Discussion of Conesa and Kehoe
Self-Fulfilling Debt Crises

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In the context of financial crises, economists distinguish between banks that are **illiquid** and **insolvent**.

**Illiquidity** is a **short-run** inability to repay, because some assets cannot be converted into cash quickly.

**Insolvency** is a **long-run** inability to repay, because liabilities exceed assets.

The nature of banking (borrowing short and lending long) means that even sound institutions are vulnerable to “runs,” episodes of illiquidity.

One function of a Central Bank is to extend liquidity to “sound” (solvent) institutions during a “run.”
The present paper looks at sovereign debt in a similar way. The asset that backs sovereign debt is future tax revenue.

As with bank runs, **illiquidity** is a **short-run** inability to repay, because short-maturity debt cannot be rolled over. The analog of insolvency is an **unwillingness** to repay in the **long run**, because the (expected) costs exceed the (expected) benefits. Courts have limited ability to force repayment, so the **willingness** of the borrow to repay is critical, rather than just the ability.
The main questions are:

— What does borrowing look like?

— What circumstances lead sovereigns to run a risk of default and to actually default?

— When would it be useful for an outside agency to play the role of a Central Bank, lending “at penalty rates against good collateral”? (employing the Bagehot Rule)
Overview of this discussion

1. Sketch the model
2. Look at borrowing in an environment with no crises
3. Look at borrowing in an environment with crises
4. Discuss conclusions and further questions
1. Model

The motive for borrowing is consumption smoothing.

The borrower begins in a recession (low income), which will end at a random date in the future.

The motive to repay comes from two costs of default:

a permanent reduction in income

a permanent exclusion from further loans.
1. Model

A “crisis” is a *single-period* (sunspot) event, where bankers refuse to lend. A crisis leads to illiquidity, exactly as a bank run does.

A crisis occurs with probability \( \pi \) in any period.

Nothing affects this probability.

If there is no crisis, the government decides how much debt to issue. The bankers are risk neutral, so the *bond price* is always *actuarially fair*. 
1. Model

At the beginning of the period, the government knows:

- $B$, the face value of the debt issued last period
- $y \in \{ Y^L, Y^H \}$, recession or normal output
- $C$ or $NC$, “crisis” or not this period
- $D$ or $ND$, default or no default anytime in the past

The economy begins in recession. When it comes out, it stays out.

While in recession, $p$ is the probability of a switch to normal output.

A crisis is a one-period halt in lending. The probability is $\pi$.

This probability does not depend on $B$ or $y$.

Default is a government decision, with two consequences:

— it cuts output from $y$ to $Zy$ in perpetuity, where $Z < 1$.
— it means the government can never borrow again.
1. Model: timing

The government sees $y$ and sees if there is a crisis.

If there is a crisis, it cannot borrow, and it must choose whether to default or repay.

If there is no crisis, it must still choose whether to default or to repay.

If it repays, it must also choose how much to borrow.

First consider an environment without crises.
2. No-crisis environment

With no crises, the only uncertainty is about when the economy will recover from the recession.

Two debt thresholds are important.

Let $B^H, B^L$, denote the maximum debt the sovereign is willing to roll over forever, rather than default on, if current income is $y = Y^H, Y^L$.

It is easy to show $B^H > B^L$. After the recession ends, the sovereign could borrow more, but will not do so: the only purpose of borrowing is to smooth consumption.

Two types of equilibria are possible, depending on parameter values.
2. No-crisis environment

**Type A.** In equilibrium, there is no default.

Debt is run up (asymptotically) toward the debt limit $\bar{B}^L$, as long as the recession continues.

These loans are repaid for sure, so the bond price is $q = \beta$, where $\beta < 1$ is the (common) discount factor for all agents.

After the recovery, the outstanding debt is rolled over forever.
2. No-crisis world

**Case B:** Possible default

Similar to the previous case, up to some period $T$.

In period $T$, the debt $B$ coming due is close to $B^L$, and the new debt issued is $B' \in \left( B^L, B^H \right)$.

If the recession continues in period $T + 1$, the government defaults.

If the recession ends in $T + 1$, the outstanding debt is rolled over forever.

The bond price in period $T$ is $q = \beta p$.

Low $p$ reduces the benefit from borrowing.

Low $Z$ increases the cost of borrowing.

Low $p$, $Z$ produce type A equilibria, high $p$, $Z$, produce type B.
No-crisis world, no-default case

Debt limit $B^L$

No-crisis world, default possible

Debt limit $B^L$
3. World with crises

How does the possibility of a crisis change this?

For simplicity, suppose that a crisis cannot occur after the recovery.

Now there is a third debt threshold, call it $B^C < B^L$, the maximum amount the sovereign is willing to repay in a crisis.

If $y = Y^L$ and a crisis occurs:
- if $B \leq B^C$, the borrower repays the whole amount;
- if $B > B^C$, the borrower defaults.

If $y = Y^L$ and no crisis occurs:
- if $B \leq B^L$, the borrower rolls over the loan;
- if $B > B^L$, the borrower defaults.
3. World with crises

As in the environment without crises, default can occur after a sequence of $T$ loans of increasing size.

The last loan $B' \in (\overline{B}^L, \overline{B}^H)$ is repaid only if recovery occurs.

The bond price for this loan is $q = \beta p$. 
Crisis world, default possible

Debt limit $B^L$

Crisis trigger $B^C$

Crisis & default
3. World with crises

If crises occur only during recession, then after the recovery begins, any remaining debt is **rolled over** forever.

If crises can also occur **after** GDP recovers, there may be an incentive to **repay some** outstanding **debt** to avoid default in case of a crisis.
The present paper seeks to answer the question:

**When/why do governments default?**

It points out, usefully, that defaults can be categorized as

— **strategic**: the costs of repayment exceed the benefits, or
— **nonstrategic**: when a “crisis” (bank run) occurs.

**But** to answer the when/why question more completely, we need to take a stand on two more basic issues:

— Why do governments borrow?
— Who do they borrow from?
— What kind of debt do they issue (maturity structure)?
Why do governments borrow?

1. This paper, like many others, takes a Ramsey approach:
   
   **Borrowing smooths** spending, when revenue is uneven.

   (Or smooths tax rates when expenditure is uneven.)

2. **Another possible motive is political**: to spend on policies/programs favored by one’s own political supporters, and force one’s successor to cut spending on programs favored by the opposition.

3. A third possibility is to fund **fiscal stimulus** to end a recession (Japan, US), if there is a public **perception** that fiscal stimulus is useful.
4. Conclusions and further questions

Who do they borrow from?

**Domestic or foreign lenders?**

What kind of debt do they issue?

Issuing debt with **long maturities avoids the bank run problem.**

For many countries, such debt would have to be indexed (real) or denominated dollars, euros, or some other stable currency.
4. Conclusions and further questions

In all: an interesting paper that raises as many questions as it answers.

The extent of borrowing in the modern era is the biggest puzzle.