

DESA Working Paper No. 61

ST/ESA/2007/DWP/61

November 2007

Debt Sustainability in Emerging Markets: A Critical Appraisal

Yilmaz Akyüz

Abstract

This paper critically assesses the standard IMF analytical framework for debt sustainability in emerging markets. It focuses on complementarities and trade-offs between fiscal and external sustainability, and interactions and feedbacks among policy and endogenous variables affecting debt ratios. It examines current fragilities in emerging markets and notes that domestic debt is of concern. Despite favourable conditions, many governments are unable to generate a large enough primary surplus to stabilize public debt ratios. Worsening global financial conditions may create difficulties for budgetary transfers, posing greater challenges to government debt management since restructuring often is more difficult for domestic than external debt.

JEL Classification: F34, H63 and H68

Keywords: debt sustainability, emerging markets, crisis

Yilmaz Akyüz was Director, Division on Globalization and Development Strategies, UNCTAD.

E-mail: yilmaz.akyuz@bluewin.ch

Comments should be addressed by email to the author.

Contents

Debt sustainability: Concept, analysis and limitations	1
Public debt and fiscal sustainability	1
External debt and sustainability	5
Public debt and deficits and balance-of-payments stability	6
The IMF approach to debt sustainability	9
The sustainability framework.....	9
Public debt and fiscal space	13
Capital flows, balance-of-payments and fiscal stability.....	15
Conclusions	19
References	21
Annex: Fiscal and External Sustainability.....	24

UN/DESA Working Papers are preliminary documents circulated in a limited number of copies and posted on the DESA website at <http://www.un.org/esa/desa/papers> to stimulate discussion and critical comment. The views and opinions expressed herein are those of the author and do not necessarily reflect those of the United Nations Secretariat. The designations and terminology employed may not conform to United Nations practice and do not imply the expression of any opinion whatsoever on the part of the Organization.

Editor: *Richard Kozul-Wright*
Typesetter: *Valerian Monteiro*

United Nations
Department of Economic and Social Affairs
2 United Nations Plaza, Room DC2-1428
New York, N.Y. 10017, USA
Tel: (1-212) 963-4761 • Fax: (1-212) 963-4444
e-mail: esa@un.org
<http://www.un.org/esa/desa/papers>

Debt Sustainability in Emerging Markets: A Critical Appraisal¹

Yilmaz Akyüz

Until recently, debt sustainability analyses in the Bretton Woods Institutions (BWIs) concentrated on low-income countries, primarily in the context of the HIPC initiative. The analysis has been confined largely to an external transfer problem because public debt in these countries is identified with external sovereign borrowing. Attention has turned increasingly towards debt sustainability in emerging market economies in the past few years after a series of crises, notably in Argentina. In these countries the identity between public and external debt does not hold because of the growing importance of public domestic debt and private external debt. On average, domestic debt now accounts for more than half of total public debt in emerging market economies while the share of the private sector in total external debt matches or exceeds that of the public sector in many countries. Thus public and external debt sustainability needs to be addressed as two separate, though interrelated, issues. The Fund has, in fact, developed a framework for this purpose, focussing on public sector solvency in the former respect and balance-of-payments stability in the latter (IMF 2002a, 2003a).

The framework applied by the BWIs for assessing the sustainability of low-income countries' external debt has been subject to an intense debate in the context of official debt initiatives in recent years. However, with few notable exceptions, much less attention has been paid to the adequacy of the standard framework used for the assessment of sustainability of public and external debt of emerging market economies.

This paper aims at contributing towards filling this gap. The following section examines the standard framework used in the analysis of fiscal and external sustainability in emerging market economies and discusses two key issues often left out; namely, linkages between fiscal and external sustainability including complementarities and possible trade-offs between the two, and interactions and feedbacks among policy and endogenous variables affecting the evolution of debt ratios. This is followed by a critical assessment of the IMF's approach to debt sustainability and its policy advice regarding public finances and balance-of-payments. The paper ends with a summary of the main conclusions.

Debt sustainability: Concept, analysis and limitations

Public debt and fiscal sustainability

The concept of fiscal sustainability draws on the idea that public debt cannot keep on growing relative to national income because this would require governments to constantly increase taxes and reduce spending on goods and services. The standard debt arithmetic, reproduced in the Annex, shows that the public debt ratio increases when the real effective interest rate on government debt exceeds the growth rate of GDP (that is, when the growth-adjusted real effective interest rate is positive) unless there is a sufficient amount of primary budget surplus, defined as the difference between government revenues including seigniorage and non-interest (primary) expenditures. The real effective interest rate varies positively with nominal interest rates

¹ An earlier version was presented in a workshop on Debt, Finance and Emerging Issues in Financial Integration, Commonwealth Secretariat, London, 6-7 March 2007. I am grateful to the participants of the workshop, especially to Valpy Fitzgerald, Ugo Panizza, Benu Schneider and Richard Kozul-Wright for comments and suggestions. The usual caveat applies.

on domestic and external debt and inversely with currency appreciations and the rate of inflation.² It is also influenced by the currency composition of debt except under conditions when real interest rates on domestic and external debt are equalized. However, this is quite unlikely since it would require the uncovered interest parity condition to hold.

A positive growth-adjusted real effective interest rate rules out Ponzi financing – that is, a process wherein interest on outstanding debt is paid with new debt since this would lead to debt explosion. On the other hand, when the growth rate exceeds the real effective interest rate, the public debt ratio could be stable or declining even when the primary budget is in deficit and debt is incurred not only to meet interest payments but also primary deficits.

According to economic theory, dynamic efficiency implies that the real interest rate should be greater than the growth rate and the difference should diminish as the economy matures.³ In practice, however, this does not always hold. For instance the evidence for the United States suggests that the “growth dividend” has historically covered the entire interest bill on Federal debt: the average growth rate over 1792-2003 exceeded the average real interest rate by around half a percentage points, and the margin has been greater since the First World War (Bohn 2005).

For emerging market economies the theoretical proposition should be expected to hold because of high time preference, substantial risk premium due to greater economic and political instability and high intermediation costs (Croce and Juan-Ramón 2003). In countries such as China, sustainable growth over the medium-to-long term may well be in excess of the cost of public borrowing, but for most this is unlikely to be the case. Even under extremely favourable global financial conditions of the past few years, including historically low interest rates, increased appetites for risk and accelerated growth, real interest rates in many emerging market economies, particularly the major debtors such as Brazil and Turkey, have been above the rate of growth, necessitating sizeable primary surpluses to stabilize the debt ratios. On the basis of medium-term trends, the average real interest rate on external borrowing can be expected to be no less than 6 per cent, which is certainly higher than the average trend growth rate in these countries.⁴ Real appreciations can keep the real effective interest rate below the growth rate for a while, but this is not a viable option over the longer term.

It is therefore reasonable to assume that on average growth-adjusted real interest rates would be positive for emerging market economies so that it would not be possible to rely on a “growth dividend” or Ponzi financing to sustain public debt. This is also recognized by the IMF (2003a: 8-9): “except where the country relies mainly on concessional borrowing, there are very few cases in which the projections assume that the growth rate of the economy will exceed effective real interest rate—even though historically it may have done so (especially on domestic debt where interest payments can be eroded by inflation).”

2 External debt is used in this paper for foreign-currency denominated debt, not for debt held by non-residents. The latter includes domestic currency debt issued both at home and abroad while foreign currency debt is also held by residents.

3 This comes from the Keynes-Ramsey rule that in an efficient dynamic setting consumption would grow at a constant rate equal to the difference between the real rate of interest on riskless debt and the pure rate of time preference- see Blanchard and Fischer (1989) and Barro and Sala-I-Martin (1995). With industrial maturity and increased economic welfare, the rate of time preference tends to fall and the difference between the real rate of interest and the growth rate should narrow.

4 Cline (2003: 10) reaches a 6 per cent real interest rate on external borrowing by assuming a real United States treasury rate of 3 per cent plus a spread of 300 basis points, and compares this with the average growth rate of 3.5 per cent for the middle-income countries during the 1990s.

In low income countries such as HIPCs where a very large proportion of public debt is owed to bilateral and multilateral lenders and contracted at highly concessional rates, the real effective interest rates are below potential growth so that Ponzi financing would not lead to a debt explosion relative to GDP except where primary fiscal deficits are very large. Furthermore, these countries also benefit from external transfers to the budget in the form of grants which can be used to pay interest on the existing stock of debt. It has been estimated that HIPCs can on average incur fiscal deficits equal to some 7 per cent of GDP without boosting the public debt/GDP ratio (Cline 2003). This figure would be lower when domestic debt is included since the latter generally carries much higher interest rates than external debt. According to an estimate for 27 Sub-Saharan African countries, domestic public debt amounts to some 15 per cent of GDP and is indeed more expensive (Christensen 2005). Even then the real effective interest rate on total public debt remains small compared with potential growth; even if domestic debt carries a real interest rate of 10 per cent, the effective rate on total public debt would be less than 2 per cent, assuming that the share of domestic debt is 15 per cent and the real rate on external debt is negligible.

In theory, fiscal sustainability is defined with respect to both static and inter-temporal budget constraints. The static budget constraint is satisfied if the public sector is able to finance its current expenditures with its revenues and new borrowing, and meet or rollover its maturing liabilities; that is, if it is not liquidity-constrained. The inter-temporal budget constraint is often formulated with respect to conditions for solvency which requires that the present discounted value of future primary budget balances should at least be equal to the value of the outstanding stock of debt. According to this definition, the public sector cannot be a debtor, and the private sector cannot be a creditor, in present-value terms; any debt incurred should eventually be fully payable. If there is debt at present, the primary balance should become positive at some date in the future in order for the present-value budget constraint to be respected.⁵

The theoretical concept of sustainability based on solvency is problematic because it does not impose specific constraints on debt and deficits at any point in time. Since current deficits are collateralized by surpluses in some distant future, any level of debt and deficits could be compatible with the present-value budget constraint. On the other hand, both the underlying economic conditions as reflected by the growth-adjusted interest rate (that is, the rate at which future primary balances are discounted) and the fiscal policy stance vary over time and are highly uncertain. This is particularly true for the cost of public debt which can undergo unexpected and sharp variations due to shifts in risk appetites and the willingness to lend altering the debt dynamic in a fundamental way. Thus, it is not possible to know if a liability position “satisfies the present value budget constraint without a major correction in the balance of income and expenditure”,⁶ since even when the existing debt-deficit configuration is sustainable under current economic conditions and long-term stability of policy stance could be guaranteed, changes in the growth-adjusted discount rate can make it unviable over the longer term. By the same token, even a falling debt ratio does not necessarily imply long-term sustainability. This calls for a judgement on the extent to which current conditions reflect favourable cyclical divergences from longer-term trends and fundamentals. This problem is particularly important in emerging market economies where abrupt changes of economic regime brought about by liberalization make it difficult for investors to identify underlying trends and separate them from cyclical developments.

5 Strictly speaking, the present value budget constraint is consistent with a constantly increasing debt as long as its growth rate is lower than the rate of interest (Hamilton and Flavin 1986). This means that it is also compatible with growth in the debt ratio at rates less than the spread between the effective real rate of interest and the rate of growth (Bagnai 2004). However, this is not plausible since it could eventually require the government to raise more revenue than the economy can generate. Thus, there should be a constraint on the size of the primary surplus as a proportion of income—see Chalk and Hemming (2000).

6 While defining sustainability in this way the IMF (2002a: 5-6) also recognizes the uncertainties involved in predicting both policy variables (expenditures and taxes) and endogenous variables (interest rates and growth rates).

A more flexible approach to sustainability adopts a weak solvency constraint and allows the government to be a net debtor in present-value terms up to a maximum level.⁷ However, this does not overcome the difficulties noted above. As in the case of strict solvency criteria, it tells us that if the current debt ratio exceeds the threshold, sooner or later the government will have to alter its fiscal stance and generate a primary surplus in order to reduce it towards the threshold, but it cannot tell us when—since it is possible to postpone fiscal adjustment without violating the inter-temporal budget constraint—and by how much—since the discount rate is not stationary.

More importantly, there is no theory to indicate what a sustainable debt threshold is.⁸ Given the volatility of market sentiments and herd behaviour, it would not be possible to form realistic expectations as to when the lenders will stop lending and rolling over their existing claims, or demand ever-rising compensation for the risks they assume. Clearly these do not depend on the debt ratio alone, but a host of other factors including the history of default of the country concerned and the nature of its government and institutions. Furthermore, sudden stops in lending or rolling over debt do not always signal solvency problems, and investor behaviour and risk appetites tend to vary over time without any significant change in the underlying economic fundamentals.⁹

For these reasons, in practice sustainability analyses rarely rely on the theoretical concept of solvency. Rather, they often focus on the evolution of the debt ratio on the basis of the framework given in the Annex. One approach is to specify a certain debt ratio as the threshold and assess if fiscal policy would lead to a path that will violate it—as in the Maastricht Treaty and the Stability and Growth Pact in Europe. Since such a threshold is largely arbitrary, an alternative could be to assess fiscal policy on the basis of the initial debt ratio; in such a case fiscal policy would be found sustainable if it allows the debt ratio to be maintained at or below the initial level.¹⁰ Another approach emphasizes government reaction to the divergence of the debt ratio from a target threshold; debt is sustainable if government generates an adequate level of primary surplus when the actual debt ratio exceeds the target ratio (Bohn 1995; Croce and Juan-Ramón 2003; IMF 2003b). Finally, it is possible to start with the capacity of governments to generate primary surplus and to judge sustainability on that basis. How much primary surplus a government can generate can be judged either in terms of its historical track record or through models linking the primary surplus to what can be considered as its fundamental determinants (Abiad and Ostry 2005). Thus, if, for instance, in Annex equation (5), the growth-adjusted interest is 4 per cent and the primary surplus that the government can, on average, be expected to generate is 2 per cent of GDP, the sustainable debt level would be no more than 50 per cent of GDP. This can then be compared with the actual debt ratio to assess sustainability. An exercise along these lines suggests that many emerging-market economies actually over-borrow, with the debt ratio of the typical emerging-market economy being 2.5 times the level warranted by its fiscal track record (IMF 2003b: 130).

7 In such a case the intertemporal budget constraint would be satisfied for levels of present value of future primary balances less than the current debt ratio; see Croce and Juan-Ramón (2003).

8 See Pasinetti (1998). An alternative measure of sustainability is based on the dynamic stability approach and allows thresholds to be defined. However, it does not fully overcome the limitations of the dominant neo-classical approach; for a discussion and application to EMU countries see Bagnai (2004).

9 On sudden stops see Calvo (2003) and Calvo, Izquierdo and Talvi (2003).

10 That is, if equation (5) is satisfied. This is the approach adopted by Pasinetti (1998). See Blanchard, Chouraqui, Hagemann and Sartor (1990) for an earlier discussion of sustainability and debt-stabilizing primary balance.

External debt and sustainability

External sustainability refers to the ability of a country to meet the current and future external obligations of both private and public sectors without running into arrears, recourse to debt-rescheduling and eventually a drastic balance-of-payments adjustment. In theory the conditions for external sustainability are analogous to those for fiscal sustainability discussed above.¹¹ For the external debt ratio to remain stable or to fall between two periods there should be an adequate amount of trade surplus; that is, a net transfer of resources abroad equal to the difference between net capital inflows and interest payments on external debt.¹² The amount of surplus needed increases with the external debt ratio and the growth-adjusted real interest rate on external debt. Unlike the primary budget balance the trade surplus needed is not directly linked to policy, but influenced by a host of variables operating on imports and exports, particularly the exchange rate and the rate of growth.

Although in theoretical discussions of external sustainability reference is often made to the trade balance as the key determinant of the evolution of the external debt ratio, in practice, the relevant variable is the primary current account balance, including current transfers and non-interest net income payments. Here clarification is needed regarding the treatment of non-debt-creating capital flows, notably foreign direct investment (FDI) and portfolio equity, which have grown rapidly in recent years and now account for half of total external liabilities of developing countries (Lane and Milesi-Ferretti 2006). From the point of view of the balance-of-payments constraint, these are not fundamentally different from debt-creating flows even though they are not always treated as such. Although they do not entail fixed-income obligations, repatriation of profits and dividends on foreign direct and equity investments requires availability of foreign exchange independent of how much net export earnings are generated by such investment. Evidence suggests that in many recipient countries, including those closely linked to international production networks, net foreign exchange earnings of transnational corporations do not generally cover their profits (UNCTAD 1999: 115-123; and 2002: 155-156). Although only part of these profits are remitted and the rest is reinvested in the host country—and hence treated as new FDI inflows—a process whereby such forex deficits are met by simply relying on new FDI would not be different from Ponzi financing. On the other hand when profits are not re-invested and new FDI is not forthcoming, debt-creating inflows may need to be attracted in order to allow their repatriation.

It is generally recognized that developing countries need substantial amounts of net transfer of resources at early stages of development in order to close their savings and foreign exchange gaps. In poor countries without a sound industrial base and rich natural resources, imports needed to support investment and economic activity would generally exceed exports that the economy is capable of generating, and external financing would be needed not only to close the trade gap but also to finance interest payments on external debt. If the current account deficit is large and grants are inadequate, external liabilities could rise relative to income even when the interest rate on external debt is negligible and the growth-adjusted real interest rate is negative. For such a process to be sustainable, net resource inflows should help raise investment and growth and lead, over time, to increases in domestic savings and exports relative to investment and imports respectively so that savings and foreign exchange gaps could be reduced. This implies that for countries in the

11 Applying the conventional intertemporal framework, external sustainability requires that today's external liabilities should be matched by the present value of future trade surpluses; see Chalk and Hemming (2000). Here, the external debt ratio is bounded by the constraint that the trade surplus cannot exceed export earnings—in the same way that the primary surplus cannot be greater than the income that the economy can generate.

12 The concept of net transfers dominated the debate over debt problems in Latin America during the 1980s—see Bacha (1990).

early stages of development, violation of the condition in Annex equation (8) should not be seen as a sign of external non-sustainability. However, with industrial maturity, external liabilities should be expected to stabilize relative to income as the economy generates primary current account surpluses to service its external debt. If savings and foreign exchange gaps are not closed over time, continued borrowing to sustain persistent current account deficits could eventually result in an external debt crisis.¹³

In these countries, governments are also unable to generate adequate tax revenues to meet the demand for public spending. The scope for domestic borrowing is limited because of underdevelopment of capital markets. There are also limits to inflationary financing because economic activities are only partially monetized and formalized. Thus, fiscal deficits are closed largely by external grants and loans, generally from multilateral and bilateral donors. Since there would be little external borrowing by the private sector, movements in the balance-of-payments would be mirrored by public finance. This link is weakened in the course of economic development as the government starts borrowing at home and the private sector abroad.

Public debt and deficits and balance-of-payments stability

The conventional approach treats fiscal and external sustainability independently and does not provide a systematic examination of the links between the two. The analysis of fiscal sustainability focuses on the ability of the government to generate an adequate level of primary budget surplus in order to stabilize its debt ratio, but ignores that servicing part of that debt requires availability of foreign currency. External sustainability emphasizes the need for the economy as a whole to generate an adequate amount of foreign exchange surplus in order to service and stabilize its external debt, but pays no attention to whether public and private debtors each are able to generate the required saving surpluses.

External debt servicing by the public sector involves two types of transfers: an *external transfer* to the rest of the world which requires generation of an adequate amount of foreign exchange, and an *internal transfer* from the private sector by the amount corresponding to the external transfer.¹⁴ The conventional fiscal sustainability framework “is in the tradition of the ‘internal transfer problem’” and “does not distinguish between debt owed to foreigners and debt owed domestically” and hence ignores the foreign exchange constraint.¹⁵ In the same vein, the conditions for external sustainability says nothing about whether or not the internal transfer needed for public external debt servicing is secured.

When external debt is owed entirely by the public sector and there is a balance between private savings and investment, conditions for fiscal sustainability coincides with those for external sustainability. Under these circumstances if the amount of primary surplus needed to stabilize the public debt ratio is secured, the external constraint will also be respected.¹⁶ However, when the private sector has external liabilities, the correspondence between the conditions for fiscal and external sustainability breaks down. In this case, external sustainability depends not only on the internal budgetary transfers, but also on the generation of an adequate savings surplus in the private sector in order to meet its own external obligations. Otherwise, private sector external liabilities would grow faster than the foreign interest rate and external sustainability

13 For a discussion of external development finance along these lines see Kregel (2004: section VI).

14 Government revenues used for interest payments on domestic debt do not constitute a net transfer from the private sector but entail a redistribution within the private sector depending on the incidence of taxation and the concentration of public debt holding. On internal and external transfer problems see Reisen and van Trotsenburg (1988).

15 Cline (2003: 6). See also Goldstein (2003: 9).

16 In the formulation given in the annex, when $D=0$ and $E^*=E_p^*$, the public debt ratio becomes equal to the external debt ratio ($d=e$) and $r=\rho^*$ so that the conditions in (5) and (8) become identical. With zero savings gap in the private sector, the primary budget surplus would be equal to the trade surplus: $p = b$.

would not be secured—a situation which could eventually lead to currency and debt crises.¹⁷

That budget balance is not sufficient for external stability is demonstrated by the many instances of balance-of-payments crises which have occurred under fiscal equilibrium. For instance, in Chile in the early 1980s the current account deficit exceeded 14 per cent of GDP and led to a deep financial crisis, collapse of the currency and widespread bankruptcies in the banking sector (UNCTAD 1998; Edwards 2001), despite a balanced budget. Similarly, the Mexican crisis occurred in 1994-1995 after the budget had shifted from substantial deficit to surplus. More recently, in all East Asian countries hit by the 1997 crisis, the budget was either balanced or in surplus and the current account deficits reflected private savings gaps.¹⁸ It is also notable that none of these crises resulted in sovereign default but, by contrast, the socialization of private debt.

There are also instances where external debt servicing difficulties by the public sector had their origins primarily in the internal transfer problem. This was observed in Latin America during the debt crisis in the 1980s. On the one hand, in the face of sharp cutbacks in international lending and declines in export prices and earnings, these economies were forced to undertake massive import cuts by slashing growth in order to accommodate the external constraint. On the other hand, the economic contraction made it impossible for governments to raise adequate revenues and secure the internal transfers needed for external debt servicing. Consequently, to service its external debt the public sector had recourse to monetary expansion and domestic borrowing (UNCTAD 1989: part I, chap. 4). This combination of trade surpluses with persistent fiscal gaps also suggested that external debt servicing difficulties were due to solvency rather than liquidity problems, and that sustainability called for a sizeable reduction of the stock of debt (Cline 2005).

Even when a balance-of-payments crisis does not have its origin in budgetary imbalances and internal transfer problems, it would have consequences for fiscal sustainability if it alters the key variables affecting the debt burden including interest rates, growth, the exchange rate and the stock of debt and hence the scope for generating the amount of primary surplus needed to stabilize the public debt ratio. Similarly, fiscal imbalances and internal transfer problems can be translated into balance-of-payments difficulties to the extent that they affect the behaviour of international lenders. This was the case for most Latin American debtors in the 1980s when the fiscal transfer problem was the main obstacle to their access to international capital markets and the principal source of growth difficulties (Reisen and van Trotsenburg 1988; Bacha 1990). A proper account of such linkages calls for consideration of interactions among the entire spectrum of variables affecting fiscal and external sustainability.

Feedbacks and virtuous and vicious circles

The conventional framework for debt sustainability says nothing about interactions among the variables that determine the evolution of the debt ratios. In reality almost all variables affecting fiscal and external sustainability are influenced by fiscal and monetary policy. Thus growth rates, interest rates and exchange rates cannot be projected independently of the policy stance so as to determine the policies needed to stabilize the debt ratios. There are also strong interactions among non-policy variables so that a shock to one of them could induce changes in the others. Such feedbacks can lead to vicious or virtuous circles in the evolution of the debt ratios. They can also have asymmetric effects on conditions for fiscal and external sustainability.

17 For the conditions needed for the respect of fiscal and external sustainability in an intertemporal framework see Chalk and Hemming (2000).

18 However, whether the crisis was triggered by private sector insolvency or liquidity problems resulting from a self-fulfilling prophecy is controversial; see UNCTAD (1998: part I, chap. 1). It should be added that the debt deflation process accentuated by the procyclical policy response engineered by the IMF pushed many enterprises into insolvency.

Assessments of fiscal sustainability need to account for strong interdependencies between fiscal policy and economic growth. A fiscal retrenchment designed to raise the primary surplus in order to stabilize the public debt ratio could actually make the task more difficult by leading to a slowdown in economic activity. Lower growth would not only necessitate a higher level of primary surplus, but also make it more difficult to generate it. Over the longer term, a path of relatively high primary surplus may be associated with lower growth because of adverse effects of high taxes and reduced public investment in infrastructure on private investment (Calvo 2003).

Monetary policy operates on fiscal and external sustainability primarily through interest rates and exchange rates. Monetary tightening increases the real interest rate on domestic public debt, but it could lower the real rate on external debt if higher domestic interest rates attract foreign capital and appreciate the currency. If the latter effect is dominant, as would be the case when the share of external debt in total public debt is high, tight monetary policy could lower the growth-adjusted real effective interest rate on total public debt as well as on total external debt. Otherwise, it could result in a combination of rising real rates on public debt with falling rates on external debt.

A key variable that has strong links with economic policies and performance but is, at the same time, susceptible to abrupt autonomous shifts is the risk component of the interest rate on public debt. This tends to vary positively with the debt ratio (Reinhart, Rogoff, and Savastano 2003) so that if a government fails to generate an adequate primary surplus to stabilize the debt ratio, its task can get tougher as the risk premium rises, pushing up the cost of borrowing, which in turn necessitates an even larger primary surplus. A vicious circle can be set off through negative feedbacks between the debt ratio and the risk of default, and an exogenous increase in sovereign spreads may trigger a perverse dynamics leading to “self-fulfilling solvency traps.”¹⁹ Since the risk premium also varies inversely with economic growth, it can amplify the adverse impact of a negative growth shock on debt sustainability. A decline in growth can lead to an increase in the risk premium and interest rate on public debt while making it difficult to generate the primary surplus needed to stabilize the debt ratio; the increase in the latter can lead to a further increase in the risk premium.

Unfavourable swings in market sentiments also impair fiscal sustainability as they tend to result in currency depreciations (Blanchard 2004). This happens as depreciations raise not only the effective real interest rate on public debt, but also the public debt ratio when the proportion of debt denominated in dollars is large compared to the share of traded-goods in GDP.²⁰ Indeed, evidence suggests that it is usually adverse exchange rate shocks that result in the largest increases in public or external debt ratios (IMF 2003a: 11). According to one estimate, a 3 per cent devaluation in Brazil has much the same impact on the government debt ratio as a 300 basis-point rise in the interest rate over 12 months or a 1 per cent drop in the GDP growth rate (Goldstein 2003: 12). Thus, an increase in the share of the domestic-currency debt reduces the vulnerability to adverse exchange rate swings. However, it also raises the risk of sharp increases in the interest bill on domestic debt at times of currency and balance-of-payment crises since a larger proportion of such debt is short-term or contracted at variable rates.

While a common set of variables influences the conditions for both fiscal and external sustainability, their effects are not always symmetrical. This is particularly the case for growth and exchange rate shocks.

19 See Roubini (2001). For a dynamic simulation model based on such interactions between the debt burden and the risk premium see Hostland and Karam (2005).

20 Nominal income in equation (1) also has two components, traded and non-traded goods. The prices of traded goods rise with depreciation. If the share of traded-goods in GDP is small relative to the share of the forex debt, then depreciations would increase the debt ratio—see Calvo, Izquierdo and Talvi (2003: 20–21).

Slower growth makes it more difficult to stabilize the public debt ratio, but has two disparate effects on external sustainability. On the one hand, by widening the gap with the real interest rate on external debt, it necessitates a higher level of primary current account surplus to stabilize the external debt ratio. However, unlike its effect on the primary fiscal balance, it facilitates the generation of this surplus by lowering imports. If this effect is strong, economic slowdown can in fact improve the external debt ratio.

Exchange rate changes too can have asymmetric effects on fiscal and external sustainability. While a decline in the currency invariably makes it more difficult to maintain a stable public debt ratio, its effect on external sustainability can be benign. Although it increases the external debt ratio and the real interest rate, it also improves the current account by reducing imports and encouraging exports.

These asymmetric effects imply that there can be a precarious link between external financial conditions and sovereign debt sustainability. A combination of lower international interest rates, increased appetites for emerging-market risks, surges in capital inflows and currency appreciations reduces the real effective interest rate and improves fiscal sustainability. Fiscal conditions can improve further if these impulses push the growth rate above its potential level—which is likely to be the case under disinflation supported by capital inflows and currency appreciations. An abnormally higher rate of growth would not only reduce the primary budget surplus needed to stabilize the public debt ratio, but would also make it easier to generate it.

But the very same conditions that improve public sector finances, notably currency appreciations, can also lead to a rapid deterioration of the current account. Despite the widening of trade and current account deficits, the external debt ratio could be falling due to the appreciation of the currency and growth in non-debt creating equity and FDI inflows. However, the net asset position would be deteriorating, eventually leading to increased income claims. A trade-off may thus emerge between external sustainability and fiscal sustainability. Governments tend to ignore the build-up of external financial fragility as long as fiscal conditions are improving and capital is flowing in to finance the current account deficit. However when capital flows are reversed due to factors such as mounting risks associated with the build-up of external imbalances or a deterioration in global financial conditions or contagion, public sector finances could be driven into serious difficulties as the combination of sharp declines in the currency, hikes in interest rates and the collapse of growth makes it very difficult to generate an adequate level of primary budget surplus to prevent debt explosion. Problems of fiscal sustainability created by a sudden stop in capital inflows and swings in exchange rates can be particularly serious in relatively closed and highly indebted economies, due to limited impact of currency movements on the trade balance (Calvo, Izquierdo and Talvi 2003). In economies with chronic fiscal imbalances, difficulties encountered in stabilizing public debt can persist even when the external balance is rapidly restored through a correction in the exchange rate, because of higher interest rates, a lower currency and a higher stock of public debt.

The IMF approach to debt sustainability

The sustainability framework

The BWIs do not have a rigorous and integrated analytical framework for fiscal and external sustainability in developing countries. For HIPCs, they initially focussed almost entirely on external sustainability because the debt problem was seen primarily as an external transfer problem, and assessed on the basis of arbitrary thresholds in terms of the ratio of external debt and debt service to exports.²¹ The fiscal dimension of the problem

21 It is often argued that if the main difficulties in public debt servicing relate to internal transfers, the appropriate indicator of sustainability should be the debt-GDP ratio. Otherwise, greater attention would need to be paid to debt and debt service in relation to export earnings—see e.g. Hofman and Reisen (1990).

came as an afterthought, leading to additional debt thresholds as a proportion of government revenues. So far, several countries have qualified and received debt relief according to the export criteria while a few have qualified under the fiscal criteria. There has been extensive criticism of the framework used for debt sustainability for HIPC, including its analytical weaknesses, choice of debt thresholds and accounting framework.²²

For emerging markets the IMF uses the standard framework described above with some variations for fiscal and external debt sustainability assessments. It relies on accounting identities and a few behavioural relationships which fail to account for, and capture, dynamic interactions among key policy and non-policy variables noted above.²³ Budget and balance-of-payments identities provide the basis for fiscal and external sustainability respectively in order to derive and decompose the debt dynamics along the lines described in the Annex. Key behavioural relations include government revenues and primary spending for fiscal sustainability, and export and import equations for external sustainability. Non-debt-creating flows including unrequited grants and privatization receipts in the budget and FDI, portfolio equity and unrequited transfers in the balance-of-payments are projected independently. This appears to be broadly the case also for interest rates, inflation, exchange rates and the real growth rate.

The IMF sustainability framework does not integrate the conditions for fiscal and external sustainability or pay adequate attention to external private debt even though, as noted, it is an important determinant not only of external sustainability but also fiscal sustainability: the “sustainability of corporate ... debt ... is not a standard part of the Fund’s analytical toolkit” and “while in principle the different aspects of sustainability—external, fiscal and financial sector—are interrelated, the linkages between them are not explicitly modelled” (IMF 2002a: 7 and 26). It thus ignores that the division of a given volume of external debt between public and private sectors, and even within the private sector between those engaged in the production of traded and non-traded goods, makes a considerable difference in terms of the vulnerability it represents. Indeed, experience during the past two decades suggests that panics and currency attacks tend to be more violent and economic, and financial repercussions of a currency crisis more serious, when external debt is owed mainly by the private sector rather than by the public sector. The neglect of external private debt also has consequences for fiscal sustainability since “fragile debt positions in the private sector...can subsequently become liabilities of the public sector” through the realization of contingent liabilities associated with financial bailout operations (Goldstein 2003: 9).

While the standard framework fails to account for contingent liabilities, in reality they play an important role in public debt accumulation.²⁴ The assumption of private sector liabilities—or the socialization of private debt—often through recapitalization of insolvent banks in recent episodes of financial crises has indeed made a significant contribution to the growth of public debt in emerging market economies. In Indonesia, for instance, bailout operations raised public debt by more than 50 per cent of GDP (IMF 2003a: 28n), creating problems of fiscal sustainability despite a good track record regarding fiscal discipline. For Thailand and Korea, the corresponding figures are 42 per cent and 34 per cent respectively (Hoggard and

22 For the issues involved see Hjertholm (2001) and Cline (2003). An issue rarely raised in the literature is that there are difficulties in using the debt-export ratio as an indicator of external sustainability. Countries extensively participating in international production networks tend to have much higher ratio of exports to GDP, but direct import contents of their exports are also much higher, which limits their ability to cut imports without reducing export earnings in order to release foreign exchange for external debt servicing.

23 For the IMF debt sustainability framework, see IMF (2002a, particularly tables 3 and 4). Some of these shortcomings are spelled out in an IMF working paper – Hostland and Karam (2005).

24 According to Campos, Jaimovich and Panizza (2006), in practice, these are more important sources of public debt accumulation than budget deficits.

Saporta 2001: 162), and for Turkey, 33 per cent (World Bank 2003: 21). In a sample of 12 countries hit by currency and financial crises, the average post-crisis public debt ratio was higher than the pre-crisis ratio by 36 per cent of GDP, and in most cases the increase in debt levels persisted several years before governments could roll-back the crisis-induced increases in debt ratios (Bolle, Rother and Hakobyan 2006).

The IMF analysis of fiscal sustainability focuses on the stabilization of the public debt ratio at some initial level or convergence to a target when debt is considered to be in excess of prudent levels “while leaving open the question of whether the *level* at which the debt ratio is likely to be stabilized is appropriate” (IMF 2002a: 42). In response to requests from some governments to inquire into feasibility of establishing threshold values or “danger zones” an examination has been undertaken of the frequency distribution of the debt levels at which sovereign debt crises have occurred, drawing some conclusions about “safe debt ratios”. In addition early warning models have been developed to assess the probability of crisis in terms of several variables deemed relevant, including the debt ratios (IMF 2003a: 36-42).

The IMF’s fiscal sustainability analysis starts with a baseline scenario wherein the time path of the debt ratio is projected, usually over a 5-year horizon, on the basis of expected or agreed policies, and of projections made for key parameters directly affecting the debt dynamics noted above. The underlying monetary and fiscal policies are considered sustainable if they appear to stabilise the debt ratio. Otherwise policy adjustments would be called for. With monetary policy often directed to inflation targeting, much of the policy adjustment needed falls on the budget.

The base-line projections are stress-tested for alternative assumptions for policy and endogenous variables to assess vulnerability. Originally the tests were used to determine probabilistic upper bounds on the evolution of the debt ratio, but subsequently, suggestions have been made to design them to provide alternative scenarios. Key variables are also tested against their historical averages and an alternative no-policy-change scenario to assess the degree of realism of baseline projections and the expected gains from agreed and programmed policy changes.²⁵

The analysis of external sustainability follows broadly the same line. Current account projections are derived essentially from the savings-investment balance, building on the medium-term projections for the public sector. These provide the basis for the assessment of the medium-term evolution of overall external indebtedness, which are also stress-tested. In its assessment of external sustainability, the Fund considers an external debt ratio of 40 per cent as a useful benchmark, without paying attention to its division between public and private debt, while recognizing that a ratio above this level by no means necessarily implies a crisis (IMF 2002a: 25).

As in the case of HIPC’s, the IMF’s sustainability assessments for emerging market economies also yield highly optimistic projections for the debt ratios. They “show not only a stabilizing debt ratio by the end of the projection horizon, but nearly always a decrease in the debt ratio relative to the starting point.” In over 40 sustainability assessments prepared as of 2003, the median projected decrease of public debt over the five year horizon is about 12 per cent of GDP. For external debt, this figure rises to 17 per cent. That this is highly unrealistic is also recognized by the Fund secretariat: “statistically it seems unlikely that such a broad range of countries would all experience declining debt ratios.”²⁶ In financially constrained, highly indebted countries such as Argentina, Brazil and Turkey, medium-term fiscal projections persistently showed stabili-

25 See IMF (2003a: 25-27). For modifications introduced to the original framework, see IMF (2005b).

26 IMF (2003a: 9). For errors in projections of public and external debt see IMF (2003a: Appendix I).

zation of debt ratios while in reality, debt levels continued to mount. Projections for external debt are even more optimistic; for the full sample of countries for which such assessments are available, including both industrial and developing countries, the public debt ratio is under-predicted by around one per cent of GDP, while this figure is as high as 3.3 per cent for the external debt ratio.

More significantly, optimism is greater for countries with IMF programs. In public debt, under-prediction is greater for all categories of countries with IMF programs, including low-income and middle-income countries. For external debt, the bias for all upper-middle income countries is around 4 per cent, compared to more than 7 per cent for those with Fund-supported programs. In Turkey, for instance, the increase in the external debt ratio was several times the amount projected in the IMF program of 1999 because of larger trade deficits and lower growth than had been assumed in the baseline scenario. This was also true for Argentina.

A main reason for under-prediction of debt ratios is over-optimistic assumptions about economic growth, which often have their roots in unrealistic projections for private investment and exports. Since fiscal targets are based on assumptions about growth, they also fail to materialize. As noted in a report on fiscal adjustment in IMF-supported programs by the Independent Evaluation Office, “there is evidence that investment is consistently overestimated in IMF-supported programs” and that the IMF “programs achieved only about one-half of the programmed improvement in overall and primary fiscal balances (IEO 2003: 4 and 6). As growth and fiscal targets are missed, debt ratios remain above projections.

Furthermore, the sensitivity tests appear to be quite ineffective in providing early warning signals. Because of the way they are designed, these tests do not exhibit any unsustainable debt dynamics over and above what is already depicted in the baseline scenarios. These tests disregard persistent dislocations by assuming that the growth rate, the interest rate and the primary balance will all return to their baseline values after the two-year period of shocks. This means that the debt ratio would be higher at the end of the projection horizon than the initial level only if the primary surplus fails to rise to absorb the shocks in the interim. However, since “the primary surplus in the baseline is projected to be sufficient to result in a decrease of the debt ratio, it is nearly always sufficient to ensure at least stabilization of the debt ratio in the sensitivity analysis” (IMF 2003a: 14n). A comparison of the assumed shocks with the observed behaviour of the main macroeconomic variables (including the real GDP growth, the interest rate and the current account deficit) in the run-up to past episodes of external debt crisis in 24 countries shows that these variables, in fact, moved in the two years prior to crises by amounts no more than those assumed in stress tests, and the external debt ratio remained within the upper bounds. These tests themselves could say nothing about the likelihood of such shocks and crises occurring. In other words, the sensitivity analyses are successful in tracing the movements of key variables in the observed run-up to sovereign crises without being able to predict that such movements would indeed culminate in a crisis.

A major difficulty underlying these shortcomings is that even though the key variables are endogenous and interrelated, many are projected as if they were independent. In particular, there is a tendency to underestimate negative feedbacks from policy. The importance of interactions and the need for internally consistent scenarios are, in principle, recognized by the Fund (IMF 2003a: 26). However, the procedures adopted fail to capture critical vulnerabilities. For instance, the recognition that shocks do not happen in isolation, but occur simultaneously and persist longer than that permitted in the standard stress tests, has prompted the Fund to adopt more persistent shocks simultaneously to several variables. However, although this might help better identify the extent of optimism in baseline scenarios, it does not address the question

of dynamic interactions among the variables which play a more critical role in the process leading to crises than the size of initial shocks.

More importantly, the fact that the Fund's projection errors for private investment, growth, budget balances and debt ratios are not randomly distributed but biased towards optimism raises questions about the realism of the underlying economic thinking and policy recommendations emanating from it—something that cannot be remedied simply by adopting more sophisticated techniques such as stochastic simulations or probability density functions for the projection of the debt ratio. That the margin of prediction error is even greater for countries working under the Fund's supervision suggests that monetary, fiscal and exchange rate policies promoted by the IMF are not creating an economic environment that is capable of generating the kind of stable and sustainable debt ratios assumed in its projections.

The IMF's debt sustainability analyses for emerging market economies do not simply underpin its policy advice in the context of Article IV consultations or conditionalities in country programs. They also influence official debt relief initiatives for this group of countries. Several emerging market economies such as Indonesia and the Philippines have relatively large stocks of official debt owed to both bilateral and multilateral donors. These middle-income countries are very much in the same position as highly-indebted low-income countries not included in the HIPC initiative. For bilateral debt they now come under the Evian approach, designed to provide more flexible debt restructuring through the Paris Club in coordination with private creditors to secure long-term sustainability. Once again, the ultimate decision regarding debt sustainability rests with the creditors, based on an analysis to be conducted by the IMF. Such a procedure is objectionable not only because of the poor record of the Fund in debt sustainability assessments. It also raises the risk of political considerations dominating debt relief outcomes, given that the creditor countries exert considerable influence on the Fund's decisions. It is therefore highly desirable to delink the Evian process from the Fund and entrust the sustainability analysis to an independent body of experts appointed with the consent of the debtors.

Public debt and fiscal space

Perhaps a more important problem with the orthodox analysis of sustainability is that it does not examine potential trade offs between debt and development or question the rationale for trying to stabilize debt when this entails severe costs in terms of long-term growth. Fiscal tightening is almost always the recommended policy whenever projections show that the debt ratio is on a rising path, and the burden invariably falls on primary spending, notably public investment in infrastructure.

Indeed, fiscal policy has long ceased to be an instrument of growth in highly-indebted countries. During the 1980s and the 1990s, its single most important objective was to reduce budget deficits from the very high levels reached as a result of economic contraction and increased interest payments in order to check monetary expansion and bring inflation under control: as recognized by the BWIs, "growth and poverty objectives were under-emphasized" (IMF/WB 2006: i). This objective had largely been attained by the end of the 1990s when the median fiscal deficit in developing countries fell to some 2 per cent of GDP from 6 per cent in the early 1980s. However, this fiscal-adjustment-cum-disinflation process has been accompanied by a rapid build-up of public debt, notably domestic debt, as well as cuts in primary spending, since the scope to raise revenues was limited due to sluggish growth. Consequently, attention has increasingly shifted from deficit reduction and price stabilization to generation of primary budget surpluses and debt stabilization. The principle task of treasury departments has become to sustain debt and avoid arrears

and default, and all other objectives of fiscal policy have been subordinated to debt management. Increased public indebtedness and financial fragility have also promoted pro-cyclical fiscal policy, adding to expansion and bubbles during financial booms and to deflation during busts.²⁷

On average, government revenues as a proportion of GDP effectively remained unchanged in middle-income countries from the early 1980s until the end of the 1990s, while expenditures were cut by more than 4 percentage points of GDP (IMF/WB 2006). With interest payments as a proportion of GDP rising by three-to-four times during the same period, the burden of cuts fell on public investment. This pattern has continued in recent years as increases in government revenues brought about by abnormally high growth and commodity prices have translated into higher primary surpluses rather than investment. The outcome has been a sizeable infrastructure gap and a reduction in long-term growth (Akyüz 2006). In several heavily-indebted emerging market economies, interest payments now exceed public investment; the margin is particularly large in Argentina, Brazil, Egypt, Lebanon, Philippines, Turkey and Uruguay. For a sample of 14 countries, average public investment is now around 3.5 per cent of GDP while interest payments exceed 5 per cent.²⁸

There is now a consensus that developing countries need greater “fiscal space for growth.”²⁹ However, for the BWIs, fiscal space is what is left after servicing debt; it “refers to a government’s ability to undertake spending without impairing its solvency, that is without impairing its present and future ability to service its debt” (IMF/WB 2006: 114). They advocate creating fiscal space primarily by improving the efficiency of public expenditures and increasing revenue mobilization. Restructuring and reducing the level of debt is not seen as an option except when it is granted by creditors: “Debt forgiveness and debt relief initiatives by creditors have the effect of creating fiscal space for developing countries” (IMF/WB 2006: n.39).

In more than half of the emerging market economies for which data are available, primary surpluses still fall short of the amounts needed, requiring further increases by 4-5 per cent of GDP (IMF 2005c: 17). Thus, if the course of action advocated by the BWIs is pursued, the task is doubly onerous because there would be a need to raise government revenues and/or improve the efficiency of spending, not only to increase public investment, but also raise the level of the primary surplus in order to restore solvency. It is quite unrealistic to assume that such an adjustment could be achieved through efficiency-seeking reforms. There are also serious constraints over increasing taxation of business and financial incomes because of the increased footloose nature of capital. Furthermore, resort to indirect taxes would distort income distribution further, not only because their incidence falls disproportionately on the poor, but also because tax proceeds are transferred to a small segment of the population which holds a large proportion of public domestic debt. Growth could allow the public sector to increase its share in GDP and exit from a debt trap, but it is restricted by debt itself through its impact on public investment in infrastructure. A viable option to break out of this vicious circle would be a reduction in the debt burden by operating on the stock and/or terms and conditions of debt.

Indeed, the record shows that in 26 cases of sizeable reductions in public debt in emerging market economies in recent history, 19 were associated with default, and only a few countries were able to grow out

27 See a number of papers in BIS (2003). See also Kaminski, Reinhart and Végh (2004) and UN (2006: chap. IV). For a further discussion, see Akyüz (2006: 19-22).

28 Figures are from IMF World Economic Outlook database. The sample includes, in addition to the countries noted above, Colombia, Indonesia, Morocco, Mexico, Pakistan, Peru and South Africa.

29 See Development Committee Communiqué, April 17, 2005. Washington, D.C.

of debt overhang (IMF 2003b: 140). However, the Fund is generally averse to arrears and defaults, insisting that debt should be serviced and sustained at any cost. This was most clearly seen at times of emerging market crises in the 1990s when the single most important objective of its interventions was to keep countries current on their payments to private creditors and to maintain capital account convertibility, even though these often pushed the economies concerned into deep recessions. It has also been quite willing to lend into unsustainable debt positions, as in Russia and Argentina, rather than helping them to restructure debt and relieve the burden in a timely and orderly fashion.

Capital flows, balance-of-payments and fiscal stability

There is a long-standing belief that fiscal imbalances are at the origin of balance-of-payments crises so that budgetary discipline would be both necessary and sufficient to secure external sustainability. A particular formulation of this was offered by the so-called Lawson Doctrine developed in the late 1980s that a large current account deficit is not a cause for concern if the fiscal accounts are balanced—that is, if the external deficit has its origin in private sector behaviour.³⁰ Even though this doctrine has been discredited by several instances of currency and balance-of-payments crises in economies with sound fiscal positions, it appears to continue to influence the Fund's approach to sustainability. The Fund's policy stance on capital flows and exchange rates suggests that it is concerned with the build-up of external imbalances and fragility only when they are due to fiscal profligacy, but not when they are driven by market forces—that is, free capital movements and floating exchange rates.

A lesson generally drawn from the recent history of crises is the importance of preventing large exchange rate appreciations and current account deficits driven by short-term capital inflows attracted by international arbitrage opportunities. Such a process may not only culminate in currency and balance-of-payments crises, but, as noted, can also have serious consequences for fiscal sustainability. Evidence suggests that episodes of rapid improvements in fiscal sustainability supported by surges in capital flows and currency appreciations are often followed by currency and debt crises. About 85 per cent of all defaults during 1970-1999 were linked with currency crises. It is also noted that credit rating agencies are pretty accurate in predicting defaults because downgrades usually follow currency crises, even though they rarely anticipate the latter.³¹

Although, in theory, floating is expected to dampen short-term capital inflows by giving rise to exchange rate risks, in reality, it often leads to nominal and real appreciations when investors have strong appetites for risk and arbitrage margins are large. It is also widely agreed that the scope for monetary policy to eliminate arbitrage margins is limited where inflation is relatively high. Indeed, in many countries where inflation targeting is practiced as recommended by the IMF, monetary policy pays little attention to its impact on arbitrage flows, current account imbalances and external fragility.³² In any case, there are difficulties in absorbing large inflows of foreign exchange attracted by arbitrage margins and sterilizing their effects on domestic liquidity and the exchange rate. If intervention is not sterilized, domestic liquidity would expand, fuelling inflation in asset and, possibly, product markets. But sterilization by issuing government or central bank debt could result in higher interest rates, attracting even more arbitrage flows (Akyüz 2007). Moreover, since interest earned on reserves is usually much lower than interest paid on public debt there will be fiscal (or

30 For a critical evaluation of this doctrine, see UNCTAD (1998), Reisen (1998) and Edwards (2001).

31 See Reinhart (2002). IMF (2003b: 119) also mentions several episodes where public debt ratios were held down by currency appreciations.

32 For a critique of inflation targeting, see several papers prepared for the project "Alternatives to Inflation Targeting" at the Political Economy Research Institute (PERI), University of Massachusetts, Amherst (<http://www.umass.edu/per/>).

quasi-fiscal) costs which can add considerably to budget deficits when interest rate differentials are large and the surge in capital inflows is strong. Under such conditions, measures of control over capital inflows may be the only way to prevent currency appreciations, asset bubbles and deterioration in the current account.

As noted in a report on surveillance by an independent group of experts, the Fund has generally been optimistic about the sustainability of capital inflows to emerging market economies (IMF/GIE 1999: 44). It is also recognized by the Independent Evaluation Office in a report on the IMF's approach to capital account liberalization that the Fund has been ambivalent about controls over capital inflows, including market-based measures such as un-remunerated reserve requirements applied by Chile, Colombia and others, questioning their rationale and effectiveness (IEO 2005: 60). It abstains from recommending controls even when surges in short-term capital inflows are leading to sharp currency appreciations and growing trade deficits, advocating, instead, fiscal tightening and greater exchange rate flexibility. However, as noted in the same report, none of the standard policy measures recommended by the Fund for this purpose is a panacea and each involves significant costs or otherwise brings about other policy dilemmas.

It has been argued that “the IMF has learned over time on capital account issues” and “the new paradigm ... acknowledges the usefulness of capital controls under certain conditions, particularly controls over inflows” (IEO 2005: 11). However, this is not reflected in policy advice given by the Fund in Article IV consultations. Moreover, the IMF refrains from requesting changes in monetary policy and capital account measures to slow down arbitrage inflows even in countries with Fund programs. In the 1990s, it supported exchange-rate-based stabilization programs relying on short-term capital inflows. More recently Turkey, virtually the only major emerging-market economy still with a Fund program, has also been going through a similar process with a sharply appreciated currency and a current account deficit of almost 8 per cent of GDP. However, the Fund has done little to check this process. It is also notable that a few countries without IMF programs, including Argentina and Thailand, have recently introduced unremunerated reserve requirements to slow down arbitrage flows even though upward pressures on their currencies have been much more moderate and their current account positions much more favourable than Turkey.³³

These matters are of particular concern in the current conjuncture of the world economy because of vulnerability of several emerging market economies to possible adverse changes in their external economic environment. As recognized by the Fund, the past few years have seen exceptionally favourable global economic and financial conditions including historically low interest rates and spreads, a weak dollar, strong commodity prices and a pace of economic growth unprecedented for several decades. This period has witnessed the third post-war boom in private capital flows to developing countries; the first began in the 1970s and ended with the debt crisis in the early 1980s, the second began in the early 1990s and ended with the East Asian and Russian crises. Recent inflows have surpassed the peaks observed in the previous cycles, supported by high levels of international liquidity, including oil surpluses.

These favourable global conditions have produced significant improvements in public sector debt profiles in most emerging market economies. At about 70 per cent of GDP, the average debt ratio of a sample of 25 emerging market economies was higher than that of industrial countries in the early years of the decade. It was much higher as a percentage of government revenues since the share of these revenues in GDP is lower than in industrial countries—27 per cent of GDP in comparison with 44 per cent.³⁴ Between

33 In Argentina, controls were introduced in June 2005 and in Thailand at the end of 2006. For an analysis of monetary and exchange rate policies in Argentina, see Frenkel and Rapetti (2006), and in Turkey, Yeldan (2007).

34 IMF (2003b: 120). Indeed if a country is unable to raise revenues out of GDP, the appropriate scale variable in the debt ratio is not GDP but government revenues—see Roubini (2001).

2002 and 2005, the average debt ratio declined in 19 out of 25 economies, bringing the average debt ratio to 60 per cent. While foreign-currency debt has declined in Latin America and remained relatively stable in Asia, there has been an increase in domestic-currency debt in almost all regions, with its share in total debt increasing by more than 5 percentage points since the beginning of the decade.³⁵ Several countries, including Brazil, Colombia and Uruguay, have also started to issue local-currency denominated global bonds at rates below those in domestic markets because of lower jurisdiction spreads (Tovar 2005; IMF 2005a: 44).³⁶

The contribution of stronger-than-historical-growth to the decline in the debt ratio has been over 8 per cent of GDP, and that of real exchange rate appreciations, almost 5 per cent of GDP, making it possible to reduce debt ratios despite countervailing factors. Exchange rate appreciations, particularly against the dollar in which much of the external debt is denominated, have also been a major factor in the increase in the share of domestic debt in total public debt. An equally important factor has been the increase in the primary budget surplus, which contributed to the decline in average emerging-market debt ratios by close to 5 per cent of GDP. Factors adding to the debt ratio included recognition of off-balance sheet liabilities (skeletons) as well as higher effective real interest rates. The latter added to the debt ratio almost 8 per cent of GDP despite lower international interest rates and risk spreads and currency appreciations due, in large part, to an increased share of domestic debt which carries higher rates, higher domestic interest rates resulting from inflation targeting and growing issuance of inflation-indexed bonds.

For a larger group of 37 emerging market economies, the decline in the debt ratio is more moderate, around 4 per cent of GDP during 2002-2005, with a similar contribution from growth but lower contribution from the primary surplus, by around one per cent of GDP. For this group, the overall fiscal balance improved by some 3 per cent of GDP as a result of increases in government revenues; this was fully translated into an increase in the primary balance as primary spending remained largely unchanged. Strong commodity prices and growth accounted for 2 of the 3 per cent improvement in the fiscal balance as a proportion of GDP. In some commodity exporters where commodity-related government revenues are high, buoyant prices added to the budget by as much as 6 per cent of GDP.³⁷ According to a decomposition exercise, cumulative fiscal savings during 2002-2005 from a combination of lower interest rates and risk spreads amounted to about two per cent of GDP outside East Asia, reaching 3 per cent among the most vulnerable countries in Emerging Europe and Latin America and 4 per cent in Africa, West Asia and Middle East (Hauner and Kumar 2005). The same study shows that outside Latin America, fiscal performance would have deteriorated without the combined effects of the boom in commodity exports and favourable global financial conditions, while in Latin America, the improvement in budget deficits would have been lower by more than one per cent of GDP.

Despite these improvements, present debt ratios are still too high. Although it is not possible to make generalizations about sustainable debt levels, which tend to vary both across countries and over time, it is notable that most estimates from studies on debt crises in emerging market economies put the so-called

35 According to some estimates, the stock of domestic debt securities, including both public and private, in 2004 in emerging market economies was four times larger than the corresponding amount of international securities; see Mehl and Reynaud (2005). For the development of emerging local bond markets, see also IMF (2002b: chap. III).

36 In recent years, an important part of domestic-currency debt has come to be held by non-residents, reaching 12 per cent on average – Mehl and Reynaud (2005) and De Alessi, Hoggarth and Yang (2005). The share of residents of emerging market economies in the internationally-issued foreign-currency debt instruments of their governments has also increased. For structural changes in emerging sovereign debt, see IMF (2006), and for intra-regional comparisons, Jeanne and Guscina (2006).

37 In Mexico, for instance, oil-related revenues account for one-third of public sector revenue; see IMF (2003b: 122n).

safe or sustainable public debt ratio at no more than 50 per cent of GDP. Over 1970-2001, more than half of sovereign debt crises occurred at debt ratios below 40 per cent of GDP, and two thirds at ratios below 60 per cent of GDP (IMF 2003a: 37). According to the Fund, emerging market economies generally fail to ensure sustainability once public debt exceeds 50 per cent of GDP, and the “sustainable public debt level for a typical emerging market economy may only be about 25 per cent of GDP.”³⁸ It is also argued that for so-called debt intolerant countries, the “safe” external debt ratio may be in the order of 15 per cent (Reinhart, Rogoff and Savastano 2003).

Clearly, not all recent improvements in the size and structure of public debt in emerging market economies reflect the impact of favourable cyclical global conditions. There have certainly been structural improvements brought about by national efforts for better fiscal discipline and debt management. However, recent empirical work, including that of the IMF (2004: chap. 2, appendix I), suggests that improved market access conditions and reduced spreads reflect more the impact of liquidity and increased risk appetite than improved fundamentals in emerging-market economies. Consequently, fiscal and debt positions of many of these countries are highly vulnerable to a deterioration of the international economic and financial environment.³⁹ Since favourable global financial conditions benefited more those countries with more fragile debt positions, these also remain the most vulnerable to deterioration. In fact, several of them were considered as highly fragile only a few years ago, with some even on the brink of default.⁴⁰ Debt ratios are so high in many countries that despite favourable conditions, many of them have had to generate primary surpluses amounting to several percentage points of GDP in order to stabilize their public debt ratios. Even more importantly, as already noted, in most of these countries, primary surpluses fall short of the amounts needed. Moreover, these would become even more difficult to generate with a reversal of favourable cyclical conditions.

It is often remarked that every emerging market crisis is different and the mechanisms introduced often deal with the causes of the last, but not the next crisis. Indeed, in certain respects, current fragilities appear to be quite different from those of the 1990s. As noted, in recent years, a considerable shift has been seen in several emerging markets from foreign-currency to domestic-currency public sector debt as international creditors and investors have become more willing to assume the currency risk to benefit from considerably higher interest rates. Again, several countries have reduced the absolute levels of their external debt by using commodity windfalls; for instance, Brady bonds have virtually disappeared after peaking at over \$150 billion in the 1990s. Furthermore, there has been a significant build-up of foreign exchange reserves; in fact, in many countries, reserves exceed the volume of external public debt maturing within one year, estimated to be around 10 per cent of total fixed-rate medium-term international bonds (IMF 2006). These developments imply that deterioration in global financial conditions and sharp declines in capital flows to emerging markets may not create serious external transfer problems for servicing public debt. However, a combination of increased risk spreads and interest rates, currency depreciations and slowdown in growth can make the public debt burden unbearable, leading to a fiscal crisis and necessitating operation on the stock of debt. But

38 IMF (2003b: 142). For other estimates, see Moreno (2003: 2-3), Mihaljek and Tissot (2003: 16-22), Manasse, Roubini and Schimmelpfennig (2003), and Goldstein (2005: 54).

39 According to the World Bank (2006), the most important potential risks come from the oil market and interest rates, while BIS (2007) emphasizes global imbalances, growth slowdown in the United States, inflationary pressures and risks associated with “asset pricing to perfection” by financial markets. For various channels of transmission of adverse shocks, see De Alessi Gracio, Hoggarth and Yang (2005).

40 In Goldstein (2005), Turkey headed the list of countries vulnerable to deterioration in global economic and financial conditions, with Argentina, Mexico and Hungary also among the most vulnerable countries; see also UNECE (2005: chap. 4) on the external fragility of the Turkish economy. Until recently, Brazil was also widely expected to face debt servicing difficulties: see Williamson (2002) and Goldstein (2003).

neither debtor countries nor the international financial architecture have mechanisms in place to deal with such an eventuality in an orderly way.

By contrast, there has been a growing exposure to foreign currency risk of the private sector, notably non-financial corporations, in emerging market economies. Since the beginning of the decade, many of them have increased borrowing in reserve currencies, particularly where domestic rates have been relatively high and currencies stable or appreciating. Consequently, a hike in international interest rates and a sudden stop in capital flows can pose serious risks of insolvency in the corporate sector in several emerging market economies.

Conclusions

As an exercise in inter-temporal accounting, assessing debt sustainability is no doubt a daunting task. The economic environment that affects the evolution of debt ratios is highly variable and uncertain; no government can make a credible commitment for the foreseeable future to adhere to a particular policy stance. A constant and even a falling debt ratio may be unsustainable over the longer-term if the domestic and external environment evolves unfavourably and the government is unable to respond to changed circumstances by squeezing out the surplus needed.

The level of debt that should be considered as sustainable also varies considerably across countries as there is no single “safe” debt ratio that could apply to all. First, the amounts of primary budget and/or current account surplus needed to stabilize debt can be different in different countries with similar degrees of indebtedness depending on the terms and conditions of their debt stocks and potential growth rates. Second, countries differ in their ability to generate budget and/or trade surpluses needed, depending not only economic factors such as their tax and export bases, but also socio-economic characteristics.

The standard framework can only tell us how much surplus is needed to stabilize the debt ratio for given values of its determinants, but not whether a particular debt profile can be sustained over time. It says nothing about dynamic interactions among the key variables that determine the evolution of debt ratios, and treats fiscal and external sustainability independently without specifying the interactions between the two.

The IMF uses the standard framework for assessing the sustainability of emerging market economies’ public and external debt without addressing its shortcomings. By doing so, it focuses primarily on fiscal sustainability and fails to take proper account in its policy recommendations of financial market instability and the implications of boom-bust cycles in capital flows for fiscal sustainability and balance-of-payments stability. Its projections for public and external debt and capital inflows are highly optimistic, reflecting in large part the confidence it places in orthodox fiscal and financial policies and the efficiency of markets in assessing and handling risks. More importantly, its policy advice gives primacy to meeting debt service obligations over poverty and development objectives.

Correction of these shortcomings in the IMF’s approach to sustainability calls for a clear recognition of the inherent instability of international capital flows, the threat that corporate balance-sheet vulnerability can pose for balance-of-payments and fiscal sustainability, and the role of capital account measures in regulating capital inflows and preventing a build-up of external financial fragility. It also calls for including growth and poverty objectives as explicit constraints in debt sustainability assessments, treating debt servicing, rather than public social and infrastructure spending, as residual.

The Fund's assessments of sustainability of emerging market economies' public and external debt do not only underpin its policy advice to these countries in the context of country programs or bilateral surveillance, but also provide the basis for its advice to bilateral creditors in the context of official debt initiatives. Moreover, they play a key role in decisions regarding the nature and extent of relief that debtor countries may receive. The Fund's approach to debt and debt sustainability shapes its lending policies and crisis intervention. The tendency of the Fund to bail out creditors and to lend into unsustainable debt positions not only aggravates financial instability by encouraging moral hazard, but also tilts the balance against debtors in burden sharing. In these respects, the Fund suffers from a major inconsistency. On the one hand, in its analytical work, it has come to the conclusion that public debt ratios in many emerging market economies are above what is generally considered as "safe" or "sustainable" levels while, on the other hand, its policy advice and lending policies seek to sustain such debt. This dilemma cannot be addressed without a fundamental reform of the international financial architecture to bring about mechanisms for orderly debt workouts and to ensure that Fund lending is designed to sustain economic activity in debtor countries, rather than to bail out creditors (Akyüz 2002, 2005).

The nature of existing fragilities in several emerging market economies suggests that a reversal of favourable global cyclical conditions could pose serious difficulties, not only for external sustainability but also, and more importantly, for fiscal sustainability. In most emerging market economies, domestic debt now accounts for a larger proportion of total public debt, while in several of them, external debt is lower, even in absolute terms. Their current account positions compare very favourably with those observed on the eve of crises in several emerging markets in the 1990s. Many of them have accumulated large amounts of international reserves which, in some cases, exceed total external sovereign debt. By contrast, domestic debt servicing is increasingly becoming a pressing issue. Not only does it carry a higher interest rate than external debt, but its maturities are much shorter. Many governments in emerging markets are unable to generate adequate amounts of primary surplus to stabilize their public debt ratios. A worsening of global financial conditions may thus create difficulties, not so much for external transfers as for budgetary transfers—that is, it may lead to a fiscal, rather than a balance-of-payments, crisis. A sudden stop in capital flows could also affect the corporate sector in many emerging markets in view of its growing exposure to currency risks in recent years, generating deflationary impulses and making it even more difficult for the public sector to mobilize budgetary resources. These would certainly pose greater challenges to governments in debt management than those they are accustomed to, since restructuring domestic debt often proves to be more difficult than restructuring external debt.

References

- Abiad, A., and J.D. Ostry (2005). Primary Surpluses and Sustainable Debt Levels in Emerging Market Countries. IMF Policy Discussion Paper PDP/05/06, International Monetary Fund, Washington, D. C.
- Akyüz, Y. ed. (2002). *Reforming the Global Financial Architecture: Issues and Proposals*. London: Zed Books.
- Akyüz, Y. (2005). Reforming the IMF: Back to the Drawing Board. G-24 Discussion Paper 38, United Nations Conference on Trade and Development, Geneva.
- Akyüz, Y. (2006). From Liberalization to Investment and Jobs: Lost in Translation. ILO Working Paper 74, International Labour Office, Geneva.
- Akyüz, Y. (2007). Global Rules and Markets: Constraints over Policy Autonomy in Developing Countries. TWN Global Economy Series No. 10, Third World Network, Penang.
- Bacha, E. L. (1990). A Three-Gap Model of Foreign Transfer and the GDP Growth Rate in Developing Countries. *Journal of Development Studies* 32: 279-296.
- Bagnai, A. (2004). Keynesian and Neoclassical Fiscal Sustainability Indicators, with Applications to EMU Member Countries. Working Paper 75, December, Università Degli Studi di Roma "La Sapienza", Rome.
- Barro, R., and X. Sala-I-Martin (1995). *Economic Growth*. New York: Mc-Graw Hill.
- BIS (2003). Fiscal Issues and Central banking in Emerging Markets. BIS Papers 20, Bank of International Settlements, Basel.
- BIS (2007). *77th Annual Report*. Basel: Bank of International Settlements.
- Blanchard, O. (2004). Fiscal Dominance and Inflation targeting: Lessons from Brazil. NBER Working Paper 10389, National Bureau of Economic Research, Cambridge, MA.
- Blanchard, O., and S. Fischer (1989). *Lectures on Macroeconomics*. Cambridge: The MIT Press.
- Blanchard, O., J.-C. Chouraqui, R.P. Hagemann and N. Sartor (1990). The Sustainability of Fiscal Policy: New Answers to an Old Question. *OECD Economics Studies* 15.
- Bohn, H. (1995). The Sustainability of Budget Deficits in a Stochastic Economy. *Journal of Money, Credit and Banking*. 27 (1): 257-271.
- Bohn, H. (2005). The Sustainability of Fiscal Policy in the United States. CESifo Working Paper 1446, April, Munich.
- Calvo, G. (2003). Explaining Sudden Stops: Growth Collapse and BOP Crises: The Case of Distortionary Output Taxes. NBER Working Paper 9864, National Bureau of Economic Research, Cambridge, MA.
- Calvo, G., A. Izquierdo, and E. Talvi (2003). Sudden Stops, the Real Exchange Rate, and Fiscal Sustainability: Argentina's Lessons. NBER Working Paper 9828, National Bureau of Economic Research, Cambridge, MA.
- Campos, C.F.S., D. Jaimovich and U. Panizza (2006). The Unexplained Part of Public Debt. *Emerging Markets Review* 7 (3): 228-243.
- Chalk, N., and R. Hemming (2000). Assessing Fiscal Sustainability in Theory and Practice. IMF Working Paper WP/00/81, International Monetary Fund, Washington, DC.
- Christensen, J. (2005). Domestic Debt Markets in Sub-Saharan Africa. *IMF Staff Papers* 52 (3): 518-38.
- Cline, W.R. (2003). HIPC Debt Sustainability and Post-relief Lending Policy. Issue Paper on Debt Sustainability, August, HIPC Unit, World Bank, Washington, DC.
- Cline, W.R. (2005). The Case for Lender-of-Last-Resort Role for the IMF. Paper prepared for the Conference on IMF Reform. Institute for International Economics, Washington, DC, September 23.
- Croce, E., and V. H. Juan-Ramón (2003). Assessing Fiscal Sustainability: A Cross-Country Comparison. IMF Working Paper WP/03/145, International Monetary Fund, Washington, DC.
- De Alessi Gracio, C., G. Hoggarth and J. Yang (2005). Capital Flows to Emerging Markets: Recent Trends and Potential Financial Stability Implications. *Bank of England Financial Stability Review*. December: 94-102.
- Edwards, S. (2001). Does the Current Account Matter? NBER Working Paper 8275, National Bureau of Economic Research, Cambridge, MA.
- Frenkel, Roberto, and M. Rapetti (2006). Monetary and Exchange Rate Policies in Argentina after the Convertibility Regime Collapse. September, CEDES, Buenos Aires.
- Goldstein, M. (2003). Debt Sustainability, Brazil and the IMF. Working Paper 03-1. Institute for International Economics, Washington, DC.

- Goldstein, M. (2005). What Might the Next Emerging-Market Financial Crisis Look Like? Working Paper 05-7. Institute for International Economics, Washington, DC.
- Hamilton, J.D., and M.D. Flavin (1986). On the Limitations of Government Borrowing: A framework for Empirical Testing. *American Economic Review* 76 (4): 808-819.
- Hauner, D. and M.S. Kumar (2005). Financial Globalization and Fiscal Performance in Emerging Markets. IMF Working Paper WP/05/212, International Monetary Fund, Washington, DC.
- Hjertholm, P. (2001). Debt Relief and the Rule of Thumb: Analytical History of HIPC Debt Sustainability Targets. WIDER Discussion Papers No. 2001/68, World Institute for Development Economic Research, Helsinki.
- Hofman, B., and H. Reisen (1990). Debt Overhang, Liquidity Constraints and Adjustment Incentives. Working Paper 32, OECD Development Centre, Paris.
- Hoggard, G., and V. Saporta (2001). Costs of Banking System Instability: Some Empirical Evidence. *Bank of England Financial Stability Review* June: 148-165
- Hostland, D., and P. Karam (2005). Assessing Debt Sustainability in Emerging Market Economies Using Stochastic Simulation Methods. IMF Working Paper WP/05/226, International Monetary Fund, Washington, DC.
- IEO (IMF Independent Evaluation Office) (2003). *Fiscal Adjustment in IMF-Supported Programs*. Washington, DC: International Monetary Fund.
- IEO (2005). *Report on the Evaluation of the IMF's Approach to Capital Account Liberalization*. Washington, DC: International Monetary Fund.
- IMF (2002a). Assessing Sustainability. SM/02/06. May 28. International Monetary Fund, Washington, DC.
- IMF (2002b). *Global Financial Stability Report*. December. International Monetary Fund, Washington, DC.
- IMF (2003a). Sustainability Assessments - Review of Application and Methodological Refinements. Discussion Paper, June, International Monetary Fund, Washington, DC.
- IMF (2003b). *World Economic Outlook*. September, International Monetary Fund, Washington, DC.
- IMF (2004). *Global Financial Stability Report*. April. International Monetary Fund, Washington, DC.
- IMF (2005a). *Global Financial Stability Report*. April. International Monetary Fund, Washington, DC.
- IMF (2005b). Information Note on Modifications to the Fund's Debt Sustainability Assessment Framework for Market Access Countries. July, International Monetary Fund, Washington, DC.
- IMF (2005c). *World Economic Outlook*. September, International Monetary Fund, Washington, DC.
- IMF (2006). *Global Financial Stability Report*. April. International Monetary Fund, Washington, DC.
- IMF/GIE (IMF Group of Independent Experts) (1999). *External Evaluation of IMF Surveillance*. Report by a Group of Independent Experts. International Monetary Fund, Washington, D.C.
- IMF/WB (2006). *Fiscal Policy for Growth and Development: An Interim Report*. Development Committee DC2006-0003, International Monetary Fund, Washington, D.C.
- Jeanne, O., and A. Guscina (2006). Government Debt in Emerging Market Countries: A New Data Set. IMF Working Paper WP/06/98, International Monetary Fund, Washington DC.
- Kaminski, G.L., C.M. Reinhart and C.A. Végh (2004). "When it Rains, it Pours: Procyclical Capital Flows and Macroeconomic Policies". In M. Gertler and K. Rogoff (eds). *NBER Macroeconomics Annual*. Cambridge, MA: MIT Press.
- Kregel, Jan (2004). External Financing for Development and International Financial Stability. G-24 Discussion Paper 32, UNCTAD, Geneva.
- Lane, P.R., and G.M Milesi-Ferretti (2006). The External Wealth of Nations Mark II: Revised and Extended Estimates of Foreign Assets and Liabilities, 1970-2004. IMF Working Paper WP/06/69, International Monetary Fund, Washington DC.
- Manasse, P., N. Roubini and A. Schimmelpfennig (2003). Predicting Sovereign Debt Crises. IMF Working Paper WP/03/221, International Monetary Fund, Washington DC.
- Mehl, A., and J. Reynaud (2005). The Determinants of 'Domestic' Original Sin in Emerging Market Economies. Working Paper 560, European Central Bank, Frankfurt.
- Mihaljek, D., and B. Tissor (2003). Fiscal Positions in Emerging Economies: Central Bank Perspective. In *Fiscal Issues and Central Banking in Emerging Markets*. BIS Papers 20, Bank of International Settlements, Basel.
- Moreno, Ramon (2003). Fiscal Issues and Central Banking in Emerging Economies: An Overview. In *Fiscal Issues and Central banking in Emerging Markets*. BIS Papers 20, Bank of International Settlements, Basel.

- Pasinetti, Luigi (1998) The myth (or folly) of the 3% deficit/GDP Maastricht Parameter. *Cambridge Journal of Economics* 22: 103-116.
- Reinhart, Carmen (2002). Default, Currency Crises and Sovereign Credit Ratings. NBER Working Paper 8738, National Bureau of Economic Research, Cambridge, MA.
- Reinhart, Carmen, K.S. Rogoff, and M.A Savastano (2003). Debt Intolerance. In *Brookings Papers in Economic Activity*: 1. Brookings Institution, Washington, DC: 1-62.
- Reisen, Helmut (1998). Sustainable and Excessive Current Account Deficits. Working Paper No. 132, OECD Development Centre, Paris.
- Reisen, Helmut, and A. van Trotsenburg (1988). *Developing Country Debt: the Budgetary and Transfer Problem*. Paris: OECD Development Centre.
- Roubini, Nouriel (2001). Debt Sustainability: How to Assess Whether a Country is Insolvent? Processed, December 20, Stern School of Business, New York University, New York.
- Tovar, C.E. (2005). International Government Debt Denominated in Local Currency: Recent Developments in Latin America. *BIS Quarterly Review*. December: 109-118.
- UN (2006). *World Economic and Social Survey 2006: Diverging Growth and Development*. New York: United Nations.
- UNCTAD (various years). *Trade and Development Report*. Geneva: United Nations.
- Williamson, John (2002). Is Brazil Next? International Economics Policy Briefs PB 02-7. Institute for International Economics, Washington, DC.
- World Bank (2003). *Turkey. Country Economic Memorandum*. World Bank, Washington, DC.
- World Bank (2006). *Global Economic Prospects*. World Bank, Washington, DC.
- Yeldan, Erinc (2007). Patterns of Adjustment under the Age of Finance: The Case of Turkey as a Peripheral Agent of Neoliberal Globalization. Working Paper 126, Political Economy Research Institute (PERI), University of Massachusetts, Amherst, MA.

Fiscal and External Sustainability

Public debt

Define the ratio of total public debt to nominal GDP as:

$$d = (D + \varepsilon E_p^*) / Y \quad (1)$$

where D is domestic-currency debt, ε the exchange rate (domestic currency per dollar) and E_p^* is public debt dominated in dollars. From the budget identity:

$$d_t = d_{t-1}[(1 + r_t)/(1 + g_t)] - p_t \quad (2)$$

where g is the growth rate, p the ratio of primary surplus to GDP, and

$$r = \beta\rho + (1 - \beta)\rho^* \quad (3)$$

the weighted average of real interest rates on domestic debt (ρ) and external debt (ρ^*) with the weights given by the shares of domestic and external debt.

$$\rho^* = \frac{(1 + i^*)(1 + \varepsilon')}{(1 + \pi)} - 1 \quad (4)$$

is the real interest rate on external debt in domestic currency terms, i^* the nominal dollar interest rate, ε' the rate of change of the exchange rate (positive for depreciation) and π the rate of inflation. For the debt ratio to remain unchanged or decline:

$$p \geq [(r - g)/(1 + g)]d \quad (5)$$

External Debt and Balance-of-Payments

Define the ratio of external debt in domestic currency terms to nominal GDP as:

$$e = \varepsilon E^* / Y \quad (6)$$

where E^* is total external debt in dollars including external public debt (E_p^*). Let b stand for the ratio of trade balance in domestic currency terms to nominal income (that is, $\varepsilon TB^*/Y$ where TB^* is the trade balance in dollar terms). From the balance-of-payments identity:

$$e_t = e_{t-1}[(1 + \rho^*_t)/(1 + g_t)] - b_t \quad (7)$$

gives the time path of the ratio of external debt to GDP, assuming that public and private sectors borrow at the same rate. For the external debt ratio to remain unchanged or decline:

$$b \geq [(\rho^* - g)/(1 + g)]e \quad (8)$$