

Martin Guzman* and Daniel Heymann

The IMF Debt Sustainability Analysis: Issues and Problems

DOI 10.1515/jgd-2015-0034

Abstract: This paper reviews the IMF DSA (Debt Sustainability Analysis) framework. We first examine the concept of debt sustainability, and argue that the evaluation exercise necessarily entails putting into question market expectations embodied in yield spreads. When the views of the analyst on the capacity of debt repayment differ from the ones reflected in market interest rate premiums, the use of market interest rates for assessing debt sustainability leads to an inconsistency that will in turn bias the assessment. We then show that IMF projections for assessing debt sustainability have been repeatedly biased, which may have contributed to distort the timing of sovereign debt restructurings and the consequent processes of renegotiation. We conclude with a discussion on how the existing DSA framework could be improved.

Keywords: International Monetary Fund; public debt sustainability; Sovereign debt restructuring.

JEL Codes: E37; F34; G01; H12; H63; H68.

1 Introduction

By its very nature as a forward- looking exercise, debt sustainability analysis (DSA) implies forming expectations about the future performance of debt-repayment capacities. These, in turn, will depend on the actions and beliefs of economic agents. Ultimately, the task of the analyst, based on her preferred model for projecting the evolution of the economy under analysis, entails evaluating the quality of the anticipations of market participants. The practice of DSA does not go well with the assumption of rational expectations.

In a world where the efficient market hypothesis held strictly, DSA would serve no purpose, except perhaps to validate what all relevant actors already

*Corresponding author: **Martin Guzman**, Department of Economics & Finance, Columbia University GSB, IIEP-BAIRES (Universidad de Buenos Aires-CONICET), UNLP, and CIGI, e-mail: martin.guzman@gmail.com

Daniel Heymann: IIEP-BAIRES (Universidad de Buenos Aires-CONICET) and Universidad de San Andres

knew. The yield differentials between assets would incorporate accurate perceptions of the payments to be realized in the set of possible states of nature, and their actual probability of occurrence. With incomplete contracts, formally unconditional debt agreements may not necessarily be fulfilled as written in all states, but these “defaults” simply reflect the realization of random events whose likelihood has been accurately anticipated by agents, and priced accordingly. Full repayment with certainty is not what the parties actually contracted, but all will get what they bargained for. Debt sustainability in the economic sense applies whatever is the mass of “default” states. The analyst, who by assumption must share the beliefs of the players (since the right model coincides with that implicitly followed by economic actors), can only record the correctness of market expectations, as embodied in the contractual interest rate on the debt, which she will find appropriate given the contingencies involved. Thus, there would be no need for DSA, as market risk-premiums would be perfect indicators of the probabilities and magnitudes of debt repayment.

The fact that the IMF engages in DSA indicates that its beliefs may differ from market beliefs, and that, as a matter of fact, it does not trust the efficiency of debt markets. Recognizing the fallibility of market expectations has operational implications for the DSA exercises, which we will discuss in the next section. In brief, when market interest rates may reflect incorrect expectations, as judged by the analyst, the evaluation of debt sustainability may mean different things: i) estimating the “right” interest rate that would apply if all agents shared the analyst’s model, and contingent repayments were calculated accordingly, which would provide a counterfactual to the observed market spreads; ii) estimating the interest rate that the analyst’s model would consider appropriate given that the actual rate governs in fact the size of the obligations assumed by the debtor; iii) performing the previous exercise in case the analyst represents an agent who may contemplate participating in the debt market with substantial volumes of resources. Since these notions are clearly different, the practice, and the suggested interpretation of DSAs, should specify what is meant to be evaluated. Another important issue (which we do not address here) concerns the way in which a major international player like the IMF should respond when its evaluations differ considerably from those of the markets.

In any case, the quality of a DSA depends crucially on the macroeconomic projections used in forecasting the growth prospects of the economy and its responses to external conditions (including the relevant outlook of financial markets) and to policy measures. From this point of view, the performance of the IMF has shown significant weaknesses, especially for crisis economies. The problem seems twofold: in the evaluation of growth possibilities, and the analysis of policy alternatives (sometimes leading to advice or conditionality). In Section 3 we document

that IMF forecasts for economies in distress have been often inaccurate. The IMF also appears to have ignored or downplayed the potential for destabilizing, and ultimately self-defeating effects of fiscal contraction in economies in deep recession or depression. Thus, in various instances, demands for “fiscal consolidation,” have been associated with aggravated debt sustainability troubles.

The IMF is not like any other analyst or creditor. Its actions and pronouncements can also influence substantially the workings of sovereign lending markets. Its assessments are critical for determining whether a country will enter into a phase of debt restructuring. And the elements that govern the DSA framework influence the type of debt contracts that lenders and borrowers will adopt. Our review shows that there is much space for improvement, both in terms of incorporating economic theory that will lead to sounder assessments as well as fostering the adoption of contingent debt contracts that would improve sustainability. These issues are analyzed in Section 4.

Overall, our analysis shows that despite recent attempts for improving the IMF frameworks for DSA (IMF 2011, 2013a), there are still serious deficiencies that should be addressed. The consequences of the existing flaws are generally delays in the recognition of the needs of public debt restructuring as well as the legitimization for IMF interventions consistent with the IMF lending framework that aggravate recessions, turning them into depressions, and that create large inter-creditor inequities.

2 Assessing Debt Sustainability under Heterogeneous Beliefs

We consider here in a very basic setup a situation where an analyst engages in an analysis of the debt sustainability of a country that has borrowed funds in the market, and has agreed to a contract promising a yield which may be above the risk-free interest rate, which is the opportunity cost of funds for the lenders, assumed to be risk-neutral. The analyst bases her evaluation on a forecast of repayment prospects which may, or may not, coincide with that of the market participants.

2.1 The Environment

The time horizon is two periods. In period $t=1$, the representative agent of the debtor economy borrows an amount of resources d_1 and assumes a repayment

obligation $(1+r)d_1$ in $t=2$. In the last period, the economy receives an exogenous stochastic endowment y_2 with density function $f(y_2)$.

The budget constraint in $t=2$ is

$$c_2 + (1+r)d_1 = y_2 + d_2$$

where c_2 is the level of consumption. The debt contract has no explicit contingency provision, but in some states of nature the agent may default. The value of terminal debt, d_2 , measures the magnitude of the haircut in the second period:

$$d_2 = \begin{cases} 0, & \text{if } D(y_2) = 0 \\ (1+r)d_1 h, & \text{if } D(y_2) = 1 \end{cases}$$

where $D(y_2)$ is the default decision function and h is the proportion of debt that is not repaid in the default state.

It is assumed that default will be triggered when full debt repayment would imply a level of consumption in the second period lower than a threshold \bar{c} , treated here as exogenously determined.

Hence, the default function $D(y_2)$ is defined as

$$D(y_2) = \begin{cases} 1, & \text{if } y_2 - (1+r)d_1 < \bar{c} \\ 0, & \text{if } y_2 - (1+r)d_1 \geq \bar{c} \end{cases}$$

The analyst and the investor can have different beliefs over the distribution of (y_2) : $f^A(y_2) \neq f^I(y_2)$, where $f^i(y_2)$ is the density distribution function perceived by agent i , $i=A, I$, referring to the analyst and the investor, respectively.

2.2 The Interest Rate and the Default Probability

The true probability of default given an interest rate r is $p(r)$, given by:

$$p(r) = \int_0^{\bar{c} + (1+r)d_1} f(y_2) dy_2$$

Under rational expectations, the borrowing rate r would be r^E , satisfying the arbitrage condition:

$$(1+r^f) = (1+r^E)(1-p(r^E)h)$$

where r^f is the risk-free interest rate, and the default probability and the magnitude of the haircut in the case of default have been properly evaluated:

$$p(r^E) = \int_0^{\bar{c} + (1+r^E)d_1} f(y_2) dy_2$$

Thus, the rational expectations r^E is a fix-point of the mapping that transforms a postulated interest rate into an arbitrated yield, passing through the default probability compatible with the interest rate, using the actual distribution that will determine the repayment capacity of the debtor. Since the default probability depends positively on the interest rate, and viceversa, the potential for multiple equilibria would arise, as (for example) in Calvo (1988) or Miller and Zhang (2014). That possibility may enhance the coordinating role of influential opinions, in order to act as a sort of “well-meaning” sunspot.

But in practice, different agents will generally estimate different default probabilities for a given interest rate, depending on their evaluation of the distribution of the future income of the debtor:

$$p^i(r) = \int_0^{\bar{c} + (1+r)d_1} f^i(y_2) dy_2 \quad i=A, I$$

Assuming for the sake of the argument that prospective lenders have similar perceptions, the market interest rate r would reflect the beliefs of market participants and be given by r^I :

$$(1+r^f) = (1+r^I)(1-p^I(r^I)h)$$

2.3 The Meanings of Sustainability Analysis

Debt sustainability is an ambiguous concept. With formally unconditional contracts, it may be interpreted as requiring that the written obligation is paid wholly in all possible states of the world. This implies that the borrower issues riskless bonds, and the right interest rate should incorporate no default premium. If the market rate is higher than this level, a condition of full repayment with certainty would entail a “super sustainability,” which should in principle be considered excessive since it validates a market bias in making provisions for irrelevant default scenarios. But riskless liabilities are not the only, or even the preferable forms of debt. With complete contracts, establishing sustainability would imply checking that, according to the analyst, the payments that the agreement has determined in each possible state of the world will be realized in fact, and that, when pricing the asset, the parties have appropriately contemplated the corresponding probabilities (cf. Bohn 1995). When considering *implicitly* contingent contracts, the possibility of examining the chances of implementation of the promises that the

parties have actually written does not arise. The interpretation of sustainability would shift to a correspondence between asset prices and the probabilistic repayment flows that are expected to be realized in the future (cf. Heymann 2009). The estimation of the repayment capacities that determine those flows must rely on conjectures which can well differ between observers (cf. Heymann 1996). At any rate, the likelihood of incomplete fulfillment of formally unconditional contracts will depend on the interest rates that reflect market expectations. Thus, in assessing sustainability, the analyst would face establishing a contrast between her beliefs and those of the market actors.

Consider now an economist who studies debt sustainability, and who does not participate in the market, or at least has no influence on market outcomes. One way for the analyst to approach the assessment of sustainability is to calculate the equilibrium interest rate (r^A) implicit in her perceived distribution of the future income of the debtor, and the corresponding default probability ($p^A(r^A)$):

$$(1+r^f) = (1+r^A)(1-p^A(r^A)h)$$

with

$$p^A = \int_0^{\bar{c} + (1+r^A)d_1} f^A(y_2) dy_2$$

In this exercise, the analyst would use as a benchmark her evaluation of the correct interest rate. If $r^A \sim r^I$, the analyst will perceive that the market interest rate is approximately right, and infer that market participants are estimating appropriately the likelihood of default. The analyst finds that economic actors are internalizing appropriately the risks involved in their actions: in this sense, sustainability holds, even if full repayment will not necessarily take place with probability one. On the contrary, if $r^A \neq r^I$, the analyst should conclude that market participants are wrong, and will be disappointed, either because lenders are taking inappropriate risks ($r^A > r^I$) or the borrower is charged an excessive interest rate, which in turn makes the probability of default (as judged by the economist) higher than it should be ($r^A < r^I$).

A different notion would correspond to an exercise where the analyst considers the probability of default estimated given the market interest rate, and the distribution of future incomes perceived by the economist:

$$p^A(r^I) = \int_0^{\bar{c} + (1+r^I)d_1} f^A(y_2) dy_2$$

It can be noted that the probability is predicated on a “wrong” market interest rate; if $r^A < r^I$, the analyst, now viewed as a (small) lender, would in principle

be willing to lend at an interest rate above a reservation level r^{AI} (with $r^A < r^{AI} < r^I$) that satisfies:

$$(1+r^f) = (1+r^{AI})(1-p^A(r^I)h)$$

This discussion has shown that the appropriate interest rate will be different for different observers according to their beliefs. The way these heterogeneities are incorporated in the frameworks for assessing debt sustainability will have effects both on judgments and may also affect outcomes.

By using the market interest rate to assess sustainability, an analyst with different beliefs than the market would be using a price that corresponds (in her understanding) to a situation of disequilibrium. This will bias the analysis of debt sustainability, in a way that will tend to reproduce the assumed disequilibrium.

3 An Assessment of the IMF DSA Framework

3.1 Concepts and Definitions

As it was just discussed, a definition of sustainability which requires “highly likely” full servicing of debts which incorporate substantial provisions for default in the contractual terms themselves does not appear to be analytically appropriate. This issue is hardly recognized in the literature or in the IMF DSA framework. The IMF associates debt sustainability with full repayment; following this criterion, the DSA refers to scenarios where public debt is sustainable with different probabilities (typically defined as “high” or “low” probability).¹ The consequent policy approach to pursue sustainability has fiscal adjustment as the central element. IMF (2011) puts it clearly: “*The fiscal policy stance can be regarded as unsustainable if, in the absence of adjustment, sooner or later the government would not be able to service its debt.*”

A more recent definition (IMF 2013) considers public debt as *sustainable when “the primary balance needed to at least stabilize debt under both the*

¹ Definitions for sustainability generally adopted in the theoretical and empirical literature fall under this category. For example, Bohn (1998, 2008) states that a sufficient condition for sustainability would be that the primary balance always reacts positively to lagged debt. Ghosh et al. (2013) define as a criterion that the public debt should be expected to converge to some finite proportion of GDP.

baseline and realistic shock scenarios is economically and politically feasible, such that the level of debt is consistent with an acceptable low rollover risk and with preserving potential growth at a satisfactory level.” A sovereign which satisfies this condition would be unduly burdened with a non-zero “country risk” spread.

3.2 Elements

The two main analytical elements of a DSA are the **indicators** used to describe the state of the economy in the baseline period and the **projections** that intend to foresee how that state will evolve over time.

The models used for projections capture the understanding of the analyst of the economy under review given her theoretical standpoint, her interpretation of the available evidence, and possibly the “political” constraints that she faces given the sensitive nature of the exercise (cf. Rosnick and Weisbrot 2007). The stage of projections is an essential phase of the DSA, as sustainability judgments will mostly depend on its outcome.

3.3 The IMF Performance

The IMF has tended to underestimate the risks of terminal debt troubles in countries in distress, and to recommend adjustments as if they could somehow restore solvency to already depressed economies, without contemplating the possibility of deviation-amplifying contractionary spirals (Krugman 2013; Jordà and Taylor 2013). This has been a common pattern for different countries and in different times.

IMF (2002) reports that in the cases of Argentina, Brazil, and Lebanon, “projections were consistently over-optimistic: they persistently showed the debt ratio stabilizing after rising for 1 year, while in reality debt levels continued to mount. The large jumps in the debt ratio typically reflected sharp exchange rate depreciations, but there were biases toward overoptimism more generally as well.”

More recently, IMF (2011) shows projections on the ratio of public debt over GDP for different scenarios for a set of countries that experienced a rapid increase in that indicator during the period 2007–2010: Greece, Iceland, Ireland, Italy, Portugal, Ukraine, the United Kingdom, and the United States.² The consultations were done from 2006 to 2008. Most projections are 5 or 6 years ahead, and

² Latvia is another country that belongs to this group, but the report does not include projections for this country; hence we exclude it from the sample.

Table 1: IMF Public Debt/GDP Projections and Reality.

Country	Year of Article IV report	Projection year	Projected debt/GDP		Actual debt/GDP ratio (at projected year)	Difference baseline scenario	Difference most extreme shock
			Baseline	Most extreme shock			
Greece	2007	2013	72	98	174.95	-102.95	-76.95
Iceland	2008	2013	36	-	85.28	-49.28	-
Ireland	2007	2012	6	16	120.24	-114.24	-104.24
Italy	2008	2013	111	122	128.54	-17.54	-6.54
Portugal	2008	2013	62	-	129.66	-67.66	-
Ukraine	2006	2011	14	39	36.88	-22.88	2.12
United Kingdom	2008	2012	43	53	85.82	-42.82	-32.82
United States	2008	2013	55	67	104.78	-49.78	-37.78

Sources: IMF (2011), various IMF Article IV Consultation Staff Reports, and IMF WEO.

they include a baseline scenario as well as an extreme scenario defined as “most extreme shock.”

Once again, an ex-post examination shows that forecasts were substantially biased, even in the scenario considered as the most extreme. Table 1 shows the discrepancies between the projected and the actual public debt over GDP ratios. In all cases, the IMF underestimated the actual rise. The larger disparity occurs for Greece, where the ratio is underestimated by more than 100 percent for a horizon of 6 years in the baseline scenario, and 77 percent in the most extreme shock case.

In all cases, the IMF suggested fiscal consolidation as the means to restore debt sustainability. Not only did sustainability not improve according to the IMF definition, but also the economic situation got worse. Table 2 describes a set of key indicators of real economic conditions, namely cumulative GDP growth between the year of the consultation and the year of the projection, changes in unemployment and labor force participation over that period. The last column lists the years in which the country made a fiscal adjustment, defined as a period where the cyclically adjusted primary balance improves by at least 1.5% of potential GDP (Alesina and Ardagna 2010). For the purpose of that calculation, potential GDP is defined as the estimate of the level of GDP that can be reached if the economy’s resources are fully employed (IMF Fiscal Monitor).

The countries in the sample that performed better were the ones with a less contractionary fiscal policy. According to Alesina and Ardagna (2010)’s definition, countries that followed an expansionary fiscal policy can still fall under the classification of fiscal adjustment is the primary balance relative to potential GDP increased by more than 1.5 percent. That is, for instance, the case of the

Table 2: Economic Performance after IMF Article IV Report.

Country	Year of Article IV report	Projection year	Cumulative growth rate	Unemployment rate variation	Participation rate variation	Years in which there was a fiscal adjustment
Greece	2007	2013	-29.62	19.07	-0.2	2010, 2011, 2012, 2013
Iceland	2008	2013	-1.20	2.40	-1.9	2010, 2011, 2012, 2013
Ireland	2007	2012	-4.66	10.00	-3.4	2009, 2010, 2011, 2012
Italy	2008	2013	-7.65	5.41	0.0	2007, 2012
Portugal	2008	2013	-8.54	8.63	-2.2	2011, 2012, 2013
Ukraine	2006	2011	1.05	1.05	0.8	-
United Kingdom	2008	2012	-0.10	2.25	-0.3	2010, 2011
United States	2008	2013	5.07	1.57	-2.4	2011, 2012, 2013

Sources: IMF WEO and IMF's Fiscal Monitor.

Table 3: Five-Year Cumulative Growth Rates.

	2008–2013			2009–2014		
	Projected	Actual	Difference	Projected	Actual	Difference
Greece	14.70	-29.17	-43.87	5.17	-24.01	-29.17
Iceland	6.19	-1.48	-7.66	7.90	5.42	-2.47
Ireland	14.22	-4.01	-18.23	6.05	7.14	1.09
Italy	3.20	-7.65	-10.85	5.83	-2.59	-8.42
Portugal	6.40	-8.54	-14.94	5.20	-4.66	-9.86
Spain	10.39	-7.50	-17.89	5.38	-2.53	-7.91
Ukraine	24.73	-9.20	-33.93	22.86	-0.89	-23.75
United Kingdom	11.83	1.57	-10.26	12.04	8.43	-3.61
United States	10.24	5.90	-4.34	11.53	11.06	-0.47
Euro area	9.20	-1.50	-10.70	3.31	-1.10	-4.41

Source: Own elaboration based on IMF WEO.

United States from 2011 to 2013 (see Table 3 for the series of primary balance relative to potential GDP). Figure 1 shows that the correlation between the IMF cumulative GDP forecast error and fiscal tightening (measured as the change in the cyclically adjusted primary balance) is negative for the countries in the sample for the period 2008–2013: countries with tighter fiscal policies experienced a

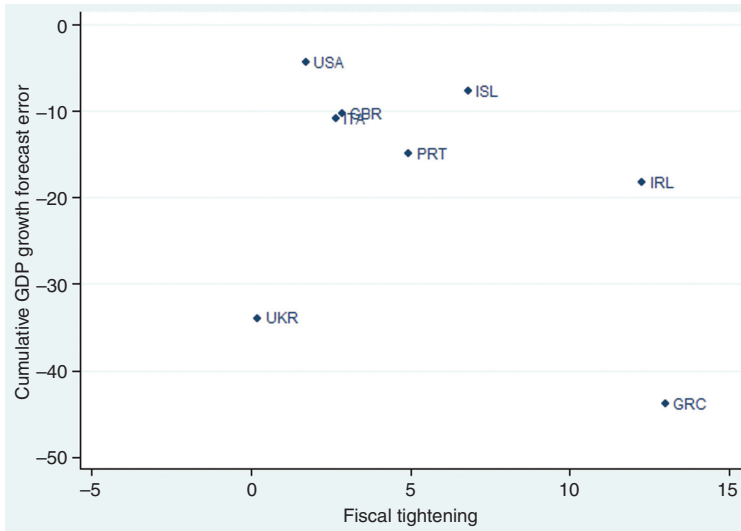


Figure 1: Cumulative GDP Growth Forecast Errors and Fiscal Adjustments.

comparatively worse performance relative to the IMF GDP forecasts (see also Krugman 2015).

Besides, the increases in the unemployment rate were the lowest in the countries that followed more expansionary fiscal policies. In contrast, the country that did worse was the one with the largest fiscal adjustment: Greece, where GDP fell by almost 30 percent and unemployment increased 19 percentage points. In recent years, IMF researchers have shown an increasing recognition of non-linear real activity responses to fiscal policies and, specifically, of the potentially large multipliers of fiscal contractions in already depressed economies, with the consequent danger of destabilizing effects (see Blanchard and Leigh 2013).

Part of the problem with the IMF DSA performance is the choice of the metric for assessing success. The IMF focuses on the primary surplus instead of on the overall economic recovery – a broader concept which in turn conditions the long-term capacity of debt repayment.³ But in many cases occasional improvements in primary fiscal results are not associated with economic recovery or long-term debt sustainability (Jayadev and Konczal 2010, 2015).

³ The favorable narrative of IMF (2011) on the effects of the implemented programs illustrates this issue: “Episodes of significant fiscal correction have been numerous, and the correction has generally been larger when the starting fiscal position was worse. There were 30 instances in which countries were able to improve their 5-year average primary balance by at least 5 percentage points of GDP relative to the average of the previous 3 years.” The statement does not address the macroeconomic context of those fiscal corrections, or whether they led to an end of the fiscal and macro troubles.

The systematic over estimation of the capacity of repayment of countries in distress has much to do with the systematic overestimation of the speed of recovery. This feature is especially salient present in the case of the European economies that experienced severe debt difficulties. Figures 2–6 show the recursive IMF WEO GDP forecasts and actual GDP for Greece, Spain, Portugal, and Italy since 2007 up to date. There are large discrepancies between the forecasts and the reality. These discrepancies are not only concentrated at the beginning of the recession (which suggests that the crises did emerge as big surprises), but they systematically persist year after year, revision after revision.

Table 3 shows the forecast error for projections 5-years ahead (only from 2008, 5 year for which such forecasts are available). The sizes of some errors are striking. The extreme case is again Greece, where GDP growth is overestimated by 43.9 points for the period 2008–2013, and by 29.1 points for the period 2009–2014. The only case in which GDP growth is not overestimated is Ireland in 2009–2014⁴.

The IMF's tendency towards over-optimism is not a new phenomenon: Timmermann (2006) had found the same patterns with older data, for the period

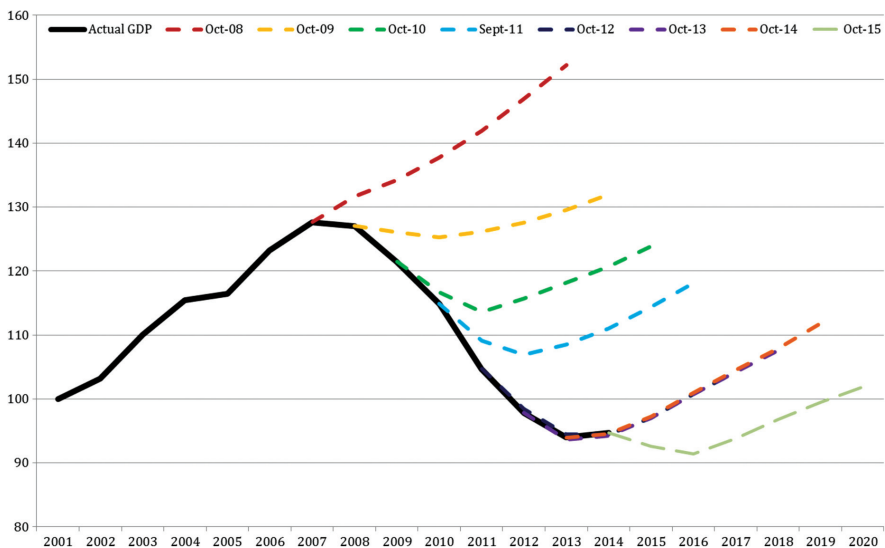


Figure 2: Greece: Actual GDP and IMF's WEO Forecasts Index: 2001=100.

⁴ Obtaining distributions of projections for each year and calculating risk metrics would improve DSAs (Consiglio and Zenios, 2015).

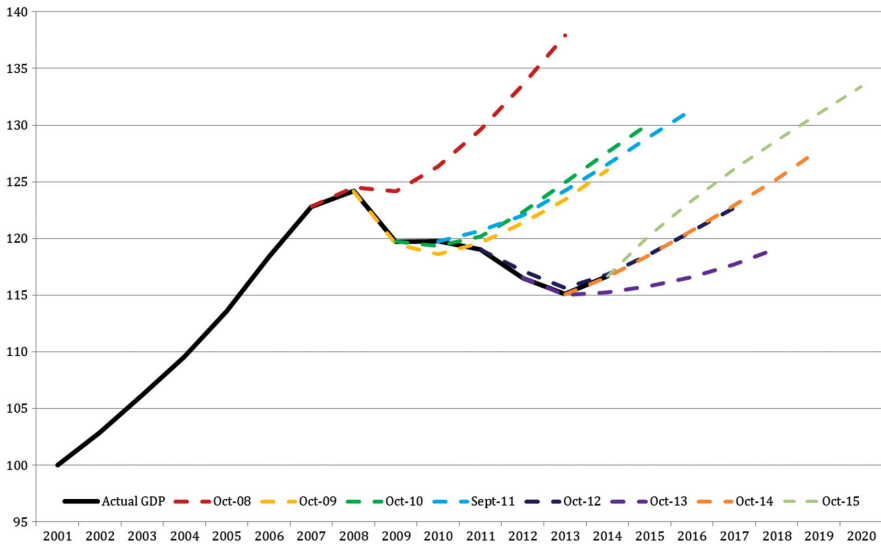


Figure 3: Spain: Actual GDP and IMF's WEO Forecasts Index: 2001=100.

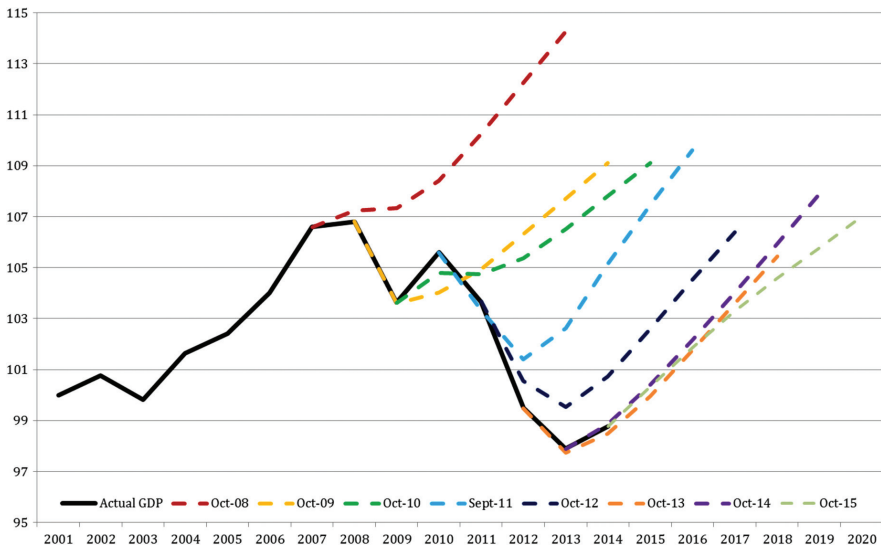


Figure 4: Portugal: Actual GDP and IMF's WEO Forecasts Index: 2001=100.

1990–2003: similarly, WEO real GDP growth forecasts showed a tendency to systematically exceed outcomes. This positive bias was particularly prevalent in countries with an IMF-supported program.

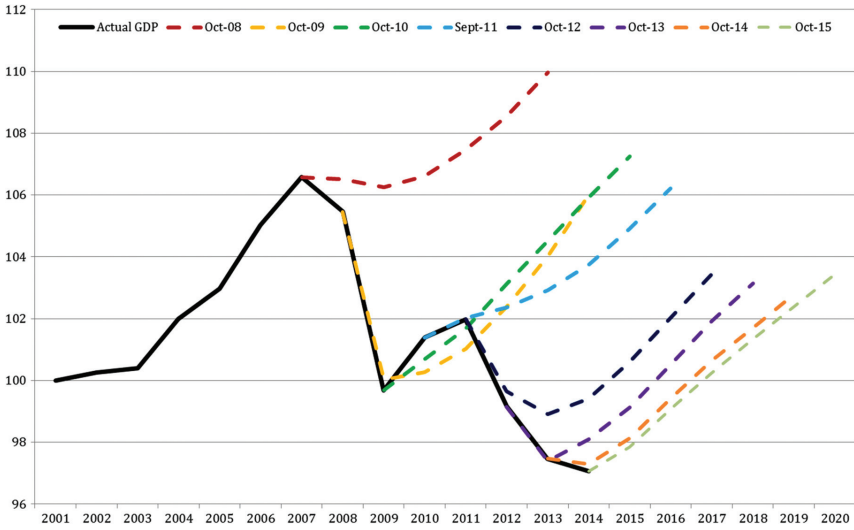


Figure 5: Italy: Actual GDP and IMF's WEO Forecasts Index: 2001=100.

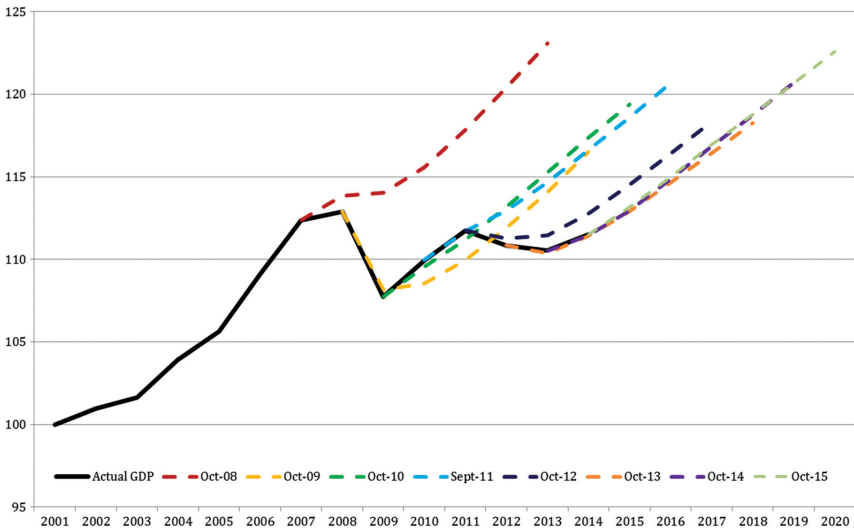


Figure 6: Euro Area: Actual GDP and IMF's WEO Forecasts Index: 2001=100.

3.4 Implications of the IMF DSA

The problems present in debt sustainability assessments have important consequences for the economies in distress and the functioning of sovereign lending markets.

In this regard, exaggerated GDP forecasts lead to an underestimation of the need for debt restructuring. This tends to delay the initiation of restructuring processes that may be required for the economic recovery of the debtor – an issue that is receiving much attention in the recent debate on the framework for the resolution of sovereign debt overhangs (see Guzman et al. 2016).

Besides, IMF bailouts associated with conditionalities which tend to worsen recessions not only hurt the debtor but also the creditors who face a decrease in the expected value of their claims. This effect is two-sided. There is the direct impact of the reduced generation of income of the debtor country. Apart from that, the IMF can only provide funding to countries whose debts are deemed sustainable.⁵ If the IMF considers that debt is sustainable with high probability when it is not, it will be willing to lend into arrears, creating inter-creditor inequities – an issue that is aggravated by the *de facto* senior creditor status of the IMF (Brooks et al. 2015).

The expectation of IMF interventions in the current framework could even increase the market interest rate, when total expected payments to the *de facto* junior creditors decrease as a result of the IMF intervention.

4 Elements for Improving DSA

The IMF DSA exercises can be improved in several dimensions. One element relates to the notion of sustainability itself, by contemplating the undisputable fact that markets do incorporate the eventuality of incomplete repayment when negotiating contractual terms, that those terms influence the chances of future outcomes, and that the expectations of market participants may be wrong (without which the DSAs themselves would be irrelevant). Another aspect to consider would be that of the models used for projections; in this regard, it would matter especially to look closely at the potential operation of negative multipliers of demand-reducing interventions in stressed economies and to consider how debt relief may operate on the restoration of economic growth and repayment capacity itself.

There is also space for extending the consideration of contingent liabilities in the DSA exercises. Currently, the framework does contemplate the impacts of the government's provision of explicit or implicit guarantees to the financial system, liabilities that may be potentially large in the face of widespread

⁵ Although the IMF amended its “exceptional access” lending framework to deal with the Greek crisis (see Schadler 2014).

bank insolvencies and which, by their nature, pass unnoticed in normal times. However, while financial bailouts aggravate fiscal troubles in the event of macroeconomic disruptions, other contingent liabilities like GDP bonds may operate as insurance mechanisms and help aligning incentives of debtors and creditors in promoting economic recoveries of distressed economies. The DSA framework may consider scenarios where such instruments are used and analyze conditions under which their acceptance (which has been historically low) could be enhanced for example, by a participation of multilaterals as market makers.

5 Conclusions

The DSA framework can lead to biases of two types. One, by taking country risk premiums as a datum not subject to question, it can provide an international validation to excessive borrowing costs and potential repayment difficulties for countries that the IMF would consider fundamentally solvent at the appropriate interest rate.

On the other side, the evaluation exercises for countries in distress can exacerbate the *too little, too late* feature that has been observed typically in sovereign debt restructuring (IMF 2014; Guzman and Stiglitz 2015; Guzman et al. 2016). The main cause of this syndrome is the lack of frameworks for facilitating orderly resolutions of crises. But the IMF has also contributed to this deficiency: In various episodes the IMF has highly overestimated the prospects of economic recoveries of countries in distress, when a more realistic assessment would have led to an earlier recognition of the need for debt relief. Furthermore, the use of alternative economic models that take into account the relationship between debt reduction and economic growth would have reinforced the case for more timely restructurings. Instead, the IMF has generally insisted on fiscal consolidation as the right economic policy strategy for *both* restoring sustainability and fostering economic growth, an attitude that can be disputed on the basis of economic theory and relevant evidence (a substantial mass of it produced by the IMF Research Department itself; see Blanchard and Leigh (2013), Eyraud and Weber (2013), IMF (2013b).

The DSA framework could be improved by adding transparency in the description of the models that are used for projections, which may lead to substantive discussions about those analytical instruments. The tension between the factual nature of sustainability assessments and their political sensitivity is no doubt a complicating element.

The IMF lending criteria influence the distribution of risks between debtors and creditors, and also among creditors. The conditionality associated with IMF

operations with countries in distress may create large inter-creditor inequities: as noted, IMF programs have been generally associated with deeper downturns, and hence worse prospects for debt repayment for the other creditors that are in practice junior to the IMF. Better sustainability assessments that lead to better debt policies would also reduce the scope of these inequities.

Acknowledgments: This paper is based on the discussion from the authors on the IMF Frameworks for Assessing Debt Sustainability at a CIGI-IPD Conference on *Sovereign Debt Restructuring* at Columbia University. We are thankful to the participants of that conference, to participants at the Economics Seminar of the Javeriana University of Bogota, the RIDGE workshops at the Central Bank of Uruguay and the Universidad de Buenos Aires, to the Deputy Chief of the IMF Debt Policy Division Ali Abbas for his response to our discussion, to Santiago Camara, Joseph Stiglitz, and Stavros Zenios for valuable comments and suggestions, and to Luis Morano for excellent research assistance. Martin Guzman is thankful to the Institute for New Economic Thinking for financial support.

References

- Alesina, Alberto and Silvia Ardagna (2010) "Large Changes in Fiscal Policy: Taxes versus Spending." In: *Tax Policy and the Economy, Volume 24*, The University of Chicago Press, pp. 35–68.
- Blanchard, Olivier and Daniel Leigh. "Growth Forecast Errors and Fiscal Multipliers", IMF Working Paper, Research Department, WP/13/1.
- Bohn, Henning (1995) "The Sustainability of Budget Deficits in a Stochastic Economy," *Journal of Money, Credit and Banking*, 27:257–271.
- Bohn, Henning (1998) "The Behavior of US Public Debt and Deficits," *Quarterly Journal of Economics*, 113:949–963.
- Bohn, H. (2008) "The Sustainability of Fiscal Policy in the United States." In: (Neck, R. and J. E. Sturm, eds.), *Sustainability of Public Debt*, Cambridge, MA: MIT Press, pp. 15–49.
- Brooks, Skylar, Martin Guzman, Domenico Lombardi and Joseph E. Stiglitz (2015) "Identifying and Resolving Intercreditor and Debtor-creditor Equity Issues in Sovereign Debt Restructuring," *CIGI Policy Brief*, 53.
- Calvo, Guillermo: "Servicing the Public Debt: The Role of Expectations," *American Economic Review*, 78:647–661.
- Consiglio, Andrea and Stavros Zenios. "Risk Management Optimization for Sovereign Debt Restructuring." Forthcoming, *Journal of Globalization and Development* (2015).
- Eyraud L and A Weber (2013) "The Challenge of Debt Reduction during Fiscal Consolidation," IMF working papers 13/67.
- Ghosh, Atish R., Jun I. Kim, Enrique G. Mendoza, Jonathan D. Ostry and Mahvash S. Qureshi (2013) "Fiscal Fatigue, Fiscal Space and Debt Sustainability in Advanced Economies," *The Economic Journal*, 123:F4–F30.

- Guzman, Martin and Joseph E. Stiglitz (2015) “Fixing Sovereign Debt Restructuring”. In: *Too Little, Too Late: The Quest to Resolve Sovereign Debt Crises*, Chapter 1. Columbia University Press. Forthcoming.
- Guzman, Martin, José Antonio Ocampo and Joseph E. Stiglitz (2016) *Too Little, Too Late: The Quest to Resolve Sovereign Debt Crises*. Columbia University Press. Forthcoming.
- Heymann, Daniel (1996) “Una nota sobre indicadores de la deuda externa.” *Revista de Economía*, 3:25–36.
- Heymann, Daniel (2009) “Macroeconomics of Broken Promises.” In: *Macroeconomics in the Small and the Large: Essays on Microfoundations, Macroeconomic Applications and Economic History in Honor of Axel Leijonhufvud*, 74.
- International Monetary Fund (2002) “Assessing Sustainability.” Prepared by the Policy Development and Review Department, in consultation with the Fiscal Affairs, International Capital Markets, Monetary and Exchange Affairs, and Research Departments, approved by Timothy Geithner.
- International Monetary Fund (2011) “Modernizing the Framework for Fiscal Policy and Public Debt Sustainability Analysis.” Prepared by the Fiscal Affairs Department and the Strategy, Policy, and Review Department, approved by Carlo Cottarelli and Reza Moghadam.
- International Monetary Fund (2013a) “Staff Guidance Note for Public Debt Sustainability Analysis in Market-Access Countries.” Prepared by the Strategy, Policy, and Review Department in collaboration with the Fiscal Affairs Department, approved by Siddharth Tiwari.
- International Monetary Fund (2013b) “Greece: Ex Post Evaluation of Exceptional Access under the 2010 Stand-By Arrangement.” IMF Country Report No.13/156, June.
- International Monetary Fund, Strengthening the Contractual Framework to Address Collective Action Problems in Sovereign Debt Restructuring, October (2014).
- Jayadev, Arjun and Mike Konczal (2010) “The Boom not the Slump: The Right Time for Austerity.” University of Massachusetts Boston, ScholarWorks at UMass Boston, Economics Faculty Publication Series.
- Jayadev, Arjun, and Mike Konczal (2015) “Searching for Expansionary Austerity,” University of Massachusetts Boston Working Paper.
- Jordà, Òscar and Alan M. Taylor (2013) *The Time for Austerity: Estimating the Average Treatment Effect of Fiscal Policy*. No. w19414. National Bureau of Economic Research.
- Krugman, Paul (2013) “How the Case for Austerity has Crumbled,” *The New York Review of Books*, June 6, 2013.
- Krugman, Paul (2015) “The Expansionary Austerity Zombie,” *The Conscience of a Liberal*, The New York Times, November 20, 2015.
- Miller, Marcus, and Lei Zhang (2014) “Saving the euro: self-fulfilling crisis and the ‘Draghi put’,” in Joseph Stiglitz and Daniel Heymann, eds.: *Life After Debt: The Origins and Resolutions of Debt Crisis*, Palgrave, pp. 227–241.
- Rosnick, David and Mark Weisbrot (2007) “The IMF’s Flawed Growth Projections For Argentina and Venezuela.” CEPR Publications.
- Schadler, Susan (2014) “The IMF’s Preferred Creditor Status: Does It Still Make Sense After the Euro Crisis.” *CIGI Policy Brief*, 37.
- Timmermann, A. (2006) “An Evaluation of the World Economic Outlook Forecasts,” IMF Working Paper No. 06.