

Graduate School of Public Policy  
The University of Tokyo

***Sovereign Debt***

Course No. 5123433

A1/A2 2017

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**Reading 02**

Hatchondo, Juan Carlos, Lernardo Martinez, and Horacio Sapriza. 2011.  
"Understanding Sovereign Default." In Kolb, Robert W., ed. *Sovereign Debt:  
From Safety to Default*, 137-147. Hoboken, NJ: John Wiley & Sons.



# Understanding Sovereign Default

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This chapter discusses the economics of sovereign defaults, summarizing lessons from existing work on this issue.<sup>1</sup> First, we define sovereign defaults. Second, we describe costs of defaulting. Third, we identify circumstances that are likely to lead to a default. Finally, we discuss how default risk may help to account for distinctive features of emerging economies.

## SOVEREIGN DEFAULTS

Sovereign debt refers to debt incurred by governments. Sovereign borrowing can be a key policy tool to finance investment or to respond to a cyclical downturn. There are different definitions of a sovereign default. From a legal point of view, a default event is an episode in which a scheduled debt service is not paid beyond a grace period specified in the debt contract. Credit-rating agencies consider a technical default an episode in which the sovereign makes a restructuring offer that contains terms less favorable than the original debt.<sup>2</sup>

Sovereign defaults do not necessarily imply a total repudiation of outstanding debt. Most default episodes are followed by a settlement between creditors and the debtor government. The settlement may take the form of a debt exchange or debt restructuring. The new stream of payments promised by the government typically involves a combination of lower principal, lower interest payments, and

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<sup>1</sup>The views expressed herein are those of the authors and should not be attributed to the IMF, its Executive Board, or its management, the Federal Reserve Bank of Richmond, or the Board of Governors of the Federal Reserve System.

longer maturities. Credit rating agencies define the duration of a default episode as the amount of time that passes between the default event and when the debt is restructured (even though there may be holdout creditors).

## COSTS OF SOVEREIGN DEFAULTS

Identifying the costs of sovereign defaults is essential in understanding why we observe sovereign debt in the first place. If there were no costs for defaulting, the sovereign would default under all circumstances. Anticipating this behavior, investors would never lend to sovereigns and there would be no sovereign debt. That is, for sovereign debt to exist, it is necessary that at least in some circumstances it would be more costly for a sovereign to default than to pay back its debt. Similarly, for sovereign defaults to exist, it is necessary that at least in some circumstances it would be more costly for a sovereign to pay back its debt than to default. This section describes two costs of sovereign default that are often mentioned in the literature: sanctions imposed by creditors, and signaling costs.

### Sanctions

In this subsection, we first discuss the ability of creditors to increase the borrowing cost of defaulting sovereigns, and we then focus on other sanctions.

#### *Borrowing Cost*

Increasing a defaulting sovereign's borrowing costs would require coordination among holders of defaulted debt and all other potential lenders. It would require that potential creditors who find it beneficial to lend to a sovereign that has defaulted in the past would choose not to give credit to this sovereign, because these creditors want to punish the defaulter for its past behavior. In models of sovereign default, coordination among lenders can be sustained in infinitely repeated games in which a creditor wants to maintain his good reputation by not deviating from his agreement with other creditors so he can better keep his share of the profits obtained through coordination (see Wright 2002). Such a degree of coordination seems unlikely to occur in competitive credit markets with a large number of potential lenders. With more creditors, the share of the benefits from coordination for each creditor is smaller, and therefore deviations from a coordination agreement become relatively more attractive. Wright (2005) discusses how in the past three decades, the sovereign debt market has become more competitive.

Lenders can also try to impose financial sanctions that do not require such coordination. In their analysis of the legal consequences of sovereign default episodes, Sturzenegger and Zettelmeyer (2006b) discuss how holders of defaulted bonds succeeded in interfering with cross-border payments to other creditors who had previously agreed to a debt restructuring. If all cross-border payments could be blocked, a defaulting sovereign would not be able to borrow abroad—no creditor would lend if it were unable to collect the payments. From this, Sturzenegger and Zettelmeyer (2006b) infer that holders of defaulted bonds may have been able to exclude defaulting economies from international capital markets. Yet, at the same time they conclude that “legal tactics are updated all the time, and new ways

are discovered both to extract payment from a defaulting sovereign as well as to avoid attachments.” In particular, they expect that “the threat of exclusion may be less relevant for some countries or to all countries in the future.” In any case, there are alternatives available to defaulting economies. They could issue bonds in local markets, obtain aid, or ask for official credit (from other governments or multilateral financial institutions). It is not obvious whether a sovereign forced to use these alternatives would face a significantly higher borrowing cost. A common finding is that a default leads to a drain in capital flows. However, the observed difficulties in market access after a default may be the result of the same factors that triggered the default decision itself. For example, both default and the difficulties in market access after default may be triggered by political turnover (see Hatchondo, Martinez, and Sapriza 2009). The empirical literature finds no clear evidence of defaulters being punished by creditors through exclusion or higher interest rates on new loans when sufficient control variables are used (see Eichengreen and Portes 2000 and Gelos, Sahay, and Sandleris 2004).<sup>3</sup>

### *Other Sanctions*

Governments have on occasions intervened actively in support of their constituents who are holders of defaulted debt issued by other sovereigns (see Sturzenegger and Zettelmeyer 2006a). These interventions have taken the form of diplomatic dissuasion, withholding of official credit, threat of trade sanctions, and in exceptional cases, armed interventions (Mitschener and Weidenmier 2005 provide a case study of gunboat diplomacy).

## Signaling Costs

A default may be costly because of the information it signals. For example, a default decision may signal that the policy makers in office are less prone to respect property rights. Furthermore, a default may disclose some of the government's private information about fundamentals of the economy to market participants, which in turn could increase borrowing costs. Furthermore, the signal transmitted by a default decision may have other consequences besides increasing the cost of future borrowing. Cole and Kehoe (1998) argue that a sovereign default may imply that the government is considered untrustworthy in other areas besides the credit relationship with lenders. Sandleris (2008) explains how by revealing negative information about itself or the economy, the government may affect firms' net worth and their ability to borrow, which may lower the desired level of investment. Arteta and Hale (2006) find that sovereign debt crises are systematically accompanied by a large decline in foreign credit to domestic private firms. IMF (2002), Kumbhof (2004), and Kumbhof and Tanner (2005) explain that domestic financial crises are observed after sovereign defaults. In contrast with the costs discussed in the beginning of this section, signaling costs reflect the increased perceived probability of a future default and not a punishment imposed by creditors.

The signals implied by a government's default decision may also have political consequences. The default may reveal important characteristics of the incumbent policy makers, such as their competence. Moreover, because the holdings of

sovereign debt are not uniformly distributed across the population, a government's default may signal its redistribution goals.

Although the existence of signaling costs of defaulting seems plausible, it is not clear how important these costs are. More specifically, it is not clear how important the government's private information is, the extent to which this information is transmitted through the default decision, and the importance of the effects of communicating this information.

## DETERMINANTS OF SOVEREIGN DEFAULTS

This section discusses which circumstances are likely to lead to a sovereign default. Identifying the set of states that are likely to trigger a sovereign default is closely related with identifying how the costs of defaulting discussed in the previous section depend on these states.

### Resources

When the level of current resources is low, paying debt obligation may require large adjustments to expenditures or revenues. Such adjustments can be costly. Empirical evidence indicates that a sovereign tends to default in periods of low available resources. Using a historical data set with 169 sovereign defaults, Tomz and Wright (2007) report that 62 percent of these default episodes occurred in years when the output level in the defaulting country was below its trend. Cantor and Packer (1996) find that sovereign credit ratings strongly respond to macroeconomic factors such as the GDP growth rate and per capita income. The countercyclical nature of the interest rate paid by governments in developing countries (see further on) is consistent with sovereigns being more likely to default when economic conditions are worse. Higher interest rates may reflect a higher compensation to lenders who estimate a higher default probability.

Fluctuations of terms of trade (the ratio of the price of exports to the price of imports) are an important driving force behind the business cycles in some emerging economies (see, for example, Mendoza 1995).<sup>4</sup> At the same time, several emerging economies strongly rely on commodity taxation as a source of public revenue and depend largely on imported intermediate goods that have no close substitutes. Studies find that terms of trade fluctuations are a significant predictor of sovereign default and interest rate spreads in emerging economies.<sup>5</sup> A recent example of the relevance of commodity prices is found in Ecuador, where falling commodity prices led to a deterioration of the macroeconomic conditions and a sovereign default in 1999.<sup>6</sup> The sharp declines in oil prices during the second half of the 1990s have also been linked to the worsening of the macroeconomic and fiscal situation that led to the Russian default of 1998 (see Sturzenegger and Zettelmeyer 2006a).

Furthermore, episodes of sovereign default may be triggered by wars or civil conflicts that adversely affect a country's productivity. Defaults may also be triggered by a devaluation of the local currency when a relatively large fraction of the sovereign's debt is denominated in foreign currency and its revenues rely heavily on the taxation of nontradable goods. The magnitude of crises triggered by a

devaluation of the local currency is likely to be amplified by currency mismatches in the banking sector, the corporate sector, and households.

## BORROWING COSTS

External factors that increase the cost of borrowing may also trigger a default episode. For example, both international interest rates and the total net lending to emerging economies may influence lending to a particular developing country. Borrowing costs are particularly important in periods in which a country is trying to roll over its debt. The importance of external factors for the borrowing cost of developing countries is suggested by empirical studies that find that the interest rates paid by these countries have tended to move in the same direction as U.S. interest rates (see Lambertini 2001, Arora and Cerisola 2001, and Uribe and Yue 2006).

### Political Factors

In addition to pure economic variables, political factors may also play a nontrivial role as determinants of defaults.<sup>7</sup> Sturzenegger and Zettelmeyer (2006a) conclude that "a solvency crisis could be triggered by a shift in the parameters that govern the country's willingness to make sacrifices in order to repay, due to changes in the domestic political economy (a revolution, a coup, an election, etc.)." Similarly, Van Rijckeghem and Weder (2004) explain that it is reasonable to infer that a country's willingness to pay is influenced by politics, that is, by the distribution of interests and by the institutions and power structures. Santiso (2003) writes, "One basic rule of the confidence game [in international financial markets] is then to be very careful when nominating the official government voice. For investors, it is mainly the ministry of economics or finance or the governor of the central bank."

The behavior of the sovereign spread in Brazil before and after the run-up to the presidential elections in October 2002 illustrates the importance of political factors as determinants of default decisions. The concerns raised by the left-wing presidential candidate Luiz Inacio "Lula" da Silva because of his past declarations in favor of debt repudiations is the most accepted explanation for the sharp increase in the country spread preceding the Brazilian election (see Goretti 2005). Spreads may have increased because of a decrease in the expected willingness to pay by the future government. Similarly, before winning the presidential elections in Ecuador, Rafael Correa declared his intentions to restructure the country's debt. On January 17, 2007, two days after taking office, Ecuador's minister of economics told a group of investors that the government may repay only 40 percent of its foreign debt as part of an effort to free up funds for health care and education. The day after, Ecuador's benchmark government foreign securities tumbled, driving the yield up 1.1 percentage points to 14.32 percent.

Empirical studies suggest that political factors are important in understanding sovereign defaults. Citron and Nickelsburg (1987) find that political instability is statistically significant as a determinant of a country's default probability. Balkan (1992) considers two dimensions of the borrower's political environment, a democracy index and a political instability index, and finds them statistically significant in explaining default probabilities. Rivoli and Brewer (1997) find that long- and

short-term armed conflict in a country and changes in the long-term political legitimacy of the government are the most significant political predictors of debt rescheduling during the 1980s. Kohlscheen (2010) finds that parliamentary democracies experience a lower probability of default than presidential systems. He argues that this is explained by the higher number of veto players (that is, political players with power to prevent a default) in parliamentary systems. Moser (2006) finds a significant effect of changes of the finance minister or the minister of the economy on a country's interest rate spreads. He argues that such events may reveal important signals about the government's future policy course. These signals may contain information that affects expectations on both about how the government will influence future growth and the policy makers' willingness to service debt.

Alfaro and Kanczuk (2005), Cole, Dow, and English (1995), and Hatchondo, Martinez, and Saprizza (2009) present models in which both default and difficulties in market access after a default may be triggered by political turnover. In their models, policy makers with a different willingness to pay alternate in power. When policy makers with a weaker willingness to pay take power, they may default on the debt issued by pre-default governments with a stronger willingness to pay. Following such a default, as long as policy makers with a weaker willingness to pay stay in power, governments experience difficulties in market access. Furthermore, since it is more costly for post-default governments to borrow (because lenders understand that, other things being equal, these governments are more willing to default), they borrow less. Market access improves after the defaulting policy makers lose power. A clear example of this is discussed in Cole, Dow, and English (1995). They explain that "the ability of Reconstruction governments in Florida and Mississippi to borrow after the Civil War suggests that the old creditors could not block new loans once the states' reputations had been restored by an observable change in regime."

Hatchondo, Martinez, and Saprizza (2009) argue that the stability of creditor-friendly regimes is key for defaults triggered by political turnover to occur. Since the price received by the government for the bonds it issues incorporates a discount that mirrors the default probability, if a creditor-friendly government chooses borrowing levels that would lead a less-friendly government to default, it has to compensate lenders for this contingency, that is, for the contingency that less-friendly policy makers become the decision makers in the future. If the probability of this contingency is high enough (creditor-friendly regimes are not stable), it is too expensive for a creditor-friendly government to choose borrowing levels that would lead less-friendly governments to default. In this scenario, creditor-friendly governments choose borrowing levels that even less-friendly governments will most likely choose to pay, and therefore it is unlikely that political turnover triggers a default.

## BUSINESS CYCLES IN EMERGING ECONOMIES AND SOVEREIGN DEFAULT

Default risk may help us account for distinctive features of business cycles in emerging economies. Neumeier and Perri (2005) argue that the dynamics of

interest rates are important for understanding business cycle fluctuations in emerging economies. To the extent that the interest rate paid by sovereigns is influenced by the probability of default, understanding default risk may help one to understand business cycles in emerging economies.

Several studies have documented that business cycles in small emerging economies differ from those in small, developed economies.<sup>8</sup> Compared with developed economies, emerging economies feature:

- More volatility—the volatilities of output, real interest rates, and net exports are higher.
- Higher volatility of consumption relative to income—the ratio of these volatilities is typically higher than one in emerging economies, while it is lower than one in developed economies.
- Countercyclical real interest rates in contrast with the procyclical real interest rates in developed economies.
- More countercyclical net exports.

Other distinctive features of emerging economies are that most of these economies exhibit a procyclical government expenditure (government expenditure is acyclical or slightly countercyclical in developed countries) and a countercyclical inflation tax (the inflation tax is procyclical in developed countries). These features are documented by Gavin and Perotti (1997), Ialvi and Vegh (2005), and Kaminsky, Reinhart, and Vegh (2004).

Several authors have used the sovereign default framework proposed by Eaton and Gersovitz (1981) to account for the business cycle regularities of emerging economies.<sup>9</sup> In this framework, the high interest rates paid by developing countries reflect a compensation for the default probability. Furthermore, the countercyclicity of spreads paid by developing countries is consistent with the belief that sovereigns are more likely to default when economic conditions are relatively bad (see the earlier section on borrowing costs). The tendency of sovereigns to default in bad times implies that in such times, borrowing is more expensive, and thus borrowing levels may be lower. This is consistent with the more countercyclical net exports and higher volatility of consumption relative to income in developing countries. Furthermore, if borrowing is more expensive in bad times, then it may be optimal to tax more and decrease government expenditures in such times, which would help to explain the procyclicity of public expenditures and the countercyclicity of tax rates in emerging countries (see, for example, Cuadra, Sanchez, and Saprizza 2010). A complete understanding of the differences between developed and developing countries would require a theory of why default risk is higher in developing countries.

## CONCLUSION

Sovereign default episodes are widespread throughout history and are likely to continue to occur in the future. More research is necessary on the topic, for example, to assess the magnitude of the different costs of defaulting and to understand the precise role played by the determinants of a sovereign default. Moreover, it is not clear what explains differences in recovery rates on defaulted debt or differences in

the duration of a default episode. Answering these questions, and thus advancing our understanding of the economics of sovereign default, seems a necessary step to better comprehend the distinctive economic features of most economies.

## NOTES

1. See Hatchondo, Martínez, and Sapriza (2007a) and Hatchondo, Martínez, and Sapriza (2007b) for a more detailed analysis of the different aspects of the economics of sovereign default.
2. See Peter (2002) for further discussion on rating agencies' definitions of default.
3. Hatchondo, Martínez, and Sapriza (2007b) discuss the role of assuming exclusion from capital markets of defaulting governments in quantitative models of sovereign default.
4. For many countries, the terms of trade for a few goods can significantly affect their income. For example, according to the United Nations Conference on Trade and Development, 57 developing countries depended on just three commodities for more than half of their exports in 1995 (see World Bank 1999).
5. See, for example, Catao, Kapur, and Sutton (2002), Catao and Kapur (2004), Min (1998), Caballero (2003), Caballero and Panageas (2003), Hilscher and Nobsusch (2004), Calvo, Izquierdo, and Mejía (2004), and Cuadra and Sapriza (2006).
6. Oil and bananas together accounted for 59 percent of Ecuadorian exports in 2001. Ecuador was the first country to default on Brady bonds (Brady bonds arose from an effort in the late 1980s to reduce the debt held by less-developed countries that were frequently defaulting on loans).
7. For a more detailed survey of the links between political factors and sovereign defaults, see Hatchondo and Martínez (2010).
8. See Aguiar and Gopinath (2007), Neumeyer and Perri (2005), and Uribe and Yue (2006), among others.
9. See Aguiar and Gopinath (2006), Arellano (2008), Cuadra and Sapriza (2008), Hatchondo and Martínez (2009), Hatchondo, Martínez, and Sapriza (2010), Lizarazo (2010) and Yue (2010), among others.

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