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By Toshiro Nishizawa

Reading 01

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Output Costs of Sovereign Default

BIANCA DE PAOLI
Bank of England*

GLENN HOGGARATH
Bank of England

VICTORIA SAPORTA
Bank of England

Sovereign defaults have been a feature of the international financial landscape for centuries. For example, Reinhart and Rogoff (2009), in their thorough historical survey of past financial crises, report that France defaulted on its sovereign debt eight times between 1500 and 1800, while Spain defaulted 14 times between 1500 and 1900. More recently, over the past quarter of a century, emerging market economies (EMEs) have defaulted on their sovereign debts frequently. And over the past year there has been increasing concerns about the actual and prospective sovereign debt levels in a number of developed countries, too.

But to the extent that default is voluntary there is an issue of why sovereigns did not default more frequently in the past. Sovereign nations—unlike companies—cannot be liquidated and there are also no national, or international, courts that can enforce payments on contract through, for example, transferring assets from the debtor to the creditor.¹ Defaulting, or restructuring, enables debtor countries to reduce the size or lengthen the maturity of their repayments, and thereby seek to provide a temporary boost to current consumption.

COSTS OF DEBT CRISES

There are, though, a number of potential costs of default that incentivize debtors to repay. Some are penalties imposed by external creditors on the cost or ability of defaulters to access future finance. So increasing consumption today may be at the expense of reducing consumption in the future. Moreover, given that defaulting

*The views expressed in this paper are those of the authors, and not necessarily those of the Bank of England.

may cause a broader financial crisis in which domestic activity and output are reduced even in the short run, any attempt to boost current spending temporarily through a default may not be successful.

Penalty Costs

In principle, defaulters may lose access to borrowing from financial markets. However, the empirical evidence suggests overall that sovereign default is not necessarily associated with a loss of market access, so fears about any such loss may not in themselves be a major deterrent to default. Lindert and Morton (1989) argue that in the 1930s, and again in the early 1980s, during periods when a number of countries defaulted, external credit was no more inaccessible to sovereign defaulters than to nondefaulters.² Jorgensen and Sachs (1989) find that in the two decades following the 1930s sovereign debt crisis, access to international capital markets for Latin American countries was severely restricted for previous nondefaulters as well as for defaulters. And once capital markets opened up in the 1960s, defaulters found it as easy to access capital as nondefaulters. More recently, assessing defaults since 1980, Medeiros et al. (2005) find that the probability of regaining market access after default depends partly on a country's external situation at the time of default and partly on its domestic macroeconomic performance.³ More generally, Gelos et al. (2004) find that it only took past defaulters three and a half months, on average, to regain market access after defaulting during the 1990s compared with more than four and a half years during the 1980s.

Although the empirical evidence does not suggest that default necessarily closes off market access, it does point to an adverse effect on the government's cost of future borrowing. Ozler (1993) finds that during the tranquil period of the 1970s, lenders charged up to 50 basis points more for loans to previous (post-1930) defaulters. And more recently, Reinhart et al. (2003) find that EMEs with a history of defaulting on their external debts—especially serial defaulters—received a lower credit rating over the 1979 to 2000 period than nondefaulters that displayed similar financial strength.⁴ Similarly, De Paoli et al. (2006) find that for a given debt to GDP ratio, past defaulters generally had a higher bond spread or lower credit rating than nondefaulters over the 2003 to 2005 period.

Broader Financial Costs

The costs discussed here represent penalties that sovereigns may face should they default. But governments may also want to maintain debt repayments so as to avoid broader losses to the domestic economy associated with default, beyond those caused by a tightening in the terms and conditions on borrowing imposed by foreign creditors. A number of studies suggest that default is often associated with a decline in output growth (for example, Cohen 1992, Dooley 2000, and Sturzenegger and Zetelmeyer 2006). But what are these broader output costs to the domestic economy resulting from sovereign default?

One mechanism by which a sovereign default may reduce GDP is through its impact on the domestic financial system. In many EMEs, domestic banks are major creditors of the government and so may be severely weakened, if not made insolvent, when the government defaults on, or restructures, its debt (including

that owed to the domestic sector). In this case, banks may stop playing their intermediation role of providing liquidity and credit to the economy. This happened, for example, in Russia after the government suddenly defaulted on its domestic debt in the autumn of 1998. It has also been raised recently as a concern in the peripheral Eurozone that sovereign problems may translate into banking ones (and vice versa). The impact of a sovereign default on the banking system is often accentuated through government debt having been taken up increasingly by domestic banks in the run-up to debt crises, when governments find it harder, or at least more expensive, to obtain external finance. Once banking problems emerge, any fiscal weakness, in turn, reduces the ability of the government to take measures to contain a crisis. For example, it is probably not credible for a highly indebted government to introduce a blanket guarantee to deposit holders so it can stem bank runs because depositors will not believe such a guarantee will be honored and their investments insured (see Hoelscher and Quintyn 2003).⁵

Foreign and domestic investors might also react to a sovereign defaulting on its external debt by questioning whether the government has sufficient foreign currency to defend the exchange rate. For net foreign currency borrowers, a sharp currency depreciation would, in turn, increase—when valued in domestic currency terms—the net foreign currency debts and debt service costs of the government, banks, and the nonbank private sector.⁶ A tightening of monetary policy might limit the extent of exchange rate depreciation but at the expense, in the short run at least, of reducing domestic demand and liquidity in the financial system. Therefore, a triple—sovereign, banking, and currency—crisis may ensue, involving a run on both the domestic currency and the banking system (see Exhibit 3.1). But since depreciation tends to increase trade competitiveness, there would, after a time lag, be a potentially offsetting gain in net exports and output depending, *inter alia*, on the size of the traded goods sector (see Frankel 2005) and whether exporters have access to trade finance.

Measures of the Broader Financial Costs of Debt Crises

Despite research pointing to the importance of output losses as a reason why sovereigns would want to avoid defaulting, there have been few studies that have sought to quantify directly the losses following sovereign defaults. This gap in the literature is even more surprising given that similar studies have now been carried out extensively for banking and currency crises and their combination—so-called twin crises (see, for example, Kaminsky and Reinhart 1999, Bordo et al. 2001, Hoggarth et al. 2002, Cerra and Saxena 2005, Laeven and Valencia 2008, and IMF 2009). A recent study by us on the output losses of sovereign defaults is one exception (De Paoli et al. 2009).

De Paoli et al. define a sovereign default episode as occurring when either (1) the sovereign's arrears on principal are 15 percent or more of the total outstanding debt owed to the external private sector; (2) arrears on interest payments are 5 percent or more; or (3) a rescheduling agreement is reached with foreign private sector creditors.⁷ Output losses are then estimated as the cumulative difference during the debt crisis period between actual GDP and estimates of what it would have been in the absence of a default. Having defined the episodes of default, there are two crucial measurement questions here—defining the beginning and end year of

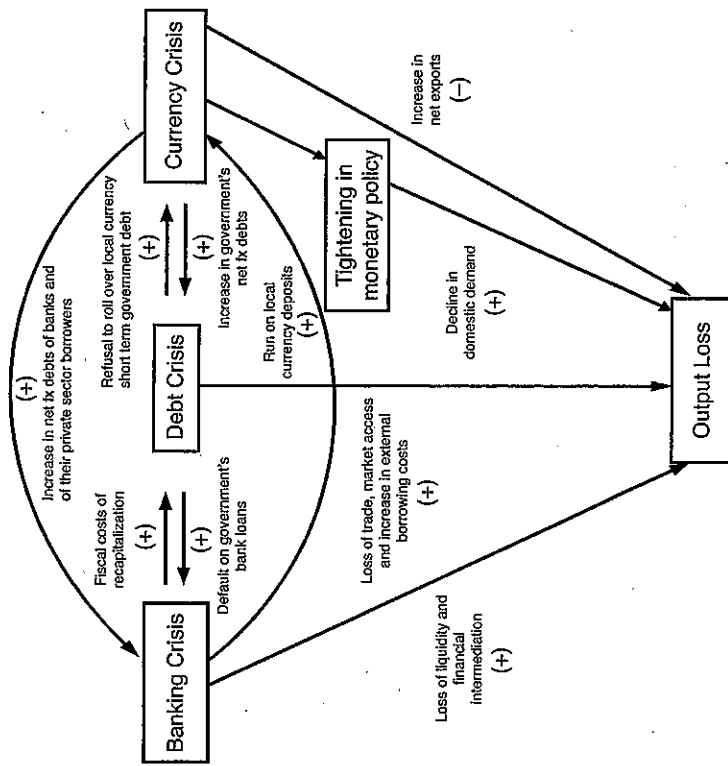


Exhibit 3.1 Interaction between Sovereign Debt, Banking, and Currency Crises
 Note: Arrows show the direction of causation and +/- whether the impact is likely to accentuate or alleviate the particular crisis or output loss.

the default period and estimating the output counterfactual. For governments that fall into default, arrears usually build up gradually (and fall gradually after reaching a peak). So, having identified the default episodes, we define the beginning of the crisis as the first year in which arrears on principal or on interest payments rise above 5 percent and 1.5 percent, respectively, of outstanding debt (or when an actual restructuring begins).⁸ The end of a high arrears crisis period is more difficult to pinpoint precisely so alternative specifications were considered.⁹ But for all variations of the assumed end point, crises were found, on average, to be long-lasting. For the main output counterfactual (in the absence of a crisis), it was assumed that output would have followed its pre-crisis trend (whereby the trend is measured using a Hodrick-Prescott (HP) filter on the available past GDP data). As a check on the robustness of the results, an alternative output counterfactual was also derived based on a conventional equation estimated to explain (per capita) output growth.¹⁰ This method produced qualitatively similar results.

Exhibit 3.2 Output Losses per Year During Different Types of EME Sovereign Crisis, 1970–2000

Type of Sovereign Default	Number of Crises	Average Mean Length of Crisis (years)	Median Loss, per Year ^(e)	Mean Cost per Year ^(a)
Sovereign only	5	3.2	-3.0 ^(d)	0.5 ^(d)
Sovereign and currency crisis ^(b)	14	8.1	2.3	6.2
Sovereign and banking crisis ^(b)	7	8.7	0.7	14.8
Triple crisis ^(b)	17	10.5	18.7	19.4
ALL CRISES	43	8.6	4.4	12.2
Restructured debt ^(c)	15	6.9	0.7	4.8
Unrestructured debt	28	9.5	11.5	16.1

(a) Cumulative difference per year between potential and actual output. Potential output is based on the country's pre-crisis (HP filter) trend.
 (b) Defined as when a currency or banking crisis occurs at some point during the duration of the sovereign crisis. The definition of *banking crisis*, based on Caprio and Klingebiel (2003), is when 'much or all' of the banking system's capital is exhausted, while that of *currency crisis*, based on Frankel and Rose (1986), is when the domestic nominal exchange rate against the dollar depreciates by at least 25 percent in any one year combined with a 10 percent increase in the rate of depreciation.
 (c) Includes both pre- and post-arrears restructurings.
 (d) A negative cost implies that actual output was higher during the crisis than suggested by its pre-crisis trend. Note, however, the small sample of default-only crises.
 Source: De Paoli et al. (2009).

Exhibit 3.2 shows typical estimates of output losses from De Paoli et al. (2009). The estimated average *cumulative* output loss of the sample increases with the length of the crisis given that actual output remains below its counterfactual during most, if not all, of the crisis period.¹¹ Output losses are therefore shown on a per annum basis.

A number of features are suggested by Exhibit 3.2. First, output losses in the wake of sovereign default appear to be very large—almost 5 percent a year on the median measure—as well as long-lasting—on average for more than eight years. However, the counterfactuals likely overstate the path of output in the absence of the debt crisis because it is difficult to separate completely the loss due to default per se from the loss caused by the economic shock that triggered the default. Therefore, more weight should be attached to the relative costs from different types of crises than to the absolute estimates.

Second, sovereign defaults rarely occur in isolation—in only about 10 percent of the sample. More often, a debt crisis coincides with a banking and/or a currency crisis. In fact, almost one-half of the sample consists of triple (sovereign, banking, and currency) crises. In these cases, output losses appear to be particularly high—here the interactions between different sectors of the economy accentuate the decline in GDP. Banking crises often result in a sharp and prolonged reduction in the intermediation of credit to the private sector, with significant costs to economic efficiency. Although currency crises have the silver lining of

stimulating exports—in two-thirds of the sample the share of domestic demand in total final expenditure falls during the crisis period (that is, the share of exports increases)—they also result in a marked deterioration in the balance sheet of the government or the private sector when measured in domestic currency terms since most EME external debt is denominated in foreign currency.

Third, the output losses *per year* tend to increase with the length of the crisis. This suggests that the longer that it takes to reduce arrears or complete a restructuring, the more output falls (relative to its trend or potential). Also, as shown in Exhibit 3.2, crisis countries that reschedule their debts appear to face smaller output losses than those that do not (despite having higher external debt-to-GDP ratios, on average, at the outset of the crisis). This suggests that countries that reschedule their debts—and thus start afresh with creditors—face a lower subsequent cost of finance or quicker renewed access to external finance. It might also indicate that an active policy of rescheduling has a less debilitating impact on the domestic financial system than a passive policy of remaining in arrears and not restructuring.

CONCLUSION

This chapter has assessed the output costs associated with sovereign default. The literature highlights a number of potential channels through which sovereign debtors incur costs through defaulting. Some of these costs are imposed by creditors, involving in particular a reduction in access to, or an increase in the cost of, future finance. In practice, in the aftermath of EME debt crises a decade ago, EMEs were often able to reaccess international capital markets quite quickly, although there is some evidence that they have had to pay a higher risk premium and been less able to issue in domestic currency, thereby increasing their vulnerability to currency risk.

There has been less focus in the literature on the broader output costs to the domestic economy associated with sovereign default and on the interaction with currency and banking crises. In practice, most EME sovereign crises over the past 25 years have been associated with a banking or a currency crisis. Sovereign defaults appear to have the biggest impact on domestic output when there is a triple (sovereign, banking, and currency) crisis. In some cases, such as following the Latin American crisis in the early 1980s and the Russian crisis in the late 1990s, sovereign defaults have precipitated broader instability in the global financial system.

Given that the costs of sovereign default appear to be high, one obvious but nonetheless important policy conclusion is that countries should take measures to reduce the risk of defaulting in the first place. At a broad level, authorities need to adopt sound macroeconomic policies and structural reform that should reduce the likelihood of crises as well as raise sustainable output growth. More specifically, the high cost of default points to the need for further development of early warning systems of crisis. The International Monetary Fund has a role to play here in carrying out stress tests of the fragility of the government's balance sheet and those of other sectors in its regular Article IV surveillance. This type of analysis should allow authorities time to change domestic policies and thereby reduce the likelihood of crisis. It also emphasizes the need for countries themselves to self-insure

against the possibility of crises. Many EMEs have done this in recent years through building up foreign exchange reserves and reducing their reliance on foreign currency and short-term debt. This has reduced the likelihood of currency crises in particular and helped shelter EMEs from the recent banking crisis in developed countries. But government debts (relative to GDP) remain high in a number of EMEs and are often still significantly financed by the domestic banking system. This makes the latter vulnerable to sovereign weakness (and potentially vice versa if governments bail out weak banking systems). Actual and prospective government debt levels have also increased sharply recently in a number of developed countries.

Once in crisis, annual output losses seem to increase the longer countries stay in arrears or take to restructure their debts. There is also evidence that output losses are smaller for countries that restructure their debt than for those that do not. This emphasizes the importance of policy initiatives aimed at improving the speed and efficiency of debtor-creditor restructuring.

NOTES

1. Following the Foreign Sovereign Immunity Act (1976) in the United States and the State Immunity Act (1978) in the United Kingdom, it became common practice for most governments to waive sovereign immunity on foreign loans and bond contracts. In practice, however, this only allows creditors to have access to the debtor's assets held for commercial activity in the country in which the debt contract was issued. Moreover, a country considering default could remove its assets held in the foreign jurisdiction before any default.
2. Tomz (1998), however, finds that, during the interwar period, defaulting countries that were expected to default, given their poor fundamentals, could regain access to capital markets twice as quickly as countries that defaulted unexpectedly, given their better fundamentals.
3. As measured by GDP growth, inflation, the current account balance, and foreign currency reserves.
4. Measured by the ratios of external debt to both GDP and exports.
5. The large fiscal costs that are often incurred in resolving a banking crisis can also cause, or make worse, a sovereign crisis, for example, as happened in Indonesia in 1997–1998.
6. For the balance sheet channel of currency depreciation see, *inter alia*, Cespedes et al. (2004).
7. The higher threshold for arrears on principal than on interest payments is because, according to World Bank estimates, sovereign arrears on principal have been, on average, two to three times larger than on interest payments since 1970. The authors show that the probabilities of breaching these thresholds are low.
8. This was checked for consistency with other studies that include definitions of the start of debt crises.
9. For example, as soon as arrears on principal fall below 15 percent or arrears on interest payments below 5 percent, or when arrears fall below 5 percent on principal or below 1.5 percent on interest payments. Other things being equal, the first definition will clearly imply a shorter crisis period than the second one.
10. This is based on a panel regression of the crisis countries over the 1970–2000 period. GDP growth per capita was found to be a negative function of the initial level of GDP,

price inflation, the share of government consumption in GDP, and political instability and a positive function of the investment share in GDP and trade openness (see De Paoli et al. 2009).

11. In fact, output did not return to its pre-crisis trend at all during the crisis period in 60 percent of the sample.

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ABOUT THE AUTHORS

Bianca De Paoli is a senior economist at the Bank of England, where she has been working in the field of monetary analysis since 2005. Before then, she received a PhD from the London School of Economics. Dr. De Paoli has done extensive work in the fields of international and monetary economics, and has published a series of articles on optimal monetary policy in open economies.

Glenn Hoggarth is currently senior economist in the Bank of England's International Finance Division. He previously worked in a number of divisions in the bank's financial and monetary stability areas as well as in its Centre for Central Banking Studies. He has been on a number of technical missions to other central banks advising on financial and monetary policy issues. He worked for a number of years as a private sector economist before joining the Bank of England.

Glenn was educated in economics at the University of Warwick (BA) and Churchill College, Cambridge (MPhil). He has numerous articles published on monetary and financial economics. His current research interests are international finance, EMEs, banking crises, and financial stability policies.

Victoria Saporta is head of the prudential policy division at the Bank of England. Her division is responsible for developing policy proposals on national and international prudential policy reform. Over the past 14 years, Victoria has held a number of policy and research positions in the financial stability and monetary analysis departments of the Bank. Victoria holds a PhD in economics and an MPhil in finance from the University of Cambridge and a BSc in mathematical economics and econometrics from the London School of Economics. She has published numerous articles on financial stability issues in books, professional journals, and Bank of England publications.