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Current Account Composition and Sustainability of External Debt

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Current account composition and sustainability of external debt ²

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Abstract

If an economy runs a current account (CA) deficit and finances it via a corresponding net inflow of equity capital the external debt (ED) does not change, i.e.: the CA deficit does not add to ED. This is no paradox. It simply comes from the definition of CA deficit and ED and points to different degrees of sustainability of CA deficits according to the way they are financed and to the composition of the CA itself.

By the evaluation of the determinants of interest rates spreads vis à vis US lending rates we assess the sustainability of CA deficits. We find that FDI net inflows (proxy of equity capital) allow emerging economies to sustain larger CA imbalances with respect to CA deficits financed by inflows of more liquid assets. Equity capital is a way to finance the CA. It does not contribute to the ED and it affects the solvency assessment of a country.

JEL Classification: E44, F34

Keywords: Equity capital, FDI, CA deficit, external debt.

1 Introduction

History and literature tell happy end stories and tragedies brought about by current account (CA) imbalances and external debt (ED). Australia, Canada, Norway have run for decades CA deficits with no external crisis. South Korea, Indonesia, Thailand, between 1997 and 1998, and other countries involved in systemic crisis of the 1990s and 2000s, paid a high price for CA deficits, despite the robustness of their economies, the low levels of imbalances and the short time during which external disequilibria occurred.

Several interpretations have been put forward to account for these divergent destinies. Most point to the short term financial exposition of countries, bad banks governance (Özmen, 2005), structural features such as the weakness of financial institutions (Hahm, 2004) and unsustainable growth rates.

Recent literature (Beim and Calomiris, 2001; Lane, 2004, 2005; Lane and Milesi - Ferretti, 2005a, 2005b; Tang, 2006) investigates the sustainability of CA imbalances, focusing on the composition of CA and the way CA imbalances is financed. Great attention has been paid to capital income flows (interest and dividends) as signals of the sustainability of the ED, since the “financial items” of the CA provide hints as to the returns on foreign assets. This is a promising route that allows to investigate the riskiness of a country and its international financial position. We proceed along this path concentrating on the role of equity capital flows and, in particular, FDI in emerging countries.

Equity capital and equity securities receive a particular treatment in the accounting of ED and this makes the effect of FDI, largely equity capital, on the solvency of a country rather special. Flows of FDI and equities are recorded in the financial account (FA) of the balance of payments (BOP). But they do not contribute to the ED (IMF, 2000; 2003, chapter 2).

Consider the following example. First, suppose that the CA of Uganda shows a deficit of 10 \$. Secondly, Uganda has a FA surplus of 10 \$, entirely due to net equity¹ inflow (acquisition by foreigners of Uganda equities). Then, the BOP of Uganda is in equilibrium. Neither the exchange rate (ER) should move, in the case of flexible ER, nor foreign exchange reserve (FER) should vary, in the case of fixed ER. What happens to the ED? Nothing, since it stays constant and does not change as a result of the net inflow of 10 \$ to buy Uganda equities. This inflow does not contribute to the ED of Uganda (IMF, 1993; 2000; 2003). The 10 \$ worth equities in the hands of foreigners are a liability of Uganda. Nonetheless, this liability does not contribute to the ED of Uganda. On the contrary, suppose Uganda had an inflow of 10 \$ due to the purchase by foreigners of Treasury Bonds of Uganda. The effect on

¹FDI includes roughly two kinds of flows: equities representing a company stake larger than 10% and *greenfield investment* financing, that takes place when, for instance, a new plant of a Multinational firm is built in a foreign country. The first kind of flow does not enter the ED, while the second does.

the BOP would be the same. Yet, the ED of Uganda has worsened by 10 \$, while before, with equities, it did not change.

Foreign inflows of funds to buy equities do not affect the ED of an economy. What is the rationale of this seemingly inexplicable statistical taxonomy? It comes from the very nature of equities. In particular, FDI may finance with foreign funds the acquisition by a non-resident of a chunk of real capital (equity) which may not be much liquid and not immediately tradable (Rossini and Zanghieri, 2003). Equity does not imply a strict obligation to pay somebody back at any given date.

In extreme cases, the equilibrium of the BOP with recurrent CA deficits, may be secured by selling equities to foreigners. A country may run CA deficits for prolonged periods if inflows of equity capital finance it, as they do not impinge upon the ED.

Equity flows go into two distinct categories of the FA. The first is FDI, made up of two items: flows of “Equity Capital and Reinvested Earnings” and “Other Capital.” The second is Portfolio Investment, whose components are “Equity securities” and “Debt Securities”. The problem is that the accounting distinction between “Equity Capital and Reinvested Earnings” and “Other Capital” is not so clear-cut and may give rise to statistical misreporting.

The fact that a large portion of FDI does not add to the ED, will make the assessment of sustainability dependent upon the weight of FDI in the FA².

Given all above considerations, our aim is to evaluate the relevance of FDI for the sustainability of CA deficits and the effect of FDI on variables signalling the degree of stress of the external position.

The paper is made up of two sections and an epilogue. In the next section we go through solvency questions and the role of FDI. In the third section we dwell on econometric testing, while conclusions are in the epilogue.

2 A reassessment of solvency

Liquidity and solvency crises are often associated (Milesi-Ferretti and Razin, 1996) but they do not necessarily coincide. During systemic crisis, as in Asia (1997-1998), liquidity was the culprit. Solvency was not an issue except for Indonesia. Economies involved had liquid foreign liabilities and less liquid foreign assets, despite sustainable ED.

The *equity paradox* mentioned above impacts the solvency of a country. With inflows of equity capital, and in particular FDI, a country may be solvent while not liquid. With low equity capital flows it may be liquid but insolvent. Our view is that a solvent country is less risky than a liquid one: financial and monetary variables should reflect this.

²For the particular nature of FDI and its influence of the saving available in an economy, see also Rossini and Zanghieri (2003) with a different perspective within the "Feldstein - Horioka puzzle" literature.

We reassess solvency by extension of usual approaches (Obstfeld and Rogoff, 1996) to the determination of ratios that signal distress of the ED of an economy.

A signal of solvency is a stable ratio of ED over the GDP: agents are comfortable with stable ratios since they provide cushion for variability. We embrace this view even though it may not be entirely justified on theoretical grounds. We see whether proper accounting³ of equity flows - proxied by FDI - alters the signal - ratio adopted in literature and in policy evaluation.

We consider the intertemporal budget constraint (IBC) of an open economy, as in Obstfeld and Rogoff (1996). Expenditure is made up of consumption (C_s) and investment (I_s) flows. Then the IBC, over an infinite horizon, is:

$$\sum_{s=t}^{\infty} \left(\frac{1}{1+r}\right)^{s-t} (C_s + I_s) = (1+r)B_t + (1-r)F_t + \sum_{s=t}^{\infty} \left(\frac{1}{1+r}\right)^{s-t} [Y_s + (F_{s+1} - F_s)(1-r)] \quad (1)$$

where r stands for the common return on foreign assets (and liabilities) entirely repatriated each year⁴. B_t is the net *stock* of foreign financial assets (short and long term) at time t that contributes to the ED⁵. F_t is the stock of home equities held by foreigners⁶ and represents a liability. But a special one, since it does not contribute to the ED, while it can be used to finance CA deficits. This is the *core paradox* of this paper.

The left hand side of (1) is the present value (PV) of aggregate expenditure.

The right hand side shows available resources. The *first* part is the *stock* of net foreign assets at the end of t , i.e.: $(1+r)B_t$. The *second* part is the *stock* of equities held by foreigners F_t multiplied by $(1-r)$, since dividends are repatriated. This *stock* is a liability that

³Adopted by international standards of the IMF (IMF, 1993; 2000; 2003) and the World Bank (World Bank, 2005).

⁴This assumes away transaction costs which give rise to asymmetries between countries with CA surpluses vis à vis those with deficits (Obstfeld and Rogoff, 2000).

⁵This stock gives a return r per period and, therefore, it is multiplied by $1+r$. International borrowing or lending may occur at any t consistently with the IBC. If B_t is negative it is a liability.

⁶Assets could be valued either at the acquisition price (or book value) or at their current value. The current price is not the value that the owner can obtain when selling if he has a large amount of the asset or if other agents follow him: $F_t \in [0, \infty)$.

may be used to pay imports by “selling capital.” The *third* part is the PV of future production (Y_s) and equity sale *flows* to foreigners ($F_{s+1} - F_s$).

Then we can write:

$$-(1+r)B_t - (1-r)F_t = \sum_{s=t}^{\infty} \left(\frac{1}{1+r}\right)^{s-t} [Y_s - C_s - I_s + (F_{s+1} - F_s)(1-r)]. \quad (2)$$

By standard notation (Obstfeld and Rogoff, 1996) the Trade Balance flow is:

$$TB_s = Y_s - C_s - I_s, \quad (3)$$

while the “*augmented*” Trade Balance, including all resources that can be sold to foreigners, is:

$$TR_s = TB_s + (F_{s+1} - F_s)(1-r). \quad (4)$$

Then we can write

$$-(B_t + F_t) - r(B_t - F_t) = \sum_{s=t}^{\infty} \left(\frac{1}{1+r}\right)^{s-t} TR_s, \quad (5)$$

which is a *stock - flow* relationship.

Financial markets are keen on a stable ratio of ED on GDP as sign of low country risk. What is the cost of compliance with this requirement? Assume that GNP grows at a constant rate g . For a steady ED/GNP ratio B_t must grow at the same speed g . In our scheme the increase in ED can be financed also via the “*augmented*” trade balance⁷ :

$$\begin{aligned} B_{s+1} - B_s &= gB_s = rB_s + TR_s = \\ &= rB_s + TB_s + (F_{s+1} - F_s)(1-r) \end{aligned} \quad (6)$$

or

$$TB_s = -(r-g)B_s - (F_{s+1} - F_s)(1-r). \quad (7)$$

Dividing both sides by Y_s we get:

$$\frac{TB_s}{Y_s} = \frac{-(r-g)B_s - (F_{s+1} - F_s)(1-r)}{Y_s} \quad (8)$$

⁷Consider an example: $B_{s+1} = -105$; $B_s = -100$; $gB_s = -5$; $rB_s = -10$.

Then the amount of resources to transfer to foreigners to keep a stable ED/Y ratio is equal to $TR_s = +5$.

The usual definition of the burden of ED changes. The novelty? The trade surplus a country transfers in steady state to foreigners is reduced by equity inflows⁸. This alters quite substantially the sustainability of ED. We shall see empirically, in the next section, whether equities, proxied by FDI, actually make a difference. A country should be considered more solvent the higher are equity capital flows financing CA deficits. We shall see how this is reflected in the variables measuring the sustainability of ED.

Two simple sub cases can be added to extend (8).

- Dividends are not repatriated but transformed into new equities:

$$\frac{TB_s^D}{Y_s} = \frac{-(r-g)B_s - (F_{s+1} - F_s)(1+r)}{Y_s}. \quad (9)$$

We easily see that

$$\frac{TB_s^D}{Y_s} \leq \frac{TB_s}{Y_s}.$$

- The equity net stock grows at the same rate of GNP and no repatriation of dividends takes place:

$$\begin{aligned} \frac{TB_s^G}{Y_s} &= \frac{-(r-g)B_s - gF_s(1-r)}{Y_s} = \\ &= \frac{-r(B_s - gF_s) + g(B_s - F_s)}{Y_s}, \end{aligned} \quad (10)$$

which is larger than (8), if $gF_s \leq F_{s+1} - F_s$.

As it can be seen, the effect of equity is definitely not just one of making capital flows less volatile, as they are less liquid, but that of making ED more sustainable. Equity reduces the extent of trade surpluses that an economy has to run to pay back its ED. *Coeteris paribus*, CA deficits of the same size have different effects on country risk according to the share of equity in their financing.

3 Empirical evaluation

Here, we go through the econometric tests of the relevance of equity, proxied by FDI, for the sustainability of ED.

⁸Notice that ED is a negative B_s . Therefore $F_{s+1} - F_s$ reduces the transfer to foreigners to keep ED stable.

Literature has provided many measures of distress of ED (Beim and Calomiris, 2001; Manasse, Roubini and Schimmelpfennig, 2003; Ghosh and Ghosh, 2002). One of the most widely used and accepted is the spread between the interest rates in the leading financial market, i.e. the US, and those of the area under scrutiny. Countries with ailing CAs over a long time span tend to show, almost in all circumstances, higher interest rates⁹. Even if there is no risk of sovereign default on external obligations, the sheer existence of international transaction costs affects the buying and selling price of saving on the international markets, i.e. the spread in interest rates, making CA deficits quite costly, mainly for emerging countries (Obstfeld and Rogoff, 2000).

Therefore, we adopt, as the signal of ED distress of an economy, the spread (SPR) between the US and the country lending rate, the best available proxy of long term interest rates.

SPR is determined by the variables that depict the hindrances a country is encountering as far as its external accounts are concerned. We wish to see to what extent SPR is affected by net FDI inflows. We expect SPR to decrease the larger are net inflows of FDI, as the previous section suggests.

Therefore, the crucial explanatory variable is net FDI inflow over the GDP i.e.: $NFDI / GDPN$. Both numerator and denominator are in nominal terms.

Even though our emphasis remains on the role of FDI, other variables are supposed to determine SPR.

The second explanatory variable is the relative inflation rate vis à vis the US, i.e.: INFL. We introduce INFL since we should compare real interest rate spreads. Using INFL is equivalent to compare real interest rates SPR.

The third variable is an indicator of money supply growth (M2) called GRMON. We expect that a larger money supply increases SPR.

The fourth variable is the ratio of Foreign Exchange Reserves over the ED, i.e.: $TRES/EXDB$. The higher this ratio the lower should be SPR, as a country is less liable to incur in liquidity crisis. The larger the amount of reserves held, vis à vis ED, the higher is the ability to pay back short term financial obligations.

The fifth variable is the terms of trade, TOT, indicator of the competitiveness of an economy and, therefore, of the ability to pay back ED.

The sixth variable is the CA relatively to GDP (CAR). It represents a prime indicator of a country economic imbalance on its foreign relationships. The better is the CA, the lower should be SPR.

⁹This occurs also within quite homogeneous areas. For instance, transition in Eastern Europe began some 15 years ago, but nominal and real convergence has been achieved by quite few countries (Kasman, Kirbas-Kasman, Turgutlu, 2005).

The seventh variable is a dummy, DLATAM, to separate Latin America from other areas. In that region specific sustainability criteria are adopted by the countries themselves and by international investors.

The eighth variable is lagged real GDP in Logs so as to capture the ability to grow and, therefore, to produce sufficient resources to pay back, via trade surpluses, ED.

Other explanatory variables are presented in the specific econometric exercise in which they are used.

3.1 TEST 1

In the first test we use a static panel based on annual data over the period 1992-2003. In the first stage we run plain OLS estimation, detecting heteroskedasticity in the residuals. Then, we apply Estimated GLS, assuming that the error terms have components specific to each unit. This makes for a variance - covariance matrix with a clear block-diagonal structure that can be derived by the estimation of a small number of parameters.

The test is conducted for Indonesia, Malaysia, Philippines, India, Sri Lanka, Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, Paraguay, Uruguay, Venezuela, Egypt and Jordan.

The results are summarized in Table 1 below.

Table 1

Method: Pooled EGLS.

Observations: 238. Dependent variable: SPR

Explan.var.s	Coefficients	Std. error	t-stat.	Prob.
INFL	.41	.20	2.07	.04
NFDI/GDPN	-1.07	.31	-3.45	.00
GRMON	.34	.11	3.25	.00
TRES/EXDB	-8.77	3.24	-2.70	.01
DLogTOT-1	-16.15	7.59	-2.12	.03
CAR-1	-.39	.20	-1.91	.06
DLATAM	14.63	2.36	6.20	.00
DlogGDPR-1	-6.84	37.69	-.18	.86
R^2	.43		Mean dep.v.	20.63
Adj. R^2	.39		SD dep. v.	22.35
S.E. of regr.	17.40		Akaide in..cr.	8.59
Sum sq.res.	69305.41		Schwarz cr.	8.72
Log Likelih.	-1012.91		D.B.	.42

COMMENTS

From Table 1 we can draw some inferences as to the role of FDI and other variables in the explanation of SPR.

FDI seems to play the expected role and be able to reduce SPR which is the signal of stress in the ED of a country. The weight and significance of the coefficient confirms our theoretical prior that FDI helps a country to make its ED lighter.

The expected sign can be found also in other variables, such as the degree of international liquidity of a country. The more liquid an economy is in terms of foreign exchange reserves, the lower is SPR.

Inflation boosts SPR since it provides the nominal wedge between the interest rates of countries. Moreover, a looser monetary policy increases SPR as the coefficient of GRMON indicates. This result may seem odd at first sight. However, a larger money supply may lower real interest rates while increasing nominal interest rates in emerging countries with inflation. Here, we are concerned with the SPR between nominal interest rates. Our results seem to confirm that in emerging countries loose monetary policies have increased the spread with respect to US rates¹⁰.

Significant and relevant is the regional dummy whose high positive coefficient confirms that Latin America is perceived as more risky and is, therefore, suffering a higher spread than countries belonging to other regions such as Asia.

The sign of the delayed terms of trade (TOT) is at first sight puzzling. However, the association between a lower price of exports relatively to imports and a higher SPR is simply the result of exchange rates variations mirrored by the TOT of a country. An exchange rate devaluation makes for lower export prices and higher import prices and it is usually associated to larger SPR.

¹⁰Lougani and Swagel (2001) employ vector autoregressions (VARs) to study 53 developing countries between 1964 and 1998. They estimate VARs with the following variables: (i) money growth and exchange rates; (ii) the output gap and a measure of the world business cycle; (iii) changes in the price of oil and non-oil commodities; (iv) past realizations of inflation. Their findings suggest that either money growth or exchange rate movements - depending on the ordering - explain two-thirds of the variance of both short and long run inflation and, therefore, nominal interest rates. Moreover, money dynamics is commonly used in constructing leading indicators for inflation (Binner et al., 1999).

Finally, it appears that the worse is the CA the higher is the SPR a country faces. A result which confirms textbook priors.

3.2 TEST 2

In the second test reported in Table 2 below we turn to an enlarged sample of countries. The previous group is supplemented by economies belonging to Eastern Europe. Some of them now belong to the enlarged EU as from May 2004. Nonetheless, our investigation is not affected by that since the time span of our data is 1992-2003. The new entries in our sample are Bulgaria, Russia, Czech Republic, Estonia, Latvia, Lithuania, Poland, Slovakia, and Slovenia.

In this test we change the method of estimation introducing fixed effects. The different sample and estimation method lead to a fresh specification with some new explanatory variables. FDI is now utilized relatively to the CA balance, both measured in local currency (NFDI / CAL). We also add the variable DLog (XN) which stands for the rate of growth of the value of exports at current prices. Finally we use a constant (C) as the estimation is carried out with fixed effects.

Table 2

Method: Pooled EGLS. Fixed Effects.

Observations: 358. Dependent variable: SPR

Explan.var.s	Coefficients	Std. error	t-stat.	Prob.
INFL	.21	.09	2.18	.03
NFDI/CAL	-.04	.01	-2.19	.03
GRMON	.19	.05	4.01	.00
DLogXN	-7.25	2.18	-3.33	.00
DLogGDPR	-.37	.23	-1.56	.11
CAR-1	-.03	.04	-.76	.45
C	18.68	5.33	3.50	.00
R^2	.83		Mean dep.v.	44.99
Adj. R^2	.81		SD dep. v.	44.46
S.E. of regr.	21.12		D.B.	1.01
Sum sq.res.	143218.21		F	42.29
.				

COMMENTS

With an enlarged sample containing also emerging European countries results change only slightly, while the effect of FDI on SPR maintains the expected sign. New variables, like exports, increase the ability of the specification to fit the data.¹¹ All other variables included in the previous test appear with the same sign as before, even though with different degree of significance. This is the case of the CA balance (CAR) that is losing grip, probably because it is crowded out by Exports.

As a partial conclusion, we can again state that the role of FDI in the explanation of the sufferance signal (SPR) is still crucial, proving our theoretical supposition. The fact that this conclusion extends to some Eastern Europe countries means that the importance of FDI to improve the sustainability of ED appears also in areas which are more integrated and financially close to the EU.¹²

¹¹The marked improvement in the R^2 is due to both the different set of regressors chosen and to the use of fixed effects.

¹²The same analysis we are conducting for emerging countries cannot be carried out in Euroland, since the SPR is quite compressed – or even eliminated - by the collateral policies of the ECB that tend to equalize interest rates across the Euro area (see Buiter and Sibert, 2005).

3.3 TEST 3

Here we consider a different sample of countries grouped according to their presumed similarity as far as the role of FDI in financing CA imbalances is concerned. We keep the economies of the former group of Test 2 excluding those belonging to the Middle East and to Asia.

The rationale lies in some macroeconomic affinities existing between Latin America and Eastern Europe. These similarities concern the external variables and the fact that Latin America and Eastern Europe have both gone through a transition, during the 1990s, from highly regulated and protected (sometimes semi-autarkic) structures to quite open and flexible markets.

Table 3

Method: Pooled EGLS. Fixed Effects.

Observations: 252. Dependent variable: SPR

Explan.var.s	Coefficients	Std. error	t-stat.	Prob.
INFL	.21	.05	4.44	.00
NFDI/GDPN	-.07	.03	-2.45	.01
GRMON	.32	.06	4.81	.00
DLogGDPR	-85.06	22.55	-3.77	.00
DLogTOT	1.39	8.28	.16	.87
CAR	-.19	.24	-.77	.44
NFALC/ GDPLC	4.20	11.97	.35	.73
C	20.37	4.39	4.63	.00
R^2	.81		Mean dep.v.	50.02
Adj. R^2	.79		SD dep. v.	50.71
S.E. of regr.	24.93		Prob(F-stat).	.00
Sum sq.res.	136688.72		DB	1.21
.				

COMMENTS

In the third test a new variable has been introduced, i.e. net financial assets over GDP at current local prices. Changing the specification of the set of explanatory variables and using a more targeted sample with countries displaying, supposedly, more homogeneous behaviours do not eliminate the influence of FDI as it appears from the coefficient of NFDI/GDPN which is still of the expected sign and significant. In all cases FDI seems to reassure markets and have a positive influence on the reduction of SPR.

As a partial conclusion it seems that the inclusion of fixed effects, the changing specification and the changed sample may alter the importance of FDI as an inverse determinant of SPR. Nonetheless the influence is always significant and of the expected sign.

4 Epilogue

The aim of this paper is to reassess the role of equity flows, proxied by FDI, on the ED of a country. Equity capital appears in two sections of the FA of the BOP. Equity capital inflows may finance the CA deficit of an economy as any other financial inflow. Unlike other financial assets, equities do not contribute to the ED of a country. This is what the International code for the compilation of external accounts dictates. In the extreme case, a country can run CA deficits for ever without worsening its ED, if it can sell a sufficient amount of equity to foreigners.

This BOP and ED taxonomy rules are no fiction and come from the very nature of foreign held domestic equities which represent pieces of an economy which are the property of non-residents.

We add some flesh to this statement by showing theoretically and empirically that markets actually regard equity, and its proxy FDI, as a special “asset” which does not contain any definite obligation to pay back the holder. Equity reduces the amount of resources that a country has to give to foreigners through Trade Balance surpluses in order to reimburse an ED.

The empirical proof of that comes from three tests conducted on panels of emerging countries during the “hot” 1990s. In all tests FDI net equity capital inflows reduce SPR between the lending rate of US and that of the emerging country examined. SPR is one of the mostly used indicators of distress of the external position of a country and plays a crucial role as an alarm clock of country risk. Differences in the weight of FDI influence on SPR appear according to the sample of countries we consider.

In the first sample where Latin America and Asia are included we see a strong effect of FDI on the reduction of SPR. Latin American suffers a larger idiosyncratic SPR due to weak financial system. In this sense it reveals similarities with Eastern Europe countries (Test 3). Both areas during the 1990s have gone through a transition process which turned them from quite closed and regulated into financially open economies increasingly integrated with the rest of the world.

As we have seen in the three tests, other variables affect SPR. Their coefficients mostly behave in an orthodox manner. Nonetheless, none of them is able to crowd out or reverse the expected effect of FDI on SPR. Probably, markets are more keen about solvency than liquidity of countries.

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