

Research Digest

Maturity management

For nations facing sovereign default, research suggests, reducing debt through short-term bonds is better than going long



Manuel Amador



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When a country is close to default on its sovereign debt, should it start buying back its existing long-term bonds? Are there better—or at least more pragmatic—ways to reduce debt levels?

A related set of questions pertains to the common tendency of financially stressed nations, facing high yield spreads (interest rate payments above relatively risk-free bonds), to issue less debt and rely increasingly on short-term debt—actively refinancing short-term debt, but simply retiring long-term debt as it comes due.

A 2013 analysis of 34 emerging markets over roughly two decades, for example, found a negative cor-

relation between yield spreads, on the one hand, and both bond maturity profiles and issuance levels, on the other.¹

For economists, the question is why nations go short. Such policies expose national governments to “rollover risk” as their short-term debt matures. When debt is refinanced (“rolled over”), prevailing interest rates may well be higher than the rate on the just-retired debt, and so governments will incur greater debt-financing costs—compounding debt problems and escalating chances of default. Wouldn’t it be better to actively lengthen the maturity toward long-term debt rather than rolling over short-term bonds?

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These issues have been highlighted during Europe’s sovereign debt crisis, with fragile economies in Greece and Italy, for example, being urged by eurozone authorities to dramatically “deleverage” (reduce debt-to-GDP ratios) through fiscal austerity. Understanding the incentives at work in such situations could help predict whether governments will truly enforce austerity measures in order to retire high debt burdens. More important, perhaps, it clarifies optimal debt reduction strategies for nations facing default.

A world of limited commitment

In “Take the Short Route,” Manuel Amador of the Minneapolis Fed and Mark Aguiar at Princeton University observe that “many peripheral European countries are currently paying a significant premium over German debt on large

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quantities of sovereign bonds.” And while these nations are considering fiscal policies to lower their debt/GDP ratios and thereby reduce their yield spreads, such austerity policies can be reversed quickly if political and economic realities overwhelm policymakers.

“In a world of limited commitment, fiscal trajectories must be time consistent,” write Aguiar and Amador in their NBER working paper (19717), “and it is an open question whether the vulnerability to default provides sufficient incentive to deleverage and what role—if any—maturity plays.” By “time consistent” trajectory, the economists mean that since no external authority can compel national policymakers to stick to their announced plan (“limited commitment”), a fiscal path must be acceptable to future policymakers, regardless of what the future holds.

The issue here is maturity management. Or as Aguiar and Amador subtitle their paper: “How to repay and restructure sovereign debt with multiple maturities.” What factors determine policymaker decisions about short- and long-term debt? When default threatens, should a nation actively buy back—or even issue new—long-term sovereign debt? Why have nations faced with high spreads and imminent default relied habitually on short-term debt, despite inherent rollover risk?

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Debt dynamics

To answer these questions, and to resolve the empirical conundrum of nations going short, Aguiar and Amador build and analyze a mathematical model of sovereign debt markets. Their model has several fundamental features: default risk, the deleveraging incentive that risk generates, limited policy commitment, ongoing bond maturity decisions and bond prices that both “reflect and constrain” debt strategy.

The government’s inability to commit long term to a fiscal policy is a key assumption, and it seems well-founded. Few policymakers, in stable let alone fragile economies, maintain straight-line government spending and taxation paths. Political changes and economic shocks are too frequent and dramatic to expect that budgets, once set, will remain rigidly intact. Also central is their assumption that governments are unable to commit to bond repayment. This, too, is a solid premise: Sovereign default is a recurrent historical problem, particularly in emerging markets.

Within this mathematical world of limited commitment, the economists derive two main results.

First, they find that active engagement in the short-term bond market is an optimal strategy or, as their title advises: “Take the short route.” At the heart of this finding is limited commitment over the long term. In the short term, bond buyers need not worry about limited commitment and time inconsistency: Levels of outstanding debt are well-known when short-term bonds are offered, so default probabilities are known with relative certainty.

Not so for long-term bonds. That is, long-term bond prices depend on future fiscal trajectories that the government cannot commit to at the moment of issuing bonds. The authors show that this difference with regard to the effects of future policies makes a strategy that relies on short-term debt at least as good as any other that relies on long-term bonds. Going short, therefore, is an optimal route for debt management.

Two optimums?

But the fact that a short-term route is optimal doesn’t rule out long-term strategies. They too might be optimal. That is, when attempting to reduce its debt, a government can simultaneously alter its maturity structure. For example, a government could sell (or alternatively, buy back) long-term bonds while

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reducing (or alternatively, increasing) its holdings of short-term ones. One can think of these strategies as an exchange of short-term bonds for long-term ones (or vice versa) at market prices.

The argument the economists make is that such exchanges generate relative price movements that are unfavorable to the government. The dynamics of long-term bond pricing, they discover, are such that actively selling or repurchasing long-term sovereign bonds will always be suboptimal. Even though there are risks associated with rolling over short-term bonds, following the long-term bond path guarantees a loss. In short, that's because market prices will consistently work against long-term bonds.

The key factor here is the effect of maturity composition on bond prices. In particular, bondholders care not only about the total amount of debt outstanding, but also about its maturity composition—the relative proportions of short- and long-term debt—because it determines how quickly debt can be reduced in a time-consistent manner.

Why? Short-term bonds force the government to return to the market frequently. Any delay in reducing debt will turn out to be costly the next time the debt is rolled over. This implies that short maturities provide strong incentives to deleverage.

Conversely, once long-term bonds are issued, a delay in debt reduction is not as costly since the bonds are not rolled over for some time. Because long-term bonds do not need to be rolled over as often, the default premium embedded in them is akin to a sunk cost and hence provides weaker incentives for

pay down debt over time, lowering the price of long-term bonds. But a lengthening of maturity involves the sale of long-term bonds.

Therefore, changing maturity in either direction involves a countervailing price movement. When a government actively engages in the long-term bond market, it buys

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the government to reduce its debt in the future. The net result is that a shorter maturity profile implies faster debt reduction.

The next step in the argument is to link the incentives of maturity structure to prices. Short-term bonds face only short-run risk and are thus less sensitive to the long-run outlook for fiscal policy. This makes long-term bond prices particularly sensitive to the incentives to reduce debt and hence sensitive to maturity. A shortening of maturity will speed debt reduction and therefore raise long-term bond prices relative to short-term bond prices.

But note that a shortening of maturity involves buying back long-term bonds; thus, the increase in relative price poses a cost to the government. However, a lengthening of maturity reduces the incentives to

high and sells low. Definitely not optimal. As the economists put it, long-term bond transactions “will tend to shrink the budget set of the borrower, generating an incentive to use only short-term bonds during a period of deleveraging.”

The optimal strategy, then, is to remain passive in long-term sovereign bond markets. Yes, retire long-term bonds as they mature, but don't actively buy or sell them. Despite the rollover risk inherent in such a strategy, Aguiar and Amador conclude, “The only active margin is the short-term bond market.”

—Douglas Clement

Endnote

¹ Perez, Diego. 2013. “Sovereign Debt Maturity Structure Under Asymmetric Information.” SIEPR Discussion Paper 12-020.