



No 2004 – 07
July

Current Accounts Dynamics in new EU members:
Sustainability and Policy Issues

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**CURRENT ACCOUNTS DYNAMICS IN NEW EU MEMBERS:
SUSTAINABILITY AND POLICY ISSUES**

SUMMARY

Most of the new EU members show large and persistent current account deficit. If on the one side such a phenomenon is explained by catching up, on the other hand recent experiences in emerging markets show that wide imbalances can trigger balance of payment and currency crises. Therefore current account sustainability is becoming a key policy issue for these countries, especially given their willingness to adopt the Euro within a few years. There is not a unanimous way to assess whether a current account deficit is sustainable and each method has serious drawbacks.

In this paper the issue of current account sustainability for new members is tackled under different angles. First of all a simple accounting framework based on assumptions on long term growth, real interest and exchange rates, and capital inflows are considered. Then as an alternative, a simple theoretical model of current account determination under borrowing constraints is developed and used as basis for an empirical estimation of the determinants of the current account. The results are then used to project the evolution of external debt in the medium run. The main conclusions reached are the following:

- Overall, current account balances do not seem to be unsustainable, as the strong growth potential insures solvability;
- However Foreign Direct Investment plays a crucial role, making the maintenance of large inflows a key political priority;
- The conduct of prudent fiscal policy is crucial in order to maintain the external balances at a manageable level;
- The choice of when to join the Eurozone and how to manage the exchange rate during the transition period should be made taking the level of the external deficit into account. Preference should be given to regimes that let real adjustment play fully.

ABSTRACT

The sustainability of current account deficits in the new EU members is assessed using different methods. Overall the level of imbalances, although quite sizeable in some cases do not seem to be a problem in the short medium run. However such a conclusion depends heavily on the outlook for the inflows of foreign capital and on the pursuit of sound fiscal policy. Some implications for government savings and for exchange rate policy are derived.

J.E.L.: F32, F33, F41, P2

Keywords: current account, new open macroeconomics, panel methods, transition Economies

**DYNAMIQUE DE LA BALANCE COURANTE DANS LES NOUVEAUX MEMBRES DE
L'UE : SOUTENABILITE ET PROBLEMES DE POLITIQUE ECONOMIQUE**

RESUME

Beaucoup des nouveaux états membres de l'Union européenne font face à des déficits de balance courante importants et persistants. Si ce phénomène s'explique facilement par le rattrapage économique, les expériences récentes de plusieurs économies émergentes montrent que les déséquilibres extérieurs peuvent déclencher des crises de change et de balance de paiement. La soutenabilité de la balance courante devient par conséquent une question de politique économique fondamentale pour ces pays s'appêtant à adopter l'Euro dans quelques années.

Il n'existe pas de méthode univoque pour évaluer la soutenabilité de la balance courante et toutes les approches proposées souffrent d'importantes limites.

Dans cet article, la soutenabilité des balances courantes des nouveaux membres de l'Union européenne est évaluée de différents points de vue. Premièrement on considère un simple cadre comptable, en s'appuyant sur des hypothèses de croissance de long terme et de taux d'intérêt et de change. Ensuite un modèle simple de détermination de la balance courante avec des contraintes de liquidité est développé, et constitue la base pour une estimation empirique des déterminants du solde extérieur. Les résultats en sont utilisés pour projeter la dette extérieure sur l'horizon 2007. Les principales conclusions sont les suivantes:

- Les déficits de balance courante ne paraissent pas être insoutenables, car le fort potentiel de croissance assure la solvabilité de la dette extérieure.
- Les Investissements Directs de l'étranger (IDE) jouent un rôle crucial. Réussir à maintenir des flux élevés d'investissements entrants devient donc une priorité pour la politique économique.
- La poursuite de politiques budgétaires prudentes est fondamentale pour maintenir le déficit à un niveau gérable.
- Le choix de la date d'adoption de l'Euro et la gestion du taux de change pendant la transition vers la monnaie unique devraient prendre en compte le niveau de déficit extérieur. Les régimes de change qui favorisent l'ajustement réel sont préférables.

RESUME COURT

La soutenabilité de la balance courante des nouveaux membres de l'UE est évaluée par des méthodes différentes. Les niveaux des déséquilibres, parfois assez élevés, ne paraissent pourtant pas être insoutenables dans le court moyen terme. Néanmoins, cette conclusion dépend très fortement des perspectives de flux de capitaux entrants dans ces pays, et de la conduite de la politique budgétaire. Finalement quelques implications pour l'épargne publique et le choix du régime de change sont dérivées.

J.E.L.: F32, F33, F41, P2

Mots clés : Balance courante, nouvelle macro-économie ouverte, méthodes de panel, économies en transition

**CURRENT ACCOUNTS DYNAMICS IN NEW EU MEMBERS:
SUSTAINABILITY AND POLICY ISSUES**

Paolo Zanghieri[#]

1. INTRODUCTION

The twelve Central and Eastern European Countries, which either joined the European Union in May 2004 or are scheduled to do so as early as 2007¹, often show high current accounts deficit, which are sometimes close or even beyond those values common wisdom and past experience associate with a high probability of a Balance of Payment crisis. A natural question therefore arises: are these deficits sustainable or do some countries require policy action? A related question is how the current account is likely to evolve in the medium term. The natural horizon to consider is up to 2007/8 when, according to the maintained intentions, some of the new EU members will join EMU as well.

The aim of this paper is to provide a tentative answer, by means of three different methods: an accounting exercise and a normative analysis based on an econometric estimation of the determinants of the current accounts, and a projection of external balances. The role of capital inflows, and in particular of Foreign Direct Investment (FDI) is stressed.

The paper is structured as follows. Section 2 presents some stylised facts about external balances in CEECs, and their relation between investment, savings and fiscal balances. Section 3 deals with the importance of the current account as a factor responsible for currency crises, and summarises the provisions of the Maastricht Treaty. A first assessment of the sustainable level of current accounts deficit, based on a widely known accounting framework, is presented in section 4, together with some criticism about the methodology. Section 5 summarises the empirical studies on current account. In section 6, panel estimation of current account dynamics, based on a simple intertemporal model, is performed. The results are then employed to simulate the future path of foreign debt accumulation, given some realistic assumptions on growth and fiscal policy. Section 7 is devoted to the discussion of two important policy issues, namely the savings rate in New EU members and the adoption of the Euro Section 8 concludes.

Table 1 shows non-overlapping three year averages of the savings, investment and current accounts as ratio to GDP.

The Czech Republic showed a significant current account deficit along the second half of the 90s, as the rapid transformation of the industrial sector required strong import of capital goods. A significant drop in total savings (due mainly to government deficit) is responsible

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¹ We will analyse eight of the ten countries joining EU in 2004, i.e. Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic and Slovenia, and Bulgaria and Romania, whose scheduled accession date is 2007. We omit Cyprus and Malta due to their small size and peculiar economic structure.

for its deterioration in the last three years. A quick reduction of the deficit can be observed in **Hungary**, where a strong recovery in savings reduced the gap by more than a half between 1994 and 2002, while the investment ratio remained broadly constant. Given the real growth prospect, a higher level of deficit would not be problematic. The strong increase in investment at the end of the 90s is responsible for the rapid deterioration of the current account in **Poland**, where a drop in savings in the last three years can also be observed. The external deficit widened considerably in the **Slovak Republic** after 1997, pushed by both an increase in investment (which slowed down in the last three years) and by a smooth decline in total savings. Finally, **Slovenia** has virtually no current account deficit.

Turning to the Baltic states, we observe that **Estonia**'s external deficit has always been at "dangerous levels" and has recently dropped to around 12% of GDP as a consequence of one off factors but also strong domestic demand and the activity slowdown of Estonia's main trade partners. **Lithuania** shows a strong deterioration during the 1997-99 period due to a sustained fall in savings. The gap has narrowed in the most recent period due to an increase in savings (mainly public) and a dip in the investment ratio: however the likely pick up in domestic demand is likely to widen the deficit. The big surge in investment is finally the main responsible for the rapid and persistent widening of the deficit in **Latvia**. Given the strength of domestic demand such a deficit is not likely to shrink in the near future.

Bulgaria suffered a quick deterioration of its external balance between 2000 and 2002, as a consequence of rapid economic development following the 1996-97 banking crisis: the investment boom has been matched by a marked deterioration in total savings. On the contrary **Romania** shows a stable deficit.

All in all, we can conclude this brief analysis by saying that current account positions in new EU members do not show a homogeneous pattern neither in term of the level of the deficit neither in its dynamics nor in its driving forces.

2. HOW IMPORTANT IS THE CURRENT ACCOUNT?

The importance of current account imbalances as a warning signal of currency crisis has never been undisputed.

One of the most important policy implication of the intertemporal models of current accounts is that, as long as deficits are created by increasing investment, these should not be a cause of concern, as the building up of external debt will be repaid easily thanks to increased growth. The only important variable that should be in check is government deficit. Such a view of the current accounts deficit has been named Lawson's Doctrine, after the former British Chancellor of the Exchequer, Nigel Lawson, who first proposed it in the 80s. However, the sequence of debt and balance of payment crisis occurred in the last twenty years showed that such a theory is seriously flawed². Anecdotal evidence shows

² See Reisen (1998) and Edwards (2002) for a throughout discussion of the pitfalls of the Lawson Doctrine.

that a widening (even though not necessarily large) of the current account deficit is almost always present before an exchange rate crisis (see for example Corsetti, Pesenti and Roubini (1998) and Radelet and Sachs (2000) on the Asian Crisis).

The importance of the current account is witnessed by its widespread use in early warning indicators of currency crises³. For example Aziz et al (2000) try to find the macroeconomic and financial conditions common to financial crises in the 1975-97 period. They find that a large external deficit (possibly accompanied by a fiscal deficit) is closely linked to balance of payment crises, normally associated with banking crises. This result is confirmed by Kamin et al. (2001), who find that large imbalances do not contribute much to the average probability of a crisis, but contribute largely to the estimated probability during actual crisis years. While the building up of vulnerability is mostly due to internal imbalances (e.g. inflation, credit growth, fiscal deficit), external shocks and imbalances are critical in triggering the crisis. Brüggermann and Linne (2002) estimate an early warning indicator for new EU members, Russia and Turkey. Although the current account is not explicitly used as an explanatory variable, they found that variables closely linked to it such as import and export growth and external debt, as well as fiscal deficit, have a strong predictive power. Using a different methodology, Edwards (2004) shows that the probability of experiencing an abrupt current accounts reversal is linked to the size of the current accounts deficit and the level of external debt.

The Maastricht Treaty (art. 3A) includes “a sustainable balance of payments” among the guiding principles that EU countries must follow in setting their economic policies. Later on (art 109j) it states that during the second stage of ERM (ERM-II) a country experiencing a sudden balance of payment crisis, under certain conditions, can take some protective measures, provided that they “cause the least possible disturbance in the functioning of the common market”. Finally, the situation and development of the balance of payments on current accounts is included as an accessory criterion to assess a country’s readiness to join the economic and monetary union.

These provisions are obviously rather vague, however, a look at the various reports on new EU members (see, for example, European Commission, 2002) shows that external balances are one of the most closely watched variables.

3. STANDARD METHODOLOGY: HOW RELIABLE IS IT?

Following Frenkel and Razin (1997) two different, but interrelated concepts can be distinguished: a country’s solvency and current accounts sustainability.

An economy is said to be **solvent** if the present discounted value of future trade surplus is equal to current external indebtedness. Such a definition is obviously difficult to apply as it relies on future events or policy decision, without giving any hint about them. This leads to the definition of sustainability. A current account is **sustainable** if the continuation of the current government policy stance and private sector behaviour are not going to entail a

³ Recent surveys of these models can be found in Edson (2003) and Abiad (2003).

drastic policy shift (such as a fiscal contraction) or lead to a currency or balance of payment crisis. Of course such a definition needs to be complemented by a benchmark level for the current account. Moreover, in order to assess the sustainability of the deficit, the source of it must be taken into account. A deficit created by a reduction in savings is clearly more worrying than another created by a surge in investment, which increases future growth and ability to repay.

In order to have an assessment of current account sustainability, a benchmark value is needed. The International Monetary Fund has developed over the years a methodology to arrive at a quantitative measure of sustainability, based on several macroeconomic indicators⁴, which at the same time provides an indication of exchange rate misalignment. Such an approach is closely linked to the Fundamental Equilibrium Exchange Rate (FEER, see, for example, Williamson, 1994) one. It consists of determining first the current account position that would exist in the long run given the current level of the exchange rate once the temporary effects of past levels of activity have been absorbed by the economy, or in other words, the economy operates at a ‘normal level’ of capacity utilisation. This “underlying” measure of the current accounts is then compared with a measure of “sustainable” balance, which would be financed by nominal capital flows assuming that the country under investigation and its trade and financial partners have low inflation and operate at a reasonable rate of capacity utilisation. The following steps imply finding a level of the effective real exchange rate that equates the two definitions of balance described above, and therefore derive the necessary adjustment. However, this methodology implies too heroic assumptions about the steady state values of the main economic variables, and, given the peculiar conditions of the countries under analysis, is probably not very reliable.

Another way of testing for sustainability, borrowed from the public finance is to check if the current accounts follow a stationary process. This would mean that in the long run the intertemporal budget constraint linking savings and investment is respected. Coakley et al. (1996) apply this concept to OECD countries and link their findings to the Feldstein-Horioka puzzle. Such an approach is obviously not feasible for the economies under analysis due to the short time span considered.

Finally, Milesi-Ferretti and Razin (1996) have developed a simple accounting methodology in order to calculate the sustainable level of the current account deficit. They define it as the level at which external debt is stabilised at the observed level, so that the country’s intertemporal budget constraint is respected.

The current account identity can be rewritten, recalling that the current account position corresponds to the variation in the stock of foreign assets, as

$$s_t p_t^* F_t - s_t p_{t-1}^* F_{t-1} = p_t (Y_t - C_t - G_t - I_t) + i_t^* s_t p_{t-1}^* F_{t-1} \quad (1)$$

⁴ A more detailed description of this methodology can be found in Isard et al. (2001).

where F is the stock of net foreign assets, denominated in foreign goods, s , p and p^* the nominal exchange rate, the domestic and foreign GDP deflator, Y, C, G, I are real GDP, private and government consumption and investment. The trade balance (TB) is the difference between GDP and expenditure.

Dividing both sides by nominal GDP and rearranging, one obtains

$$f_{t+1} - f_t = \frac{1}{(1 + \gamma_y)(1 + \varepsilon_t)} [tb_t + f_t(r^* - \varepsilon_t - \gamma_t - \gamma_t \varepsilon_t)] \quad (2)$$

where lowercase letters indicate the ratio of the variable to nominal GDP, γ is the rate of real growth and ε the rate of real appreciation of the domestic currency. This expression states that the dynamics of foreign assets accumulation is driven by the trade balance and by a term proportional to the existing asset stock, that increases with world real rates and decreases with real appreciation and growth.

If the economy is at the steady state, consumption (both public and private), investment and the stock of foreign assets are constant as a fraction of GDP. From this expression, calculated at the steady state, we can obtain the level of trade surplus a country must have in order to keep the external debt to GDP ratio constant, i.e. $f_t = f_{t-1} = f$.

$$tb = 1 - i - c - g = f(r^* - \varepsilon - \gamma) \quad (3)$$

Doisy and Hervé (2003) modify this formula in order to consider the fact that a considerable part of these countries' external deficit is financed by an almost non-debt creating instrument such as FDI⁵. This is not to say that this is an absolutely riskless form of financing the deficit. Although their volatility is far smaller than that of other forms of investment (Sarno and Taylor, 1999), FDI inflows could experience abrupt stops, as in the case of Russia in the aftermath of the 1998 crisis.

If FDI is taken into account, the sustainable current accounts as a percentage of GDP can be written as.

$$\overline{ca} = f(r^* - \varepsilon - \gamma) - fdi \quad (4)$$

where fdi is the ratio of net FDI and other inflows such as EU transfers to GDP. The simplifying (and probably questionable) assumption of no feedback of FDI flows on growth has been adopted.

⁵ Even if the stock of FDI does not count for the foreign debt one, the flow of repatriated profit can be a substantial part of the current account deficit and their fluctuation cause tensions to the external balances.

In what follows, this formula is applied to the ten countries under analysis, extending the work of Doisy and Hervé to a larger sample of country and a longer time span. Of course a number of assumptions must be made, with heavy implications on the results.

The equilibrium level of external debt is assumed to be the average over the last three available years.

The average real interest rate is the latest available figure for long rate, deflated by private consumption deflator growth.

Concerning real exchange rate behaviour, the assumption is that the government will let the well-known Balassa Samuelson effect play its full role. In other words, no specific fiscal and monetary policies will be implemented in order to counteract the natural tendency to real appreciation, due to the sizeable differences in productivity growth between tradable and non tradable sectors. Such an assumption might be considered quite strong, especially if one takes into account the fact that several countries have expressed their wish to join the Euro as soon as possible and, more importantly, a quick EMU entry will almost automatically entail the accession to the second stage of the ERM, which prescribes a limited band to exchange rate fluctuation.⁶ However the argument put forward by De Grauwe and Schanbl (2003) and Buiter and Grafe (2002), is followed here that is the current +/-15% fluctuation is wide enough to accommodate the effects of relative productivity gains.

The projection of the real exchange rates are obtained by a very simple calculation of the Balassa Samuleson effect. It can be shown (see De Grauwe and Skudenly, 2002, for a recent application) that the difference in the rate of inflation between county i and country j (corresponding to the variation in real exchange rate) is equal to

$$\Delta p_i - \Delta p_j = \frac{a}{1-a} (\Delta q_i - \Delta q_j) = \varepsilon_i \quad (5)$$

where q is productivity growth (provided by real per capita income growth) and a is the share of non tradable goods in the economy. For the empirical implementation inflation differentials *vis-à-vis* the European Union, (where inflation is assumed to be 2%) have been computed. The share of non-tradables is fixed at 70% for both CEECs and EU countries.⁷

⁶ It is important to bear in mind that the constraint to inflation binds just in the ERM-II stage, and vanishes once a country has joined EMU.

⁷ Recent papers (Halpern e Wyplosz (2001), De Broeck ans Slok (2001) and Buiter and Grafe (2002) presented some estimation of the trend in real appreciation: their estimates on the average annual rate of appreciation range between 1.5 and 4.0%. It should be stressed that these values are just a mean across countries, as they are obtained using panel or cross section methods, and therefore hide the sizeable differences in real appreciation between countries.

Growth projections for the Czech Republic, Hungary, Poland, Slovakia, Slovenia, Estonia, Latvia and Lithuania are the average over 2003-2008 period of Global Insight projections. For Bulgaria and Romania projection made by Wagner and Houlskova are used⁸.

Finally, in order to project future FDI inflows, two polar cases and another scenario in which FDI and EU funds are fixed at 4% of GDP are considered. In the first case it is assumed that FDI are driven by privatisation only, and that the inflow is bound to dry up once the sale of state participation is over. Alternatively, in the medium term, FDI flows, as a ratio to GDP will stabilise at their average value of the last three years. The figures used in this section should be seen as polar cases, and the true development, should lie somewhere in the middle. The assumption underlying the projection exercises are summarised in Table 3.

Table 4 shows the calculated sustainable level of current accounts under the three different scenarios, the average observed current accounts for the 2000-2002 period is added as a reference.

Taken literally, the results obtained under the (admittedly quite unrealistic) assumption of a sudden stop in FDI flows would imply that for most of the countries the current level of external deficit is not sustainable and some measures must be taken in order to avoid a crisis. More realistically they show the quantitative importance of this form of financing the deficit. If we adopt the arbitrary threshold of 4% of GDP for future FDI flows, we can notice that, the observed current account deficit appears to be sustainable, the only exception being countries such as Latvia and Poland, burdened by quite a high real interest rate and below average growth. Finally, under the assumption that the observed level of FDI flows will be kept in the medium run, almost all the countries could optimally have a much higher level of external deficit. Anyway how sure can one be that FDI will keep flowing in at the current level, especially after the massive privatisation process comes to an end? And, equally important, even though one does not believe to fixed levels of external deficit beyond which “a red light flashes” (Milesi-Ferretti and Razin, 1996), it is nevertheless difficult to believe that some countries could have no trouble financing a deficit in excess of 15% of GDP for the medium run.

All in all, this method represents a simple and theoretically consistent way of estimating a country’s sustainable level of external imbalances, and has been used several times by the

⁸ They estimate growth and convergence equation for current EU members and use them to compute implied growth rates for CEECs countries. The decision not to use historical values for these countries is motivated by the fact that the widening gap in per capita income these economies experienced during the 90s is not likely to continue once they join EU, as witnessed by previous enlargement experiences. Given their limited economic size and the strength of the trade links, it is very likely that CEECs will converge to the EU both in economic and systemic terms. Thus the pattern of growth shown by existing EU members in previous decade offers a convincing model to project CEECs convergence. They estimate growth regression for the period 1960-1998 using a panel of fast growing EU members (Spain, Portugal, Ireland and Greece) and then plug in values for the Eastern European Countries. Several hypotheses are considered, based on different growth experiences, and the reader is referred to the original paper for details.

IMF in its country's assessment, (see for example its 2001 country study on Mexico). However, some of its basic assumptions make it somewhat unfit to analyse the CEECs' case.

First of all the model assumes that the observed level of external debt is the sustainable one. A quick glance at the external debt of new EU members (Table 5) shows that, on average and with the notable exception of Bulgaria, this level is not very high. Therefore, given their investment needs and growth prospects, it is likely that, for some countries, a further increase in their indebtedness will not trigger any crisis⁹. Secondly, the economy is assumed to have reached the steady state. This is obviously too strong an assumption for these economies who have experienced roughly ten years ago a "big bang" in the economic structure, and the observed investment (of consumption) to GDP ratio are bound to vary a lot in the medium term.

This leads to treat the results obtained with this methodology as a first approximation of what the sustainable level of current account could be.

A simpler and probably more trivial, definition of sustainability is the following: a current accounts position is sustainable as long as foreign investors are willing to finance it. In the light of the recent financial crises in emerging markets it should be added that the quality of the sources of financing matters a lot: a high percentage of short term debt increases the probability of sudden capital outflows leading to a crisis. It is almost unanimously recognised that Foreign Direct Investment are by far the surest forms of external financing. Thus a very simple way to check for sustainability is to see how much of the deficit is financed by FDIs. Table 2 shows the difference between net FDI flows and current accounts deficit (in percentage of GDP) for the last five available years. We can see that, seen under this angle, external sustainability does not seem an issue for most of the countries. On the contrary the situation of Estonia and Hungary has worsened rapidly. Whether inflows can be kept in the medium run is obviously a key policy question.¹⁰

4. MODELLING THE CURRENT ACCOUNT

4.1. A quick review of the literature

From a theoretical point of view, the standard reference for current account analysis is the intertemporal approach developed in the last twenty years or so and synthesised by Obstfeld and Rogoff (1995,1996) and Razin (1995).

⁹ Moreover, as pointed out by Reinhart et al (2003), it is difficult to identify a clear cut relation between the level of the external debt and the occurrence of a crisis.

¹⁰ A much more positive view is the one by Boeri et al. (2002), who claim that EU entry might double FDI inflows. Of course an analysis of FDI flows to new EU members is beyond the scope of this paper. Empirical analyses can be found in Bevan and Estrin (2000) Garibaldi et al. (2001), Buch et al.(2001) and Kinoshita and Campos (2003).

On the empirical front, Chinn and Prasad (2003) provide a comprehensive analysis of the medium term determinants of the current account, using a panel of 89 industrial and developing countries over the 1977-1995 period, through panel and cross section techniques. Their aim is not to discriminate among the competing theoretical models, but rather to provide a set of stylised facts upon which a theory can be built. Their main findings are that government budget balance, initial foreign asset position and indicators of financial deepening are positively correlated with current accounts. Demographic variables such as the dependency ratio have a strong, negative impact on the current accounts. Terms-of-trade volatility (used as proxy of macroeconomic uncertainty) is positively correlated to the external balances in developing countries. Agents may tend to save more in order to smooth consumption in the face of volatile income flow, and the ability of a country to run a large current accounts deficit can be hampered by high terms of trade volatility making international investors unwilling to put money into its economy.

Other variables such as openness to trade, measures of capital controls do not seem to have significant effects. They also find no evidence in favour of the stage of development hypothesis, i.e. countries whose per capita GDP is closer to that of industrialised countries run lower external deficit. Using a similar approach Calderon *et al.* (2002) study the determinants of current account deficits in 44 developing countries for the period 1966-95, focusing on the short-term dynamics and employing more sophisticated econometric techniques. They find that increases in private and public savings have a moderate favourable impact on the current accounts, that domestic output growth tends to worsen the external balances (indicating that domestic growth increases investment more than savings), that trade openness tends to create bigger deficit, probably due to the fact that a larger tradable sector indicates a better repayment capacity.

4.2. A Theoretical Model and Empirical estimates for CEEC

This section presents the results of an econometric study of the determinants of current accounts position for the ten countries analysed.

Following Chinn and Prasad (2000) and Alesina *et al.* (1999), the long term and short term determinants of the current account are modelled separately. In the first step, the short term dynamics is modelled by panel regression, using more volatile variables. Then the residuals are averaged across time in order to get a sort of country fixed effects, roughly representing the share of current account variability not explained by short term determinants. These fixed effects are then used in a cross section regression where less volatile variables are employed as dependent variables Appendix A provides more details on the procedure.

4.2.1 A simple theoretical model

In order to identify the explanatory variables for the short-term specifications, a simple intertemporal model of current account determination, with habit persistence and liquidity constraints developed by Gruber (2002) and Bussière *et al.* (2004) was used. It is fully illustrated in Appendix B.

Consider a small open economy facing a constant world rate. Output is exogenous. There are three kinds of agent, the government and two types of consumers. A fraction λ has no access to the credit market and therefore consume its disposable income: these are labelled Non Ricardian consumers¹¹. The other $(1-\lambda)$ Ricardian consumers behave like in the standard intertemporal models, but their choices are influenced by habit formation à la Abel (1990). Utility does not depend just on present consumption, but also on past one.

Aggregate per capita consumption is therefore given by

$$C_t = \lambda C_t^{NR} + (1 - \lambda) C_t^R \quad (6)$$

For non-Ricardian consumers, the exclusion from capital markets implies that per capita consumption is simply the difference between output investment and taxes (assumed to be lump-sum).

$$C_t^{NR} = Y_t - I_t - T_t \quad (7)$$

Ricardian consumers choose the path of per capita consumption solving

$$Max E_t \left[\sum_{s=t}^{\infty} \beta^{s-t} \left(D_t^R - \frac{\varphi}{2} D_t^{R^2} \right) \right] \quad (8)$$

$$\text{s.t. } D_s = C_s^R - \eta C_{t-1}$$

$$F_{s+1} = (1+r)F_t + Y_s - T_s - I_s - C_s^R$$

Where F_t defines private sector's net foreign asset position in per capita terms: this is the only mean agents have to smooth consumption, as they do not consider government debt as financial wealth (Barro, 1974).

The solution of (8) yields the equation for consumption of Ricardian agents (see Appendix B for the derivation)

$$C_t^R = \frac{\eta}{1+r} C_{t-1} + \left(1 - \frac{\eta(1-\lambda)}{1+r} \right) r F_t + \left(1 - \frac{\eta}{1+r} \right) \frac{r}{1+r} E_t \frac{Y_s - T_s - I_s}{(1+r)^{s-t}} \quad (9)$$

¹¹ See Campbell and Mankiw (1991)

Plugging (9) and (7) into (6), the equation for total per capita consumption is obtained.

$$C_t = \lambda(Y_t - T_t - I_t) + (1-\lambda)\frac{\eta}{1+r}C_{t-1} + (1-\lambda)\left(1 - \frac{\eta(1-\lambda)}{1+r}\right)rF_t + (1-\lambda)\left(1 - \frac{\eta}{1+r}\right)\frac{r}{1+r}E_t \sum_{s=t}^{\infty} \frac{Y_s - T_s - I_s}{1+r} \quad (10)$$

The government budget constraint is

$$B_{t+1}^G = (1+r)B_t^G + T_t - G_t \quad (10)$$

Where B^G is government net foreign asset. The total per capita net foreign asset position is given by the sum of private and government net assets. Recalling that only Ricardian consumers hold assets, we have.

$$B_t = (1-\lambda)F_t + B_t^G$$

The current account is as usual defined as the variation in the stock of net foreign assets, which is equivalent to the difference between national saving (the sum of GDP and claims on foreign assets minus private and public consumption) and investment.

$$CA_t = B_{t+1} - B_t = rB_t + Y_t - C_t - G_t - I_t \quad (11)$$

for ease of exposition, define net output as the difference between GDP, investment and public consumption $NO_t = Y_t - I_t - G_t$

It can be shown (see appendix B) that the equation describing the current account is

$$CA_t = (1-\lambda)\eta CA_{t-1} + \lambda(T_t + rB_t^G - G_t) + \frac{\eta(1-\lambda)}{1+r}\Delta NO_t + (1-\lambda)\left(1 - \frac{\eta}{1+r}\right)\left(NO_t - E_t \bar{NO}_t\right) \quad (12)$$

where a bar over the variable indicates its permanent value, i.e. the constant level having the same present value as the variable itself¹².

What (12) states is that the current account depends on its lagged value, on government budget balance, on the increase in net output and on its unexpected deviation from its permanent value. Current account persistency is due to private consumption being partially determined by its past value. The influence of government balances (the so called “twin deficit” hypothesis) is explained by the fact that, due to credit constraints, a fraction of consumers is unable to smooth unexpected changes in taxes or government consumption,

¹² More precisely the given the variable X_t , its present value \bar{X} its present value is defined as

$$\bar{X} = \frac{r}{1+r} \sum_{s=t}^{\infty} \frac{X_s}{1+r}, \text{ see Obstfeld and Rogoff (1996) chp 2 for more details.}$$

which therefore affects the current account. Finally changes in net income have a positive effect on the external balance as its changes (being expected or not) partially translate into higher savings. Note that in this model it is not possible to say what are the overall effects of an easing of credit constraints. More developed financial markets could incentive saving on the one hand, but also make borrowing easier. This is ultimately an issue to be treated empirically.

Summing up, the variables to be used in the short term equation are net output, the government balance and some measure of financial development: as it is common in the growth literature I use the ratio between broad money (M2) to GDP. Domestic credit /GDP ratio was used as an alternative giving similar results. The difference between realised net output and its permanent value is approximated by using the results of a regression of net output on a constant and a linear trend.

4.2.2 Empirical Results

An unbalanced panel of annual observations for the ten countries under analysis¹³ was used for the estimations. The series start between 1990 and 1994 and all end in 2002 or 2003. The first stage regression employs standard panel techniques, and standard errors are corrected for heteroschedasticity: using lagged values of the current account in order to capture persistency prevented me from using fixed effects estimation, as it would yield inconsistent estimates, see Nickel (1981). Moreover, the limited number of observation made it impossible to use more advanced techniques, which can account for the potential endogeneity of some explanatory variables, such as panel GMM estimations.

The results for the short term dynamics are presented in Table 6. The sign of the variables are in accordance with the model and the coefficients tightly estimated. The effect of government deficit is significant and somehow lower than the one found by other studies on current account or savings, such as Edwards (1995) on developing economies and Scrooten and Stephan (2002) on transition economies. A percentage point worsening in government balance brings about nearly 0.1 point deterioration in the deficit, as public dissavings are not fully compensated by higher private savings, due to liquidity constraints and consumption stickiness. The positive correlation between the increase in income and the current account is somehow consistent with the findings of Chinn and Prasad (2003) and Blanchard and Giavazzi (2003) for developed countries.

The strong and negative impact of financial deepening is consistent with what found by Blanchard and Giavazzi (2003), indicating that development in the financial system mainly affects borrowing costs and therefore investment.

Turning to the cross section regression for the long run determinants (table 7), only old dependency ratio, defined as the percentage of population aged more than 65 years to the

¹³ Bulgaria, Czech Republic, Slovak Republic, Hungary, Poland, Slovenia, Estonia, Latvia, Lithuania and Romania.

population between 15 and 65, and external debt to GDP ratio turned out to be significant¹⁴. The sign of the dependency ratio is the one indicated by standard life-cycle theory in that an older population has lower saving. The positive link with external debt can be interpreted as foreign asset position being a sort of constraint limiting the size of the deficit.

The policy implications of these results are several. The first one is that catching up will tend to reduce external imbalances over time, but at the same time, the easing of the borrowing constraint faced by economic agents will counterbalance this trend. Economic policy will have therefore to be very cautious: moreover, in the short run, the sizeable “twin deficits” effects strengthen the case for disciplined fiscal policy, especially for those countries willing to join quickly the ERM-II mechanism in order to adopt the euro as soon as possible. In the long run further pressures on the current account are likely, as in most of the countries under exam old dependency ratio is set to rise rapidly.

The simple econometric model just described can be used to project the future path for external debt, from that some conclusion on sustainability derived, given some assumption on the behaviour of the exogenous variables and on capital flows.

4.3. Projections

As stated in Section 3, a current account balance is said to be sustainable if, given the projected path of some key macroeconomic variables, it stabilises the stock of external debt at the current level. The simple econometric model just developed can then be used in order to have a rough idea of the future development of these countries’ stocks of external debt up to 2007. To this end, a forecasted growth path and an estimate of the future fiscal policy stance are needed, together with further assumptions on financial deepening, as well as assumptions on net inflows of foreign capital.

Before turning to the assumption made and the results obtained two warnings are essential. First of all, it is important to recall that the econometric model is very simple and the fact that the panel methodology forces to “average out” countries characterised by a high heterogeneity. Second, such a model can give a hint about the sustainable level of current accounts only if we retain the definition of sustainable as the level stabilising foreign debt.

Real per capita net output is assumed to grow at the same speed as real GDP. For 2004 and 2005 I use the Spring 2004 Forecast made by the European Commission where available. For Romania and Bulgaria I use Globalinsight forecast. After that date the results by Wagner and Houlskova (2002) were used. Future values of the government deficit have been obtained by the European commission Forecast and by Globalinsight up to 2005. A scenario of gradual reduction of government deficit was employed for the remaining years. The ratio of M2 to GDP is projected to grow at the average rate of the last four years.

¹⁴ I also tried young dependency ratio, total population and per capita income (in PPP terms) relative to the EU-15 average. None of these variables turned out to be significant.

In order to forecast the trajectory of debt, I assume that FDI is the only non-debt creating foreign source of capital. Therefore, net foreign debt evolves according to:

$$D_{t+1} = D_t + CA_t + FDI_t \quad (15)$$

Where all the variables are expressed as ratio to GDP and FDI is net FDI flows.

In order to keep consistency with the results shown in section 4, I derived the debt path under three different assumptions on future FDI flows: equal to the 2000-2003 average, fixed at 4% of GDP and equal to zero. The results are reported in figures 1 to 10.

Overall, current account balances seem to be sustainable for most of the countries. External debt would increase only in the very unrealistic case of net FDI inflows dropping to zero. This result is broadly consistent with the Milesi-Ferretti and Razin methodology used in Section 3. It is interesting to notice the case of Slovenia: given the estimated model for the current account and the assumptions on growth and fiscal policy, external debt would drop regardless of the behaviour of FDI. This indicates that higher current account deficit for this country should not be a problem.

The main implication of this simple simulation exercise is that widening deficits are a natural product of the transition process, that can be seen as an idiosyncratic productivity shock (see Glick and Rogoff (1995) for the consequences of country specific versus world wide productivity shocks on the current accounts). Therefore the usual criteria used to assess sustainability ought to be amended in order to allow for the peculiar situation of these countries.

However, the benign outlook described by these simulations is not exempt from large downside risks. Whereas the assumption of sustained growth for the near future seems to be highly realistic, the simulation rests heavily upon the continuation of disciplined fiscal policies, enabling the domestic saving rate not to diverge too much from the investment rate. This issue is tackled in more detail in the next section. Moreover, the assumption of FDI being the only source of foreign capital that does not create debt might become more and more questionable over time. The end of the privatisation process is likely to reduce FDI inflows, and the development of the financial system will stimulate the surge of other forms of financing, such as portfolio investment or bank loans. If, on the one side, they will not contribute to the external debt, they nevertheless are much more volatile and might make these countries much more exposed to the risk of reversals and balance of payment crisis.

Finally, the model implicitly assumes that the exchange rate regime allows real mechanisms to fully operate.

5. POLICY ISSUES

5.1. Increasing the savings rate?

The prospects of large and possibly widening deficit raise almost naturally some question about the current level of the savings rate and the possible options to increase it.

Table 10 shows the figures for the countries under analysis and for two European countries: Portugal, a natural benchmark for the CEECs, and Germany. The averages over the 1993-97 and 1998-2002 period are reported. As series on personal savings are not available for most of the new EU members, they are derived by subtracting government budget from total savings. It is, admittedly, quite a crude approximation, but it is widely used in the empirical literature (see Loyaza, et al. (2000)).

We can see that both total and private savings rate are mostly in line with those of current EU members, and in many cases they have increased in the second sub-period. Schrooten and Stephan (2002) carry out an econometric analysis of the determinant of savings in these countries, using data ranging from 1990 to 1999. They find that the driving forces are basically the same as in western countries: income level and growth have a positive influence, as well as better institutions, whereas lower barriers to international borrowing lowers savings. Public savings partially crowd out private ones. The obvious policy implication is that promoting growth will have a beneficial effect on private savings. This is implicitly confirmed by the econometric model of section 6.

Concerning government savings, they could be used by government as a (limited) insurance against too wide external deficits and the related risks. A larger surplus or a smaller deficit would act as a buffer and probably increase market confidence. Of course one can question the feasibility of even tighter fiscal policies, over and above the quite successful programs of fiscal restraint carried out by CEECs in recent years¹⁵. As pointed out by Sapir *et al.*(2003) fiscal consolidation might at some point clash with real convergence targets, in that the overall poor level of public capital, which is critical in order to make long term growth sustainable, need strong investment effort by the government. Coricelli and Ercolani (2002) make a somewhat similar argument: they find that almost all the budget deficit in new EU members is structural. Moreover the expenditure for investment is much higher than in existing EU members. This should warn against the application to these countries of the Maastricht deficit Criteria as they might risk hampering the development of badly needed infrastructure, and raises, according to the authors, the issue of the relevance of the “golden rule”.

¹⁵

An recent exposition of the state of public finances in CEECs can be found in European Commission (2002) Detailed description of fiscal policies can be found in Purfield (2003)

5.2. Early adoption of the Euro: is it wise?

Another obvious implication is that CEECs countries will need substantial capital inflows, in a period in which some hard decisions about the choice of the exchange rate regime will be taken. At the same time abiding to the *acquis communautaire* implies the complete scrapping of the system of capital controls some countries still have in place.

Recent episodes of crisis show that full capital account liberalisation, large current accounts deficits and the “wrong” exchange rate regime can create a lethal mix leading to painful financial crisis. Concerning CEECs, it is known that full EMU membership will be attained at some point: the most pressing problems therefore relate to the interim period. The whole issue boils down to a single question. Which regime should be adopted before the adoption the Euro?¹⁶

There is a lively ongoing debate on this subject. Historical experience has shown that intermediate regimes are too dangerous. The choice remains between the two polar opposites: a fixed exchange rate (in the form of hard peg, currency board or currency substitution) or a fully flexible regime, possibly backed by a credible inflation targeting mechanism. Almost all the debate has been centred on the consequences of the marked real appreciation trend shown by these countries (due to the Balassa Samuelson effect) and how to accommodate it within the premises of the Maastricht Treaty. According to Begg et al. (2001), unilateral euroisation would be by far the first best option, for it would isolate New EU members from turbulence in the years preceding EMU membership and solving almost automatically the problems related to large financial inflows, provided that the requirements of a high fiscal responsibility, price stability and a sound banking system are met.

However, the Maastricht Treaty apparently rules out such an option. Three other viable options are left. The first one is to adopt a fixed regime in the hardest possible form, such as the currency board: a crucial prerequisite is a sound fiscal discipline to keep external balance on track and to dampen the inflationary effects of the surge in demand stemming from high capital flows. This is a highly risky option, if the regime is not fully credible, as the case of Argentina shows. A crisis would undermine the credibility of the country’s monetary authorities, delaying EMU entry for a long period. The second option is to adopt what they call a “British style” float, basically a full-fledged flexible exchange rate, then move to ERM-II and finally adopt the Euro. This would let the working of real convergence operates smoothly, while at the same time minimising the risk of financial crisis¹⁷. The third option, brought forward by Poland, is to maintain a fully flexible exchange rate regime until real convergence has taken place and the exchange rate vis-à-vis the Euro is at its equilibrium value and then join directly EMU.

¹⁶

A discussion of whether the exchange rate regime spelled out in the Maastricht Treaty is suitable for new EU members is clearly beyond the scope of this paper.

¹⁷

Provided obviously that the ERM-II period is not too long.

Buiter and Grafe (2002) have a more outspoken style and suggest that the current treaty should be amended in order to allow CEECs to euroise at a negotiated parity as soon as possible. Moreover, as the Balassa-Samuelson effect would generate inflation rate well above current EMU members' one once the exchange rate is fixed, different (and somehow looser) inflation criteria should be envisaged for new EU members.

However, these studies seem to concentrate overly on the pure Balassa-Samuelson effect, and overlook the impact of the massive capital flows CEECs are receiving.

Capital scarcity in these countries translates into a high marginal productivity of capital, which normally attracts foreign capital. Monetary authorities are faced with a dilemma: if they set nominal rates in order to have real rate mirroring the high productivity, foreign capitals will pour into the economies, leading to a large deficit¹⁸ and an appreciating real exchange rate. On the contrary, if monetary authorities try to dampen these flows by means of interest rates much below the marginal productivity of capital, they are likely to depress private savings. The following gap with respect to investment would translate into a current accounts deficit¹⁹.

Capital scarcity being financed by foreign investment is a real phenomenon. Its order of magnitude is likely to be quite high relative to the observed capital flows within current EU members, given that the difference in economic structure between new EU members and current EU members is much greater than that between richer and poorer EU countries.

Moreover, real convergence would occur regardless of the exchange rate regime chosen. If monetary authorities aim at keeping a fixed exchange rate regime, they will try to fight exchange rate appreciation by sterilising incoming capital flows. The increase in the supply of domestic currency will lead to a drop in interest rate, which would depress savings and stimulate investment, leading to a current accounts deficit. Moreover an increase in money supply would translate into a higher inflation. Under a flexible exchange rate regime, the exchange rate appreciation would harm external competitiveness, worsening the trade balance and therefore the current accounts.

However, the choice of the exchange regime is critical, even though, no regime would insulate a capital importing country from the risk of a balance of payment crisis.

With long lasting fixed exchange regime, agents might tend to borrow heavily in the foreign currency, making the costs of adjusting the exchange rate very (in the case of Argentina unbearably) high, as devaluation would entail massive defaults and possibly, banking crisis. Moreover, setting the parity level in an environment of appreciating real exchange rate is very difficult. Moreover with such a regime, any reduction of external

¹⁸ How large is a difficult question. Fernandez de Cordoba and Kehoe (2000) calibrate a Real Business Cycle model on Spanish data in order to gauge the effect of EU entry on capital flows, obtaining values for the current account deficit which far in excess of the observed ones.

¹⁹ Lipschitz et al. (2002) present a similar argument in a more formalised way.

imbalances would have to be made by reducing prices and wages or by compressing domestic demand. All these options are probably not very viable and meaningful. Such a rigidity would probably increase the risk of balance of payment crisis. A flexible exchange rate would act as a partial disincentive to have big foreign exchange open positions, making the system as a whole less vulnerable. In this case however the mismatching of banks' asset and liability can become sizeable, and big swings in the exchange rate can cause relevant problems of non-performing loans.

Given that no regime is free from potentially serious drawbacks, the quality of the financial system in new EU members plays a critical role. Calvo and Mishkin (2003) argue that in order to have successful macroeconomic policies in emerging economies, the development of good fiscal, financial and monetary institutions is even more important than the choice of the exchange rate regime. Their argument is that, as shown by almost all the recent examples of exchange rate crisis, weak institutions amplify the effects of external shocks, as in the case of the banking crisis occurred in Asia in 1997, or greatly reduces the possibility of economic authority to react to external shocks.

The recent surveys on the subject (for example European Forecasting Network (2004) and the regular reports produced by the European Commission and the European Bank for Reconstruction and Development), show that the adequacy of financial institutions is quite diverse.

Given the speed of the transition, it is very likely that new EU members will still have relevant external imbalances even after they enter the Euro. Moreover, as emphasised by Blanchard and Giavazzi (2003), the single currency, by reducing transaction costs and the currency risk, is likely to deliver a more efficient allocation of savings and investment across countries, possibly widening the external imbalances according to the differences in capital intensity and growth prospects. The observed increased variance between current accounts positions in EU members is cited as evidence of this process. They conclude that this is a natural phenomenon and that benign neglect is the most appropriate form of policy response. However, their conclusion is probably too optimistic: a widening deficit might also originate to a less than optimal intertemporal allocation of resources which could translate into a persistent slowdown in long term growth, exacerbating the deficit problem.

6. CONCLUSIONS

The objective of this paper was to analyse new EU members' external balances, in order to shed some light about their future perspectives and their medium run sustainability. The estimates given should be taken with caution as they derive from highly stylised models of the economies.

The main conclusions that can be drawn are the following:

- While some countries are showing large external deficit, no country seems to have unsustainable positions, according to standard accounting methods. Long term solvency on external debt seems to be assured given the bright growth prospects. However, the methodology employed suffers from several drawbacks, and its results

must be taken with caution. It must be borne in mind that the key hypothesis that the observed value of the debt is taken as the sustainable one is far from innocuous. It is probably quite heroic if applied to countries such as Bulgaria, Latvia and Hungary, whose external debt is rather high, by international standards. At the same time it is reasonable to assume that other countries (Slovenia, for example) could increase their external debt without prejudice to their financial stability.

- However, during the catching up process imbalances are likely to widen for a while. This is to some extent a natural outcome of convergence, but given the absence of any restriction on capital flows and the lessons drawn from recent balance of payment crisis, current accounts deficit must be carefully monitored. In particular, it is fundamental to consider whether the main driving force is the dynamic of savings or investment. On the savings side, fiscal policy could play an important role, avoiding too big budget deficit, even though the task is not at all simple given the need of public investment these countries have.
- Another essential challenge for these countries is to guarantee that external deficit continues to be financed by relatively sure sources such as FDI. This will contribute to keep external debt to manageable levels. As privatisation has ended or is close to the end in most of the countries, microeconomic reforms securing the interest of foreign investors are essential.
- However, it is likely that over time FDI will be replaced by more volatile sources of flows. This would necessitate a strong attention to the state of the financial system.
- Concerning the accession to EMU, the relevant size of external imbalances (and therefore of the capital inflows financing it) should be taken into account in the design of the transition path leading to the adoption of the euro. A tentative conclusion is that countries still having flexible exchange rates should maintain them as long as convergence has (among the other things) reduced the size of the deficit. This must be complemented by strong and credible commitments to keep inflation in check and to an improvement in financial institutions in order to have monetary policies transmitted to the real sector in the most powerful way. Adopting a fixed exchange rate agreement and choosing the wrong parity would shift the burden of the adjustment to domestic demand, being devaluation impossible (in the case of euroisation) or extremely difficult or painful, in the case of pegged rate or currency board and given the strong degree of wage and price rigidity²⁰. The correction of imbalances would then entail compression in demand or a marked reduction in nominal wages.

On the other hand, countries already having various forms of fixed exchange rate arrangements would find shifting to a flexible exchange rate, too costly, in terms of turbulence in the financial system. Their economic authorities will have to put even more attention in checking current accounts imbalances, using demand policies, and at the same

²⁰ In a recent study Edwards and Levy Yeyati (2003) show that the adverse impact of terms of trade shocks on growth is much milder for countries having floating exchange rate. For a recent discussion of the possible terms of trade effects following accession see Bchir *et al.* (2003)

time guaranteeing that deficit are financed in a relatively safe way, and managed by sound financial institutions.

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DATA APPENDIX

Variable	Source
Current Account	IFS
Government deficit	IFS, AMECO
Money and quasi Money (M2)	IFS, WDI
Population	AMECO
Foreign direct investment	IFS, EBRD
GDP	AMECO
Investment	AMECO

AMECO: European Commission Annual Macroeconomic Database, available at http://europa.eu.int/comm/economy_finance/indicators/annual_macro_economic_database/ameco_en.htm

EBRD: European Bank for Reconstruction and Development, Transition Report, various issues

IFS: International Monetary Fund, International Financial Statistics March 2004

WDI: World Bank World Development Indicators, 2003 Edition

**APPENDIX A: SHORT AND LONG RUN DETERMINANTS
OF THE CURRENT ACCOUNT**

The variables that according to standard economic theory are likely to affect the current account are different in terms of time and cross-country variation. For example the old dependency ratio evolves very slowly, but in principle may be different across country. The same applies to external debt. Net output growth, on the contrary is likely to be highly variable over time but to be less so if compared across country, as the economies under examinations are roughly in the same stage of economic development. Using slowly changing variables in panel regression along with more volatile variables might result in the former showing a low significance.

To overcome this problem Alesina et. al (1999) propose a two step estimation. In the first step the dependent variable is regressed on more volatile regression using standard fixed effect methods. In the second step the cross section of the estimated fixed effects is regressed on less volatile variables.

In this paper a slightly modified approach has been adopted. First of all the explanatory variables are divided into two subsets, according to whether their variance across time (within) is higher or lower than the variance across units (between). The former are more likely to affect the current account in the short medium term the latter to have a long run effect. Table A1 shows the variance decomposition for the explanatory variables considered.

Therefore, and in accordance with the theoretical model, I employed the budget balance, (two transformation of) net output and the M2 to GDP ratio for the estimation of the short-term regression. The specification for the first step regression is a partial adjustment model

$$CA_t = \alpha CA_{t-1} + \beta X_t' + \omega_i \quad (A1)$$

Where X is the set of explanatory variables. It is well known (Nickell, 1981) that estimating by OLS a model containing a lagged dependent variables and fixed effects would yield biased estimators. Moreover, given the small size of the sample, other methods such as Instrumental Variables or GMM were infeasible.

Therefore, in order to get some gauge of the long term component of the current account which is not explained by the variables contained in X the sample average of the residuals of (A1) was taken, and used as a sort of country fixed effects in the second step cross section regression where the period averages of the old dependency ratio and of the external debt to GDP ratio were used as independent variables. Other variables such as total population, young dependency ratio or relative income in PPP were used, but they turned out to be non-significant.

Table A1: variance decomposition (in % points)

	Between	Within
Government Balance	43.59	56.41
Net Output	37.81	62.19
M2 toGDP	30.86	69.14
External Debt	56.36	43.64
Old Dependency Ratio	60.98	39.02

APPENDIX B: A SIMPLE INTERTEMPORAL MODEL WITH HABIT FORMATION AND LIQUIDITY CONSTRAINTS

Consider a small open economy facing a fixed world interest rate and populated by a continuum of consumers of unit size. Output is exogenous.

There are two types of consumers. A fraction λ has no access to the credit market and therefore consume its disposable income: these are labelled Non Ricardian consumers. The other $(1-\lambda)$ Ricardian consumers behave like in the standard intertemporal models, but their choices are influenced by habit formation). Utility does not depend just on present consumption, but also on aggregate past one.

Aggregate consumption is therefore given by

$$C_t = \lambda C_t^{NR} + (1 - \lambda) C_t^R \quad (\text{B1})$$

For non-Ricardian consumers, per capita consumption is simply the difference between output investment and taxes (assumed to be lump sum), always per capita

$$C_t^{NR} = Y_t - I_t - T_t \quad (\text{B2})$$

In order to obtain a closed form solution for the consumption function, a quadratic period utility function is assumed. Ricardian consumer choose the path of per capita consumption solving

$$\text{Max } E_t \left[\sum_{s=t}^{\infty} \beta^{s-t} \left(D_t^R - \frac{\varphi}{2} D_t^{R^2} \right) \right] \quad (\text{B3})$$

$$\text{s.t } D_s = C_s^R - \eta C_{t-1} \quad (\text{B4})$$

$$F_{s+1} = (1+r)F_t + Y_s - T_s - I_s - C_s^R \quad (\text{B5})$$

Where F_t defines consumers' net foreign assets position in per capita terms.

Consider the Ricardian consumers. Solve (B4) for C^R , plus it into (B3) and maximize with respect to F_{s+1} , obtaining the following Euler Equation

$$C_s^R - \eta C_{s-1} = E_t [C_t^R - \eta C_s] \quad (\text{B6})$$

Iterate (B5) and impose the non bubble condition in order to get the intertemporal budget constraint

$$E_t \sum_{s=t}^{\infty} \frac{C_s^R}{(1+r)^{s-t}} = (1+r)F_t + E_t \sum_{s=t}^{\infty} \frac{Y_s - T_s - I_s}{(1+r)^{s-t}} \quad (\text{B7})$$

It can be rewritten, using (B1) and solving (B4) for C^R

$$E_t \sum_{s=t}^{\infty} \frac{D_s + \eta(\lambda C_s^{NR} + (1-\lambda)C_s^R)}{(1+r)^{s-t}} = (1+r)F_t + E_t \sum_{s=t}^{\infty} \frac{Y_s - T_s - I_s}{(1+r)^{s-t}}$$

Rearranging

$$E_t \sum_{s=t}^{\infty} \frac{D_s}{(1+r)^{s-t}} = (1+r)F_t + E_t \sum_{s=t}^{\infty} \frac{Y_s - T_s - I_s}{(1+r)^{s-t}} - \frac{1}{1+r} \sum_{s=t}^{\infty} \frac{\eta(\lambda C_t^{NR} + (1-\lambda)C_s^R)}{(1+r)^{s-t}} - \eta C_{t-1}$$

the third term in the right hand side of the equation can be rewritten, using (B2) and the budget constraint (B7)

$$\frac{\eta\lambda}{1+r} E_t \sum_{s=t}^{\infty} \frac{Y_s - T_s - I_s}{(1+r)^{s-t}} - \frac{\eta(1-\lambda)}{(1+r)} \left[(1+r)F_t + E_t \sum_{s=t}^{\infty} \frac{Y_s - I_s - T_s}{(1+r)^{s-t}} \right]$$

Recalling (B4) we have

$$E_t \sum_{s=t}^{\infty} \frac{C_s^R - \eta C_{s-1}}{(1+r)^{s-t}} = [(1+r) - \eta(1-\lambda)]F_t + \frac{1+r-\eta}{1+r} E_t \sum_{s=t}^{\infty} \frac{Y_s - I_s - T_s}{(1+r)^{s-t}} - \eta C_{t-1}$$

Plug in the Euler equation (B6) and solve for C^R , to obtain the reduced form equation for Ricardian agents' consumption

$$C_t^R = \frac{\eta}{(1+r)} C_{t-1} + \left[1 - \frac{\eta(1-\lambda)}{(1+r)} \right] r F_t + \left(1 - \frac{\eta}{1+r} \right) \frac{r}{1+r} E_t \sum_{s=t}^{\infty} \frac{Y_s - T_s - I_s}{(1+r)^{s-t}} \quad (B7)$$

The equation for aggregate pro capita consumption is obtained using (B1), (B2) e (B7)

$$\begin{aligned} C_t &= \lambda(Y_t - I_t - T_t) + (1-\lambda) \frac{\eta}{1+r} C_{t-1} + (1-\lambda) \left(1 - \frac{\eta(1-\lambda)}{1+r} \right) r F_t \\ &+ (1-\lambda) \left(1 - \frac{\eta(1-\lambda)}{1+r} \right) \frac{r}{1+r} E_t \sum_{s=t}^{\infty} \frac{Y_s - T_s - I_s}{(1+r)^{s-t}} \end{aligned} \quad (B8)$$

This corresponds to equation (10) in the main text

Next, consider the Government budget constraint

$$B_{t+1}^G = (1+r)B_t^G + T_t - G_t \quad (B9)$$

where all variables are in per capita term. Iteration and the imposition of the usual no bubble condition yield

$$E_t \sum_{s=t}^{\infty} \frac{G_s}{(1+r)^{s-t}} = (1+r)B_t^G + E_t \sum_{s=t}^{\infty} \frac{T}{(1+r)^{s-t}} \quad (B10)$$

adding on both sides $E_t \sum_{s=t}^{\infty} \frac{Y_s - I}{(1+r)^{s-t}}$, defining the permanent value of a generic variable

$$X \text{ as } \bar{X} = \frac{r}{1+r} \sum_{s=t}^{\infty} \frac{X_s}{(1+r)^{s-t}}, \text{ and using the definition of net output as } NO_t = Y_t - G_t - I_t$$

we get

$$E_t \left[\bar{Y}_t - \bar{T}_t - \bar{I}_t \right] = E_t \left[\overline{NO}_t \right] + r B_t^G \quad (B11)$$

The current account is defined as the difference in the accumulation of foreign assets; it is equal to the difference between the sum of net output and income from foreign assets and private consumption.

$$CA_t = B_{t+1} - B_t = rB_t + Y_t - G_t - I_t - C_t$$

now replace C by (B8) use the definition of permanent value, and rearrange

$$CA_t = rB_t + (1-\lambda)Y_t - (1-\lambda)I_t - G_t + T_t - (1-\lambda)\left[\frac{\eta}{1+r}C_{t-1} + \left(1 - \frac{\eta(1-\lambda)}{1+r}\right)rF_t + \left(1 - \frac{\eta}{1+r}\right)E_t[\bar{Y}_t - \bar{T}_t - \bar{I}_t]\right]$$

add and subtract λG , use the definition of net output and rearrange

$$CA_t = rB_t + (1-\lambda)NO_t - \lambda(T_t - G_t) - (1-\lambda)\left[\frac{\eta}{1+r}C_{t-1} + \left(1 - \frac{\eta(1-\lambda)}{1+r}\right)rF_t + \left(1 - \frac{\eta}{1+r}\right)E_t[\bar{Y}_t - \bar{T}_t - \bar{I}_t]\right]$$

use (B11) to replace the last term in the left hand side

$$CA_t = rB_t - \lambda(T_t - G_t) - (1-\lambda)\left[\frac{\eta}{1+r}C_{t-1} - NO_t + \left(1 - \frac{\eta(1-\lambda)}{1+r}\right)rF_t + \left(1 - \frac{\eta}{1+r}\right)(E_t\bar{NO}_t + rB_t^g)\right] \quad (B12)$$

now consider the per capita stock of foreign assets, which is the sum of government and private assets. As Ricardian consumer can hold assets, we have

$$B = (1-\lambda)F_t + B_t^G \quad (B13)$$

use it to eliminate government bonds in (B12), then add and subtract $\frac{\eta}{1+r}NO_t$

$$CA_t = rB_t + (1-\lambda)(T_t - G_t) - (1-\lambda)\left[\frac{\eta}{1+r}C_{t-1} - \frac{\eta}{1+r}NO_t - \left(1 - \frac{\eta}{1+r}\right)(NO_t - E_tNO_t) + \left(1 - \frac{\eta}{1+r}\right)rB_t + \lambda rF_t\right]$$

consider the term in square brackets: add and subtract $\frac{\eta}{1+r}NO_{t-1}$

$$\frac{\eta}{1+r}(C_{t-1} - NO_{t-1}) - \frac{\eta}{1+r}\Delta NO_t - \left(1 - \frac{\eta}{1+r}\right)(NO_t - E_tNO_t) + \left(1 - \frac{\eta}{1+r}\right)rB_t + \lambda rF_t$$

by definition of current account we have $C_t - NO_t = rB_{t-1} - CA_{t-1}$

$$-\frac{\eta}{1+r}CA_{t-1} - \frac{\eta}{1+r}\Delta NO_t - \left(1 - \frac{\eta}{1+r}\right)(NO_t - E_tNO_t) + rB_t - \frac{\eta}{1+r}rCA_{t-1} + \lambda rF_t$$

replace B using (B12). The equation for the current account, rearranged is now

$$CA_t = (1-\lambda)\eta CA_{t-1} + r(1-\lambda)F_t + \lambda(T_t + \lambda r B_t^G - G_t) + \frac{(1-\lambda)\eta}{1+r} \Delta NO_t + (1-\lambda) \left(1 - \frac{\eta}{1+r}\right) (NO_t - E_t \overline{NO}_t) \quad (\text{B14})$$

which is equation (12) in the main text.

Tables

	1994-1996	1997-1999	2000-2002
Czech Republic			
Investment	30.90	29.17	27.45
Saving	26.98	25.24	21.60
Current Account	-3.93	-3.93	-5.85
Hungary			
Investment	20.53	23.26	23.36
Saving	14.14	19.45	20.36
Current Account	-6.39	-3.81	-2.99
Poland			
Investment	19.10	24.70	21.32
Saving	18.89	19.23	17.03
Current Account	-0.21	-5.46	-4.29
Slovak Republic			
Investment	28.04	33.59	30.19
Saving	27.30	25.97	22.95
Current Account	-0.73	-7.62	-7.24
Slovenia			
Investment	21.32	25.12	24.16
Saving	22.45	23.57	23.83
Current Account	1.13	-1.55	-0.32
Estonia			
Investment	26.46	27.52	26.80
Saving	19.54	18.82	18.73
Current Account	-6.93	-8.70	-8.07
Lithuania			
Investment	22.34	23.56	20.43
Saving	15.18	12.39	15.37
Current Account	-7.16	-11.17	-5.06
Latvia			
Investment	16.13	23.74	26.61
Saving	16.00	14.91	18.56
Current Account	-0.13	-8.83	-8.05
Bulgaria			
Investment	14.19	13.04	17.36
Saving	14.07	12.49	11.99
Current Account	-0.12	-0.56	-5.37
Romania			
Investment	21.54	19.02	20.83
Saving	16.93	13.47	16.60
Current Account	-4.61	-5.54	-4.22

Source: European Commission AMECO Database, Author's Calculations

Table 1: Saving, investment and current account to GDP ratio, three year non overlapping averages

	External debt to GDP Ratio	Real interest rate	Real exchange rate trend	Real GDP growth rate	Net FDI to GDP ratio
Bulgaria	76.6	5.4	-7.2	5.2	5.6
Czech Republic	37.1	4.4	-4.4	3.8	13.7
Estonia	63.7	4.9	-4.4	5.5	9.0
Hungary	66.5	4.2	-3.5	3.3	5.3
Latvia	73.7	8.7	-4.2	6.1	6.5
Lithuania	44.4	8.0	-4.0	6.2	6.0
Poland	40.8	11.0	-4.0	4.4	6.4
Romania	31.1	6.1	-6.8	5.1	3.9
Slovakia	55.3	6.6	-3.5	4.8	15.7
Slovenia	36.2	6.4	-4.4	3.5	6.2

Table 2: Sustainable current account calculation using the Milesi-Ferretti Razin method. Assumptions

	No FDI	Stable FDI	Baseline	Average (2000-2002)
Bulgaria	-5.7	-9.7	-11.3	-5.5
Czech Republic	-1.9	-5.9	-15.6	-5.5
Estonia	-2.4	-6.4	-11.4	-8.0
Hungary	-2.9	-6.9	-8.2	-3.0
Latvia	-5.0	-9.0	-11.4	-5.1
Lithuania	-2.5	-6.5	-8.5	-8.1
Poland	-4.3	-8.3	-10.7	-4.3
Romania	-2.4	-6.4	-6.4	-4.3
Slovakia	-2.9	-6.9	-18.6	-7.0
Slovenia	-2.7	-6.7	-8.8	-0.4

Table 3: Sustainable current account calculation using the Milesi-Ferretti Razin method. Results.

Current Accounts Dynamics in new EU members: Sustainability and Policy Issues

	1998	1999	2000	2001	2002
Czech Republic	5.86	12.47	7.78	7.52	NA
Hungary	0.46	1.91	1.75	6.38	-1.94
Poland	1.41	-0.51	3.89	2.90	NA
Slovak Republic	-7.44	-1.21	10.14	NA	NA
Slovenia	0.87	-3.07	-2.45	3.35	16.14
Estonia	7.40	1.06	4.86	4.72	NA
Latvia	-4.15	-3.01	1.17	-6.75	-0.80
Lithuania	0.87	-4.21	-0.69	1.05	3.62
Bulgaria	3.90	1.07	2.81	0.26	-1.16
Romania	-2.05	-0.73	-0.83	-1.36	1.13

Table 4: Difference between current account and net FDI flows (in % of GDP)

	1995-98	1999-2002
Bulgaria	93.44	76.7
Czech Republic	33.84	41.03
Estonia	23.73	49.75
Latvia	22.3	63.92
Hungary	63.27	61.07
Lithuania	17.64	41.02
Poland	35.62	37.42
Romania	23.4	27.68
Slovak Republic	36.37	59.66
Slovenia	27.33	33.51

Table 5: External Debt to GDP ratio

Dependent Variable: Current Account to GDP Ratio

Lagged Curr. Acc	0,76 14,00
t-stat	
Budget Balance	0,10 3,23
t-stat	
Output Deviation	0,45 5,03
t-stat	
Output Growth	0,11 2,68
t-stat	
Financial Deepening	-0,21 -3,62
t-stat	

Rsq	0,40
Number obs	107

Sample (unbalanced): 1990-2003

Table 6: Short-term determinants of current account balance

Dependent variable: average of first step regression residuals

Old Dependency Ratio	-0,12
t-stat	-3,04

External debt to GDP Ratio	0,04
t-stat	2,61

Rsqr	0,46
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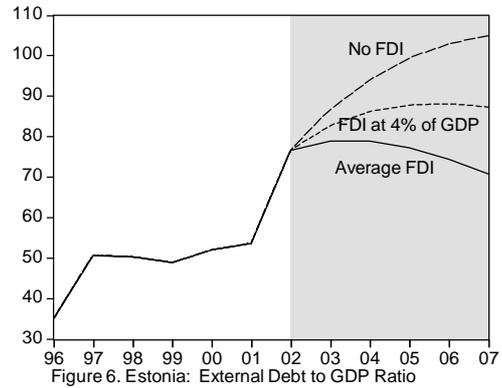
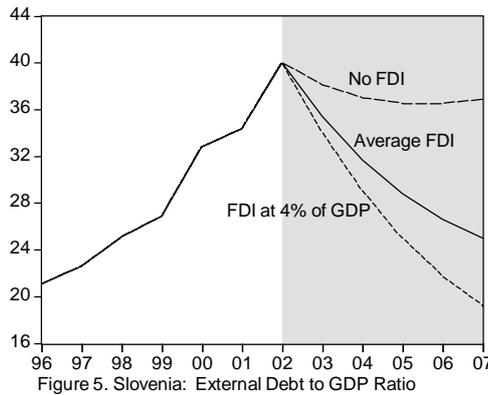
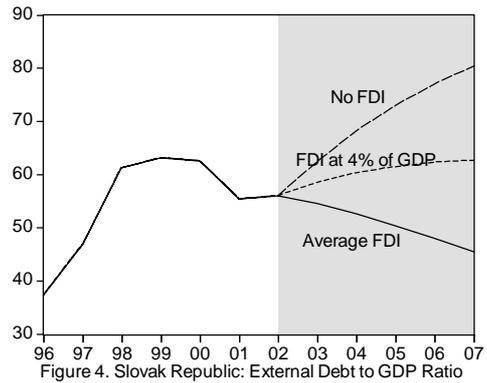
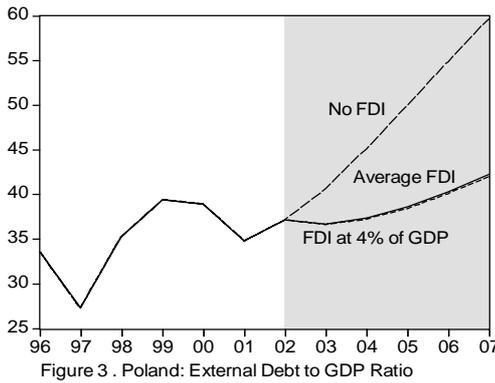
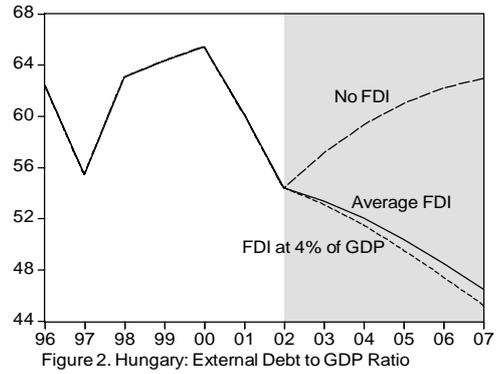
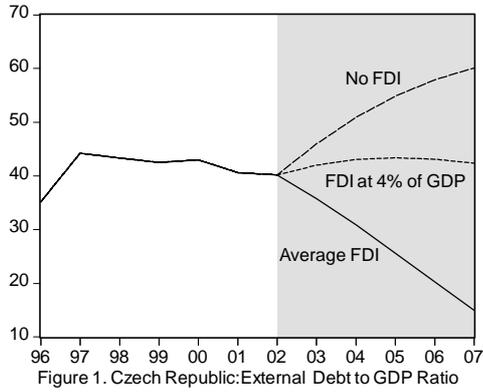
Number obs	10
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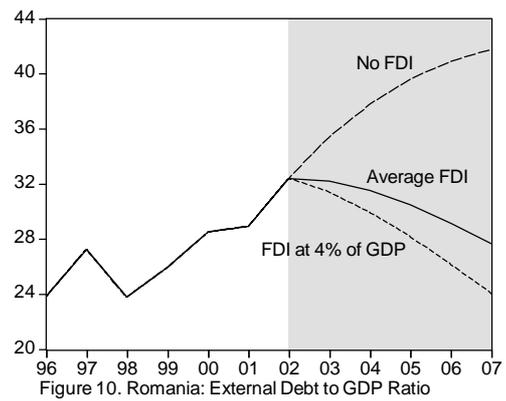
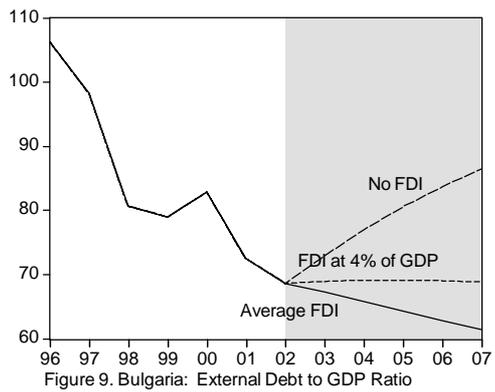
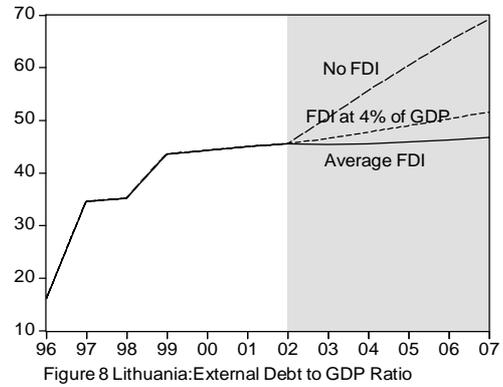
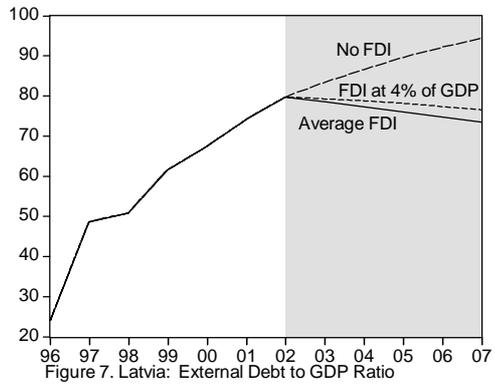
Table 7: Long Term determinants of current account balances

	1993-1997	1998-2002
Czech Republic		
Total Saving	26.9	23.3
Private Saving	24.1	23.8
Hungary		
Total Saving	14.1	19.9
Private Saving	15.8	23.0
Poland		
Total Saving	17.1	17.9
Private Saving	20.8	20.8
Slovak Republic		
Total Saving	26.6	24.2
Private Saving	26.6	25.6
Slovenia		
Total Saving	22.4	23.8
Private Saving	22.4	23.8
Estonia		
Total Saving	20.0	19.4
Private Saving	25.4	23.3
Latvia		
Total Saving	18.8	17.6
Private Saving	21.1	20.8
Lithuania		
Total Saving	14.7	14.0
Private Saving	15.4	16.6
Bulgaria		
Total Saving	11.8	11.7
Private Saving	16.6	16.3
Romania		
Total Saving	15.8	15.0
Private Saving	20.2	18.5
Portugal		
Total Saving	20.3	19.1
Private Saving	22.4	18.5
Germany		
Total Saving	21.7	20.7
Private Saving	21.1	20.2

Table 8: Total and private saving ratios

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