profit repatriation observed in 1997-1998 has come to a halt. Both registered profit repatriation and the (probably to some extent disguised) profit repatriation via other services remained, through the period 1999 to end of June 2001, practically at the level of 1999. In these two and a half years the current account position improved both in absolute and relative terms. This was the result, first, of growing tourism revenues and second, of improving trade balances of foreign-owned companies. In the light of the respective statistical figures we do not expect, at least in the next few years, the appearance of profit-repatriation-related current account problems in Hungary.



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