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External Finance and Foreign Debt in Central and Eastern European Countries

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Abstract

External finance can provide a positive contribution to the transition process and can enhance welfare in former centrally planned economies, especially when domestic saving has not fully recovered after the initial contraction. However, as was pointed out at the beginning of the transition process, foreign debt could exert a strong constraint on the borrowing capacity of some central and eastern European countries. This paper analyzes the determinants of net external borrowing in ten transition economies during 1990-95 and assesses the impact of the outstanding stock of foreign liabilities on net financial inflows.

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SUMMARY

The availability of external financial resources in transition economies, like elsewhere, depends on external factors, in particular on the degree of integration in world capital markets, and on a few underlying domestic variables. Among the country-specific fundamentals that may affect foreign borrowing, much attention was paid in the early nineties to the burden of foreign debt: some authors advanced doubts on the capacity of some of the most indebted transition countries (Hungary, Poland, Bulgaria) to attract foreign financial resources after 1990. Despite these gloomy predictions, both debt and non-debt (mainly FDI) net inflows have gained momentum in Central and Eastern Europe since 1993, although their distribution has not been homogeneous across CEECs.

In this paper we briefly review the literature on, and analyze the developments in, net external borrowing in ten Central and Eastern European economies (signatories of the "Europe Agreements" with the European Union, that is the Visegrad countries plus Slovenia, Romania, Bulgaria and the Baltic countries). We then use panel-data analysis to evaluate the determinants of net foreign financing in these countries and to assess the impact of the stock of outstanding foreign liabilities on their borrowing capacity. Finally, the issue of the sustainability of external debt is revisited with some indexes based on the ratio of foreign debt to GDP and exports.

The evolution of debt-creating inflows (net foreign borrowing excluding exceptional financing) in CEECs can be related to a few domestic fundamentals: first, the fiscal surplus-to-GDP ratio viewed as a proxy for the public sector's contribution to the imbalance between national saving and domestic investment; second, an index of the stock of foreign debt relative to the resources available for its service; and third, the growth rate of exports. The fiscal position has been interpreted as a proxy of the demand for external credit, while the other two variables approximate the incentive to lend to CEECs: overall, the panel-data regressions indicate that about half of the variability of net foreign borrowing is accounted for by these three fundamentals, which turn out to be statistically significant. As far as the sustainability of foreign debt (and borrowing) is concerned, we argue that the predictions of the early nineties should be reconsidered in the light of the export performance of some of the most indebted CEECs.

I. INTRODUCTION

External finance can contribute to the transition process and can enhance welfare in former centrally planned economies, especially when domestic saving has not fully recovered after the contraction of the early post-communist period. However, some authors (see for instance Borensztein-Montiel, 1991; and Cohen, 1991) have pointed out at the beginning of the transition that foreign debt could exert a severe constraint on the borrowing capacity of some Central and Eastern European Countries (CEECs). Indeed, net capital inflows in CEECs have been less than predicted in the first two-three years of the post-communist period, despite the new overall surge in capital flows to developing (especially middle-income) economies. Since 1993, however, net capital flows to CEECs as a whole have increased substantially (see Calvo et al., 1995) and a peak was reached in 1995², however, the amount and the composition of inflows differed substantially across countries, while the financial fragilities and banking crises that have plagued some CEECs have partially reduced the confidence of foreign investors. The contribution of external capital to the growth and welfare of CEECs has therefore become more relevant, although a recovery in domestic saving is viewed as the main channel for the financing of large investment needs in these economies (see EBRD, 1996, p.78). It is important to underline that, even when it is rather limited in quantitative terms,³ external capital can not only have multiplicative effects on investment and economic activity, but can also favor the selection of more profitable projects to which additional domestic resources can then be channeled, therefore raising output per capita.

In this paper, we briefly review the literature on, and analyze the developments in, the external borrowing of ten Central and Eastern European economies (the ones that have signed "Europe Agreements" with the European Union, that is the Visegrad countries plus Slovenia, Romania, Bulgaria and the Baltic countries) (part II). We then use panel-data analysis to evaluate the determinants of net foreign financing and to assess the impact of outstanding foreign liabilities on the borrowing capacity of these countries (part III). The issue of the sustainability of external debt is revisited in section IV, through some simple indexes based on the ratio of foreign debt to GDP and exports. The main conclusion is that the sustainability of foreign borrowing in the CEECs crucially depends on the rates of growth of output and export, and that some predictions on the excessive "burden of the debt" of individual economies, made in the early 1990s, should be reconsidered in this light.

²Preliminary data seem to suggest that capital inflows in the some countries of region (e.g. the Czech Republic) might have declined in 1996 (see IMF, 1996, p. 38).

³However, recall that in 1995 net capital inflows in Hungary and the Czech Republic are reported to have reached about 15 percent of GDP (IMF, 1996, p.91).

II. EXTERNAL FINANCE AND DEBT IN CEECs: A BRIEF REVIEW

A. The Relevance of Foreign Capital for the Economies in Transition

There are a few reasons why the integration in world capital markets could favor economic growth and the improvement of welfare in transition economies, in addition to those traditionally stressed by the theory of international economics (namely, the decoupling of domestic investment from national saving; the possibility of smoothing consumption in the face of country-specific shocks; the availability of a world-wide pool of financial instruments that allows a more efficient distribution of risk and lower borrowing costs).

The first set of reasons deals with the (mis)functioning of *credit markets* in transition economies. Using a cash-in-advance framework, some authors have suggested that output decline in Eastern Europe might have been worsened by imperfections in domestic credit markets, even when we neglect the role of capital accumulation. The transition process is associated with the emergence of liquidity constraints, as the reduction in real monetary balances of the firms (due to a jump in the price level in the early phases of liberalization) has not been mitigated by an adequate supply of bank lending (for an overview, see Coricelli, 1995). It can be argued that under these conditions access to foreign capital markets improves the outcome, i.e. it limits the dimension of the decline in output, if firms can (partially) overcome their credit constraint problems. Other authors point to the (mis)functioning of credit markets in the selection of investment projects, suggesting that distortions in the initial distribution of wealth in a transition economy can be magnified under incomplete information on the profitability of the projects themselves (see Kletzer-Roldos, 1996). In this case one could think of a positive role for foreign direct investment (FDI) as it greatly favors access to Western export markets and hence a reduction in the uncertainty of investment projects. Moreover, FDI can trigger further domestic investment (associated with a low degree of uncertainty) if production linkages require the establishment of local output capacity in intermediate goods sectors in host countries.

The fundamental re-orientation of CEECs' foreign trade has been from the previous CMEA-oriented patterns to the present ones--dictated by new incentives and a new structure of comparative advantage in world markets--as CEECs have increasingly moved towards trade with OECD countries they have all changed their product specialization. Hoekman and Djankov (1996), for example, show that Central European transition economies have become strongly dependent on the EU as far as imports of intermediate goods and machinery are concerned, while at the same time they have re-oriented their exports to Western Europe. It is likely that the increasing dependence on external trade with Western, and particularly EU, economies has stressed the need for convertible currency reserves in transition economies;⁴ as foreign exchange reserves were at very low levels in the early 1990s in several CEECs (the Czech and Slovak Republics, Bulgaria, Slovenia), the integration in world financial markets and the inflow of foreign capital could provide a solution to the foreign exchange shortage.

⁴Another reason to accumulate foreign exchange reserves is the need to meet large scheduled repayments of external debt (see Calvo and others, 1995, p.17).

While the integration in international capital markets can have many beneficial effects in transition economies, the impact on the system of property rights and *corporate governance* has particular relevance here. Each of the various methods of privatization adopted in former centrally planned economies has pros and cons when judged in the long term perspective of the building of a sound framework of corporate governance and a self-sustaining support for economic and political reform (Gray, 1996). The contribution of direct and portfolio investment by foreign entities to this goes beyond the quantitative terms of foreign involvement in the privatization process, as joint ventures and acquisitions can affect regulatory policies and support legislation aimed at improving the efficiency of domestic capital markets (Kogut, 1994). This is especially true in the case of financial institutions in transition economies, as the participation of foreign partners in these institutions can favor the adoption of Western standards of monitoring and property rights enforcement (see Rapaczynski, 1996, p.101).

B. External Financial Developments in CEECs

The ten countries in transition considered here have been selected because of their historic links to the European political and economic space, which has been reaffirmed by their special economic ties with the European Union ("Europe Agreements"). However, these countries are substantially different from the viewpoint of their advancement in the transition process and of their past and present external financial relations. The Visegrad countries (the Czech Republic, Hungary, Poland and Slovakia) and Slovenia are classified among the economies at relatively advanced stages of transition by the *Transition Report* of European Bank for Reconstruction and Development (EBRD, 1996, p.15); all these countries have a land border in common with the European Union and are members of a regional free trade area (the CEFTA). The Baltic countries are also included among those at a relatively advanced stage of transition by the *Transition Report*, but were part of the former Soviet Union and their liberalization programs started with some delay with respect to the Visegrad countries; the Baltic economies are very small and do not have land borders with the EU, nor are part of the CEFTA. Finally, Bulgaria and Romania are classified among the countries at intermediate stages of transition by the *Transition Report* (EBRD, 1996, p.21), and lag behind in many aspects of the transformation process such as privatization and price liberalization (Bulgaria), competition policy (Romania) and enterprise restructuring (both).

The external financial situations of these economies are quite different too. Three of them (Poland, Hungary and Bulgaria) were running large foreign debts at the beginning of this decade, both in absolute and in per capita terms; however, while the external debt of Poland was predominantly towards official creditors, the other two countries were mostly indebted to commercial banks. Moreover, Hungary has never declared a moratorium on its debt nor it has rescheduled it, while Bulgaria and Poland have undergone several episodes of debt-servicing difficulties during the 1980s and early 1990s and have obtained significant debt reduction and rescheduling from the Paris and London Clubs in 1994 and 1995 (see IMF, 1996, p.92; and Begg,

1996, p.65).⁵ Bulgaria also negotiated the mutual cancellation of debt with the Russian Federation in 1995 (UNECE, 1996, p.134). In recent years, therefore, the stock of external debt *net* of foreign exchange reserves, evaluated in current US dollars, has been stable in Hungary, and has declined in Bulgaria and more steeply in Poland.

Gross foreign debt in 1990 was instead very low in Romania and the former Czechoslovakia; since then, it has increased in all these countries. While Romania has accumulated official reserves only slowly, the growth of foreign exchange reserves in the Czech and Slovak Republics has been spectacular leading to a very limited increase in net foreign debt. The case of Slovenia and the Baltic states is different, as these countries were part of larger federal entities that eventually split. The Baltic Republics refused to accept any responsibility for the foreign assets and liabilities of the former Soviet Union, therefore inherited neither debt nor foreign exchange reserves at the time of their independence; since then they have accumulated reserves at a faster pace than gross debt, hence their net financial asset position has been positive (although it turned negative in Lithuania in 1995). Slovenia as a part of the former SFR of Yugoslavia inherited a quote of the foreign debt of that entity, the so-called "allocated" component, but virtually no reserves; since 1992 Slovenia has accumulated reserves and negotiated the attribution of the "un-allocated" debt of the former Yugoslavia with the Paris and London Clubs, reaching an agreement with Western banks early in 1996 (UNECE, 1996, p.139).

Current account convertibility and repatriation of capital and profits of foreign investors are officially in force in all the countries considered; however, some restrictions on current account convertibility have been recently imposed in Romania and there are some limitations on repatriation in Bulgaria.⁶ Full capital account convertibility holds in the Baltic states, and progress towards it has been recently made in the Visegrad countries and Slovenia (EBRD, 1996, p.136-184).⁷

Capital flows to the CEECs were rather stagnant in 1990-91, when actually these economies as a whole were running capital account deficits and were mainly receiving official loans, especially from the IMF (Calvo and others, 1995, p.12; UNECE, 1996, p.144); notice that the worsening of the capital account in CEECs was occurring at a time when a new surge in capital flows to developing countries was materializing. The improvement in the external financial situation of CEECs started in 1992, became relevant in 1993, and was consolidated in 1994. In 1995, net capital inflows to Central and Eastern Europe reached a peak of more than 30 billions dollars, almost totally due to private sources. However, the regional distribution of these inflows was not homogeneous, with the Czech Republic, Poland and Hungary accounting for about 90

⁵In early 1997, rumors of a new moratorium on foreign debt obligations by Bulgaria have intensified.

⁶These two countries had not yet accepted, in late 1996, the obligations under article VIII of the IFM Articles of Agreements, that had been subscribed by the other eight CEECs.

⁷"Dollarization" (the use of foreign currencies, mostly dollars, as domestic money) has been one of the early consequences of the removal of foreign exchange restrictions in transition economies; however, there is evidence that Dollarization has fallen where successful stabilization policies have been implemented (Sahay and Vegh, 1995).

percent of the inflows, and Slovakia, Romania and, above all, Bulgaria receiving marginal shares (about 3-4 percent of GDP vis-a-vis more than 10 percent in the other three countries).

The composition of the inflows has also differed across countries: Hungary, Estonia, the Czech Republic, Latvia and Slovenia have recorded a very large cumulative inflow of FDI since 1989 (on a per capita basis), while portfolio flows have been directed mainly to Hungary and the Czech Republic, and more recently to Slovakia and Poland; medium and long-term bank borrowing has been concentrated in Hungary, Poland and the Czech Republic, with some more substantial borrowings by Bulgaria in 1994 and Romania in 1995.⁸

After a period of financial semi-autarky (mitigated by the intervention of official lenders), some of the transition countries of Central and Eastern Europe have started to gain wider access to world capital markets, and in a medium-long run perspective this development is likely to be particularly welcome in these countries for the reasons mentioned above.⁹ Before turning to an econometric model of foreign borrowing, however, it must be mentioned that, at the beginning of the transition, the burden of external debt has been considered by some authors a severe constraint on the creditworthiness of CEECs and on their ability to attract new financial resources.

C. Financial Needs and Foreign Debts in CEECs: Excerpts from a Debate of the Early 1990s

As soon as the collapse of the communist regimes occurred in Central and Eastern Europe, Western economists began to evaluate the growth prospects and the investment requirements of the transition economies and a number of path-breaking studies were published in the early 1990s on the growth capacity and financial needs of the transition economies. Among them, Collins and Rodrik (1991) estimated the capital needs of Eastern Europe (defined in different ways, namely with or without East Germany and the former-USSR) under two hypotheses: in the first case, they assumed an average "target" annual rates of growth of 7 percent, a capital-output ratio of 2.5 and, given their estimates of initial per capita income of former communist countries, computed the cumulative capital requirements of these economies. In the second scenario, their forecasts of capital needs were made under the hypothesis of catching-up of labor productivity with Western levels; in both cases, the prediction was that investment rates should rise to exceptionally high levels. Borensztein and Montiel (1991) argued that the capital-labor ratio in CEECs was likely to be significantly lower (and the marginal product of capital higher) than what Collins and Rodrik had suggested; therefore their conclusion was that reasonably high growth rates of GDP (ranging from 3 to 7 percent) could be achieved with an average investment rate of 22 percent per year. Both these studies did not take full account of the distortions and inefficiencies that could hamper the growth performance of transition economies; taking into consideration the predictable rate of technical progress, the degree of "general factor

⁸See EBRD (1996) and Temprano (1996).

⁹The surge in capital inflows also poses a number of macro-economic and financial monitoring problems for the authorities in recipient countries: see, among other, Begg (1996), Calvo and others (1995), Ize (1996) and PSicklos (1996).

inefficiency" (a measure of the distortion in the use of resources) and a coefficient of labor hoarding, Boote (1992) found that unrealistically high rates of investment were required to catch-up with Western Europe by 2002; however, if all inefficiencies could be removed by that year, the average investment rate would have been about 30 percent per year.

Regardless of the individual predictions of each study, this early debate pointed out that a formidable amount of resources was needed, together with a radical improvement in the functioning of markets and enterprises, in order to support the growth performance expected in, or rather hoped for, these economies. The domestic financing of such investment needs was immediately perceived as a dramatic problem (see Borensztein and Montiel, 1991, p.14-21) and the fall in aggregate savings experienced in transition economies since 1990 confirmed those fears (see EBRD, 1996, ch.6). On the other hand, the contribution of foreign finance was viewed as potentially relevant, but severe doubts were expressed on the creditworthiness of CEECs (and of former-USSR) and on their ability to attract substantial capital flows from abroad. Three main concerns were mentioned: first, How fast would transition countries have proceeded along the reform path? second, How much would a bad growth performance have affected net capital inflows? and third, What would the legacy of external debt have represented for their creditworthiness?

The burden of foreign debt was considered a relevant constraint on the capacity to attract external capital (net lending and FDI) by Borensztein and Montiel (1991), who argued that " in the case of Hungary and Poland it is unlikely that significant foreign savings would be available on a commercial basis" (p.24), but also that an improvement in the fiscal situation of the two countries could improve their creditworthiness. Cohen (1991) concluded his detailed study on the solvency of Eastern Europe, based on growth-adjusted indexes of per capita indebtedness in 1989, suggesting that "the burden of East European debt appeared to be quite substantial by all the measures that we came up with" (p.276) and that the external position of Hungary, and to a lesser extent, those of Poland and Bulgaria were difficult to sustain.

A few years after these predictions were made, it now seems that the contribution of foreign capital to investment and growth in some CEECs has become relevant. Net capital inflows in some transition economies reached the upper range of some of the early forecasts in 1995; however, as mentioned above, there has been an extreme variability in these inflows across countries and over time. Moreover, it is not clear whether the stock of external liabilities has been, *ceteris paribus*, one of the elements affecting the borrowing ability of CEECs. Although some of the indebted economies of Central Europe have obtained a partial cancellation and a rescheduling of their debts, per capita liabilities are still high in a few countries; nonetheless, some of them (notably, Hungary) have been able to attract considerable amounts of new funds. One has to distinguish, of course, between debt-creating and non-debt-creating flows (mostly FDI in transition economies), as the two categories respond to different motivations and incentives.¹⁰ While the determinants of FDI in CEECs have been recently analyzed (see Wang and Swain,

¹⁰In principle, FDI are not involved when creditworthiness is at stake; however, direct investment is highly responsive to the reform climate and to privatizations in transition economies. See Chuhan and others (1993) on a distinction between the determinants of debt vis-a-vis non-debt capital inflows in Asia and Latin America.

1994; Meyer, 1995; Lansbury and others, 1996), the issue of their net external borrowing is addressed here.

III. THE DETERMINANTS OF NET FOREIGN BORROWING IN CEECS: A PANEL ANALYSIS

The new surge in capital flows to middle-income developing countries after 1989 has motivated new research on the determinants of these flows (see Calvo and others, 1993; Fernandez-Arias and Montiel, 1996; Fernandez-Arias, 1996): these studies have generally found that a large part of the upturn in net capital flows to developing countries can be explained by "external" factors, namely the changing conditions in world financial markets and the timing of the business cycle in OECD countries, although the weight of external factors has not been the same in different regions (see Chuhan and others, 1993). However, another fraction of the variability of capital inflows is likely to be country-specific, depending on the creditworthiness of individual borrowers and on the variation in domestic rates of return in individual countries; unfortunately these country-specific effects are more difficult to measure, and have been proxied in rough ways (for a discussion of this issue, see Fernandez-Arias and Montiel, 1996, p.60-62).

A related branch of the literature has focused on the short- and long-run dynamics of the current account (see, among others, Ghosh-Ostry, 1995; Elliott-Fatàs, 1996; Debelle-Faruqee, 1996; Manzocchi-Martin, 1996; and the references therein) while another one has dealt with the sustainability of current account deficits (Milesi-Ferretti and Razin, 1996a and 1996b). A main concern of these authors is the definition of a set of "fundamentals" that can account for the *country-specific* behavior of the current account balance, either in a time series framework or in a cross-section/panel data framework. Although the dependent variables used in these empirical studies differ from the studies on capital flows, there is possibly a correspondence between the evolution of a country's overall net capital balance, its components (debt and non-debt flows), and its current account (provided the change in net reserve assets does not systematically offset the current account balance). As we focus on some "fundamental" domestic variables that can explain the variability, over time and across countries, in net foreign borrowing in CEECs, the second type of studies will provide further valuable indications for our econometric analysis.

We take the "external factors" (the US interest rates, etc.) are given: this can be justified by the short time span of our sample; moreover, the large switch in external conditions that has motivated the new surge in inflows to middle-income countries is situated in 1989-90 by most authors, that is at the beginning of period considered here.¹¹

Our set of domestic fundamental variables is meant to capture *two types* of potential effects on net foreign borrowing, broadly defined as demand- and supply-side" effects. On the one hand, we look at some proxies of the imbalance between national saving and domestic investment; the rationale for including these proxies is that an excess of investment over saving could lead to

¹¹We tried, however, to capture the change in external conditions in a very rough way (with a time-trend) but with no results.

rise in real interest rates, and hence to an inflow of external financial resources (of course, FDI provides an alternative way of matching national saving and domestic investment). Unfortunately, measures of the saving-investment imbalance in the private sector are difficult to find for all CEECs, hence the only available proxy is a measure of the public sector imbalance (the ratio of fiscal surplus to GDP).¹² Moreover, the ratio of FDI to GDP is included in the regressions to check whether FDI acts as a substitute for net foreign borrowing in filling the saving-investment gap.

On the other hand, we search for some proxies for the incentive to lend to CEECs. We consider here two distinct kinds of variables: the first is intended to capture the extent and probability of capital losses on national currency-denominated assets: the higher the (probability of) capital losses, the lower the incentive to lend.¹³ The rates of inflation and of nominal exchange rate depreciation are used to evaluate this effect. Begg (1996, p.75) argues that the also behavior of the *real* exchange rate matters for the pattern of capital flows in transition economies, as it affects the current account and thus the investors' expectations on the future level of the nominal exchange rate.

A second series of variables reflect the (macro-economic) sustainability of external debt and the solvency of CEECs. If we start from some simple index of the foreign debt burden, such as the debt to GDP or the debt to export ratios, as measures of the sustainability of external financing (see Cohen, 1991) it is easy to check that larger debt ratios should be negatively correlated to new lending,¹⁴ while larger growth rates of export and GDP should signal a potential future decline of these ratios, hence good solvency prospects and more incentives to lend. The inclusion of the rate of growth of GDP among the explanatory variables poses, however, some problems. First, there is a question of interpretation as more growth could be associated with larger investment-saving imbalances (at least in the short run), hence it could exert a pressure on the side of the demand of foreign credit. Second, as we argue below, a simultaneity issue might arise.

We work with panel-data for ten CEECs (the countries with "Europe Agreements" with the EU) for which we have not, however, the same number of observation over 1990 through 1995: in particular, we have six annual observations for Bulgaria, the Czech Republic (until 1993, we use data referred to Czechoslovakia), Hungary, Poland, Romania and Slovenia, while only three observations (1993-95) are available for the Slovak Republic, Estonia, Latvia and Lithuania. The dependent variable is net foreign borrowing (excluding exceptional financing and IMF lending) over GDP; the reason why exceptional financing is excluded is that under this item are often recorded cancellations and restructuring of foreign debt arrears, which do not necessarily reflect saving-investment imbalances or the ability to attract new funds. As far as IMF lending is

¹²Debelle and Faruqee (1996, p.18-21) find that the fiscal surplus has a considerable (positive) impact on the current account.

¹³Of course, this argument does not apply to foreign currency-denominated debt.

¹⁴Throughout the paper, we use data on net foreign debt stocks (gross debt less foreign exchange reserves).

concerned, although it can be conditional on the progress in liberalization and macro-economic reform (which has been shown to be positively associated with growth in transition economies; see Fischer and others, 1996), it also depends on other considerations (multilateral assistance).¹⁵ A complete list of the variables, their definitions and sources is provided in the Appendix.

The empirical model we estimate is a so-called "fixed effects model" (for a description, see for instance Greene, 1993, p.466-469). The reasons why we use fixed, instead of random, effects is that our cross-sectional units are the entire set of CEECs we are interested in (and not a sample drawn from a larger population), and that we do not view the individual effects as uncorrelated with the other regressors.¹⁶ Moreover, valuable information can be drawn from the estimates of a country's fixed-effect parameter. In brief, our "eclectic" demand-supply-side model of net foreign borrowing can be written in a single equation format as (1):

$$\frac{\text{net borrowing}}{GDP_{it}} = \beta X_{it} + \mu_i + u_{it} \quad (1)$$
$$i = 1, \dots, 10$$
$$t = 1990, \dots, 1995$$

where X is a matrix of explanatory variables, i is the country index, t is the time index, μ_i is the country-specific effect and u_{it} is an i.i.d. residual term.

The estimated correlation matrix of the explanatory variables is reported in table 1. A strong positive correlation is detected, as one might expect, between the rates of inflation and nominal depreciation, and between the debt/GDP and debt/export ratios. Therefore, we will use the rates of inflation and of nominal exchange rate change as alternative proxies for the possible capital losses to be incurred by investors, and similarly the debt/GDP and debt/export variables as alternative measures of the sustainability of a country's stock of foreign liabilities.

The estimation methods adopted are the OLS (in the case of fixed effects, usually referred to as "within estimator"), and the instrumental variables estimator (IV-2SLS) to account for a possible simultaneity bias. The results of the regressions where debt/GDP is included are summarized in table 2. The regression in column 1 shows that, as expected, net foreign borrowing over GDP is positively (and significantly) related to the rates of growth of GDP and export, while the fiscal balance (as a proportion of GDP) is negatively related with net foreign borrowing, but with a non-significant parameter. Finally the coefficient of the inflation rate is not significant (and has the wrong sign, if we assume that a more stable price level enhances the ability to borrow

¹⁵This can also be true of other bilateral or multilateral official lending on which, however, we could not find complete and consistent data.

¹⁶See Nerlove and Balestra (1992). Notice also that no lagged dependent variable is present on the right-hand-side of our regressions, so that a potential source of inconsistency of the fixed-effects OLS estimator is absent (Debelle-Faruqee, 1996, p.11).

abroad). The interpretation of the positive correlations between net borrowing and the rates of growth of GDP and exports is rather straightforward from the perspective of the incentive to lend: for a given stock of liabilities, higher growth rates tend to dynamically reduce the burden of the debt (measured by the debt/GDP or debt/export ratio) and hence increase the sustainability of foreign borrowing (see Milesi-Ferretti-Razin, 1996b, for a similar argument related to the Asian and Latin American current account experiences). However, column 1 also shows that, in contrast to what expected, the stock of foreign debt is *positively* (but insignificantly) correlated with net foreign borrowing.

However, the regression of column 1 is plagued by an outlier problem which is signaled by the non-normal distribution of the residuals. The outlier observation is that on Bulgaria in 1990, and it is due to the very high level of exceptional financing received by that country which leads to a large negative value of net foreign borrowing once that component is subtracted from the series; such negative value is not accounted for by the right-hand-side variables we are considering here.¹⁷ We then run a new regression on the same explanatory variables, but excluding the outlying observation (column 2). The overall fit of the regression is substantially improved, but the statistical significance of some coefficients is altered: the rate of growth of GDP is now insignificant, while the parameter of the fiscal balance to GDP ratio is now significant at the 5 percent level and that of foreign debt has the correct sign (although its standard error is still high). The response of the dependent variable to inflation and export growth is almost unaffected. Most important, the exclusion of the outlier resolves the normality problem (as the Bera-Jarque test shows).

If we replace the rate of inflation with the rate of devaluation of the nominal exchange rate (column 3), we obtain the expected sign of the coefficient (more devaluation implies less incentives to lend hence a lower ability to borrow), but the parameter is not significant yet; on the other hand, there is no relevant impact on the coefficients of the other variables (or on their standard errors).¹⁸

A problem with the correlation between the rate of growth of GDP and net foreign borrowing is that causation may go both ways: more growth might enhance creditworthiness (or it might increase the current account deficit) therefore leading to larger borrowing; but higher levels of foreign lending could relax the liquidity and the foreign exchange constraints in a transition economy, and thus have a positive impact on the growth rate. A simultaneity problem then arises, that requires a specific type of econometric treatment; a possible solution is to run an instrumental variable regression (column 4). In principle, we could have defined new instruments for all our explanatory variables; however, reverse causation from net foreign borrowing to the fiscal balance, the rate of growth of export and the debt/GDP ratio is in principle

¹⁷It should be mentioned that, given the still unsatisfactory quality of the statistics on transition economies, measurement errors may affect the estimates.

¹⁸Following Begg (1996, p.75) we have tested whether the rate of change of the real exchange rate matters for net foreign borrowing in CEECs. The parameter is never significant at the 10 percent level.

less likely to occur.¹⁹ Hence, while the lagged growth rate is used as an instrument for the current growth rate, the other explanatory variables are instrumented with their own current values. The results show that the growth rate has no longer the expected sign, and its coefficient is not significant; there is an improvement in the statistical performance of the foreign debt/GDP ratio, while no impact is visible on the coefficients of the fiscal balance and the growth rate of exports.

We have also included the ratio of FDI to GDP as a regressor in column 4, to check whether foreign direct investment and net borrowing have been substitutes or complements in transition economies over 1990-95: as mentioned before, for a given saving-investment imbalance, a larger inflows of FDI could imply a lower resort to foreign credit; on the other hand, some authors suggest that a high FDI/GDP ratio can enhance the creditworthiness and trigger more foreign lending to a middle-income economy.²⁰ The sign of the coefficient indicates that complementarity is likely to occur in the CEECs, but the t-statistic is too low to draw any sound conclusion.

Finally, in columns 5 and 6 we have excluded the rate of growth of GDP from the regression. In this case, the coefficients of the fiscal balance, the growth rate of exports and the foreign debt/GDP ratio have the expected signs and are statistically significant, while that of foreign direct investment is positive (but insignificant). Overall, these four variables account for about 50 percent of the dispersion of the dependent variable (in the fixed-effects model). Net foreign borrowing in CEECs appears to be *positively* related to fiscal deficits (an increase of 1 percent in the fiscal deficit to GDP ratio raises net foreign borrowing over GDP by 0.7 percentage points); and to the rate of growth of exports (an increase of 10 percent in exports raises net financing from abroad over GDP by 0.8 percentage points), while the stock of foreign debt has a *negative* impact on new lending as expected (a rise of 10 percent in debt/GDP lowers the borrowing ratio by 1.5 percentage points).

The F-statistics (and the Wald test in column 4) always lead to a clear-cut rejection of the joint zero-restrictions on the parameters of the individual country effects (the country dummies). Therefore, the fixed-effects model is strongly preferred to the plain OLS model in this case; the values of the fixed effect for each individual country are reported in table 3.²¹ Bulgaria has the highest intercept (foreign borrowing has been larger than what is granted by fundamentals, for an amount equal to 12 percent of GDP), followed by Hungary, the Czech Republic and Slovakia. At the other end of the range, the Baltic countries have *ceteris paribus* borrowed systematically less than the other CEECs. Of course, the fixed effects capture some unobservable country-specific features, or the policy options vis-a-vis foreign indebtedness pursued in different economies. An attempt has been made to check whether the country-effects could be replaced by the Cumulative

¹⁹It is true that fiscal discipline could be relaxed in the presence of large financial inflows, and that net borrowing contributes to the rise of foreign debt, but we do not think that reverse causation is really a severe problem in these cases.

²⁰See Aizenman (1991). Milesi-Ferretti and Razin (1996a) argue that a high share of FDI improves the sustainability of current account deficits in developing countries.

²¹The country-effects are those of the regression in column 6 of table 2.

Liberalization Index (CLI; see De Melo and others, 1995), i.e. a proxy for the progress made by each transition economy along the reform path;²² despite this index has some explanatory power, the fixed-effects model performs better than the alternative model where the CLI is included. Even a glance at table 3 shows that country effects do not mirror the progress in liberalization and reform. Possibly, the high positive country-specific effect for Bulgaria might capture the extent of official (concessional) lending, while one could conjecture that the negative values for the Baltic Republics reflect the additional uncertainty due to their former belonging to the Soviet Union.

Table 4 summarizes the results of the regressions where the debt-GDP ratio has been replaced by the debt-export ratio: as one can check, no relevant changes are visible (notice that only the last three regressions are shown; the outcome of the first ones is analogous to that in table 2). Therefore, as one could have predicted given the very high correlation between the two variables (see table 1), an increase in either debt/GDP or debt/export yields a similar (negative) effect on net foreign borrowing, as a consequence of the reduced sustainability of the stock of external liabilities. In details, net foreign borrowing in transition economies is *positively* related to fiscal deficits (in this case an increase of 1 percent in the fiscal deficit to GDP ratio is associated with a rise in net foreign borrowing over GDP by 0.8 percentage points); and to the rate of growth of exports (an increase of 10 percent in exports raises net financing over GDP by 0.8 percentage points), while foreign debt has the expected *negative* impact on new lending (a rise of 10 percent in debt over export lowers the borrowing ratio by 0.5 percentage points).

From a statistical viewpoint, the regressions featuring debt/GDP (table 2) are perhaps slightly preferred to those including the debt-export ratio (notice, however, that a linear specification is not rejected at a higher probability level in table 4); given the strong correlation between two variables, the main conclusions are unaltered i.e. about half of the variability of foreign borrowing in CEECs is accounted for by a measure of the saving-investment imbalance (fiscal surplus/GDP), and by two proxies of the willingness to lend (a stock-of-debt index, and the rate of growth of exports). Clearly, export growth plays a role in enhancing the sustainability of foreign financing in CEECs: in the next section, the debate on solvency of Eastern Europe will be reconsidered in this light.

IV. THE SUSTAINABILITY OF FOREIGN DEBT RECONSIDERED

The econometric estimates discussed in section 3 shed new light on the question of the sustainability of Central and Eastern European debt. For instance, the links between fiscal policy, external debt and net foreign borrowing can be re-interpreted in the following way: a deterioration in the fiscal position of a country's government is associated with larger foreign borrowing, which is a consequence of the saving-investment imbalance in a context where Ricardian equivalence does not hold. However, this deterioration is not without consequences for a country's external position: to the extent that larger borrowing is not compensated by an expansion in GDP, a worsening of the fiscal balance leading to more foreign borrowing yields higher debt to GDP

²²Fischer and others (1996) find that the CLI is a good explanatory variable for growth in transition countries.

ratios, and *by this channel*, reduces the country's ability of obtaining more credit in the future. Interestingly, recent studies on the sustainability of current account deficits (Milesi-Ferretti-Razin, 1996a and b) could not find a clear-cut indication that fiscal imbalances are necessarily a condition for current account crises to occur: our evidence points out that the impact of fiscal policy on the ability to borrow (and therefore, possibly, on the sustainability of external deficits) can be an indirect one, operating through the burden of foreign debt. Very preliminary work done by the author on the determinants of credit ratings in CEECs indicates that, if one controls for other explanatory variables (the rates of growth and inflation, etc.), a deterioration of the government budget reduces the creditworthiness (the ratings) of CEECs. A reasonable conclusion is that fiscal deficits enhance the *demand* for foreign lending, but at the same time worsen the creditworthiness and, over time, the *ability* and the cost of borrowing in transition economies.²³

Other issues concern the relevant measures of the burden of the debt that are chosen when assessing its sustainability. First, net foreign debt looks like a more reliable indicator than gross debt, as it takes into account the dynamics of external reserves (notice that there a general consensus on the fact that larger stocks of foreign exchange reserves limit the probability of financial crises, and therefore increase creditworthiness). Although the rankings among the CEECs considered here would not change much if relative indebtedness *in 1990* is evaluated by gross or net debt, things would be quite different if the situation is evaluated *in 1995* (the most striking difference is that net debt in the Czech and Slovak Republics is extremely smaller than gross debt). More interesting, perhaps, is a comparison between alternative measures based on different weighing systems (see table 5).

The first column of table 5 reproduces the estimates of the burden of the debt in five CEECs in 1989, according to Cohen (1991, p.275). The underlying assumption is that of an infinitely lived agent which every period pays a constant interest rate of 10 percent on her outstanding foreign obligations (there is no further borrowing), and whose per-capita output grows at a constant rate (estimated by Cohen under the hypothesis that the long run determinants of growth in CEECs are the same as in a cross-section of market economies). Cohen's formula is:

$$\text{growth-adjusted per capita debt} = \left(1 - \frac{g}{r}\right) \times \text{per capita debt} \quad (2)$$

where g is the rate of growth of per capita output and r is the interest rate.

Columns 2 and 3 show two alternative measures of the burden of the debt based, respectively, on the gross (net) debt/export ratio in 1990. Similarly to Cohen (1991), let us suppose that a fixed share of a country's *exports* is devoted to interest payments on outstanding debt; moreover, this share is consistent with the stabilization of the debt/export ratio over an infinite horizon, provided the interest rate is constant at 10 percent and the rate of growth of

²³We are abstracting from the severe limitations in the current evaluations of fiscal imbalance in transition economies (see Begg, 1996, p.79; and Buiter, 1996, p.29-39).

export takes a constant value (assumed equal, for simplicity, to its actual average value over 1990-1995).²⁴ The growth adjusted debt/export ratio can be written as:²⁵

$$\frac{\text{growth-adjusted debt}}{\text{export ratio}} = \left(1 - \frac{z}{r}\right) \times \left(\frac{\text{debt}}{\text{export ratio}}\right) \quad (3)$$

where z is the rate of growth of exports. The assumption that no country undertakes net borrowing, but that all existing liabilities are fully serviced, is maintained throughout. While Hungary is the most indebted economy according to Cohen's criterion (column 1), Bulgaria is clearly the most indebted country of Central and Eastern Europe according to the debt-export measures; Hungary, Poland, the Czech Republic (the data are referred to Czechoslovakia until 1993) and Romania appear to be moderately indebted, while the adjusted debt-export ratio of the Slovak Republic would look *negative* (under the assumption of no more foreign borrowing). Of course, there is not much economic content in projecting the current rate of growth of exports into the future;²⁶ however, this exercise shows that one could have reached different conclusions on the sustainability of foreign borrowing at the beginning of the transition, by considering a measure of the debt burden based on exports instead of GDP (after all, exports are the resources through which debt obligations are serviced). According to the figures in columns 2 and 3, one can see that the external position of Hungary was not inconsistent with net foreign borrowing after 1990 (from a willingness to lend perspective); of course, the large fiscal deficits incurred by this economy since the start of the transition can provide a complementary explanation from the demand side.

V. CONCLUDING REMARKS

The large investment requirements and the fall in domestic saving in transition economies suggest that there is a potential role for external finance in enhancing the growth of per capita output and the improvement of welfare in these countries. Beyond the motivations commonly offered in international economics, the integration in world capital markets can mitigate some special problems of liquidity and information shortage, market access and institution building that are particularly severe in transition economies. To the extent that the transition process is associated with the emergence of liquidity constraints not fully overcome by the supply of domestic bank lending, access to foreign capital markets may limit the dimension of the decline in

²⁴The actual value over 1993-95 in the case of Slovakia and the Baltics.

²⁵Provided a fixed share of exports (P) is devoted to interest payments over an infinite horizon, and that these payments keep the debt-export ratio constant, one can write:

$$P = (r \text{ Debt})/\text{Exports} = (r-z) (\text{Debt}/\text{Exports})_{T_0}$$

or:

$$\text{growth-adjusted (Debt/Export)} = (1 - z/r) (\text{Debt}/\text{Exports})_{T_0}$$

²⁶For instance, the exports of the Slovak Republic seem to have declined in 1996 (IMF, 1996, p.29).

output, if firms can (partially) solve their credit constraint problems. Moreover, foreign direct investment can allow easier access to Western export markets and a reduction in the uncertainty of investment projects, and therefore trigger further domestic investment. The increasing dependence of transition economies on external trade with Western (particularly EU) economies has stressed the need for convertible currency reserves in transition economies, and the inflow of foreign capital could provide a solution to a foreign exchange shortage. Finally, direct and portfolio investment by foreign entities can affect regulatory policies and support legislation aimed at improving the efficiency of domestic capital markets (possibly, through the adoption of Western standards of monitoring and property rights enforcement).

The availability of external finance in transition economies depends on the access to international markets, which was rather limited at the beginning of the decade but is increasing in some countries, and also on some underlying domestic fundamentals. We have considered here ten CEECs which have been associated with the European Union by the so-called "Europe Agreements", and have obtained preferential access to EU markets on this basis; these countries are however rather different as far as the stage of reform is concerned. Among the country-specific fundamentals that may affect foreign borrowing, much of the attention was paid in the early 1990s to the burden of the external debt: some authors had advanced doubts on the capacity of the most indebted countries (Hungary, Poland, Bulgaria) to attract foreign resources after 1990; while this prediction has been basically fulfilled until 1992, substantial inflows of capital in CEECs have occurred since then. Both debt and non-debt (mainly FDI) net inflows have gained momentum since 1993, but their distribution has not been homogeneous across CEECs: FDI (as a share of GDP) has mainly targeted Hungary, the Czech Republic, Slovenia and the Baltics, while net borrowing (over GDP) has been large in the Czech and Slovak Republics, and Hungary. The other countries have played a rather marginal role, even if the dimension of the Polish economy implies that moderate inflows-GDP ratios correspond to large figures in the capital account.

The evolution of debt-creating inflows (net foreign borrowing excluding exceptional financing) in CEECs is shown to depend on a few fundamental variables: first, a measure of the domestic imbalance between saving and investment, that is the fiscal surplus-to-GDP ratio; second, an index of the stock of foreign debt relative to the resources available for complying with its service; third, the rate of growth of exports. The fiscal position has been interpreted as a proxy for the demand for external credit, while the other two variables measure the ability of CEECs to attract new funds: overall, the panel-data regressions indicate that about half of the variability of net foreign borrowing is accounted for by these three fundamentals, which turn out to be statistically significant.

The relation between fiscal balance, external debt and net foreign borrowing can be interpreted in the following way: a deterioration in the fiscal position of a country's government has a direct *positive* impact on net foreign borrowing, because *ceteris paribus* it produces a saving-investment imbalance that is (partially) financed through foreign credit (possibly, this requires higher interest rates on external liabilities). The worsening of the fiscal position, however, is not without consequences for a country's ability to attract new funds: to the extent that larger borrowing is not compensated by a proportional expansion in GDP, a larger (smaller) fiscal deficit (surplus) leading to more net foreign borrowing yields a higher debt-GDP ratio, and by this

channel, has a *negative* indirect effect on the capacity of obtaining more credit in the future. The stock of foreign debt exerts a negative impact on net foreign borrowing as predicted by some studies of the early 1990s; for instance, the reduction and rescheduling of Poland's debt in 1994 has probably favored the surge in net borrowing the year after. However, what matters is a measure of the burden of outstanding liabilities that establishes a correspondence between debt and the resources used to implement its service: in this case, different indexes lead to different rankings of indebtedness among CEECs at the beginning of the transition, depending on what variable is used (GDP or exports). Moreover, if one looks at the burden of the debt adjusted for the rate of growth of domestic resources, opposite conclusions are reached if per capita GDP (and its growth rate) is taken as a reference, or if exports (and their growth rate) are chosen: in the first case, Cohen (1991) found that Hungary and Poland were the most seriously indebted countries in 1989; in the second case, our calculations show that Bulgaria was clearly in the most problematic situation in 1990 among Central and Eastern European economies.

This leads us to a final remark. The attractiveness of Hungary, and more recently Poland, as destinations of financial flows despite their remarkable foreign debts seems to be related to the rapid growth of their export base over 1990-95 (and, of course, to the compliance with existing obligations in the case of Hungary and the reduction in the stock of debt in Poland). A high growth rate of exports, which is a common feature in several "successful" transition economies, is associated with an improvement in creditworthiness and the ability to attract new funds in CEECs, as shown by the empirical estimates; from the standpoint of dynamic sustainability, the growth rate of exports can be considered a crucial variable when evaluating the burden of existing liabilities.

Table 1. Estimated Correlation Matrix of the Explanatory Variables

Growth Rate	1.0							
Fiscal balance/GDP	0.10	1.0						
Inflation	-0.50	0.07	1.0					
Nominal exchange rate devaluation	-0.38	0.007	0.82	1.0				
Rate of growth of export	-0.13	0.31	0.18	-0.20	1.0			
Foreign debt/Exports	-0.013	-0.64	0.07	0.21	-0.39	1.0		
Foreign Debt/GDP	-0.11	-0.74	0.12	0.28	-0.38	0.90	1.0	
FDI/GDP	0.05	0.04	-0.25	-0.33	0.29	-0.26	-0.25	1.0

Table 2. Determinants of Net Foreign Borrowing in CEECs

Dependent variable: net foreign borrowing over GDP

Estimation method	OLS with fixed effects	OLS with fixed effects	OLS with fixed effects	Instrumental variable 2SLS	OLS with fixed effects	OLS with fixed effects
Growth rate	0.003 (2.2)	0.0017 (1.43)	0.0015 (1.33)	-0.13E-4 (-0.07)	—	—
Fiscal balance/GDP	-0.41 (-1.12)	-0.7 (-2.45)	-0.66 (-2.24)	-0.66 (-2.21)	-0.66 (-2.26)	-0.74 (-2.65)
Inflation	0.15E-4 (0.15)	0.24E-4 (0.03)	—	—	—	—
Nominal exchange rate devaluation	—	—	-0.32E-4 (-0.37)	—	—	—
Rate of growth of export	0.12 (3.03)	0.09 (3.06)	0.09 (3.11)	0.08 (2.47)	0.08 (2.77)	0.08 (2.8)
Foreign debt/GDP	0.033 (0.37)	-0.1 (-1.42)	-0.089 (-1.19)	-0.14 (-1.77)	-0.13 (-2.18)	-0.15 (-2.49)
FDI/GDP	—	—	—	0.44 (0.89)	0.44 (0.91)	—
Adjusted R-squared	0.294	0.481	0.483	0.448	0.47	0.47
Ramsey's RESET	0.49 [0.48]	0.3 [0.58]	0.25 [0.61]	1.3 [0.25]	1.16 [0.28]	1.34 [0.25]
Bera-Jarque test of normality of the residuals	21.32 [0.00]	0.76 [0.68]	0.71 [0.7]	0.29 [0.86]	0.34 [0.84]	0.04 [0.98]
F-test of homo-scedasticity	0.18 [0.75]	0.33 [0.57]	0.06 [0.8]	0.18 [0.66]*	0.2 [0.65]	0.016 [0.9]
F-test for the fixed-effects specification	2.73 [0.017]	3.72 [0.00]	4.83 [0.00]	—	5.24 [0.00]	5.2 [0.00]
Wald test for the fixed-effects specification	—	—	—	42.7 [0.00]	—	—
Number of observations	48	47	47	47	47	47

T-statistics in round brackets. Probability levels in squared brackets (the values refer to the probability of falsely rejecting the null hypothesis of respectively, linearity, normality, homoscedasticity and joint zero-restrictions on the individual countries' fixed effects).

(*) Chi-squared test of homoscedasticity.

Table 3. Values of the fixed country effects (column 6 of table 1)

Bulgaria	Czech R.	Slovak R.	Hungary	Poland	Romania	Slovenia	Estonia	Latvia	Lithuania
0.12	0.05	0.03	0.07	0	0.03	0	-0.08	-0.15	-0.04

Table 4. Determinants of Net Foreign Borrowing in CEECs

Dependent variable: net foreign borrowing over GDP

Estimation method	Instrumental variable 2SLS	OLS with fixed effects	OLS with fixed effects
Growth rate	-0.24E-3 (-0.13)	—	—
Fiscal balance/GDP	-0.7 (-2.13)	-0.7 (-2.19)	-0.79 (-2.65)
Inflation	—	—	—
Nominal exchange rate devaluation	—	—	—
Rate of growth of export	0.076 (2.36)	0.078 (2.67)	0.079 (2.7)
Foreign debt/Exports	-0.04 (-1.56)	-0.04 (-1.7)	-0.05 (-2.1)
FDI/GDP	0.43 (0.81)	0.42 (0.83)	—
Adjusted R-squared	0.41	0.44	0.45
Ramsey's RESET	0.002 [0.96]	0.002 [0.96]	0.03 [0.85]
Bera-Jarque test of normality of the residuals	0.02 [0.99]	0.03 [0.98]	0.08 [0.96]
F-test of homo-scedasticity	0.14 [0.7] (*)	0.21 [0.65]	0.05 [0.85]
F-test for the fixed-effects specification	—	4.68 [0.00]	4.7 [0.00]
Wald test for the fixed-effects specification	40.3 [0.00]	—	—
Number of observations	47	47	47

T-statistics in round brackets. Probability levels in squared brackets (the values refer to the probability of falsely rejecting the null hypothesis of respectively, normality, homoscedasticity and joint zero-restrictions on the individual countries' fixed effects).

(*) Chi-squared test of homoscedasticity.

Table 5. Alternative Measures of the Burden of the Debt

	Cohen's (1991) per capita debt (adjusted for the rate of growth of GDP) in US dollars, 1989	Gross debt/export ratio (adjusted for the rate of growth of export), 1990 (percent)	Net debt / export ratio (adjusted for the rate of growth of export), 1990 (percent)
Bulgaria	1573	339.5	339.5
Czechoslovakia	757 (*)	----	----
Czech Republic	----	37.8	34.2
Slovak Republic	----	-88	-82.4
Hungary	3041	109.35	103.9
Poland	1704	79.6	72.2
Romania	80	21	11.25

Source: Cohen (1991) and author's calculations based on UNECE (1996) data. (*) Not adjusted.

Table 6. Alternative Measures of the Burden of the Debt Adjusted for Economic Growth

	Cohen's (1991) per capita debt (adjusted for the rate of growth of GDP) in US dollars, 1989	Gross debt/export ratio in 1990, adjusted for the rate of growth of export (percent)	Net debt / export ratio in 1990, adjusted for the rate of growth of export (percent)
Bulgaria	1573	339.5	339.5
Czechoslovakia	757 (*)	----	----
Czech Republic	----	37.8	34.2
Slovak Republic	----	-88	-82.4
Hungary	3041	109.35	103.9
Poland	1704	79.6	72.2
Romania	80	21	11.25

Source: Cohen (1991) and author's calculations based on UNECE (1996) data. (*) Not adjusted.

Table 7. The Composition of Gross External Debt in CEECs (percentual values),
End of 1990 and of 1995

	1990 Long term debt	1990 Conces- sional debt	1990 Debt due to finan- cial markets	1990 Bonds	1990 Short term debt	1995 Long term debt	1995 Debt due to finan- cial markets	1995 Short term debt
Bulgaria	77	0	37.5	1	23	88	41	12
Czech Republic *	81.5	0.5	56	4.5	18	66	45	34
Slovak Republic §	92	0	5.5	0	8	71	32	29
Hungary	92	0.4	72	22	8	92	72	8
Poland	67	3	21	0	33	71.5	12	28
Romania	52 (a)	11	37	0	16 (a)	84	5.5	16
Slovenia §	81	4.5	11.5	0	19	75	35	25
Estonia §	96.5	19	17	0	3.5	89.5	8	10.5
Latvia §	99	24	0	0	1	87	0	13
Lithuania §	96	26	0	0	4	90	0	10

(*) Data referred to former Czechoslovakia for 1990.

(§) Data for 1993 instead of 1990.

(a) Short and long term debt do not add up to 100 due to other non-classified liabilities.

Source: OECD, *External Debt Statistics*, Paris, various issues.

DATA APPENDIX

The dependent variable in the regressions (net foreign borrowing over GDP) has been obtained subtracting the series of net foreign direct investment, exceptional financing and IMF lending from net capital flows. Errors and omissions are included in the UNECE definition of net capital flows, on the basis that they could reflect unrecorded financial transactions (capital flight); however, it must be mentioned that in some instances errors and omissions are likely to consist also of unrecorded *current account* transactions (for example, unregistered cross-border trade in Poland). The definition of the explanatory variables is the conventional one. All stock and flow variables are expressed in current dollars. The sources of the data are the following:

“Net Capital Flows” (including errors and omissions), UN Economic Commission for Europe, *Economic Survey of Europe 1995/96*, Geneva, 1996.

“Net Foreign Direct Investment Flows,” UN Economic Commission for Europe, *Economic Survey of Europe 1995/96*, Geneva, 1996.

“Exceptional Financing and Net IFM Lending: International Monetary Fund, *International Financial Statistics*, Washington, October 1996; and *Balance of Payments Statistics Yearbook*, Washington, 1996.

“Gross Domestic Product,” European Bank for Reconstruction and Development, *Transition Report 1996*, London, 1996 (defined as GDP in national currency converted at the average nominal exchange rate).

“Rate of Growth of GDP,” European Bank for Reconstruction and Development, *Transition Report 1996*, London, 1996.

“Rate of Inflation,” European Bank for Reconstruction and Development, *Transition Report 1996*, London, 1996.

“Rate of Change of Nominal Exchange Rate,” European Bank for Reconstruction and Development, *Transition Report 1996*, London, 1996.

“Fiscal Balance Over GDP,” European Bank for Reconstruction and Development, *Transition Report 1996*, London, 1996.

“Net Foreign Debt” (gross debt less foreign exchange reserves), UN Economic Commission for Europe, *Economic Survey of Europe 1995/96*, Geneva, 1996.

“Exports and Rate of Growth of Exports,” UN Economic Commission for Europe, *Economic Survey of Europe 1995/96*, Geneva, 1996.

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