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BORROWING AND DEBT

How Do Sovereigns Get into Trouble?

Arturo C. Porzecanski

1. Introduction

Sovereign debt issuance serves as the primary means for governments to finance their expenditures, and particularly to cover gaps between cash outlays and inflows from genuine revenues, such as those derived from taxation. Under normal circumstances, government bonded debt is highly liquid and is priced to yield the least of any comparable securities, in accordance with the perception that it is the easiest to trade and the most unlikely to experience a default. A secondary function of public debt is to provide a benchmark for all other issuers (such as municipalities, banks, and corporations), as well as for investors (whether institutional or retail), enabling them to price and trade all other, non-sovereign bonds. This reference role is predicated on the usually safe assumption that the yield curve for sovereign bonds sets a lowest-risk floor for all such securities, above which every other security will be priced (in yield or spread terms) depending on its perceived liquidity and default risk. **21.01**

How much public debt should be issued? In principle, it makes good macroeconomic sense to allow government budget outcomes, and thus debt issuance, to fluctuate in reflection of the business cycle, fulfilling a stabilizing, anti-cyclical role. During economic downturns, governments should accept revenue declines (for example owing to lower personal and corporate incomes) and certain spending increases (for example on unemployment benefits and other social safety-net programmes), and thus there is nothing wrong with them running smaller budget surpluses, or even operating deficits, because the economy needs to be supported during such dips. By the same token, during boom times, governments ought to refrain from cutting tax rates and from spending all additional revenues, thereby allowing swelling fiscal incomes to reduce budget deficits or to generate operating surpluses, because the economy does not need to be boosted and, in fact, it may have to be restrained. The case for such fiscal flexibility was first made by the disciples of John Maynard Keynes in the 1940s, and it began to be accepted and implemented in Europe and North America after the Second World War—initially, to rein in post-war inflation through restrictive fiscal policies, rather than to boost aggregate demand and create jobs through government largesse.¹ **21.02**

¹ From the late 1920s until his death in 1946, Keynes supported using public works projects to stimulate aggregate demand at appropriate points in the business cycle, but contrary to the legend that his disciples

- 21.03** In the ensuing decades, however, and especially since the 1970s, most governments have not engaged in the kind of symmetrical, sound fiscal behaviour that would deliver a low *average* level of public indebtedness over the long run. They have instead tended to run smaller budgetary deficits during good economic times and larger deficits during bad times. It is this ‘deficit bias’ that accounts for the enormous accumulation of sovereign indebtedness that has arisen in most countries around the world—in absolute terms and often also relative to rising export earnings, fiscal revenues, or gross domestic product (GDP). The problem is that the larger and heavier the burden of the public debt—all else being equal—the greater the risk that debt-servicing difficulties will be encountered.
- 21.04** There are other circumstances under which sovereigns can get into trouble, often on short notice, at seemingly sustainable levels of indebtedness. A first reason is the existence of contingent liabilities that suddenly come to life, burdening a sovereign with large-scale obligations that undermine its creditworthiness. The unexpected need to provide fiscal resources to compensate bank depositors affected by a systemic banking crisis, or to pay for humanitarian relief and infrastructure reconstruction-related costs (for example in the wake of armed conflict, or a seismic or weather-related calamity), can easily lead to a destabilizing jump in the public debt. A second reason is currency mismatches, such as when a government or the banking system under its protection experiences large losses in the wake of a massive currency devaluation, because too many liabilities (relative to assets) were denominated in foreign currencies and suddenly became very costly to keep servicing in full. A third reason is maturity mismatches, encountered when governments (and potentially also systemically important banks and corporations) rely on short-term funding to cover long-term needs, usually because long-maturity financing is too costly or downright unavailable. This can lead to refinancing problems when maturing obligations cannot easily be rolled over, or else to large unfunded gaps when sizeable maturities come due, or when lines of credit are withdrawn during a period when new financing is hard to obtain.
- 21.05** These and other deleterious circumstances to be discussed later in the chapter explain why sovereign debt crises are usually precipitated by adverse economic or political events that trigger a loss of confidence on the part of creditors just when the government is most vulnerable to a disruption in access to financing. Indeed, it is the sudden development of a large gap between the amount of funding demanded by the government and the supply of funding willingly delivered by bondholders and other creditors, that tends to spawn the kind of ‘perfect storm’ that ends in a sovereign debt crisis. It is a sovereign’s actual or perceived inability to pay maturing obligations that typically precedes a request for debt or debt-service relief—and, in the worst of cases, which leads to an outright default.
- 21.06** There are exceptional circumstances, however, when unwillingness, rather than inability, to pay is the underlying cause of a sovereign default, the purpose of which is to extract unwarranted debt relief concessions from creditors. In these rare cases, governments are disinclined to shoulder the political costs of raising the revenues, or of cutting the expenditures, necessary to generate the fiscal resources to service the public debt on contracted or reasonably modified terms. This reluctance often makes the governments in question ineligible for financial assistance from the International Monetary Fund (IMF) and other

(and also his critics) created, he did not advocate that governments should actually run budget deficits: Roger E. Backhouse and Bradley W. Bateman, ‘Keynesianism’, in Steven N. Durlauf and Lawrence E. Blume (eds) *The New Palgrave Dictionary of Economics Online*, 2nd edn (Basingstoke: Palgrave Macmillan, 2008).

multilateral lending agencies, because they would likely insist on the adoption of unpopular economic stabilization and reform measures—to enhance the government’s ability to pay its obligations in the future. A telltale sign of unwillingness to pay is the refusal to tap even existing—sometimes ample—fiscal or central bank reserves to help to meet payments falling due. Argentina since late 2001, Ecuador in 2008–09, and Belize in 2012 provide vivid examples of sovereigns exhibiting unwillingness to pay.²

2. Budgetary Outcomes

Ever since the early 1970s, budgetary deficits and mounting public indebtedness have become the norm in most countries around the world. Even before the financial crisis of 2008 hit, fiscal balances in both advanced and developing economies had been in the red in each of the prior thirty years, with an average deficit of about 3 per cent of GDP per annum for both groups.³ While there was an improvement in the overall fiscal positions of the advanced economies during the economic boom of the 1990s, it was quickly reversed in the years starting in 2001; the crisis of 2008 then ushered in a five-year period during which twenty-four out of thirty advanced economies were awash in red ink. From 2008 through 2012, the advanced economies, as a group, registered overall deficits that averaged the equivalent of more than 6½ per cent of GDP per annum.⁴ 21.07

One researcher has tabulated the proportion of years during which each of the advanced economies ran a fiscal deficit during the period 1960–2011.⁵ In principle, such observations should account for about half of the years involved, but the record shows that only a handful of countries conformed to the expected pattern: Denmark, New Zealand, and Sweden, with Norway being an outlier because it ran mostly surpluses in the wake of outsized, yet unspent, oil-related revenues. For all other countries, with the exception of Finland, fiscal deficits in fact were registered in at least four years out of every five, with two countries (Italy and Portugal) managing to run deficits in every single year. And countries such as Austria, Greece, and France last achieved a budgetary surplus in the early 1970s. Thus the advanced countries, much more so than the developing ones, have demonstrated that fiscal deficits can be—and have been—the rule with few exceptions during five decades in a row. 21.08

² See Arturo C. Porzecanski, ‘From Rogue Creditors to Rogue Debtors: Implications of Argentina’s Default’ (2005) 6(1) *Chi J Int’l L* 311; Lee C. Buchheit and G. Mitu Gulati, ‘The Coroner’s Inquest’ (2009) 28 *Int’l Fin L Rev* 2 (‘It was the first time in modern history that a sovereign debtor had demanded that its external commercial creditors write off most of their claims... without advancing a plausible argument that financial distress warranted such extraordinary debt relief’); Arturo C. Porzecanski, ‘When Bad Things Happen to Good Sovereign Debt Contracts: The Case of Ecuador’ (2010) 73 *Law & Contemp Probs* 251; Edward Al-Hussainy and Ariane Ortiz Marrufo, *Belize Debt Restructuring: 2007 vs 2012* (1 October 2012), published by Moody’s Investors Service and available online at <<https://www.moody.com/credit-ratings/Belize-Government-of-credit-rating-600046797>>.

³ Manmohan S. Kumar and Teresa Ter-Minassian, ‘Fiscal Discipline: Key Issues and Overview’, in Manmohan S. Kumar and Teresa Ter-Minassian (eds) *Promoting Fiscal Discipline* (Washington DC: International Monetary Fund, 2007), 1.

⁴ IMF, *Fiscal Monitor: Taking Stock—A Progress Report on Fiscal Adjustment* (Washington DC: International Monetary Fund, 2012), available online at <<http://www.imf.org/external/pubs/ft/fm/2012/02/pdf/fm1202.pdf>>, 77. The six countries that proved the exception to the rule were Hong Kong, Korea, Norway, Singapore, Sweden, and Switzerland.

⁵ Charles Wyplosz, ‘Fiscal Rules: Theoretical Issues and Historical Experiences’, in Alberto Alesina and Francesco Giavazzi (eds) *Fiscal Policy after the Financial Crisis* (Chicago, IL: University of Chicago Press, 2013), 495–530.

- 21.09** In most developing economies, budgetary deficits likewise became the rule during the past several decades, the long-running exception being the major Middle East oil exporters with small populations (for example Kuwait, Oman, Qatar, and Saudi Arabia). In the early or mid-2000s, some of the new oil exporters and a few non-oil-commodity-exporting nations were finally able to balance their government budgets and to start running fiscal surpluses (for example Angola, Chile, Kazakhstan, Peru, and Russia), but even they slipped back into deficit, albeit temporarily, in 2009. During 2009–12, the thirty leading developing countries, as a group, recorded overall fiscal deficits averaging about 2¾ per cent of GDP per year.⁶
- 21.10** The international prevalence and persistence of budgetary deficits, and the accompanying rise in public sector indebtedness prior to the budget-busting financial crisis of 2008, have spawned political-economy writings proposing reasons why government officials in so many countries may have exhibited such a ‘deficit bias’. Many different hypotheses have been advanced to explain the phenomenon, but none has prevailed over all others when tested empirically.
- 21.11** Deficit biases may arise because of information asymmetries, as when the electorate is uninformed about the path of public finances, allowing elected officials to engage in riskier fiscal behaviour than otherwise. Another reason may be that politicians’ fear of losing elections (or re-elections) tends to prompt them to make even unwise promises of higher spending or lower taxes—because they certainly *are* more popular with voters than promises to tighten the fiscal belt. In certain situations, there may also be an incentive for an incumbent party concerned about losing to increase spending and pile on debt in order to tie the hands of the opposition party, should it end up winning power. Since public spending projects and targeted tax breaks tend to favour small groups, both lobbyists and legislators may not give due consideration to the full budgetary costs of their decisions. There may be intergenerational transfer problems, such as when neither the electorate nor the political elite cares sufficiently about the fate of future generations, prompting ‘spend now, tax later’ attitudes.⁷ In sum, there has been no dearth of potential explanations for the observed ‘deficit bias’—just as there has been no shortage of prescriptions for how to deal with it, as will be discussed later in the chapter.

3. Contingent Liabilities and Currency Mismatches

- 21.12** The steady accumulation of sovereign indebtedness is usually insufficient to engender a crisis, and the greater risk is that of a sudden, destabilizing jump in the public debt arising out of contingent liabilities or currency mismatches that undercut actual or perceived credit-worthiness.⁸ Examples of contingent liabilities that impose a heavy burden on government balance sheets, and lead to unexpectedly higher government spending, are decisions to pay the costs of resolving systemic banking crises, to provide rescue packages for municipal or state-related enterprises in dire straits, or to rebuild housing and critical infrastructure in the

⁶ IMF (n. 4), 81.

⁷ For a discussion of deficit-bias hypotheses, see Lars Calmfors and Simon Wren-Lewis, ‘What Should Fiscal Councils Do?’ (2011) 26(68) *Econ Pol’y* 649.

⁸ ‘Most debt explosions have little to do with recorded deficits but arise from contingent liabilities often associated with past policies or with inherent vulnerabilities in a country’s debt structure’: see Camila F. S. Campos, Dany Jaimovich, and Ugo Panizza, ‘The Unexplained Part of Public Debt’ (2006) 7(3) *EMR* 228.

aftermath of a devastating war, earthquake, or hurricane.⁹ Currency mismatches that likewise have an immediate impact on the fiscal accounts arise, for instance, from having to confront the suddenly higher cost of servicing the government's foreign-currency-denominated debts, and possibly also those of systemically significant banks and corporations, in the wake of a surprisingly large currency devaluation.

The important explanatory role of such shocks to sovereign creditworthiness has been quantified in numerous studies. The standard analytical procedure followed is to decompose changes in the level of public debt relative to GDP by identifying the impact of: **21.13**

- (a) the gap between government revenues and spending, excluding the cost of interest payments—the so-called 'primary fiscal balance';
- (b) the gap between the average interest rate paid on debt and the average growth rate of GDP; and
- (c) all other relevant factors lumped together and referred to as 'stock-flow adjustment (or reconciliation) residuals'.¹⁰

This last category reflects currency valuation effects operating on the stock of debt plus the impact of spending recorded separately (say, as investment), the assumption of debts of non-governmental entities, the booking of privatization or other capital gains, and the drawdown or build-up of government savings.

Currency valuation changes have tended to play a negligible role in explaining debt accumulation cycles in advanced economies, because traditionally their public and private sectors have been able to fund themselves solely or mostly by issuing securities denominated in their local currency. That is not the case in developing countries, which, until a decade ago, featured mostly shallow domestic capital markets that could not meet the long-term funding needs of governments, banks, and corporations via the placement of securities denominated in their own currency. However, the costs of banking crises, and of war- and disaster-related expenses, have loomed large in the sovereign debt history of both advanced and developing nations. **21.14**

The recent analysis of a new, historical database on sovereign debt identified sixty episodes of large debt increases in nineteen advanced economies during a century-and-a-quarter (1880–2007), most (forty-four) occurring during the absence of war conditions. After decomposing them into contributions from the primary fiscal balance, the interest-growth differential, and the stock-flow adjustment term, it became apparent that nearly half of debt surges were explained by large stock-flow adjustments, which figured prominently in fifty of the sixty instances.¹¹ **21.15**

⁹ For advanced countries, the direct loss of capital stock attributable to specific natural disasters usually does not exceed a few percentage points of GDP, but for developing economies this direct impact can reach the equivalent to more than 10 percentage points of GDP—and for small islands it can be worth 100 per cent or more of their GDP, such that uninsured reconstruction costs can derail their debt sustainability. See Eduardo Borensztein, Marcos Chamon, Olivier Jeanne, Paolo Mauro, and Jeromin Zettelmeyer, *Sovereign Debt Structure for Crisis Prevention*, IMF Occasional Paper No. 237 (2004), available online at <<http://www.imf.org/external/pubs/nft/op/237/op237.pdf>>, 33–5.

¹⁰ For a good summary of the mathematics behind debt dynamics, see Julio Escolano, *A Practical Guide to Public Debt Dynamics, Fiscal Sustainability, and Cyclical Adjustment of Budgetary Aggregates*, IMF Technical Notes and Manuals (January 2010), available online at <<http://www.imf.org/external/pubs/ft/tnm/2010/tnm1002.pdf>>.

¹¹ The debt surges averaged 44 percentage points of GDP, and were actually higher during peacetime (46 percentage points) than during wartime (38 percentage points): see S. M. Ali Abbas, Nazim Belhocine, Asmaa El-Ganainy, and Mark Horton, 'Historical Patterns and Dynamics of Public Debt: Evidence from a New Database' (2011) 59(4) IMF Econ Rev 717, and for the statistical results cited, see 737–8.

- 21.16** Another recent and comprehensive study of public debt dynamics over the 1950–2011 period—this one covering both advanced and developing countries—confirmed that events besides the accumulation of fiscal deficits have played an important role, particularly in the latter group of countries. Whereas the mean and median values for advanced economies showed that fluctuations in the primary balance, interest rate growth differentials, and stock-flow changes each explained roughly a third of the variance of changes in their debt ratios, in the case of developing economies, their debt changes were far more unstable and in most cases were explained largely by the volatility in the stock-flow residual.¹²
- 21.17** In particular, the adverse consequences of banking crises for sovereign debt and creditworthiness have been observed abundantly around the world. A study that looked at the experience of 154 countries between 1980 and 2006 concluded, for instance, that banking crises were associated with a significant and long-lasting increase in government debt. The effect has been a function of the severity of the crisis: for crises classified as severe, comparable to the post-2007 ones in terms of output losses, banking crises were followed by a medium-term, average jump of about 37 percentage points in the government debt-to-GDP ratio. This ratio tended to surge even more in fragile countries with a worse initial fiscal position and a higher share of foreign debt—probably because of currency mismatches.¹³
- 21.18** The nexus between governments and banks has turned toxic for both parties in plenty of instances on every continent, with the recent troubles in the periphery of Europe being only the latest and largest-scale example. The extension of blanket guarantees to depositors, bail-outs of senior or foreign creditors, purchase of bad debts from banks, and recapitalizations of financial institutions have often combined to deliver a huge blow to sovereign creditworthiness. The case of Ireland is dramatic: three-fifths of the increase in that government's net debt position, from the equivalent of less than 20 per cent of GDP in 2007 to a peak of over 100 per cent in 2012, was caused by the (largely unforeseen) costs of bank support decisions—a case of contingent liabilities truly gone wild.¹⁴ Without extraordinary financial support from its European partners and the IMF, the Irish government would surely have faced severe debt-servicing difficulties.¹⁵
- 21.19** At the same time, asset bubble deflations, economic recessions, and other adverse economic or political shocks have been known to undermine many a banking system, because banks are highly exposed to sovereign debt both through direct holdings and indirectly through implicit government guarantees. Therefore, when sovereign creditworthiness deteriorates, the banking system usually suffers consequences. The case of Greece is dreadful: as a result of the country's worsening fiscal crisis, Greek banks lost a third of their private-sector deposits between late 2009 and late 2012; their non-performing loans skyrocketed from 5 per cent of

¹² Paolo Mauro, Rafael Romeu, Ariel Binder, and Asad Zaman, *A Modern History of Fiscal Prudence and Profligacy*, IMF Working Paper No. WP/13/5 (January 2013), available online at <<http://www.imf.org/external/pubs/ft/wp/2013/wp1305.pdf>>; for the statistical results cited, see 30–1.

¹³ Davide Furceri and Aleksandra Zdzienicka, 'The Consequences of Banking Crises for Public Debt', in Banca d'Italia, *Fiscal Policy: Lessons from the Crisis—Workshops and Conferences* (February 2011), available online at <http://www.bancaditalia.it/pubblicazioni/seminari_convegni/Fiscal_Policy/6_Fiscal_Policy.pdf>, 627–47.

¹⁴ IMF, *Ireland: Eighth Review under the Extended Arrangement*, IMF Country Report No. 12/336 (November 2012), available online at <<http://www.imf.org/external/pubs/ft/scr/2012/cr12336.pdf>>.

¹⁵ Prior instances of contingent liabilities or the recognition of obligations causing a sharp increase in the public debt include Canada in 1999–2000, Egypt in 2003, Greece in 2002 and 2004, and Japan in 1998 and 2006.

gross loans in 2008 to around 25 per cent by late 2012—possibly rising beyond 30 per cent in 2013; and the Greek government default and debt exchange in March 2012 depleted the banks' capital base, rendering them economically insolvent and generating enormous recapitalization needs of around €50 billion, of which some €35 billion were directly attributable to the sovereign's own woes.¹⁶

The fallout from currency mismatches has sometimes been massive on governments and systemically significant banks and corporations in many developing economies. The origin of the problem is that, historically, foreign-currency-denominated loans and bonds have frequently been a major source of funding—particularly of scarce medium- and long-term funding—for sovereigns and large financial and non-financial corporations in developing economies with stunted domestic capital markets. Whenever reliance on such funding is heavy, unforeseen currency devaluations can wreak havoc on the balance sheets and income statements of all concerned—because the cost of servicing such obligations increases suddenly by the extent of the devaluation.¹⁷ This is why currency mismatches have been not only a major contributor to many sovereign and financial crises in developing economies, but also a feature that has increased the cost of crisis resolution—especially when governments are moved to support flagship banks and companies in the aftermath of their exchange rate losses. **21.20**

Two cases from a decade ago vividly illustrate the point.¹⁸ In early 2002, the authorities in Argentina abandoned a fixed exchange rate regime whereby one peso was convertible into one dollar. The currency lost two-thirds of its value during 2002 and, because the government's public debt was overwhelmingly denominated in currencies other than pesos—in fact, at the end of 2001, 97 per cent of it was contracted in US dollars, European currencies, or Japanese yen—the peso-equivalent cost of the debt tripled virtually overnight. The ratio of the public debt to GDP skyrocketed from about 55 per cent at the end of 2001 to 165 per cent at the close of 2002, such that the obligations could not possibly be serviced on their original terms.¹⁹ A reputable debt decomposition analysis estimated that currency valuation losses accounted for nearly two-thirds of this jump.²⁰ **21.21**

The devaluation also hit major companies very hard, because they had huge net liability positions in foreign currency. To help to prevent widespread bankruptcies, the authorities **21.22**

¹⁶ Greek banks had to exchange their holdings of government bonds at a huge discount, thereby incurring enormous losses: IMF, *Greece: First and Second Reviews under the Extended Arrangement under the Extended Fund Facility*, IMF Country Report No. 13/20 (December 2012), available online at <<http://www.imf.org/external/pubs/ft/scr/2013/cr1320.pdf>>; Moody's Investors Service, 'Greece: Banking System Outlook Remains Negative', Announcement, 1 August 2012.

¹⁷ Just as governments usually cannot raise taxes enough to cover the higher cost of servicing their foreign-currency obligations in the wake of a massive devaluation, neither can companies raise their prices much. On the contrary, since such devaluations are often destructive of consumer and investor confidence, they tend to have a contractionary effect on economic activity, and thus they undermine government revenues and business sales. Only governments, banks, and corporations that have hedged themselves, or are naturally hedged by having substantial earnings or assets in foreign currencies, can withstand currency fluctuations without harm.

¹⁸ Other cases in which sudden exchange rate depreciations had a large impact on fiscal solvency are Egypt in 2003, Iceland in 2001, and Israel in 2002.

¹⁹ Argentina Ministerio de Economía y Finanzas Públicas, *Boletín Fiscal 2º Trimestre 2012* (November 2012), available online at <<http://www.mecon.gov.ar/onp/html/boletin/2dotrim/2dotrim12.pdf>>, Table 67. Argentina defaulted on its debt obligations starting in December 2001.

²⁰ Federico Sturzenegger and Jeromin Zettelmeyer, *Debt Defaults and Lessons from a Decade of Crises* (Cambridge, MA: MIT Press, 2006), 123.

decreed that debtors could repay their domestic bank loans at the prior one-to-one exchange rate, thereby shifting a large part of the burden of the devaluation onto the banking system—and ultimately to the government and its creditors and taxpayers, since the banks were partially compensated for the resulting losses with special-issue public debt.

- 21.23** The massive devaluation and default in Argentina, and particularly a freeze on bank deposits decreed in order to stem a run on that nation's banking system, caused extensive collateral damage in neighbouring Uruguay. Many well-off Argentines had sizeable deposits in Uruguay's banks that they started to repatriate and news of this began to induce a stampede by Uruguayan depositors as well. The authorities in Uruguay took a number of measures to cope with the banking emergency, including letting the exchange rate depreciate rapidly, such that it lost nearly half its value during 2002. Since 83 per cent of the public debt as of end-2001 had been denominated in foreign currencies, the collapse of the Uruguayan peso led to a one-year jump in the ratio of debt to GDP from about 45 per cent to 95 per cent as of the close of 2002, and it has been estimated that a third of that increase resulted from the government's currency mismatch.²¹ In the event, Uruguay was forced by its state of affairs to request financial support from Washington DC (in 2002) and debt relief from its creditors soon thereafter (in 2003).

4. Maturity Mismatches and High Coupons

- 21.24** Debt vulnerabilities are also a function of the maturity profile and the level of coupon (interest) payments. The higher the share of maturing or short-term debt, the greater the risk that refinancing risks will be encountered once domestic or external circumstances suddenly deteriorate, and lenders and investors turn risk-averse. In fact, empirical studies have found short-term debt to be a leading indicator of vulnerability to international financial crises, because governments are rendered more susceptible to debt rollover crises, and also by giving rise to vicious cycles stemming from the two-way interaction between debt levels and interest rates.²²
- 21.25** Whenever the average maturity of the stock of debt is low, the debtor can become the victim of creditor panics triggered by shifts in market sentiment. Sudden changes in international interest rates, commodity prices, exchange rates, or other factors such as contagion effects and political news can impact the cost of funds relatively quickly. A sovereign, bank, or corporation with large maturities or a high level of short-term debt may swiftly find itself in a situation in which rising bond yields give rise to perceptions of debt unsustainability, which in turn increase the default risk premium and thus the coupons that must be offered to obtain financing—hence the self-fulfilling prophecy. This is precisely what happened in the wake of an unexpected tightening of US monetary policy in the early 1980s under Federal Reserve Chairman Paul Volcker, which helped to precipitate sovereign debt crises throughout Latin America and beyond, or after the unexpected failure of Lehman Brothers in September 2008, which triggered banking crises in many European countries, the banks of which were overly reliant on short-maturity interbank funding.

²¹ Banco Central del Uruguay, *Deuda del Sector Público Global* (September 2012), available online at <<http://www.bcu.gub.uy/Estadisticas-e-Indicadores/Documents/Finanzas-Publicas/resdspg.pdf>>, Table 4; Sturzenegger and Zettelmeyer (n. 20), 154.

²² Borensztein et al. (n. 9), 14.

Likewise, the larger the share of floating- or adjustable-rate debt, the higher the risk that the cost of indebtedness will increase in the aftermath of a spike in bond yields prompted by a tightening in monetary policy at home or abroad, the prospect of higher inflation, or the perception of an increased risk of default. Sometimes, sovereigns encounter both problems simultaneously. When it becomes difficult to refinance maturing obligations or to roll over lines of credit that are expiring—no matter the reason—the cost of funding can suddenly jump and prompt concerns about debt sustainability, thereby scaring away even those lenders and investors who had been willing to provide financing. An extended maturity structure and borrowing mostly locked in at low coupons, therefore, can help to cushion against temporary shocks that adversely affect economic output, tax revenues, and credit conditions—and thus decrease the vulnerability of a government’s overall liability position. **21.26**

Why have some governments at times relied heavily on short-maturity debt, or on funding at variable rather than fixed interest rates? For the same reasons that banks have on occasion relied too much on interbank funding, or corporations have depended too heavily on suppliers’ credits and working-capital loans: because short-term debt is usually cheaper and easier to obtain than long-term debt—certainly so whenever the normal term structure (yield curve) prevails. Besides, short-term funding may be the only variety that is on offer to debtors considered to be very risky—except, of course, for the concessional loans and grants for which the governments of low-income countries usually qualify, such as from foreign aid agencies or the World Bank’s International Development Association (IDA). Governments in Ireland, Greece, and Portugal issued only short-dated debt in 2011–12, and did so because they were reluctant to validate, and lock in, the very high yields demanded in longer-dated bonds by investors who were nervous about these countries’ creditworthiness and also about the possibility of a break-up of the eurozone. **21.27**

The cases of Mexico in 1994 and Russia in 1998 serve to illustrate the perils described here. In both instances, there was a problem with maturity mismatches involving domestic government debt that was popular with foreign investors. In Mexico, the mismatches helped to precipitate a financial crisis and a major devaluation, but a default was avoided because the government was able to adopt emergency economic policies that elicited large-scale financial support from the IMF and the US government. In Russia, the mismatches likewise contributed to a financial crisis and a major devaluation, but the crisis included a default on the government’s part because the authorities were unable to adopt the economic policy measures necessary to keep qualifying for a financial lifeline thrown by the IMF.²³ **21.28**

Throughout 1994, Mexico was buffeted by a series of very negative developments that undermined investor confidence and led to capital flight at a time when the economy was dependent on external financing, because it was running a large imbalance between exports and imports of goods and services. The year began with news of a guerrilla uprising in the southern state of Chiapas and was followed by: the assassination of the leading presidential candidate to replace the incumbent in August elections; abductions and murders involving business and religious leaders; the assassination of the head of the ruling party; and a stunning, although short-lived, year-end offensive by the Zapatista guerrillas in Chiapas. The government’s policy response was completely inadequate to the task: neither fiscal nor **21.29**

²³ For general background on both episodes and the IMF’s involvement, see James M. Boughton, *Tearing down Walls: The International Monetary Fund 1990–1999* (Washington DC: International Monetary Fund, 2012), chs 7 (Russia) and 10 (Mexico).

monetary policies were tightened—this at a time of rapidly rising interest rates in the United States—and the exchange rate was not allowed to depreciate enough to discourage capital flight. As a result, the authorities ended up losing most of their hard-currency reserves and thus, by the end of the year, they had to allow for a massive currency devaluation.²⁴

- 21.30** Matters were aggravated by the government's view throughout 1994 that it could satisfy what was perceived as a temporary surge in demand for dollars by issuing enormous quantities of short-term debt (mostly at ninety-one-day maturities) indexed to the exchange value of the US dollar (*tesobonos*), instead of the usual treasury bills in pesos (*cetes*). Besides, as long as the currency was not devalued meaningfully, it appeared to be a cost-effective funding strategy for the government: since holders of *tesobonos* would be compensated for any potential devaluation, these bills could be sold with much lower coupons than peso instruments. By the close of 1994, *tesobonos* accounted for over half of total public debt, up from less than 5 per cent at the start—and virtually all (the equivalent of nearly US\$30 billion as of end-2004) matured within twelve months. It was this maturity mismatch that brought the government to the edge of default, because its dollar reserves at the end of 1994 were down to a fraction (a fifth) of the *tesobonos* coming due in 1995.²⁵
- 21.31** The Russian financial crisis of mid-1998 was rooted in a fundamental policy inconsistency between high fiscal deficits (on the order of 6½ per cent of GDP on average during 1995–98) and a quasi-fixed exchange rate that became increasingly overvalued. In the face of various adverse shocks to the balance of payments, and absent a supportive fiscal policy, the central bank lost half its international reserves in the year to August 1998 trying to prevent the ruble's devaluation. The fiscal deficit was the result of chronically low tax revenues, mainly because of tax breaks and energy subsidies granted to enterprises that could not cope with the transition from communism to capitalism. The main adverse shocks were: a loss of investor confidence in the wake of the Asian financial crisis; a precipitous drop in world oil prices, affecting Russia's leading export; unreliable political support in the legislature (the Duma) for the Boris Yeltsin administration's corrective measures; and related decisions by the IMF to withhold its loan disbursements to Russia (in late 1997 and after July 1998).²⁶
- 21.32** An aggravating factor was the government's massive issuance of government short-term commitments (*Gosudarstvennoye Kratkosrochnoye Obyazatelstvo*, or GKO), zero-coupon bonds denominated in rubles with short maturities, such that, by May 1998, nearly three-quarters of the government's ruble-denominated debt had a maturity of less than one year. This exposed the government to extreme rollover pressures, not only because of the volume of GKO that were maturing all of the time, but because the coupons that had to be paid on new issues soared during the first half of 1998 as sentiment deteriorated. The combination of annualized yields jumping from about 30 per cent to almost 95 per cent by June, and redemptions coming due, meant that debt-service payments on GKO came to exceed the ruble equivalent of US\$1 billion per week. Initially, the main GKO holders were domestic

²⁴ Jeffrey Sachs, Aaron Tornell, and Andrés Velasco, 'The Collapse of the Mexican Peso: What Have We Learned?' (1996) 11(22) *Econ Pol'y* 13.

²⁵ Harold L. Cole and Timothy J. Kehoe, 'A Self-Fulfilling Model of Mexico's 1994–1995 Debt Crisis' (1996) 41(3–4) *J Int'l Econ* 309; Banco de México, *Informe Anual 1994* (Mexico, DF: Banco de México, 1995), 74 and 162; Banco de México, *Informe Anual 1995* (Mexico, DF: Banco de México, 1996), 187.

²⁶ Homi J. Kharas, Brian Pinto, and Sergei Ulatov, 'An Analysis of Russia's 1998 Meltdown: Fundamentals and Market Signals' [2001] BPEA 1; David Owen and David O. Robinson (eds) *Russia Rebounds* (Washington DC: International Monetary Fund, 2003).

banks, but foreign investors soon became an important segment of the market, accounting for between one third and one half of holders, depending on the use and abuse of various investment schemes. In the event, a default on GKO was announced on 17 August 1998, and the government ended up imposing huge losses on investors, with large Moscow-based commercial banks pushed into insolvency and having to default on their own external obligations because of their holdings of GKOs.²⁷

Most governments have since learned not to be ‘penny-wise and pound-foolish’ by taking on short-maturity or adjustable-rate indebtedness. A wide consensus has emerged in the literature on the benefits of fiscal insurance, and sovereign debt managers have paid greater and greater attention to reducing the exposure of their debts to maturity and interest-rate risks. The lengthening of the maturity structures that has taken place over the last two decades is clear evidence of the increased awareness of such risks.²⁸ Moreover, many governments in developing countries have fostered the growth of domestic capital markets, largely through improved macroeconomic policies and structural reforms, including the partial privatization of pension plans. This has enabled them to issue domestic-currency bonds instead of relying on short-term financing from domestic or foreign banks. These domestic capital markets have also provided a useful financing source for large banks and corporations. **21.33**

However, the recent case of Greece demonstrates that a benign debt structure is insufficient to shelter a sovereign from the worst-case scenario of investor demand evaporating completely. At the end of 2009, the Greek public debt was structured very favourably by advanced-economy standards—yet that was not good enough to prevent the catastrophic default that took place twenty-seven months later. **21.34**

5. Access to Financing

Greece illustrates the point that sovereigns encounter debt difficulties when their financing needs—be they relatively large, medium, or small—cannot be satisfied if investor confidence collapses. At that point, funding for even a shrinking fiscal deficit becomes extremely difficult, as does the refinancing of maturing obligations. Once creditor banks and other institutional investors have panicked and are bent on cutting their exposure to sovereign risk, bond yields will shoot up in the secondary market and auctions of new government debt will fail. The sovereign may try to get by for a while on the basis of prior fiscal savings (if they exist), the sale of state-owned assets (if they can be privatized promptly), the delay of payments to suppliers and civil servants, and above all recourse to emergency financing from a lender of last resort such as the IMF—or some combination of all of the aforementioned—but, unless confidence is soon regained through economic or political announcements and measures that address the underlying causes of the confidence crisis, the government is likely to start running out of cash, and possibly also of international reserves, and will end up defaulting. **21.35**

²⁷ Niko Gobbin and Bruno Merlevede, ‘The Russian Crisis: A Debt Perspective’ (2000) 12(2) *Post-Communist Economics* 141; IMF, *Sovereign Debt Restructurings and the Domestic Economy: Experience in Four Recent Cases* (February 2002), available online at <<http://www.imf.org/external/np/pdr/sdrm/2002/022102.pdf>>.

²⁸ Alessandro Missale, ‘Sovereign Debt Management and Fiscal Vulnerabilities’, in BIS, *Threat of Fiscal Dominance?*, BIS Papers No. 65 (May 2012), available online at <<http://www.bis.org/publ/bppdf/bispap65.pdf>>, 157–76.

Therefore the issue of access to financing—or lack thereof—is at the heart of any analysis of sovereign debt sustainability.

- 21.36** The accepted version of why Greece entered into a debt crisis that culminated in a gigantic sovereign default (in March 2012) is that the country was fiscally mismanaged for a long time. It had failed to carry out needed structural reforms that could have preserved the country's creditworthiness if and when conditions in the eurozone deteriorated. Consequently, even before the global financial crisis of late 2008 hit, the country was 'an accident waiting to happen' according to some farsighted European Union (EU) officials and private sector economists.²⁹
- 21.37** In reality, Greece's road to fiscal disaster was never straightforward—and there was no historical inevitability about it, either. In the five decades through 2009, successive governments in Greece had managed the country's public finances without a hitch, including servicing a very high level of public debt that averaged the equivalent of nearly 100 per cent of GDP during half a century. That included a track record of very prudent liability management, such that, as of end-2009, only 10 per cent of government debt had a residual maturity of less than one year, three-quarters of the public debt featured fixed-rate coupons and they were very low (the average interest rate paid was 4.2 per cent), and virtually all obligations (99.6 per cent of total) were denominated in euros, the national currency.³⁰ At the time, the government was not running currency or maturity mismatches, contingent liabilities were not a problem, and the cost of the debt was quite manageable.
- 21.38** What eventually sunk Greece was the erosion of investor confidence that began in December 2009, prompted by initial hesitation on the part of newly elected Prime Minister George Papandreou to take corrective fiscal measures, which elicited downgrades from all three of the leading credit-rating agencies because the fiscal deficit had reached double digits that year. The situation was aggravated by inertia and indecision that gripped eurozone governments in subsequent months with regard to whether and how to assemble an emergency stabilization programme for Greece underwritten by the EU and the IMF. But October 2010 brought about a major turning point: German Chancellor Merkel and French President Sarkozy agreed, in Deauville (France), that private investors would have to 'contribute' to future European sovereign bailouts. This was the price exacted by Germany to set up a larger, permanent bailout fund to replace the European Financial Stability Facility (EFSF), because, according to Merkel, the existing rules had allowed too much moral hazard to creep into

²⁹ 'Ever since its last-minute inclusion in the single currency in 2001, Greece has been considered by many in Brussels to be an accident waiting to happen': see *The Telegraph*, 'Greek Crisis: Athens to Ashes', 29 April 2010, available online at <<http://www.telegraph.co.uk/finance/financialcrisis/7649803/Greek-crisis-Athens-to-Ashes.html>>. For a similar appraisal dating from well before the failure of Lehman Brothers, see Mark Landler, 'As Euro Nears 10, Cracks Emerge in Fiscal Union', *New York Times*, 1 May 2008, available online at <<http://www.nytimes.com/2008/05/01/world/europe/01euro.html>> ('Greece, said Thomas Mayer, the chief European economist at Deutsche Bank, is an "accident waiting to happen"').

³⁰ Ministry of Finance, *Hellenic Republic Public Debt Bulletin*, No. 56 (December 2009), available online at <http://www.minfin.gr/content-api/f/binaryChannel/minfin/datastore/14/90/39/14903996c439862738744b8790877f25b03da784/application/pdf/pdb_2009_12_20100219.pdf>. The weighted-average residual maturity of Greek government debt was eight years as of end-2009, the second-longest among advanced economies after the United Kingdom: IMF, *Fiscal Monitor* (November 2010), available online at <<http://www.imf.org/external/pubs/ft/fm/2010/fm1002.pdf>>, 27. The average implicit interest rate was calculated by the author from Eurostat, *Government Finance Statistics: Summary Tables 1996–2010* (December 2011), available online at <http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/publication?p_product_code=KS-EK-11-002>, 13.

the eurozone bond market. However, this decision triggered a tidal wave of concern among bondholders—that they would suffer losses on government securities issued by countries (such as Greece) receiving financial assistance from their eurozone partners.³¹

As the IMF would admit in a July 2011 report, the very protracted public debate in Europe over how to deliver financial support to eurozone members would take a heavy toll on Greece. It would not only propel Greek bond yields ever higher, but by encouraging an exodus of bank deposits and also, via rating downgrades, by decreasing the value of Greek collateral with the European Central Bank (ECB), it would force Greek banks to post additional collateral when they could least afford it. And the only way in which they could do that was by calling in loans, thereby provoking a major credit crunch that would aggravate the country's deepening recession.³² The steeper-than-expected economic contraction, for its part, would cause tax revenues to underperform, which meant that the government would always be under pressure to cut spending further to meet the pre-established fiscal deficit targets. This austerity mindset elicited more social and political unrest, which scared away remaining investors, particularly given an understandable cascade of downgrades on the part of the credit-rating agencies. This is the confidence-destroying, downward spiral into which Greece was pushed by circumstances largely out of its control—a spiral that had not come to an end as of early 2013. **21.39**

It was in the midst of this vicious cycle that the ECB, EU, and IMF (the so-called 'troika') decided—first gingerly in mid-2011 and then ferociously in early 2012—that Greece's debt burden was unviable and thus that the government had to obtain massive debt relief from its creditors. In the beginning, the 'haircut' demanded of investors was in the order of 20 per cent on a net present value (NPV) basis, but in the end the figure imposed by the troika was above 70 per cent—by far the largest, and also among the most punishing, default in sovereign debt history. The trend of Greek government bond yields speaks volumes about what happened to investor demand during the intervening twenty-seven months: whereas, in December 2009, the market-clearing median yield of two-year government paper was below 3.5 per cent, by the final month of 2010 it had jumped to almost 12 per cent, and by December 2011 it had skyrocketed to 145 per cent.³³ Investor confidence had been utterly destroyed. **21.40**

While Greece is an extreme case, recent events throughout the periphery of Europe demonstrate that sovereigns, just like their banks, can be the object of creditor runs—whether self-inflicted or not. This highlights the importance of minimizing budgetary deficits as a rule, and the wisdom of generating fiscal savings whenever economic times are good and government revenues swell, in order to infuse confidence in investors ahead of any economic, political, or financial shocks that may materialize. **21.41**

There is a large empirical literature on the determinants of long-term bond yields in advanced economies, and most of it concludes that higher levels of fiscal deficits and public debt tend to raise interest rates—and particularly so when expectations of future fiscal outcomes **21.42**

³¹ Arturo C. Porzecanski, 'Behind the 2012 Greek Default and Restructuring', in Eugenio A. Bruno (ed.) *Sovereign Debt Restructuring: Legal, Financial and Regulatory Aspects* (London: Globe Law and Business, 2013), 33–48.

³² IMF, *Greece: Fourth Review under the Stand-By Arrangement*, IMF Country Report No. 11/175 (July 2011), available online at <<http://www.imf.org/external/pubs/ft/scr/2011/cr11175.pdf>>.

³³ Porzecanski (n. 31); data on yields on two-year Greek government bonds courtesy of Bloomberg.

change. One reputable study of thirty-one advanced and emerging economies over the period 1980–2007 found that higher fiscal deficits and public debt raised long-term nominal bond yields in both types of economies. Moreover, countries with higher initial deficits and debt levels experienced correspondingly larger increases in bond yields when their fiscal position deteriorated.³⁴ Evidently, investor appetite for government bonds is itself a function of fiscal outcomes and prospects.

21.43 Recent results based on a novel, high-frequency panel dataset for twenty-six emerging economies between 2005 and 2011 show that whenever global risks were perceived as low, domestic bond yields were influenced mostly by domestic considerations (inflation and economic growth expectations). This suggests that, in tranquil times, bond investors focused mostly on risks related to the domestic business cycle. However, when spooked by an increase in international uncertainty, investors took default risks more seriously, and expectations regarding fiscal outcomes played a significant role in determining changes in domestic government bond yields. Every percentage point expected worsening in the fiscal balance in relation to GDP raised yields by 30 basis points (bps), and every additional 10 percentage points in the expected ratio of debt to GDP raised domestic yields by 60bps.³⁵ Given the ebb and flow of global conditions, these findings underscore the need for governments in emerging economies, in particular, to behave in a fiscally prudent manner. In order to anchor the confidence of investors once market conditions deteriorate, they must earn and deepen that confidence the rest of the time.

6. Indicators of Debt Sustainability

21.44 The most commonly cited indicators of potential debt problems are ratios of public debt to GDP, or else of public- and private-sector foreign debt to total export earnings. The latter ratio was especially popular until a decade ago, because the financial crises that earned worldwide notoriety in the 1980s and 1990s involved defaults mainly on loans extended by foreign banks, or on bonds purchased chiefly by foreign investors. It was thought that the ability of governments, banks, and corporations to service their cross-border liabilities, especially in countries with artificial exchange rate regimes, depended on a country's capacity to generate foreign exchange through exports of goods and services. In recent years, however, ratios of debt to exports have gone out of fashion for several good reasons, as follows.

- (a) The emergence of domestic capital markets and financial liberalization measures have enabled foreign investors to take substantial positions in domestic debt instruments denominated in local currencies, thus erasing the relevance of the distinction between 'foreign' and 'domestic' debt.
- (b) The ability of economic agents in any one country to access foreign exchange is less dependent on export earnings, and more a function of net capital flows and the current account (the difference between exports and imports of goods, services, and transfers).

³⁴ Emanuele Baldacci and Manmohan Kumar, *Fiscal Deficits, Public Debt, and Sovereign Bond Yields*, IMF Working Paper No. WP/10/184 (August 2010), available online at <<http://www.imf.org/external/pubs/cat/longres.cfm?sk=24130.0>>.

³⁵ Laura Jaramillo and Anke Weber, *Bond Yields in Emerging Economies: It Matters What State You Are In*, IMF Working Paper No. WP/12/198 (August 2012), available online at <<http://www.imf.org/external/pubs/ft/wp/2012/wp12198.pdf>>.

- (c) In the past two decades, a number of governments have defaulted on domestic, as well as on cross-border, obligations, and thus a more comprehensive measure of their financial obligations and burden is warranted as part of an assessment of debt sustainability and creditworthiness.

Ratios of debt to GDP or exports both have a number of shortcomings, however. They provide a static snapshot of the relative size of obligations at any given point in time, but they do not convey a trajectory—never mind a forward-looking judgement of capacity to pay. Also, such ratios reveal nothing about contingent liabilities, currency or maturity mismatches, the cost of servicing the debt, or the nature and behaviour of the investor base. For example, there are low-income countries with high debt ratios, but their interest burdens are light and their maturity profiles are very benign—because they are the beneficiaries of loans granted on concessional terms by official bilateral and multilateral agencies. And there are middle-income countries with low debt ratios, but which are prone to economic and political instability, or else to wild swings in their export earnings, capital flows, and exchange rates, such that they are vulnerable. In sum, as one of the leading credit-rating agencies recently concluded after a review of the historical evidence, while defaults are correlated with rising debt burdens, a high debt-to-GDP ratio is neither a necessary nor a sufficient condition for a sovereign to default.³⁶ **21.45**

The unreliability of ratios of debt to GDP or to exports as predictors of sovereign defaults is revealed by Table 21.1, which documents the lack of any useful relationship between them and past instances of default. During the calendar year before nineteen defaults took place during 1998–2012, whether on foreign or domestic debt or both, ratios of public debt to GDP ranged from a low of 27 per cent (Ecuador 2008) to a high of 236 per cent (Nicaragua 2003), with a sample median of 79 per cent. The prior-year ratio of foreign debt (public plus private sector) to total export earnings, for its part, ranged from a modest 54 per cent (Ukraine 1998) to a maximum of 560 per cent (Nicaragua 2003), with a sample median of 180 per cent. Equally random are the values of these ratios for countries that have yet to default. For example, Japan has the highest ratio of public debt to GDP of any country in the world—it has averaged more than 200 per cent since 2009—and at the same time countries deemed quite risky by the credit-rating agencies (including Cambodia, Honduras, Paraguay, and Venezuela) have ratios below 40 per cent.³⁷ And yet many judgements have been expressed about the sustainability (or not) of a given country's public or foreign debt, particularly by official bodies such as the IMF, on the basis of ratios like these that have no predictive power, certainly not out of their proper historical, institutional, economic, and political contexts. **21.46**

More sophisticated empirical research has found, however, that, once various control variables are incorporated, the larger and heavier the burden of the public debt, the greater the risk that debt-servicing difficulties will be encountered. One reputable study analysed the relationship between the probability of experiencing a debt crisis and the ratio of public debt to GDP using a pooled sample of fifty-five low- and middle-income countries during **21.47**

³⁶ Moody's Investors Service, 'The Causes of Sovereign Defaults: Ability to Manage Crises Not Merely Determined by Debt Levels', 2 November 2010.

³⁷ Moody's Investors Service, *Moody's Statistical Handbook: Country Credit* (November 2012). The median public debt-to-GDP ratio for twenty-six governments rated 'B1' to 'C' by Moody's was likewise below 40 per cent in 2012, and the median foreign debt-to-total-exports ratio stood at 90 per cent.

Table 21.1 Defaults on public debt and key debt ratios

Country	Date of default	Debt affected	Public debt-to-GDP prior year (%)	Foreign debt-to-exports prior year (%)
Russia	Aug-98	FC & LC	54.7	121.1
Ukraine	Sep-98	FC & LC	29.9	54.3
Pakistan	Jul-99	FC	76.2	345.0
Ecuador	Aug-99	FC & LC	61.4	301.8
Ukraine	Jan-00	FC	61.0	91.8
Côte d'Ivoire	Mar-00	FC	89.8	244.4
Argentina	Nov-01	FC & LC	45.6	380.0
Moldova	Jun-02	FC	84.0	196.4
Uruguay	May-03	FC & LC	94.7	324.9
Nicaragua	Jul-03	FC & LC	235.7	560.4
Grenada	Dec-04	FC & LC	78.8	206.2
Dominican Rep.	Apr-05	FC	36.9	74.8
Belize	Dec-06	FC	103.6	164.4
Seychelles	Jul-08	FC	130.1	137.1
Ecuador	Dec-08	FC	26.7	108.8
Jamaica	Feb-10	LC	142.8	260.3
Côte d'Ivoire	Jan-11	FC	66.4	84.3
Greece	Mar-12	FC & LC	165.4	n/a
Belize	Aug-12	FC	83.6	134.3

Note: FC = foreign currency; LC = local currency

Source: Author's calculations based on the following public sources: default data from Moody's Investors Service, 'Sovereign Default and Recovery Rates, 1983–2012H1' (30 July 2012), 10–11, and from 'Investor Losses in Modern-Era Sovereign Bond Restructurings' (7 August 2012), 7; debt/GDP data from IMF, 'Historical Public Debt Database' (September 2012); debt/exports data from World Bank, 'International Debt Statistics Database' (2013).

1971–2002 and three control variables. It found that while a debt ratio of 40 per cent was associated with a 20 per cent probability of facing a crisis in the following year, a debt-to-GDP ratio of 80 per cent was paired with a 50 per cent probability and a ratio of 100 per cent was correlated with a sample probability of 63 per cent. However, there did not appear to be obvious cut-off points for the range of sustainable debt ratios because debt crises have occurred, as demonstrated earlier in the chapter, at a very wide range of debt ratios.³⁸

21.48 There are good reasons why the degree of fiscally responsible behaviour does not correlate with the relative size of the public debt. In some countries, fiscal responsibility decreases, while in others it is strengthened, as the debt ratio rises to high and potentially risky levels. Social attitudes and historical precedents concerning the seriousness with which debt

³⁸ Harald Finger and Mauro Mecagni, *Sovereign Debt Restructuring and Debt Sustainability: An Analysis of Recent Cross-Country Experience*, IMF Occasional Paper No. 255 (April 2007), available online at <<http://www.imf.org/external/pubs/cat/longres.cfm?sk=19634.0>>, 14–15.

obligations are regarded may determine different degrees of 'willingness to pay', explaining why some nations fit the profile of 'serial defaulters' at debt levels that are relatively low.³⁹

The shortcomings of static indicators have given rise to more dynamic assessments of debt sustainability based on medium-term simulations of the debt-to-GDP and other ratios given certain macroeconomic forecasts and fiscal policy assumptions. One approach is to calculate the primary fiscal outcome (the difference between genuine revenues and non-interest expenditures) consistent with a stabilization of the debt-to-GDP ratio. If the observed primary balance is less than the debt-stabilizing balance, then the current path of fiscal policy implies an increasing ratio of debt to GDP, and the difference between the two quantifies the degree of belt-tightening needed. Judgement can then be passed on whether such fiscal austerity is politically and otherwise attainable, given what else is known about the country in question. **21.49**

Another approach involves making a fiscal forecast over the medium term (generally, five–ten years) assuming historical or plausible macroeconomic conditions, and then developing alternative scenarios in which the base case is subjected to shocks such as a jump in bond yields, an economic slowdown, or an exchange-rate adjustment. The purpose is to see by how much and for how long the fiscal accounts would be derailed, and thus what would happen to the ratio of debt to GDP or to exports assuming no constructive fiscal policy response. The next level up in terms of sophistication is to incorporate a 'guesstimate' of the nature and extent of a likely budgetary course correction in the wake of an unfavourable shock, which can be based on historical experience and various economic and institutional fundamentals of the fiscal policy process.⁴⁰ That usually yields a more realistic story of what could happen to public finances in a forecast that contemplates both shocks and responses to them. **21.50**

In the absence of reliable 'sustainability thresholds', however, such estimates per se do not allow for judgements on the viability of any particular fiscal path. Uncertainty about future macroeconomic conditions and potential fiscal policy reactions inevitably weakens the basis for drawing compelling policy conclusions using scenario analyses. Crucial factors are often missed, such as judgements about the loyalty of the investor base, the availability of refinancing options, and the danger from contingent liabilities. Assessments of the appropriateness of a country's debt burden should reflect the history of fiscal responsibility, the vision and degrees of freedom of its policymakers, and the professionalism and thus credibility of a country's institutions (for example the central bank and budgetary agencies). This is probably why a World Bank study of 132 low- and middle-income countries covering the 1970–2002 period confirmed that countries with better policies and institutions were able to carry substantially higher debt burdens than countries with worse policies and institutions—and without increasing the risk of debt distress.⁴¹ **21.51**

³⁹ 'The contrast between the histories of the nondefaulters and those of the serial defaulters... is stunning. Default can become a way of life. ... [S]erial default may owe to a vicious cycle in which default weakens a country's institutions, in turn making subsequent default more likely': Carmen M. Reinhart, Kenneth S. Rogoff, and Miguel A. Savastano, 'Debt Intolerance' [2003] BPEA 1.

⁴⁰ Oya Celasun, Xavier Debrun, and Jonathan D. Ostry, *Primary Surplus Behaviour and Risks to Fiscal Sustainability in Emerging Market Countries: A 'Fan-Chart' Approach*, IMF Working Paper No. WP/06/67 (March 2006), available online at <<http://www.imf.org/external/pubs/ft/wp/2006/wp0667.pdf>>.

⁴¹ Aart Kraay and Vikram Nehru, 'When is External Debt Sustainable?' (2006) 20(3) *The World Bank Econ Rev* 341.

- 21.52** The IMF, World Bank, and all other official lending institutions routinely conduct debt sustainability studies. Using a framework designed for countries with regular access to world capital markets, the IMF makes judgements about countries' capacity to borrow and service debts without compromising their own stability or that of other Fund members.⁴² The Fund and the Bank have another framework tailored for low-income countries, intended to estimate repayment risks and to help governments to prevent unviable debt burdens—especially when they have already been granted debt relief by official lenders.⁴³ In reflection of the difficulty of predicting debt sustainability, however, these institutions have had to tinker with their methodology every couple of years, and they are still far from reliable. Both the Fund and the Bank have failed to predict many debt crises ahead of time, and the root of the problem is that any approach based on past performance is often of limited relevance in terms of predicting the future, while the nature and likelihood of any scenarios imagining what the future might bring are, by definition, unknown.⁴⁴
- 21.53** The credit-rating agencies and analysts throughout the financial industry likewise attempt to anticipate debt sustainability problems by similar means. The rating agencies publish their methodologies, which involve a combination of quantitative and qualitative judgements intended to capture the capacity, as well as the willingness, of sovereigns to meet their debt obligations. This is an improvement over what the official multilateral agencies are doing, because no quantitative model can adequately capture the complex web of political, economic, financial, and social factors that lead a government to default on its debt.⁴⁵ Their analysis incorporates indicators of institutional effectiveness and political risk, economic structure and growth prospects, the size and nature of international assets and liabilities, fiscal performance and resilience, and monetary and exchange-rate flexibility.⁴⁶ As one of the agencies has acknowledged, a sustainable public debt burden varies across countries and over time, and hence there is no simplistic relationship between the stock of government debt or debt service (whether relative to GDP or government revenue) and sovereign creditworthiness or ratings. Likewise, there is no given level of external indebtedness that becomes unsustainable and results in debt default.⁴⁷ And yet their methodologies have also evolved through time in reflection of past failures to foresee debt-servicing problems or close calls—whether in the 1920s–1930s, in Asia during the late 1990s, or in Europe in recent years.⁴⁸

⁴² The framework for market-access countries was introduced in 2002 and has been subsequently refined several times to incorporate lessons learned: see IMF, *Staff Guidance Note on Debt Sustainability Analysis for Market Access Countries* (July 2008), available online at <<http://www.imf.org/external/np/pp/eng/2008/070308a.pdf>>.

⁴³ The joint World Bank–IMF Debt Sustainability Framework (DSF) was introduced in 2005 and has been modified multiple times: see World Bank and IMF, *Revisiting the Debt Sustainability Framework for Low-Income Countries* (January 2012), available online at <<http://www.imf.org/external/np/pp/eng/2012/011212.pdf>>.

⁴⁴ See the discussion of the 'impossibility principle' in Charles Wyplosz, 'Debt Sustainability Assessment: Mission Impossible' (2011) 2(3) *Rev Econ & Inst* 1.

⁴⁵ Moody's Investors Service, *Sovereign Bond Ratings* (September 2008), available online at <https://www.moody.com/researchdocumentcontentpage.aspx?docid=PBC_109490>.

⁴⁶ Standard & Poor's, *Sovereign Government Rating Methodology and Assumptions* (June 2011), available online at <http://www.standardandpoors.com/spf/upload/Ratings_EMEA/2011-06-30_CBEEvent_CriteriaGovSovRatingMethodologyAndAssumptions.pdf>.

⁴⁷ Fitch Ratings, *Sovereign Ratings Criteria* (August 2012), available online at <http://www.fitchratings.com/creditrisk/reports/report_frame.cfm?rpt_id=685737>.

⁴⁸ For example, Iceland's foreign-currency sovereign debt was rated AA until 2007–08 (subsequently downgraded to BB+/BBB–), and Greece was rated A until late 2009 (subsequently downgraded to Default). For an analysis of how poorly the rating agencies also fared in the interwar years, see Marc Flandreau, Norbert Gaillard, and Frank Packer, *To Err is Human: Rating Agencies and the Interwar Foreign Government Debt Crisis*, BIS Working Papers No. 335 (December 2010), available online at <<http://www.bis.org/publ/work335.pdf>>.

The most challenging aspect of all of these attempts at forecasting debt sustainability or creditworthiness is how to anticipate changes in market perceptions of sovereign default risk, and thus shifts in the demand for the bonds issued by various governments. These changes take place because investors become more or less risk-averse, or because certain asset classes are in or out of fashion, or because investment horizons turn short or long. Years, and sometimes decades, of benign appraisal by the financial markets and the credit-rating agencies can come to a surprisingly abrupt end. At times, investors appear to differentiate among countries in accordance with their respective credit profiles, but on occasion investors get caught up in entry or exit modes that recognize no borders and disregard country fundamentals. Moreover, there is substantial endogeneity in the way in which markets assess sovereign risk: the mere perception of illiquidity or even insolvency (arising, say, from an adverse exogenous shock to government revenues or expenditures, or to political instability) can initiate a vicious cycle whereby rising, and eventually unsustainable, bond yields lead to market illiquidity and actual insolvency. This is why debt sustainability can be said to be largely in the eye of the beholder: it depends on investor beliefs about what the future will bring.⁴⁹ Unless governments listen and react constructively to what the financial markets are telling them, swings in investor preferences can alter significantly their ability to fund themselves—and thus their margin of manoeuvre to avoid an adverse credit event. **21.54**

7. Conclusions

A history of ‘deficit bias’ on the part of most governments during the past several decades, pockmarked by destabilizing swings in investor sentiment, has popularized the notion that both fiscal behaviour and investor attitudes should be anchored by the adoption of national fiscal rules. A fiscal rule imposes a long-lasting constraint on fiscal policy through numerical limits, usually on deficit financing, debt levels, or public spending. Fiscal rules typically aim to correct distorted incentives, and to contain pressures to overspend—particularly in good times—so as to ensure fiscal responsibility and debt sustainability over the long term. The objective is also to banish doubt or ambiguity about the willingness of governments to follow a prudent fiscal path that will enable them to keep paying their debts. In the presence of a constrained public purse, and in the context of greater predictability for investors in government debt, there should be far fewer opportunities for a gap to develop between the amount of funding demanded by the government and the supply of funding willingly delivered by bondholders and other creditors. **21.55**

Two decades ago, whatever fiscal rules were in existence constrained mostly the fiscal activities of sub-sovereign (for example provincial or municipal) governments, but by now more than eighty countries—especially members of currency unions and emerging market economies—have instituted them in order to constrain their own national governments.⁵⁰ The latest fashion in fiscal rules is to combine rigid sustainability objectives with flexibility to accommodate economic shocks, and thus many of the more recently adopted rules set budget targets in cyclically adjusted terms, following the examples set by Chile and Switzerland a **21.56**

⁴⁹ Jean-Pierre Landau, ‘Policies on Sovereign Debt’ (2012) 16 BDF FS Rev 191.

⁵⁰ Nina Budina, Tidiane Kinda, Andrea Schaechter, and Anke Weber, *Fiscal Rules at a Glance: Country Details from a New Dataset*, IMF Working Paper No. WP/12/273 (November 2012), available online at <<http://www.imf.org/external/pubs/cat/longres.aspx?sk=40101>>. In 1990, only five countries (Germany, Indonesia, Japan, Luxembourg, and the United States) had fiscal rules in place that covered at least the central government level.

decade ago. The bulk of national expenditure, balance, and debt rules are embedded in statutory norms, and those designed for currency zones (in Africa, the Caribbean, and Europe) are mostly supranational rules established by international treaties. The supporting institutional arrangements vary, but increasingly fiscal councils or independent committees are providing key budgetary assumptions, methodologies, and supervision.⁵¹

- 21.57** The jury is still out on whether fiscal rules can actually help to prevent excessive borrowing and sovereign debt crises. A recent review of their past effectiveness concludes that they are neither necessary nor sufficient to achieve fiscal discipline, but that they help.⁵² It would appear that rules with more encompassing design features have been associated with better fiscal performance, but it is also clear that the mere introduction of fiscal rules has not guaranteed success unless there were steep financial or political costs associated with breaking the rules. This is one of the clear lessons of the abject failure of Europe's Stability and Growth Pact (SGP) in terms of strengthening debt sustainability ahead of the financial crisis of 2008—especially in the periphery countries of the eurozone.
- 21.58** The SGP fiscal framework, which fleshed out the policy provisions laid down by the Maastricht Treaty of 1992, was introduced in 1998 and revised in 2005. However, enforcement failures were the Achilles' heel of the SGP.
- Many governments—including the largest members of European Monetary Union (EMU)—did not follow the instructions to strive for underlying fiscal balance over the business cycle, and they were unsuccessful in keeping deficits below their ceilings. More generally, before the crisis hit, many member governments did not sufficiently use the good economic times to build up public finance buffers, as demanded by the SGP.⁵³
 - Laxity in applying the SGP to the larger countries had a negative demonstration effect on the newer members and, with the lower likelihood of being sanctioned, fiscal policy became less disciplined—especially around the eurozone's periphery.
 - Many governments followed the letter, but not the spirit of the SGP, and thus they routinely incorporated overly optimistic budgetary assumptions, engaged in creative accounting and misreporting, and pursued electorally motivated fiscal policies with expansionary biases.⁵⁴

⁵¹ Andrea Schaechter, Tidiane Kinda, Nina Budina, and Anke Weber, *Fiscal Rules in Response to the Crisis: Toward the 'Next-Generation' Rules*, IMF Working Paper No. WP/12/187 (July 2012), available online at <<http://www.imf.org/external/pubs/ft/wp/2012/wp12187.pdf>>.

⁵² Wyplosz (n. 44).

⁵³ The SGP complemented the 3 per cent of GDP deficit limit and 60 per cent of GDP debt ceiling by requiring countries to strive for a medium-term fiscal objective (MTO). Originally, countries were urged to attain a common 'close-to-balance or in surplus' position, interpreted as a deficit no larger than 0.5 per cent of GDP over the cycle, to provide sufficient cyclical room to allow for the kicking in of automatic stabilizers during downturns without breaching the 3 per cent limit. After the 2005 revision, countries were able to set their own MTOs based on sustainability factors, within certain limits including a maximum 1 per cent of GDP deficit. If an excessive deficit were deemed to exist, countries would be obliged to undertake corrective policies within a defined time frame under the Excessive Deficit Procedure (EDP). Non-complying countries were supposed to be subject to increasingly stringent surveillance, which could culminate in the imposition of financial penalties: see IMF, *Fiscal Rules: Anchoring Expectations for Sustainable Public Finances* (December 2009), available online at <<http://www.imf.org/external/np/pp/eng/2009/121609.pdf>>, 42–3.

⁵⁴ Roel Beetsma, Benjamin Bluhm, Massimo Giuliodori, and Peter Wierds, 'From Budgetary Forecasts to Ex Post Fiscal Data: Exploring the Evolution of Fiscal Forecast Errors in the European Union' (2013) 31(4) *Contemp Econ Pol'y* 795; Roel Beetsma, Massimo Giuliodori, and Peter Wierds, 'Planning to Cheat: EU

Since fiscal rules are not a panacea, and all of the economic, political, and financial forces that impact on sovereign creditworthiness cannot possibly be controlled, chances are that some governments will encounter debt-servicing difficulties when they least expect it. Certainly, to the extent that nations adhere to market-friendly policies that foster investor confidence and prosperity, and generate the budgetary revenues, export earnings, and capital inflows necessary to keep servicing debt obligations, their fiscal resilience will be enhanced. Sound liability-management practices can also make a major contribution to creditworthiness, because when the public debt exhibits a risk-averse currency, interest rate, and maturity structure, it should be able to withstand the temporary harm done by a natural disaster, or a sudden deterioration in financial market conditions or the terms of foreign trade. And last, but not least, prudential regulations, and sensible monetary and exchange rate policies, can make a major difference in terms of minimizing contingent liabilities arising out of the banking system, state-owned enterprises, and other risk pockets in the economy, thereby preventing a destabilizing jump in the public debt. These are the lessons from painful experience. **21.59**

Fiscal Policy in Real Time' (2009) 24(60) *Econ Pol'y* 753; Jeffrey Frankel and Jesse Schreger, 'Over-Optimistic Official Forecasts and Fiscal Rules in the Eurozone' (2013) 149(2) *Review of World Economics* 247; Timothy C. Irwin, *Accounting Devices and Fiscal Illusions*, IMF Staff Discussion Note No. SDN/12/02 (March 2012), available online at <<http://www.imf.org/external/pubs/ft/sdn/2012/sdn1202.pdf>>; Jürgen von Hagen and Guntram B. Wolff, 'What Do Deficits Tell Us about Debt? Empirical Evidence on Creative Accounting with Fiscal Rules in the EU' (2006) 30(12) *J Bank Fin* 3259.