

# Domestic and External Public Debt in Developing Countries

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(Preliminary and unedited, comments welcome)

*The history of crisis modelling in international macroeconomics reveals that each successive wave of crises exposes possibilities for crisis that were overlooked in earlier analysis.*

P. Krugman, (2006, p. 26)

## 1. Introduction

Analysis of public debt in developing countries has traditionally focused on external debt. However, in recent years several countries adopted aggressive policies aimed at retiring public external debt (owed to both private and official creditors) and substituting it with domestically issued debt. This paper introduces a new dataset on domestic and external public debt, describes recent trends in the composition of public debt in developing countries, discusses the reasons for these trends, and identifies possible challenges and opportunities arising from the new debt management strategy adopted by several emerging and developing countries. The paper also raises conceptual and practical issues with the traditional external/domestic debt dichotomy.

Past research has focused on external debt for two reasons. First, while external borrowing can increase a country's access to resources, domestic borrowing only transfers resources within the country. Second, since central banks in developing countries cannot print the hard currency necessary to repay external debt, external borrowing is usually associated with vulnerabilities that may lead to debt crises.

In this paper, I point out that in the current environment of increasing financial integration and open capital accounts, the traditional distinction between external and domestic debt makes less sense.

Let us first consider the access to external resources argument. This would still apply if countries were able to track the residence of the ultimate holders of their bonded debt. However, most countries have no way of knowing who holds their debt. Hence, they classify as external debt all debt issued on the international market and classify as domestic debt all

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debt issued in the domestic market. Therefore, "external" debt data may be a poor proxy of the actual transfer of resources across countries.

The second argument for the standard dichotomy is even weaker. In countries with an open capital account, currency and maturity mismatches are the real source of vulnerabilities. Countries which, like the US, have a large stock of long-term domestic currency external debt are less vulnerable to financial crises than countries which have a large stock of foreign or short-term domestic debt.<sup>1</sup> Hence, it is not surprising that IMF (2006) finds that total public debt and external debt have the same effect on the probability of a debt distress event.

Debt composition matters, but we need to move well beyond the standard external/domestic debt decomposition. Excessive focus on the external/domestic decomposition may make us forget that the real source of vulnerabilities are maturity and currency mismatches and that the breakdown between domestic and external debt makes sense only if this breakdown is a good proxy for tracking these vulnerabilities.

The recent switch from external to domestic borrowing may just lead countries to trade one type of vulnerability for another. For instance, countries that are switching from external to domestic debt could be trading a currency mismatch for a maturity mismatch. Alternatively, the switch to domestic borrowing could lead to pressure on institutional investors and banks to absorb "too much" government debt and this may have a negative effect on financial stability. Moreover, expanding the market for domestic government bonds may have positive externalities for the domestic corporate bond market but there is also the risk that the public sector may crowd out private issuers. Finally, there are political economy reasons that may make domestic debt more difficult to restructure. In fact, a few highly indebted countries which were able to use debt relief initiatives to address their external debt problems are still burdened with high levels of domestic debt. It is also important to correctly evaluate the cost of borrowing in different currencies. In an environment in which several emerging currencies are expected to appreciate *vis a vis* the US dollar, the *ex post* interest rate in domestic currency may end up being higher than that in dollar.

Even with these caveats, I think that the recent trends will have a positive effect on reducing the probability of a debt crisis, and that policy-makers' interest in using safer forms of finance is a welcome development. However, the paper points out that we should not be too complacent and that the new structure of debt could also lead to new vulnerabilities. Safer debt instruments can help in reducing vulnerabilities and domestic and international policymakers can play a key role towards developing such instruments. However, developing

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<sup>1</sup> Compare, for instance, the current situation of the US with that of Mexico in 1994.

countries should not deceive themselves into thinking that by changing the structure of sovereign debt they will become like Japan.<sup>2</sup>

## 2. Getting the Data

Obtaining data on the composition of public debt in developing countries it is not an easy task. In fact, Jaimovich and Panizza (2006, henceforth JP) show that most datasets do not even have good information on the level of total public debt and IMF-World Bank (2004) claim that "the perception that domestic debt does not play an important role in low income countries may have been partly the result of weak data availability" (p. 31).

Recent attempts at collecting data on the composition of total public debt for various subsets of developing countries include Jeanne and Guscina (2006, henceforth JC), Cowan, Levy Yeyati, Panizza, and Sturzenegger (2006, henceforth CLYPS), Christensen (2005), IMF (2006), and Abbas (2007). JC and CLYPS have a similar (albeit, not identical) structure and report detailed data on debt levels and composition, focusing on both external and domestic debt. JG covers 19 emerging market countries and CLYPS covers 23 countries located in Latin America and the Caribbean. Both datasets aim at covering the 1980-2004 period but have missing information for some countries in the 1980s and early 1990s. Unlike JG and CLYPS, Christensen (2005) and IMF (2006) only cover domestic debt. The first dataset focuses on a sample of 27 Sub-Saharan Countries for the 1980-2000 period and the second on a sample of 66 low income countries for the 1998-2004 period. The one compiled by Abbas (2007) is by far the dataset with the largest coverage both in terms of number of countries and years (it covers 93 low income and emerging market countries for the 1975-2004 period).<sup>3</sup> One problem with this dataset is that it focuses on bank holdings of domestic debt and does not capture domestic public debt held by non-banking institutions and retail investors. Thus, Abbas' data may underestimate the total amount domestic debt and this problem is likely to be particularly serious in middle income and emerging market countries. This problem is amplified by the fact that even low income countries have been characterized by a decreasing importance of bank-holding of domestic debt. Arnone and Presbiterio (2006) collected data for 13 low income countries and found that in 1994 75 percent of domestic public debt issued by these countries was held by domestic banks, but that in 2003 bank holdings of public debt had decreased to 61 percent of total public debt (the figures are unweighted averages for the countries included in Table 1 of Arnone and Presbiterio, 2006).

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<sup>2</sup> Japan, is able to sustain enormous level of public debt while maintaining high credit ratings and paying low interest rates. The structure of Japanese public debt plays a role in determining this state of affairs, but several other factors are also at play (Broda and Weinstein, 2004).

<sup>3</sup> This dataset is also used in Abbas and Christensen (2007).

This paper introduces a new dataset on public debt which aims at capturing both the domestic and external component of public debt no matter who the holders are. In order to build the largest possible dataset, I did not rely on a single source but tried to make use of all publicly available sources. In particular, I started with the IMF International Financial Statistics and the World Banks' World Development Indicator and complemented these sources with several other national and international sources (including the CLYPS and ECLAC/ILPES databases, the World Bank's Global Development Finance database, IMF Article IV documents, and the web sites of several central banks and ministries of finance).<sup>4</sup> As a benchmark, I used data on central government debt, but when central government debt data were not available, I used data for the general government and the non-financial public sector. The dataset consists of an unbalanced panel of 2,004 observations covering up to 130 countries (Table 1 shows the coverage of the dataset by year and region).<sup>5</sup> In the remainder of this paper I will use a subset of the original dataset based on an *almost* balanced panel covering developing countries for the 1994-2006 period.

### 3. What is Domestic Debt?

So far, I referred to external and domestic debt without providing an accurate definition of the terms. There are three possible definitions of external (and thus, domestic) debt. The first focuses on the currency in which the debt is issued (with external debt defined as foreign currency debt). The second focuses on the residence of the creditor (external debt is debt owed to non-residents). The third focuses on the place of issuance and the legislation that regulates the debt contract (external debt is debt issued in foreign countries and under the jurisdiction of a foreign court).

The first definition does not seem appropriate because several countries issue foreign currency denominated debt in the domestic markets and have recently started to issue domestic currency denominated debt in international markets. Moreover, this definition is problematic for countries that adopt the currency of another country. Finally, a definition based on the currency composition of public debt would be hard to implement given the limited information on the currency composition of domestic debt.<sup>6</sup> This does not mean that

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<sup>4</sup> The dataset and a document detailing all the sources used in building the dataset are available upon request. The dataset used in this version of the paper is by far superior to the one used in previous versions of the paper which was obtained by subtracting GDF data on public and publicly guaranteed external debt from the JP data on total public debt (Panizza, 2007).

<sup>5</sup> Figures for 2006 and 2007 are either forecasts or preliminary values.

<sup>6</sup> Several authors use BIS data on domestic bonds (Table 16 of BIS security data) to estimate the share of government debt issued in domestic currency. However, while BIS documentation indicates that most of the bonded debt reported in Table 16 *should* be in domestic currency, personal conversation

countries should not report information on the currency composition of their external debt. In fact, such information is key for evaluating a country's vulnerability to currency mismatches and potential responses to a debt crisis. However, currency composition should not be confused with the definition of external debt.

The second definition is the one which is officially adopted by the main compilers of statistical information on public debt. The *External Debt Statistics: Guide for Compilers and Users* jointly published by the BIS, Eurostat, IMF, OECD, Paris Club, UNCTAD, and the World Bank states that: "Gross external debt, at any given time, is the outstanding amount of those actual current, and not contingent, liabilities that require payment(s) of principal and/or interest by the debtor at some point(s) in the future and that are owed to non-residents by residents of an economy." This definition makes sense from a theoretical point of view because it focuses on the transfer of resources between residents and non-residents, it allows to measure the amount of international risk sharing and the income effects of variations in the stock of debt, and to evaluate the political cost of a default on public debt. However, this definition is difficult to apply in the current environment where most external debt due to private creditors takes the form of bonds (things were easier when most external debt owed to private creditors was channeled through syndicated bank loans). Some countries try to identify the residence of whoever bought the bonds in the primary market and track what happens in the secondary market by running periodical surveys. However, few developing countries have the capability to identify the ultimate holders of their bonds.<sup>7</sup> Even those that try to do so cannot do anything for bonds held in offshore financial centers. As a consequence, most countries end up reporting figures for external and domestic debt by using information on the place of issuance and jurisdiction that regulates the debt contract. This is not a problem, *per se* (in fact, it is exactly what I suggest below), the problem is that the information is misleading because it does not measure what it promises to do (i.e., transfer of resources from non-residents to residents).<sup>8</sup> For all these reasons, the current convention leads to a situation in which the data are not homogenous across countries. A few countries are able to track ownership and hence their classification of domestic debt matches what they claim to be doing (ie classify external debt according residence) but the majority of countries claim to

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with BIS statisticians revealed that BIS has no way of verifying whether this is indeed domestic currency debt. Another problems with BIS data is that they only cover 15 developing countries.

<sup>7</sup> IMF staff members tried to estimate the participation of nonresident in the domestic capital markets of emerging market countries and found it that it was often impossible to obtain data (see IMF 2006, 95-96).

<sup>8</sup> IMF (2006, 2007) reports that while debt sustainability analysis exercises claim to use an external debt definition based on the residency of the ultimate holder, for the majority of countries there is no information on the residency of the ultimate holders and hence external debt is set to be equal to debt issued in the international market.

classify debt according to residence but are actually classifying debt using the place of issuance.<sup>9</sup>

This discussion would be irrelevant if there were a close match between the place of issuance and the residency of the ultimate holder, as it used to be the case in the past. However, there is anecdotal evidence that more and more international investors are entering the domestic markets of developing countries and that domestic investors often hold bonds issued in international market. For instance, a large share of domestic long-term debt issued by the Mexican government is held by US investors and, at the time of the Argentinean debt default, a significant share of Argentinean “external” bonds were held by residents.

As a consequence, I tend to prefer the third definition which classifies as external all debt issued under foreign law (this is the definition used in CLYPS). While I am aware that the second definition is the one which is theoretically correct, a definition based on jurisdiction is feasible and does not give misleading information on who the supposed holders of a country's debt are. Take for instance the definitions of external and domestic debt used in this paper. As I mostly use official data, external debt should refer to debt owed to non-residents. However, since several countries cannot track the ultimate holders of their bonded debt, the external debt data reported in official statistics end up measuring debt issued on the international market and not debt owed to non-resident. This is a significant source of confusion. For instance, some of the trends documented in the next section are associated with a switch in the place of issuance, but we are not sure whether they are also associated with a change in the residence of the holders.

#### *External debt and vulnerabilities*

In an environment characterized by open capital accounts and by the presence of foreign investors who buy domestically issued debt and domestic investors who buy debt issued in the international market, the old external/domestic debt dichotomy does not make much sense. Legislation, residence and type of holders, currency, and maturity are all characteristics which are associated with the risks of sovereign finance and the ideal dataset should report information for all these characterises of public debt (see Figure 1 for a description of the ideal dataset, Arnone and Presbitero, 2006, discuss similar issues). Jurisdiction, for instance, is important in case of a debt default. Knowing who holds the debt is important for assessing whether debt flows involve a net of transfer of external resources across countries and assess

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<sup>9</sup> Interestingly, sometimes there are even differences within countries. For instance, until recently the Venezuelan Ministry of Finance classified debt according to the place of issuance and the Venezuelan Central Bank classified debt according to the residence of the holders.

whether holders are likely to be subject to panic attack and lead to runs on a country's public debt. The currency of denomination is important for determining the risk of currency mismatches, and maturity is important for determining rollover and interest rate risk. Yet, excessive focus on the external/domestic breakdown led to a situation in which the maturity and currency composition of domestically issued debt is not usually included among the vulnerability indicators used to predict financial crises.<sup>10</sup> The Mexican crisis of 1994/1995 is a good illustration of the dangers of different types of debt and of the importance of the structure of domestic debt:

At the beginning of 1994, Mexico had basically no domestic debt in foreign currency, but it had about 60 percent of its domestic debt denominated in short-term peso notes (called CETES). During the year, pre-electoral political turmoil, amplified by the assassination of presidential candidate Colosio and an insurgency in the state of Chiapas, led to expectations of a currency devaluation and a surge in the CETES interest rate (which, given their short maturity needed to be rolled-over during the year). In fact, in the month of the Colosio assassination, the rate on CETES jumped from 10 to 16 percent. Deeming a devaluation unlikely to become necessary, Mexican authorities decided to substitute CETES with dollar denominated Tesobonos. The result was a significant leveraging of the risks, if the exchange regime survived the attack, the cost of defending the peg would have been much lower, but if a devaluation became unavoidable (as it happened) the government losses would be much higher. With the benefits of hindsight, this was probably a bad decision, but the alternatives (either pay a high real interest rate or accommodate the inflationary expectations by abandoning the peg) were extremely costly from both a political and economic perspective. These alternatives were determined in no small degree by the presence of short-term domestic debt denominated in domestic currency and by the fact that the Mexican authorities knew well that the arithmetic of diluting short-term debt with inflation can be unforgiving as the path into high inflation can be gradual, unplanned, and hard to reverse.

Borensztein, Levy Yeyati, and Panizza (2006) page XX

Hence, countries that can provide information on who the holders are should do so and should also publish information on debt composition and structure. However, as some of these data are difficult to obtain, it would be better to start from what we can measure and then work towards the ideal dataset. Only by having a clear idea on what countries can and cannot report we will be able to have accurate and comparable information on the structure of public debt.

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<sup>10</sup> This may make sense for a country with a closed capital account, but does not make much sense in countries with open capital accounts. Consider, for instance, the standard external debt-to-export indicator (where external debt means debt owed to non-resident, assuming that we can obtain the information). The rationale for using this indicator is that exports provide the hard currency necessary to pay the external debt and hence a high debt-to-export ratio is a signal of vulnerability. In a country with a closed capital account the authorities can decide how much hard currency can leave the country and hence the indicator makes sense. In countries with domestic debt denominated in foreign currency and open capital accounts, resident who are owed the hard currency can decide to take the currency out of the country (or just hoard it under the mattress) and hence cause a scarcity of foreign currency. So, the ideal ratio would be foreign currency debt to exports. In fact, even this ratio is not appropriate, as not all exports revenues are appropriable by the government that needs to pay the debt. The presence of short-term (even in domestic currency) could generate similar problems.

#### 4. Trends

Domestic public debt is not a new phenomenon for developing countries. Guidotti and Kumar (1991) study the case of 15 emerging market countries and show that their domestic public debt-to-GDP ratio went from 10 percent in 1981 to 16 percent in 1988. They also point out that, while the ratio of domestic debt to total public debt remained more or less constant over the period (at about 30 percent), there were important differences in the process that led to the accumulation of domestic and external debt. The increase in domestic debt was mainly due to new borrowing and that of external debt was due to accumulation of arrears. This suggests that if emerging market countries had not been shut down from the international capital market, they would have probably accumulated more external and less domestic debt. This view is consistent with the one put forward by Borensztein, Cowan, Eichengreen and Panizza (2007), who find that crises play a key role for the development of the domestic bond market.

Christensen (2005) shows that also low income countries have a tradition of domestic borrowing (in his sample of Sub-Saharan African countries, domestic public debt was about 10 percent of GDP in 1980). Most of domestic debt issued by low income Sub-Saharan African countries is held by commercial banks and has short maturity (average maturity is ten months and the majority of bonds have a 3-month maturity). In a study of 17 West African countries, Beaugrand, Loko and Mlachila (2002) found that most medium term debt was not issued at market conditions and consisted of securitization of arrears. However, they found that Mali, Benin and Senegal did place some medium term bonds at market rates. Abbas (2007) and Abbas and Christensen (2007) show that bank-holdings of domestic public debt in low income countries were about 5.5 percent of GDP in the 1975-85 period and increased to 8.4 percent of GDP in the 1996-2004 period. The increase was particularly large in emerging market countries, where bank-holdings of public debt went from 7.8 to 14.3 percent of GDP.

As in the case of emerging market countries, also in low income countries external factors are among the main drivers of the accumulation of domestic public debt which, somewhat paradoxically, can be driven by either too little foreign aid or too much foreign aid.<sup>11</sup> Countries that run a budget deficit which is not fully matched by donor flows often issue domestic debt because the standard policy advice of the international financial institutions is to limit external borrowing at commercial rate. In fact, for countries that have an IMF program, there are explicit limits on external borrowing at commercial rate.<sup>12</sup>

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<sup>11</sup> Of course, debt relief is a key determinant of the *composition* of public debt and beneficiaries of debt relief will observe a sudden jump in their domestic debt ratios.

<sup>12</sup> The objective of these limits is to contain domestic demand and external vulnerability. Usually, these limits allow for external borrowing at a concessionality of at least 35 percent but sometimes allow commercial rate borrowing and sometimes require higher degree of concessionality.

Build ups of domestic debt driven by excessive foreign aid are also possible and frequent. In order to understand how this can happen, it is useful to classify what a country can do with aid flows. It can: (i) Absorb and spend the aid flows; (ii) Not absorb and not spend the aid flows; (iii) Absorb but not spend; and (iv) Spend and not absorb.<sup>13</sup> In the first case, the government spends all the aid flows by buying either foreign or domestic good. This results in no net accumulation of assets or liabilities and often leads to an appreciation of the real exchange rate. In the second case, all aid is transformed into international reserves. This contributes to reserve build up and increases the net wealth of the beneficiary country but has no other effect on the economy. In fact, if one excludes the reserve build up, this strategy is equivalent to not receiving aid. In the third case, the government uses the aid flows to reduce its deficit without changing its expenditure and hence reduces its public debt. In the fourth case, the government widens its budget deficit but does not use the external aid flows (that remain locked in the central banks in form of international reserves). This is equivalent to a fiscal expansion in absence of aid and may be driven by the government's decision of sterilizing aid inflows. A government that decides to spend and not absorb can either print money or issue domestic debt. It is in this sense that aid can translate into an increase of domestic debt. While this latter policy may look like an odd choice, case studies show that this is not an infrequent strategy among countries that are attempting to avoid an appreciation of the real exchange rate (Aiyar, Berg, and Hussain, 2005).

The above discussion suggests that, traditionally, developing countries used the domestic debt market only when they did not have access to external resources (or to sterilize aid flows). What is new in the current situation is that the increase in domestic financing (both in relative and absolute terms) is happening in a period during which most emerging market countries do have access to the international capital market. The top panel of Table 2 shows that over the 1994-2005 period domestic public debt increased slightly going from 19 to 23 percent of developing countries' GDP. This happened while average debt levels were decreasing (going from 75 to 64 percent of developing countries' GDP). As a consequence, the share of domestic debt over total public debt went from 30 to 40 percent. The bottom panel of Table 2 reports weighted averages and shows that the switch to domestic borrowing is even more important in larger countries. In this case, the domestic debt-to-GDP ratio went from 22 to 27 percent, and the share of domestic debt over total debt went from 48 to 69 percent. Some emerging market countries have been particularly aggressive in retiring external debt. In Mexico, for instance, the share of domestic debt went from 60 percent of

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<sup>13</sup> Absorption refers to a widening of the current account deficit net of the aid flows (i.e., an increase in imports not matched by an increase in exports). Hence, absorption measures how much of the aid flows translate into a real transfer of external resources. Spending refers to a widening of the public deficit (i.e., an increase in government expenditure not matched by an increase in taxes). The discussion in this paragraph draws heavily from Aiyar, Berg, and Hussain (2005).

total public debt in 2004 to 73 percent of public debt in 2007. In Brazil, the public sector substituted its net external debt with net external assets equal to approximately 3 percent of GDP.

Figure 2 plots the evolution of public debt in the developing world and shows a net decrease in total debt which is mostly driven by lower external debt. Figure 3 shows the evolution of the simple average of the share of domestic debt over total debt in 6 regions. The share of domestic debt increased in most regions of the world. Only in Sub-Saharan Africa the share of domestic debt decreased slightly over 1999-2005, but also in this region domestic debt went from 25 percent of total public debt in 1994 to 30 percent of total public debt in 2005. Figure 4 uses weighted averages and also shows a net increase in the share of domestic debt. Again, the only region where domestic debt has become less important is Sub-Saharan Africa. It is interesting to note, however, that when we use weighted averages, we find that Sub-Saharan Africa has a high level of domestic debt (second only to East Asia). This is due to the fact that the largest economy in the region (South Africa) has a large market for domestic debt.

## 5. Trade-Offs

The international capital market can provide large amount of funds and developing countries have used external public borrowing to supplement scarce domestic savings and thus finance public deficits without crowding out lending to the private sector or recurring to inflationary finance.<sup>14</sup> Moreover, in developing countries where private firms do not have access to the international capital market the state often plays the role of financial intermediary by either guaranteeing private external debt or by borrowing abroad and then use the external resources to lend domestically to the private sector.

However, the supply of external funds tends to be volatile, procyclical, and subject to Sudden Stops (Calvo, 2005). Moreover, large industrial countries can borrow abroad in their own currency, but most international borrowing by emerging and developing countries is in foreign currency (a phenomenon that Barry Eichengreen and Ricardo Hausmann have called "original sin"). The presence of foreign currency debt, together with the volatility of the real exchange rate that characterizes most developing countries (Hausmann Panizza and Rigobon, 2006), increases the volatility of GDP growth and capital flows (Eichengreen Hausmann and Panizza, 2005a) and the risk of sudden debt explosions (Campos, Jaimovich and Panizza, 2006).

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<sup>14</sup> External borrowing could lead to real appreciation and cause a different type of crowding out (that of the export sector).  
however, large inflows could lead to real appreciation and crowd out exports

The devastating financial crises that hit several emerging market countries in the second half of the 1990s made policymakers well aware of these risks and there is now widespread belief that issuing in the domestic market reduces the risks of sovereign finance. There is some truth in this view. Domestically issued debt has often the advantage of being denominated in the domestic currency and hence may reduce currency mismatches (but note, what it matters is the currency in which the debt is denominated and not whether the debt is domestic or external) and may count on a more stable investor base. As a consequence, policymakers who are trying to reduce the risk of sovereign finance by limiting excessive foreign borrowing and by developing the required infrastructure and institutional set up for a well working domestic debt market should be applauded and encouraged.

The purpose of this section is to highlight that, although the debt management strategy adopted by several developing countries may play a useful role in reducing the risks of sovereign finance, the switch to domestic borrowing could entail important trade-offs and policy-makers should not be too complacent. In deciding the optimal structure of public debt, debt managers should consider the trade-offs between the cost and risk of alternative forms of financing and the role of possible externalities.

#### *A. Risk*

Broadly speaking, long-term domestic currency debt reduces maturity and currency mismatches and hence tends to be safer (from the borrower point of view) than short-term foreign currency debt. This is important for the choice between external and domestic borrowing because most developing countries are unable to issue domestic currency debt (either short or long-term) in the international market (Eichengreen, Hausmann and Panizza, 2005a). However, while most emerging market countries do issue domestic currency bonds in their own market, few of them are able to issue long-term domestic debt at a reasonable interest rate, those that cannot may face a trade-off between a maturity and a currency mismatch.

It is not clear what types of policies are necessary to escape this potential trade-off. While most analysts agree that a recent history of low inflation and macroeconomic stability is key for a country's ability to issue domestic long dated bonds in its own currency (Hausmann and Panizza, 2003, Mehl and Reynaud, 2005, and Jeanne and Guscina, 2006), there is less agreement on the potential role of other policy variables including the presence of capital controls, the role of domestic institutional investors, and the participation of foreign investors on the domestic market.

While Hausmann and Panizza (2003) suggest that the presence of capital controls is positively associated with a country's ability to issue domestic long dated bonds in its own

currency, Mehl and Reynaud (2005) find that this result is not robust to using a larger sample of countries. The behaviour of individual countries also yield mixed signals. The presence of capital controls has been a key factor for India's ability to finance large budget deficits by issuing long dated bonds in domestic currency (in 2006 the average maturity of Indian domestic government bonds was 16.9 years, Gopinath, 2006). However, Mexico recently issued domestic currency bonds with 20-year maturity without needing any sort of capital controls. The difference is that the majority of Indian government bonds are bought by domestic investors (mainly banks) and most of Mexico's long dated bonds are bought by foreign investors (Castellanos and Martinez, 2006) who are desperately looking for yield in an environment characterized by low interested rates and vast liquidity. It remains to be seen if international demand for long-dated Mexican bonds will remain when global liquidity will be less abundant.

Size matters for bond market development (Borensztein, Cowan, Eichengreen, and Panizza, 2007) and policies aimed at expanding market size include broadening the investor base by promoting the growth of institutional investors and encouraging foreign investors' participation in the domestic market. In 2005, pension funds, mutual funds and insurance companies held one third of central government debt in emerging market countries (Borensztein, Levy Yeyati and Panizza, 2006). Thus, it is not surprising that the presence of large institutional investors is positively associated with the development of the domestic bond market (Borensztein, Cowan, Eichengreen, and Panizza, 2007).<sup>15</sup> However, institutional investors could become victims of their own success and be treated by as captive investors by financially constrained governments. This suggests that the presence of large institutional investors could be a mixed blessing. Consider, for instance, the case of a government with sound fiscal fundamentals which is subject to liquidity shortages driven by herd behaviour of poorly informed investors with short-term objectives. In this case, the presence of better informed institutional investors with a long-term investment horizon can increase financial stability and help the government survive the confidence crisis. Consider instead a government that is following unsustainable policies. In this case, the presence of institutional investors which are willing (or are forced) to absorb an increasing amount of government debt could amplify the eventual debt crisis.

Domestic banks often hold a large amount of government debt. In the case of India, for instance, more than 50 percent of government bonds are held by local banks (Gopinath, 2007), in HIPC countries domestic banks holding of government debt average 61 percent of total domestic debt and range between 33 (Bolivia) and 94 (Ethiopia) percent of the total

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<sup>15</sup> As several institutional investors (especially pension funds) tend to adopt buy and hold strategies, their presence is positively associated with the *size* of the bond market but not with the *liquidity* of the market (Galindo, Micco, and Panizza, 2006).

(Arnone and Presbitero, 2006). These large bank-holdings of public debt alter the effective maturity of government debt because, during banking crises, long-term government debt held by banks becomes *de facto* overnight debt.<sup>16</sup>

Policies aimed at promoting the entry of foreign investors in the domestic market are also controversial. Supporters argue that the presence of foreign investors can help in expanding market size and, by increasing the net flows of external resources into the country, limit crowding out. In this sense having a large presence of foreign investors in the domestic market is equivalent to being able to issue domestic currency debt in the international market. However, policies aimed at promoting the presence of foreign investors may result in a loss of policy space. For instance, such policies are often incompatible with the presence of capital controls and with a country's ability to manage its exchange rate. Moreover, policies aimed at attracting foreign investors may result in sudden inflows of "hot money" and thus lead to high capital flow volatility and financial instability. There is also disagreement on what policies should be implemented to promote the participation of foreign investors in the domestic market (Ito and Park, 2004, discuss possible options for East Asia and Eichengreen, Borensztein and Panizza, 2006, compare East Asia with Latin America).

#### B. Cost

In low income countries there is no trade-off between issuing safer and cheaper debt. In this group of countries, external debt tends to have concessional rates and long-maturity. Hence, even if external borrowing carries a potential currency mismatch, it tends to be cheaper (both *ex-ante* and *ex-post*) than domestic borrowing.<sup>17</sup> For instance, in the sample of 65 low income countries studied by IMF (2006) domestic debt is approximately 21 percent of total debt but it absorbs 42 percent of the total interested bill.<sup>18</sup> Given its long-term nature concessional external debt is also likely to be safer (from the borrower point of view) than domestic debt which often has short maturity and is subject to rollover risk. In fact, UNCTAD (2002) suggests that in Africa increasing reliance on domestically issued bonded debt had a

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<sup>16</sup> Thanks to Guillermo Calvo for suggesting this point.

<sup>17</sup>Beaugrand, Loko and Mlachila (2002) study the case of Central and West African countries and show that external debt at a concessional rate is preferable to issuing domestic debt at market rates even in presence of a high probability of a large devaluation. Of course, this does not mean that the practices of the main providers of concessional debt could not be improved and risk further reduced. For a proposal in this direction see Hausmann and Rigobon (2003).

<sup>18</sup> There is, however, a large variance and in some countries real rates on domestic debt are negative. The presence of negative real rates has decreased (but not disappeared) with financial liberalization (Dohdia, 2006). Guidotti and Kumar (1991) ask why investors would be willing to hold assets that pay a negative real return and conclude that this may be due to the fact that domestic bonds provide a liquidity service and are considered senior with respect to foreign debt.

negative effect on both interests cost and financial stability (see Khan, 2005, and Abbas, 2005, for dissenting views).

In emerging market countries trade-offs are more complicate to evaluate. One first question relates to whether there is a difference between issuing a bond in the international market and issuing a similar bond in the domestic market. Borensztein, Levy Yeyati, and Panizza (2006) study the cases of Argentina, Brazil and Colombia and find that bonds issued in the international market tend to be cheaper than similar bonds issued on the domestic market. While one would be tempted to claim that countries could reduce their funding cost without altering their risk profile by issuing more bonds in the international market, it is not clear whether this is a feasible strategy. Some countries may not be able to issue domestic currency denominated bonds in the international market (this is the "original sin" problem, Eichengreen and Hausmann, 1999) and, even those countries that are able to issue some domestic currency denominated bonds in the international market may not be able to issue a large amount of these bonds. Moreover, if the marked does expand, the difference in cost may disappear once these bonds lose their "exotic" status.<sup>19</sup>

What about the cost of issuing safer debt by holding constant the jurisdiction where bonds are issued? Even if there is a currency-maturity trade-off, countries may be able to issue long-dated domestic currency debt as long as they are willing to pay the price that the market requires for such bonds. The problem is that this price may not correctly reflect inflation or devaluation expectations and hence be "too high" (see Borensztein, Levy Yeyati, and Panizza, 2006, for a discussion of why this may happen). Countries may thus be better off issuing cheaper foreign currency debt which may also help in establishing credibility and anchoring inflationary expectations (Calvo, 1988).<sup>20</sup> However, if lack of credibility is the only obstacle to issuing long-dated domestic currency debt, domestic currency inflation indexed debt dominates foreign currency debt in terms of reducing currency mismatches and dominates nominal domestic currency debt in terms of cost.

Countries should not avoid issuing long-term domestic currency debt only because this type of debt is more expensive than other forms of financing. In fact, there are cases in which the insurance and market creation benefits associated with issuing "safer" debt are well worth the price. In theory, policymakers faced with a menu of financing options should evaluate how much they are willing to pay for safer forms of financing and, if the price is right, go ahead and issue debt denominated in domestic currency or other forms of debt with

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<sup>19</sup> Of course, this cost advantage may also increase due to larger market size and higher liquidity. The point is that we do not know.

<sup>20</sup> Short-term and foreign currency debt can help if credibility is the problem. However, in presence of bad fundamentals, indexation may make the problem worse by requiring higher inflation for a given level of dilution (Guidotti and Kumar, 1991).

an imbedded insurance component (for instance, GDP indexed debt, see Borensztein and Mauro, 2004). However, politicians may have incentives to underinsure for at least two reasons. First, myopic politicians with short-term objectives may be unwilling to pay a premium for an insurance that will benefit their successors. Second, even well intentioned politicians may find it politically difficult to pay an insurance premium during good times as this may not be considered a "standard practice".

Caballero and Cowan (2006) use the standard practice arguments to explain why some emerging market countries are now issuing domestic currency denominated debt but not using more efficient forms of insurance. Conventional wisdom suggests that emerging market countries can now sell domestic currency debt to foreign investors because these investors expect an appreciation of the local currency against the dollar. However, Caballero and Cowan (2006) point out that this view is only justified if lenders expect a larger appreciation than borrowers, and it is not clear why this should be the case. As an alternative explanation, they suggest that domestic currency borrowing is now *en vogue* because the expected appreciation allows prudent policymakers to hide the implicit insurance premium embedded in domestic currency borrowing.

### C. *Externalities*

The government is a big player and the presence of a large and liquid market for government bonds can promote the development of the corporate bond market by building the required minimum size, supplying a benchmark yield curve, and providing the necessary trading infrastructure.<sup>21</sup> Moreover, the availability of a well-working market for domestic debt can provide domestic savers with an alternative to investing abroad and thus reduce capital flight and can convince domestic agents to bring their savings back into the formal financial system generating large benefits in terms of financial depth and reduction of the black economy (Abbas and Christensen, 2007).

However, in presence of limited demand for bonded instruments, market creation can become crowding out and excessive reliance on domestic government bonds can stunt the market for corporate bonds. Attempts at testing whether market creation dominates crowding out have yielded mixed results. Eichengreen and Leungnaruemitchai (2004) find no significant correlation between the size of the domestic government bond market and the size of the domestic private bond market and argue that the benefits in terms of market creation balance the costs in terms of crowding out. Eichengreen, Borensztein, and Panizza (2006) use

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<sup>21</sup> Externalities are also at work for debt issued on the international market. For instance, the Chilean government issued international bonds in order to create a benchmark for Chilean corporations interested in issuing bonds in the international market (Braun and Briones, 2007).

bond-level data for 16 emerging market countries and find that the share of public debt which is financed with domestic bonds has a positive effect on the size of the corporate bond market. They also find that a larger government bond market is correlated with longer maturity and lower spreads of corporate bonds. The papers collected in Borensztein, Cowan, Eichengreen and Panizza (2007) contain various surveys aimed at testing whether institutional investors value the benefits of a larger government bond market and find that investors in all six countries studied in the volume agreed that having a yield curve is a necessary for pricing corporate bonds. Moreover, investors in Chile, Colombia, Mexico, and Uruguay felt that a large stock of public debt is beneficial for the development of the corporate bond market, but Brazilian investors did not agree with this statement. Finally, only Uruguayan and Mexican investors reported that there is direct crowding out and that government and corporate bonds compete in the portfolio of institutional investors. Abbas and Christensen (2007) survey the macroeconomic literature and also find that the evidence on crowding out effects is mixed.

Externalities may go beyond market size. For instance, extending the maturity of government debt may have a market creation effect and can help corporations to issue longer dated debt. However, this policy may also increase the government's incentives to dilute its debt and, by increasing inflationary expectations, have a negative effect on the maturity of corporate debt. In the six countries studied by Borensztein, Cowan, Eichengreen, and Panizza (2007) there is no clear patterns of spillovers from the composition public debt to that of private debt, but this is an area that requires more research.

There are also important interactions between domestically issued government debt and the functioning of the banking sector. Also here the effect can go either way. Most analysts suggest that fact that in emerging market countries banks are the main holders of government bonds is a source of vulnerability and is a signal that government debt crowds out credit to the private sector.<sup>22</sup> However, Kumhof and Tanner (2005) suggest that, rather than being a symptom of financial repression, these holding of public debt are largely voluntary and improve the working of the financial sector in countries characterized by poor institutional quality and lack of collateral. In some countries a liquid market for government bonds can foster financial sector development, lead to more competitive setting of interest rates, and improve the effectiveness of monetary policy.

Finally, debt composition has important implications for the cost of defaulting on debt obligations. The sovereign debt literature highlights two channels through which these costs may materialize: reputation and direct sanctions, but various empirical studies found that these costs of default tend to be fairly small (Borensztein and Panizza, 2006, provide a

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<sup>22</sup> Crowding out usually manifest itself through higher interest rates, but, can also lead to credit rationing (Stiglitz and Weiss, 1981) in environments in which interest rates are not market determined.

survey of this literature). Borensztein, Levy Yeyati, and Panizza (2006) argue that the reason why countries do repay their debt may have more to do with the domestic cost of default which, in turn, is positively correlated with the share of debt held by domestic investors.<sup>23</sup> As a consequence, domestic debt is much more difficult to restructure than external debt and several countries which successfully managed to reduce their external debt obligations (sometimes through debt relief) are still burdened by high levels of domestic debt.<sup>24</sup>

Abbas (2007) and Abbas and Christensen (2007) study the relationship between domestic public debt and economic growth and find a positive and non-linear relationship between these two variables. This finding suggests that, at moderate level of domestic public debt, the benefits of domestic borrowing dominate its costs.

## **6. Conclusions**

This paper suggests that the traditional dichotomy between external and domestic debt does not make much sense in a world characterized by open capital accounts and that, although the recent switch to domestic borrowing has important positive implications for debt management, policymakers should not be too complacent.

The choice of the optimal debt structure involves important trade-offs and, as weakness with the current system are often identified after a financial crisis starts to unravel (Krugman, 2006), policymakers should be aware of possible new vulnerabilities. Hence, crisis prevention requires detailed and prompt information on debt structure. Yet, most research and analysis focuses on external borrowing and prompt and detailed information on the level and composition of domestic public debt is often not available to policymakers and analysis. This situation is made even worse by the fact that standard debt sustainability analyses of public debt use a definition of "external" debt which does not reflect what is supposed to measure (see footnote xx for IMF's own admission of this problem). Hence, the commonly held view (which I also tend to subscribe) that external debt is going down may even be wrong. The fact is that we do not really know.

Donors can play a major role in helping developing countries to improve their capacity to record and disseminate information on the structure of total public debt. The creation of the DMFAS program of UNCTAD and the debt management program of the Commonwealth Secretariat were important steps in this direction, but more resources and continuous support are needed. It is also encouraging that the IMF is implementing technical

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<sup>23</sup> This is true for both the political and financial cost of a default. A default on domestic investors will carry a higher political cost than a default on foreign investors (who cannot vote politicians out of office). Given that banks are the main domestic holders of government debt issued by developing countries, a default on domestically held is likely to be associated with a banking crisis (Kumhof and Tanner, 2005).

<sup>24</sup> For a discussion of possible policies for restructuring domestic debt see Dohdia (2006). In the late 1990s Cape Verde implemented an interesting experiment with donor-funded domestic debt reduction.

cooperation pilot programs aimed at improving the collection of debt statistics in several countries (IMF, 2006).

Better data are necessary because debt sustainability analysis should focus on total debt and study the implication of debt structure. IMF (2006) reports that about two thirds of the recent joint IMF/WB debt sustainability analyses discuss vulnerabilities linked to total public debt and IMF (2003, 2007) states that debt sustainability analysis in both low and middle income countries should always include a module on total public debt. However, few of these exercises have data on the composition (maturity, currency, type of holders) of total public debt, and most of the policy conclusions are based on vulnerabilities arising from "external" debt. The standard justification for this approach (besides data availability) is that different types of debt have different default risk (for instance, domestic currency debt can be diluted with inflation) and hence external and domestic public debt cannot be simply added to each other to form a single indicator of total public debt. While it is true that simply summing external and domestic debt would be misleading, with better data it would be possible to build an aggregate debt ratio where "riskier" types of debt have a higher weight than safer type of debt. Of course, such an indicator would be an imperfect measure of the risk of total debt, but it would be superior to the current practice of assigning a weight of one to all types of external debt (independently from maturity, currency composition, and type of holder) and a weight of zero to all other types of debt. Better information on debt structure could help us in building such an indicator and at doing a better job at tracking the risks of sovereign borrowing.

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**Table 1: Coverage of the Public Debt Dataset**

YEAR	EAP	ECA	IND	LAC	MNA	SAS	SSA	Total
1990	10	2	28	23	5	7	20	95
1991	10	4	28	24	6	7	21	100
1992	11	7	28	25	6	7	21	105
1993	11	9	28	25	7	7	22	109
1994	11	11	28	25	7	7	24	113
1995	12	15	29	25	7	7	24	119
1996	13	16	28	26	7	7	25	122
1997	13	17	28	26	7	7	26	124
1998	14	21	27	26	7	7	28	130
1999	14	21	25	26	8	7	27	128
2000	13	22	23	26	9	7	27	127
2001	12	23	23	26	9	7	27	127
2002	12	23	19	26	9	7	26	122
2003	12	22	19	26	9	7	26	121
2004	12	21	19	26	9	7	25	119
2005	11	21	19	26	9	7	23	116
2006	9	19	13	22	6	4	7	80
2007	6	13	4	14	3	2	5	47
Total	206	287	416	443	130	118	404	2,004

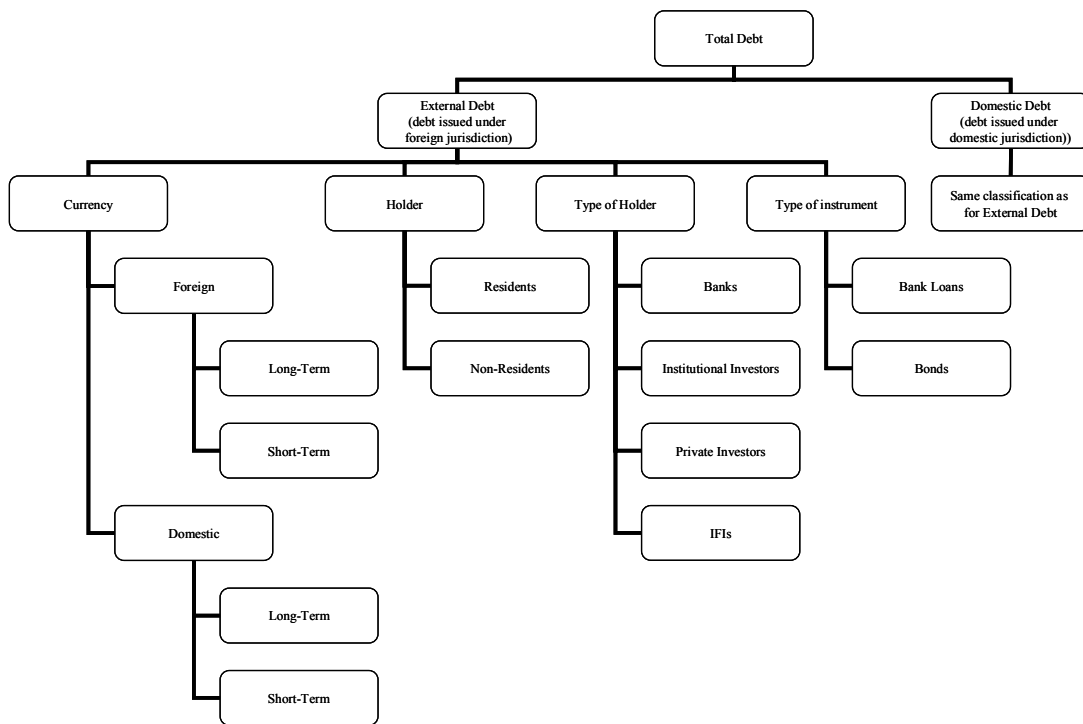
<sup>a</sup> Forecasts or preliminary estimates

**Table 2: Public Debt Composition in Developing Countries**

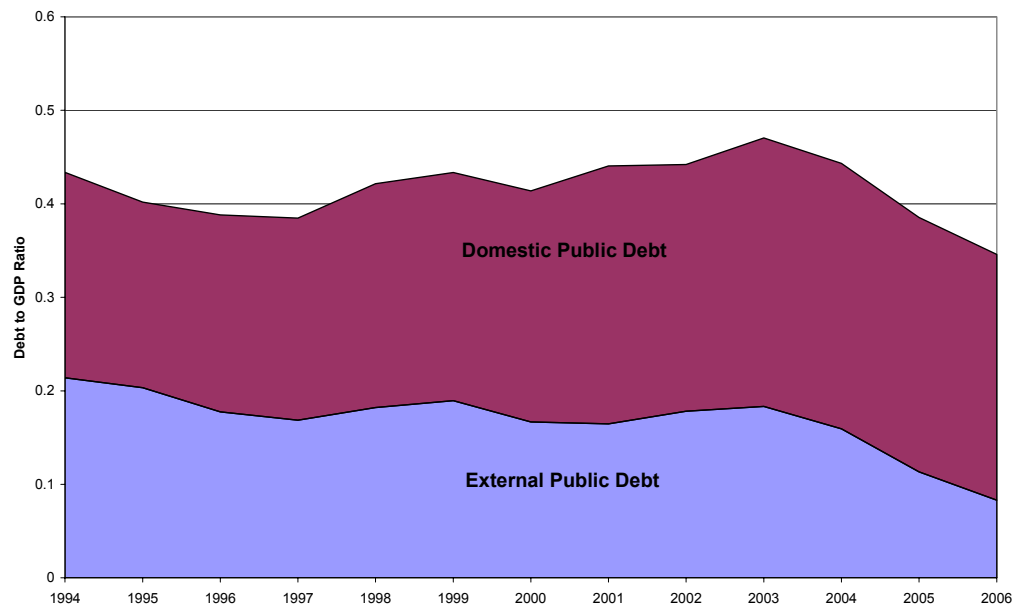
	1994				1999				2005			
	DD/Y	ED/Y	TD/Y	DD/TD	DD/Y	ED/Y	TD/Y	DD/TD	DD/Y	ED/Y	TD/Y	DD/TD
<b>Simple Average</b>												
EAP	0.13	0.46	0.58	0.30	0.13	0.43	0.55	0.34	0.15	0.35	0.50	0.38
ECA	0.17	0.28	0.46	0.35	0.15	0.32	0.47	0.36	0.17	0.19	0.36	0.43
LAC	0.14	0.58	0.72	0.24	0.17	0.39	0.56	0.33	0.23	0.39	0.62	0.40
MNA	0.42	0.49	0.91	0.45	0.36	0.42	0.78	0.43	0.40	0.34	0.73	0.56
SAS	0.25	0.35	0.60	0.41	0.26	0.34	0.59	0.42	0.31	0.33	0.64	0.47
SSA	0.20	0.84	1.05	0.25	0.33	0.78	1.12	0.32	0.25	0.67	0.92	0.30
Total	0.19	0.55	0.75	0.30	0.22	0.47	0.69	0.35	0.23	0.40	0.64	0.40
<b>Weighted Average</b>												
EAP	0.10	0.08	0.18	0.46	0.13	0.06	0.19	0.71	0.18	0.05	0.23	0.80
ECA	0.27	0.29	0.56	0.46	0.20	0.32	0.52	0.45	0.20	0.14	0.34	0.50
LAC	0.15	0.21	0.36	0.40	0.25	0.22	0.47	0.49	0.30	0.14	0.44	0.66
MNA	0.54	0.54	1.08	0.47	0.38	0.39	0.77	0.48	0.40	0.26	0.66	0.59
SAS	0.40	0.14	0.55	0.77	0.44	0.11	0.55	0.81	0.55	0.08	0.63	0.87
SSA	0.43	0.36	0.79	0.73	0.38	0.33	0.71	0.67	0.26	0.19	0.45	0.65
Total	0.22	0.21	0.43	0.48	0.24	0.19	0.43	0.59	0.27	0.11	0.39	0.69

The 1994 average covers 85 countries, the 1999 average covers 103 countries and the 2007 average covers 97 countries.

**Figure 1: Ideal Debt Classification**

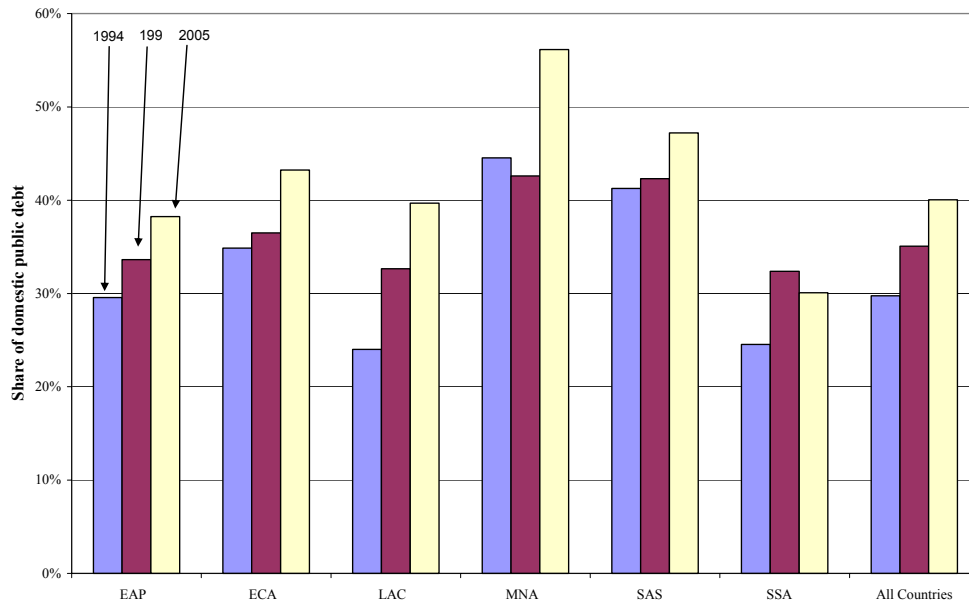


**Figure 2: Composition of public debt in developing countries**



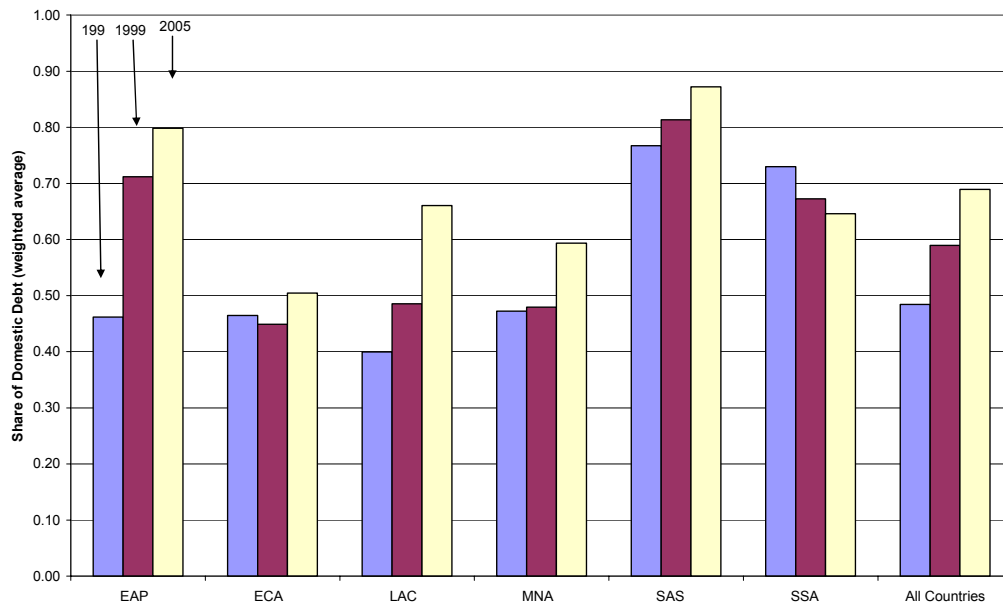
The number of countries included in the average ranges between 67 (2006) and 104 (2000-2001).

**Figure 3: Share of Domestic Public Debt over Total Public Debt (Simple Average)**



The 1994 average covers 85 countries, the 1999 average covers 103 countries and the 2007 average covers 97 countries

**Figure 4: Share of Domestic Public Debt over Total Public Debt (Weighted Average)**



The 1994 average covers 85 countries, the 1999 average covers 103 countries and the 2007 average covers 97 countries