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Debt Sustainability and Debt Composition

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1 Introduction

There are two problems with standard debt sustainability analysis (DSA) exercises. The first relates to the fact that debt sustainability exercises often mix the concept of external sustainability with that of fiscal sustainability. The second has to do with the fact that DSA exercises tend to

The paper is organized as follows: Section 2

then conclude the section with a discussion of the interactions between these two concepts of sustainability.

2.1 External Sustainability

The observation that in order to repay its external debt a country needs to earn foreign currency on a net basis was at the basis of Keynes' (1929) criticism of those who thought that a large external debt is mainly a budgetary problem.

The key difference between external and domestic debt is that the ability of generating international currency to pay interest and principal is not directly related to a country's ability to grow or to broaden its tax base. Thus, debt-to-GDP or the debt-to-revenues ratios are not adequate measures of a country's ability to repay its external debt. Even the often used debt-to-exports ratio is problematic because a large export sector is not sufficient to generate the needed resources if import growth outpaces export growth. Unless a country's external debt is issued in its own currency, the money necessary to cover international obligations on a net basis (i.e., without creating new debt) can only be generated in presence of a current account surplus. This means that net foreign debt is always a debt that has to be repaid in terms of internationally tradable goods and services.[3]

how the autonomous decisions of agents in all countries in the world to save more than to invest generates the unavoidable result of at most

the least analysis. That is why interest rate differentials (higher in the deficit region than in the surplus region) or other price incentives like the expectation of a revaluation of the deficit countries exchange rate may happen but *they are not the cause* of the net capital flow. Hence, changes in the interest rate differentials or the exchange rate expectations may not quickly follow changes in the direction and the dimension of the net capital flows.

Thus, if a country or a region faces a sharp real revaluation, the concomitant net inflow of capital should not be interpreted as a sign of strength or as the result of a decision of investors to "save" in favour of this region. A sign of strength would be an inflow without an overvaluation. Otherwise, devaluing countries are exporting capital as the necessary complement of their success on the goods market and not as autonomous resource transfer. As the movement in relative prices *is the cause* of capital flows, it is inconsistent to complain about the negative effects of the

The term "fiscal sustainability" is often used without having a clear definition in mind.[8] Drawing on an analogy with household behavior, a country's policies are defined as fiscally sustainable if they lead to a situation in which the country can satisfy its budget constraint. However, Mendoza (2003) suggests that this is an imprecise definition of sustainability. He points out that the "true" budget constraint is an accounting identity that, by definition, is always satisfied. A government, for instance, can decide to satisfy its budget constraint by not paying (via outright default) or by inflating away its debt. In this sense, any analysis of fiscal sustainability ultimately reflects a value judgment on the cost and benefits of alternative adjustment mechanisms. Standard fiscal sustainability analysis implicitly assumes that adjustments through the level and composition of tax revenue or primary expenditure are preferable to adjustments via default or inflation (Mendoza, 2003). On the basis of this assumption, the International Monetary Fund defines a policy stance as sustainable if: "a borrower is expected to be able to continue servicing its debt without an unrealistically large future correction to the balance of income and expenditure" (IMF, 2002, page 4).

Formal tests of sustainability tend to be problematic and rather demanding in terms of data requirement. Thus, analysts have developed rule of thumb indicators aimed at checking whether current policies can stabilize or reduce a given debt ratio The starting point is usually the current period budget constraint that can be written as:

$$\Delta d = (r - g)d - ps \qquad (1)$$

Where *d* is the debt to GDP ratio, *r* the steady state real interest rate, *g* the long-run growth rate of real GDP, and *ps* the primary surplus divided by GDP. A positive value of Δd indicates that the debt-to-GDP ratio is expanding and may be interpreted as an unsustainable policy. The above equation is often rewritten as $ps = (r - g)d$, and *ps*

revenues, and implicitly assume that these variables are exogenous.[10] However, most of these variables tend to be endogenous and correlated with each other. It is unrealistic to assume that changes in the primary deficit will have no effect on the interest rate and growth, or that changes in growth do not affect the primary surplus. In fact, deficits incurred to finance public investment should be treated differently from deficits incurred to finance current expenditure. According to current practice, public sector adjustment strategies bundle together current expenditure and public investment. The Rio Group (a permanent mechanism of political consultations and interaction between 19 Latin American countries) put forward a proposal aimed at excluding investment expenditure from fiscal deficit targets. The main argument in favor of this proposal is that, as current expenditure tends to be difficult to adjust (because it is mostly composed of wages and entitlement programs), investment is the typical adjustment variable when the deficit exceeds the target. The proposal argues that the inclusion of investment expenditures in the target budget balance considers every increase in debt as a reduction in government wealth, implicitly assigning no value to investment expenditure as an addition to net wealth. The Rio Group, instead, would favor the adoption of sustainability indicators similar to the one proposed by Buiter (1985, see footnote 9).

Finally, the indicator does not take into account a host of factors that characterize the situation of most developing countries and greatly increase uncertainty. In particular, developing countries often have limited capacity to raise taxes (because of a large informal sector), have a volatile revenues base, are subject to large external shocks (both real and financial) that increase the volatility of GDP growth and that of debt service, and are characterized by large levels of liability dollarization. All these elements complicate the management of fiscal policy and greatly increase the difficulty of evaluating sustainability. Thus, if we modify the Equation (1) to include some of the elements that are common to developing countries we would obtain:

$$\begin{aligned} \Delta d = \ & \alpha r^{dl} + \beta r^{ds} + \gamma \frac{(1+\rho+r^{f})(1+\varepsilon)-1}{1+\pi}\ d + \\ + \ & (1-\alpha-\beta-\gamma)\frac{(1+r^{f})(1+\varepsilon)-1}{1+\pi} - g\ \ d - ps \end{aligned} \qquad (2)$$

Where α is the share of debt denominated in local currency at a fixed (long-term) interest rate, and r^{dl} is the corresponding real interest rate. β is the share of debt denominated in local currency at a floating (short-term) interest rate and r^{ds} is the corresponding real interest rate. γ is the share of debt denominated in foreign currency, ε is nominal depreciation, π is inflation, r^{f} is the international interest rate, and ρ is country risk. (1- α - β - γ) is official debt contracted with multilateral or bilateral institutions.[11] Contrary to OECD countries, in the typical developing country, β and γ tend to be high and α tends to be small. If it is often difficult to

[10] The current approach is to deal with uncertainty by stress-testing standard sustainability analysis with shocks to the main macroeconomic variables. Some authors are now developing probabilistic models of sustainability that specifically keep into account volatility in macroeconomic variables (see, for instance, Barnhill and Kopits, 2003, Hausmann, 2003, Croce and Juan Ramon, 2003, Mendoza and Oviedo, 2003).

[11] We assume that this debt is contracted at the international interest rate. In some cases the actual rate will be higher (when the debt is not concessional) and in others, lower. However, this does not change our analysis as long as the interest rate applied to this type of debt has limited volatility.

predict the behavior of the variables in Equation (1), think how hard it is to deal with Equation (2)![12]

2.3 Interactions between external and fiscal sustainability

There are important linkages between external and fiscal sustainability. The most obvious among these linkages is that about 50 percent of external debt of developing countries is public debt and about 50 percent of public debt of developing countries is issued externally. But there are also less obvious linkages. Consider, for instance, a country with no public debt but a large external private debt. The inability of private borrowers to service this debt can lead to a currency and banking crisis which can then have negative implications on fiscal sustainability. However, crisis can also originate in the market for domestic debt. The Mexican crisis of 1994/1995 originated in the market for CETES which are domestic currency domestic bonds and the Russian crisis of 1998 originated in the GKO market which are domestic currency bonds.

The most important interaction between fiscal and external sustainability has to do with the behaviour of the exchange rate and, unfortunately, this interaction introduces an unpleasant trade-off. This can be see by recalling that Section 2.1 argued that a real devaluation is a necessary condition for restoring external sustainability and Section 2.2 pointed to the fact that a large share of public debt in developing countries is denominated in foreign currency and, as a consequence, a large devaluation can lead to a sudden jump in the debt-to-GDP ratio (for evidence along these lines see Campos, Jaimovich, and Panizza, 2006).[13]

Hence, a currency appreciation can jointly have a positive effect on fiscal sustainability and a negative effect on external sustainability. However, if this situation is associated with a rapid deterioration of the current account, the improvement in fiscal conditions will only be temporary. This is exactly the problem with the Lawson doctrine which may lead governments to ignore their external financial fragility which will eventually lead to a currency crisis and a fiscal crisis. However, this trade-off also implies that allowing for a currency devaluation in presence of foreign currency debt may lead to a debt crisis and possibly to a costly debt default. This is why some developing countries suffer from "fear of floating".

As a change in the composition of public debt and a switch to domestic borrowing can reduce these asymmetries and improve the trade-off discussed above, several developing countries are now retiring external public debt and substituting with domestically issued debt. According to some commentators and economists, this switch in debt composition will shiitch in-7.8(mmetries 3,

developing countries from future debt crises. While it is true that domestic debt tend to be safer

Tables 1 and 2 list the information we would like to have. However, the available data are much more restrictive.

The World Bank's Global Development Finance (GDF) dataset is the main source of data on external debt. There are three problems with this dataset: (i) It does not report information on the share of domestic currency debt; (ii) It does not contain any information on the composition of short-term debt; (iii) It has limited information on the net present value of debt. The first is not a big issue because few developing countries are issuing external debt denominated in domestic currency (even though the situation is changing) and for these countries with can use BIS data to estimate the domestic currency share. The second, however, is a major problem because it does not allow us to separate total external debt into public and private external debt. The third is also an important problems but we can address it by complementing GDF data with NPV data assembled by Dikhanov (2007).

We start by using GDF data to decompose external debt into four components:

$$PU = DD + LTPUPC + NPVOC \quad (5)$$

Our set of explanatory variables can be divided into two sub-groups. The first group includes various measures of debt level and composition. These variables, which are discussed in the previous section, are the focus of our analysis. The second group of variables includes nine macroeconomic and institutional variables that are likely to be correlated with the probability of a debt crisis.

one case is positive and statically significant). Credit growth has the expected positive sign and is statistically significant in 4 out of 8 regressions. Inflation has often the expected positive sign but it is never statistically significant and control of corruption has the expected negative sign but is never statistically significant. The fiscal balance has the expected negative sign and is statistically significant in 3 out of 8 regressions and the current account balance has the expected negative sign but is statistically significant only in 1 regression.

We are now ready to describe the effect of the debt variables. Column 1 looks at the impact of total external debt (measured as a share of GDP) and finds that this variable has a *negative* and marginally significant correlation with the probability of default. This indicates that total debt may be too broad of an indicator to capture the relationship between external debt and the probability of a default episode. Column 2 decomposes external debt into its short-term and long-term components and finds that both coefficients are negative but not statistically significant. In column 3, we find the first evidence of the importance of debt composition. We now find that short-term external debt and long-term private external debt have positive but not statistically significant coefficients (the coefficients are also of equal magnitude), that long-term public debt owed to official creditors has a negative and non-significant coefficient, and long-term public debt owed to private creditors has a positive and statistically significant coefficient. This is consistent with our hypothesis that borrowing from the market is riskier than borrowing from official lenders. Note that the bias introduced by reverse causality would go against finding such a result. In fact, in the period before a crisis, private creditors are likely to refuse to roll-over their loans (and thus they contribute to the crisis) and official creditors may step-in with emergency financing. This behavior should amplify the coefficient for official debt and shrink that for debt owed to private creditors.

In column 4, we check if debt composition can play a role in shielding countries from external financial shocks. In particular, we interact LTPUPC and NPVOC with an external financial shock (we use the demeaned level of the US interest rate). The interacted variables tell us whether the behavior of the US interest rate (a measure of global liquidity) affects different types of debt in a different way. We find that such external financial shock increases the relationship between the level of external debt and the probability of default for both LTPUPC and NPVOC. However, the impact on LTPUPC is seven times larger than that on NPVOC. This indicates that the relationship between default risk and debt with private creditors is much more sensitive to external shocks than the relationship between default risk and debt with official creditors.

The discussion of Section 3 suggests that external debt denominated in domestic currency is likely to be less risky than external debt denominated in foreign currency. To check whether the currency composition of LTPUPC affects the vulnerabilities arising from this type of debt we interact LTPUPC with a variable that takes value one for countries with low levels of original sin. These are a handful of countries which can borrow abroad in their own currency.[19] So, we now have two coefficients attached to LTPUPC:

$$_{1} \qquad _{2}(\quad * \quad)$$

non-interacted variable and hence $\beta_1 + \beta_2$ is close to zero, indicating that in countries with low levels of original sin there is no statistically significant correlation between LTPUPC and the probability of a debt crisis.

In column 6 we introduce domestic public debt (the sample becomes smaller because of the limited information of the level of domestic public debt). We find no significant correlation between domestic public debt and the probability of default and a negative and significant effect of external public debt owed to official creditors. All the other components of external debt (including private debt) are positively and significantly correlated with the probability of default and have coefficients of similar magnitude. One

Table 9 reports our random effects regressions. Column 1 shows that total debt (external plus domestic public debt) is significantly correlated with credit ratings. While the coefficient is statistically significant, the point estimate is rather low and indicates that doubling the debt to GDP ratio would lead to a 0.7 notches reduction in credit rating. Column 2 shows that the effect of long-term debt is positive and that of short-term debt is negative. This is a puzzling result which may be driven by endogeneity. Column 3 shows that external debt owed to private creditors has a negative effect on credit ratings, while other forms of long-term borrowing have no significant correlation with credit rating. The effect of PUPRC is large. The point estimate suggests that doubling this type of debt would lead to a 10-notches drop in credit ratings. We still find the puzzling result that larger short-term debt is significantly correlated with higher credit ratings. In column 4, we find no differential effect of the external financial shock, but in column 5, we still find that external debt is less risky in countries that can borrow abroad in their own currency. Column 6 shows that higher domestic debt is associated with lower credit ratings, but the coefficient attached to the domestic debt variable is about one third that of PUPRC. This suggests that public external debt with private creditors is three times riskier than domestic public debt. Columns 7 and 8 look at the effect of external shocks and original sin. While the interacted terms go in the right direction, they are never statistically significant.

Table 10 reports fixed effects regression. The results are basically identical to those obtained with the random effects regressions.

5 Conclusions

This paper argues that different types of debt can be ranked by risk and the risk ranking is more or less the following: (i) external public debt with private creditors in foreign currency; (ii) domestic public debt; (iii) external public debt with official creditors. With respect to private debt, the regressions do not yield a consistent message.

Although the increasing importance of domestic borrowing is often recognized, most debt sustainability analyses in both middle and low income countries concentrate on external debt. The standard justification for this approach is that external and domestic public debt have different default risk and hence cannot be simply added to each other to form a single indicator of total public debt. While much more work is needed to establish relative risk, estimates along the line suggested in this paper could be used to build an aggregated debt ratio which gives different weights to different types of debt. Such debt ratio, where "riskier" types of debt have a higher weight than safer types of debt, would be superior to the current practice of either assigning the same weight to all types of debt or of assigning a weight of one to all types of external debt and a weight of zero to all other types of debt.

Better information on debt structure and more research on vulnerabilities arising from different types of debt could help in designing such an indicator. This would, in turn, improve debt management and reduce the probability of debt crises through better tracking of debt risks. As the main obstacle to conducting such research is data availability, an international agreement aimed at providing better and comparable data on

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Table 1: Ideal classification of external debt

	Private sector debt	Public sector debt		
		Private Lenders	Official lenders	
			Concessional	Non-concessional
Domestic Currency Long-term	Bonds Bank loans	Bonds Bank loans	X	X
Domestic Currency Short-term	Bonds Bank loans	Bonds Bank loans		
Foreign Currency Long-term	Bonds Bank loans	Bonds Bank loans	X	X
Foreign Currency Short-term	Bonds Bank loans	Bonds Bank loans		

Table 2: Ideal classification of domestic public debt

Table 4: Probit Estimations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
led_y	-0.002							
	(1.95)*							

Table 5: Instrumental Variables Probit Estimations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
led_y	-0.035							
	(0.90)							
llt_y		-0.582						
		(1.79)*						
lst_y		0.614	0.706	3.273	0.606	15.183	48.633	16.450
		(0.92)	(0.52)	(1.83)*	(0.45)	(2.97)***	(2.25)**	(2.99)***
lpuprc_y			1.931	0.596	2.480	2.253	1.927	3.198
			(2.23)**	(0.55)	(2.64)***	(0.63)	(0.37)	(0.77)
lnpvoff_y			-0.063	-0.380	-0.065	-2.205	-2.345	-2.410
			(1.35)	(1.76)*	(1.46)	(2.32)**	(2.72)***	(2.40)**
lpriv_y			0.525	-0.056	0.404	-1.828	-3.791	-1.227
			(0.40)	(0.04)	(0.31)	(0.38)	(0.61)	(0.24)
ldomd_y						3.790	3.290	3.560
						(0.94)	(0.75)	(0.81)
losin_int1					-2.176			-3.334
					(1.25)			(0.55)
lnpvoff_yint				0.059			-0.360	
				(2.00)**			(1.09)	
lpuprc_yint				0.465			1.123	
				(2.41)**			(1.06)	
lgr	-1.367	-1.658	-1.125	-2.869	-1.040	-13.095	-6.534	-14.346
	(2.38)**	(2.90)***	(1.66)*	(2.80)***	(1.54)	(2.50)**	(0.94)	(2.55)**
lres	-5.862	-5.444	-5.446	-3.982	-5.408	-16.311	-15.720	-18.736
	(3.64)***	(3.39)***	(3.36)***	(2.26)**	(3.42)***	(3.01)***	(2.36)**	(3.15)***
lopen	0.003	0.002	-0.002	-0.001	-0.003	0.012	-0.028	0.011
	(1.26)	(0.77)	(0.58)	(0.23)	(0.89)	(0.84)	(1.06)	(0.68)
lunder	-0.093	-0.119	-0.134	-0.216	-0.173	-0.471	0.008	-0.586
	(0.47)	(0.59)	(0.62)	(0.88)	(0.75)	(0.80)	(0.01)	(0.89)
lcr	0.506	0.247	0.645	0.332	0.672	-1.871	-3.012	-2.349
	(1.14)	(0.54)	(1.25)	(0.63)	(1.29)	(0.80)	(0.99)	(0.92)
lbal	-1.572	-1.613	-0.904	-3.935	-0.742	-19.178	12.788	-23.292

Table 8: Probit Estimations, 3-year periods

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
led_y	-0.007							
	(2.00)**							
llt_y		-0.065						
		(1.39)						
lst_y		0.127	0.189	0.298	0.192	0.152	0.003	0.138
		(0.64)	(0.93)	(2.02)**	(0.94)	(3.04)***	(2.89)***	(3.15)***
lpuprc_y			0.388	0.111	0.432	0.091	0.001	0.086
			(3.26)***	(1.23)	(3.50)***	(2.81)***	(1.33)	(2.94)***
lnpvoff_y			-0.012	-0.024	-0.012	-0.002	-0.000	-0.001
			(1.73)*	(2.10)**	(1.73)*	(0.78)	(1.28)	(0.71)
lpriv_y			0.100	0.070	0.109	0.040	0.001	0.041
			(0.41)	(0.48)	(0.44)	(0.83)	(1.08)	(0.90)
ldomd_y						-0.099	-0.002	-0.095
						(3.67)***	(2.43)**	(3.38)***
losin_int1					-0.198			-0.035
					(1.00)			(0.96)
lnpvoff_yint				0.004			0.000	
				(2.20)**			(1.77)*	
lpuprc_yint				0.063			0.000	
				(2.74)***			(1.93)*	
lgr	-0.145	-0.181	-0.047	-0.114	-0.040	-0.003	-0.001	-0.003
	(1.08)	(1.29)	(0.41)	(1.48)	(0.36)	(0.14)	(1.19)	(0.15)
lres	-0.910	-0.895	-0.748	-0.335	-0.741	-0.247	-0.004	-0.222
	(2.12)**	(2.05)**	(1.76)*	(1.08)	(1.77)*	(2.68)***	(2.14)**	(2.71)***
lopen	0.001	0.001	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(1.72)*	(1.34)	(0.24)	(0.74)	(0.41)	(1.46)	(1.91)*	(1.63)
lunder	0.006	0.003	0.004	-0.000	0.003	-0.000	-0.000	-0.000
	(0.21)	(0.09)	(0.18)	(0.01)	(0.11)	(0.05)	(0.34)	(0.10)
lcr	0.047	0.013	0.064	0.006	0.066	0.012	-0.000	0.012
	(0.92)	(0.26)	(1.31)	(0.20)	(1.36)	(0.97)	(0.96)	(1.08)
lbal	0.610	0.670	0.622	0.385	0.609	-0.087	-0.000	-0.092
	(1.90)*	(1.86)*	(1.94)*	(1.52)	(1.87)*	(0.79)	(0.22)	(0.93)
lcabp	-0.005	-0.006	-0.003	-0.001	-0.003	0.000	0.000	0.000
	(1.60)	(2.22)**	(1.16)	(0.55)	(1.10)	(0.19)	(1.60)	(0.19)
linf	0.021	0.013	-0.030	-0.013	-0.037	-0.015	-0.000	-0.015
	(0.38)	(0.22)	(0.66)	(0.39)	(0.85)	(1.91)*	(0.84)	(2.06)**
lcorr	-0.027	-0.026	-0.030	-0.013	-0.029	-0.007	-0.000	-0.007
	(1.70)*	(1.71)*	(2.06)**	(1.34)	(2.08)**	(1.85)*	(1.10)	(1.99)**

Table 9: Credit ratings, random effects estimations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
led_y	0.675							
	(2.96)***							
llt_y		6.049						
		(6.91)***						
lst_y		-8.301	-7.802	-7.518	-7.574	-5.806	-5.331	-5.831
		(3.80)***	(3.59)***	(3.44)***	(3.49)***	(2.67)***	(2.42)**	(2.68)***
lpuprc_y			10.171	9.187	11.099	9.654	8.768	10.323
			(7.61)***	(6.52)***	(7.70)***	(6.79)***	(5.50)***	(6.45)***
lnpvoff_y			0.122	0.191	0.082	0.188	0.266	0.157
			(0.52)	(0.82)	(0.35)	(0.81)	(1.16)	(0.67)
lpriv_y			-1.463	-1.748	-1.735	-1.270	-1.528	-1.397
			(1.10)	(1.30)	(1.29)	(0.98)	(1.15)	(1.07)
ldomd_y						2.662	2.315	2.459
						(3.09)***	(2.64)***	(2.74)***
losin_int1					-5.195			-2.877
					(1.67)*			(0.87)
lnpvoff_yint				0.046			0.037	
				(1.06)			(0.86)	
lpuprc_yint				-0.293			-0.183	
				(1.14)			(0.65)	
lgr	-2.562	-2.084	-1.880	-2.031	-1.928	-1.543	-1.607	-1.568
	(3.46)***	(3.02)***	(2.78)***	(2.90)***	(2.86)***	(2.27)**	(2.27)**	(2.30)**
lres	-2.942	-2.936	-2.746	-3.345	-2.447	-3.865	-4.227	-3.627
	(2.05)**	(2.18)**	(2.03)**	(2.51)**	(1.80)*	(2.84)***	(3.19)***	(2.62)***
lopen	-0.010	-0.011	-0.000	-0.001	-0.002	-0.003	-0.003	-0.005
	(1.89)*	(2.05)**	(0.03)	(0.12)	(0.39)	(0.59)	(0.62)	(0.83)
lover	0.564	1.267	0.952	0.959	0.971	1.086	1.052	1.076
	(1.16)	(2.64)***	(2.03)**	(1.98)**	(2.08)**	(2.36)**	(2.20)**	(2.34)**
lcr	0.411	0.727	0.764	0.761	0.778	1.036	1.018	1.029
	(0.76)	(1.44)	(1.55)	(1.51)	(1.58)	(2.16)**	(2.06)**	(2.15)**
lbal	-20.434	-15.919	-15.101	-14.436	-14.944	-14.456	-14.268	-14.471
	(5.11)***	(4.19)***	(4.08)***	(3.75)***	(4.05)***	(3.93)***	(3.75)***	(3.94)***
lcabp	0.084	0.073	0.076	0.077	0.078	0.095	0.095	0.096
	(4.26)***	(3.87)***	(4.12)***	(4.09)***	(4.26)***	(5.18)***	(5.06)***	(5.22)***

Table 10: Credit ratings, fixed effects estimations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
led_y	0.819							
	(2.82)***							
llt_y		5.867						
		(5.88)***						
lst_y		-9.934	-8.197	-8.157	-7.938	-6.545	-6.653	-6.551
		(4.16)***	(3.54)***	(3.49)***	(3.43)***	(2.83)***	(2.81)***	(2.83)***
lpuprc_y			11.804	11.642	12.863	10.832	10.899	11.367
			(7.88)***	(7.53)***	(7.83)***	(6.77)***	(6.25)***	(6.14)***
lnpvoff_y			0.104	0.108	0.061	0.115	0.126	0.093
			(0.37)	(0.38)	(0.21)	(0.41)	(0.45)	(0.33)
lpriv_y			-1.439	-1.627	-1.773	-1.234	-1.302	-1.346
			(1.01)	(1.14)	(1.24)	(0.89)	(0.92)	(0.96)
ldomd_y						3.096	3.039	2.906
						(3.32)***	(3.18)***	(2.93)***
losin_int1					-5.533			-2.266
					(1.55)			(0.58)
lnpvoff_yint				0.041			0.024	
				(0.95)			(0.56)	
lpuprc_yint				-0.170			0.010	
				(0.66)			(0.04)	
lgr	-2.462	-2.131	-1.731	-1.786	-1.791	-1.497	-1.473	-1.517
	(3.32)***	(3.07)***	(2.56)**	(2.61)***	(2.66)***	(2.18)**	(2.12)**	(2.20)**
lres	-2.093	-2.389	-1.334	-1.546	-0.813	-2.970	-2.989	-2.717
	(1.20)	(1.46)	(0.85)	(0.97)	(0.50)	(1.88)*	(1.88)*	(1.66)*
lopen	-0.012	-0.011	0.002	0.002	-0.001	-0.002	-0.002	-0.004
	(1.85)*	(1.78)*	(0.33)	(0.37)	(0.16)	(0.34)	(0.31)	(0.55)
lover	0.434	1.211	1.100	1.134	1.119	1.242	1.216	1.226
	(0.88)	(2.44)**	(2.31)**	(2.34)**	(2.35)**	(2.61)***	(2.50)**	(2.57)**
lcr	0.385	0.682	0.724	0.736	0.715	1.028	1.045	1.011
	(0.70)	(1.31)	(1.45)	(1.47)	(1.44)	(2.09)**	(2.11)**	(2.05)**
lbal	-18.127	-14.581	-14.304	-13.732	-14.219	-14.027	-13.971	-14.071
	(4.42)***	(3.72)***	(3.81)***	(3.60)***	(3.79)***	(3.75)***	(3.69)***	(3.76)***
lcabp	0.089	0.075	0.071	0.072	0.073	0.091	0.091	0.091
	(4.39)***	(3.83)***	(3.80)***	(3.82)***	(3.92)***	(4.85)***	(4.84)***	(4.87)***
linf	1.814	1.980	1.161	1.050	1.070	1.010	0.918	0.973
	(2.66)***	(3.07)***	(1.82)*	(1.60)	(1.68)*	(1.63)	(1.43)	(1.56)
lcorr	0.181	0.115	0.101	0.098	0.121	0.168	0.156	0.171
	(1.56)	(1.05)	(0.96)	(0.91)	(1.14)	(1.61)	(1.45)	(1.63)
Observations	342	342	342	342	342	332	332	332
N. of countries	40	40	40	40	40	37	37	37

Robust z statistics in parentheses, standard errors clustered at the country level, * significan

Figure 1: Level and Composition of External Debt in Developing Countries