EFG Discussion of Crisis and Commitment by Aguiar, Amador, Farhi and Gopinath

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Big Picture

Paper brings together 3 strands in the sovereign debt / inflation literature:

1. Barro-Gordon (1983) - governments struggle to control their incentive to inflate, even when it does no good.
2. Calvo (1988) - multiplicity where partial default (here through inflation) feedback on interest rates and rationalizes partial default.
3. Cole and Kehoe (2000) - multiplicity through coordination failure and rollover risk.

Adds in clever modeling to produce a neat insightful paper about the interaction between inflation, default, and the government's incentives, and how this can lead to a lot of multiplicity.

Barro-Gordon and Debt

Standard BG story is about seinorage and why inflate.

But in BG revenue is small and optimal inflate rate for seinorage is low.

Incentive to inflate away the debt is often *much* stronger in AAFG.

Country	Ger.	US	Italy	Japan
Debt/GDP 2010	87	93.6	126.8	199.7

Major inflations associated with large debt overhangs:

1. Weimar Germany and repatriations
2. Latin American inflations

Environment: Borrower looking to Meet Nice Lender

Risk averse but nice government who discounts flow at net rate ρ :

$$u(c_t) - \psi \pi_t,$$

and seeks risk-neutral lenders w/ require return r^* for borrowing.

Has budget constraint

$$\dot{b}_t = c_t - y + (r_t - \pi_t) b_t,$$

and may use both inflation π_t and default to meet obligations.

$\rho = r^*$ so very compatible. Also $\pi_t \in [0, \bar{\pi}]$ so not too crazy.

Inflation is costly, Default is bad - get $\underline{V}$ - so not into anything kinky,

but has commitment issues.

Time Flows and Lumps

Time is both flowing and lumpy in real world:

- flows by continuously,
- but there are also discrete events.

Discrete: nice for rollover decisions because stock/flow $\neq \infty$.

Flows: smoothly choose a switching/stopping time.

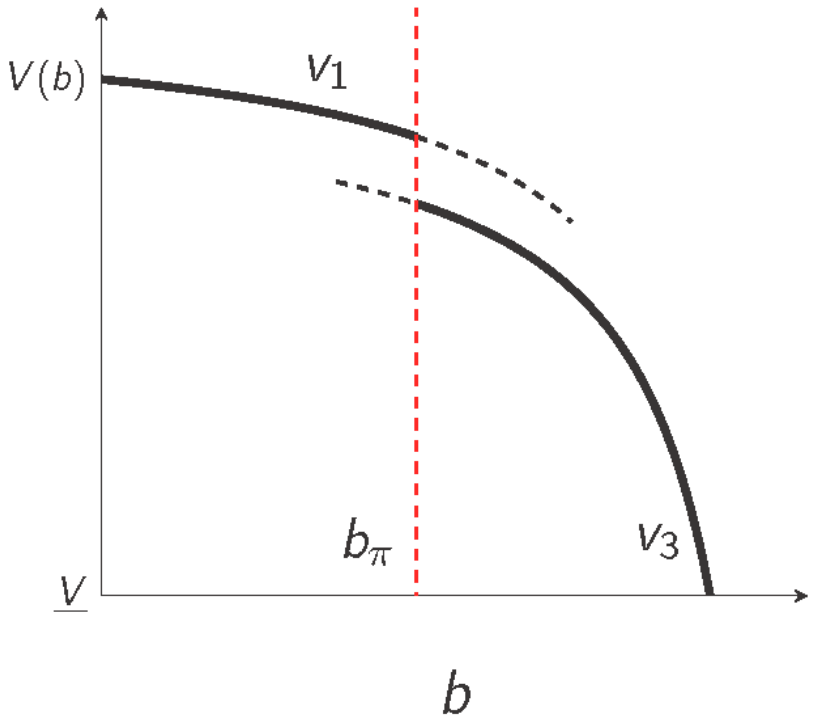
AAFG have continuous time model with 2 clever tricks:

1. Have grace period δ to accumulate resources or inflate enough.
2. Focus on Markov eq. with $r(b)$ - so time-consistent solution.

Leads to nice optimality conditions and comparative statics.

No-Crisis Relationship

Consider two interest rate cases: (1) $r_t = r^*$, and (2) $r_t = r^* + \bar{\pi}$

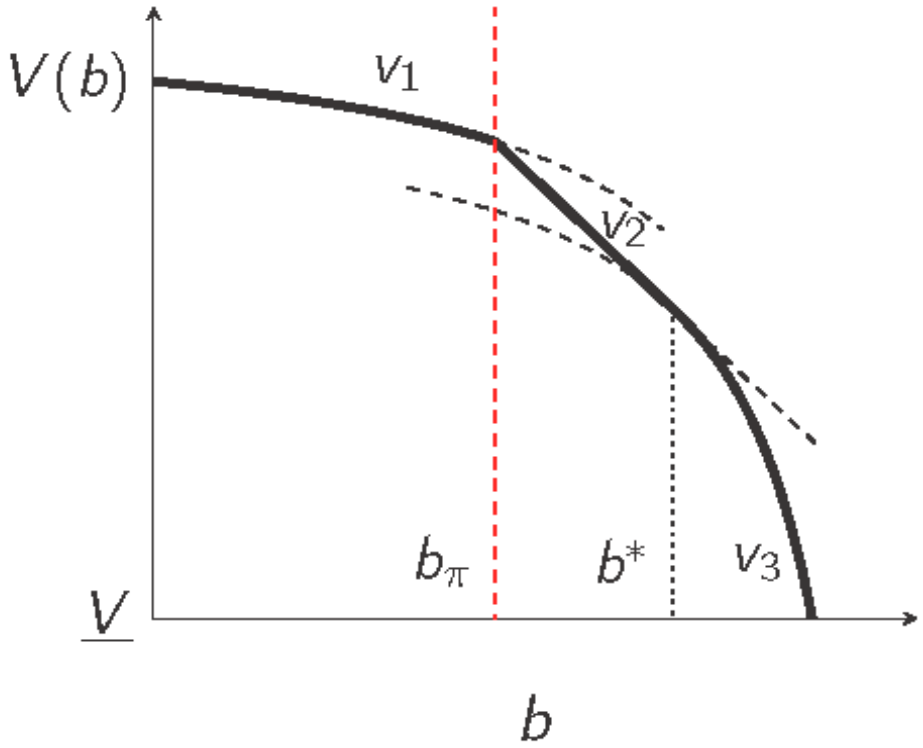


Stationary since $\rho = r^* = r_t - \pi_t$.

Works if low interest rate leads to $\pi_t = 0$ and high leads to $\pi_t = \bar{\pi}$.

No-Crisis Relationship

Big jump in welfare leads to desire to save, so things twist:



Debts above b^* give up, but below save at constant rate till over threshold.

Complicated But Interesting

Barro-Gordon insight - $r_t = r^* + \pi_t$ - so $r(b)$ embeds rational expectations and therefore inflation nets nothing. Inflation caused by lack of commitment.

Relationship has important indeterminacy similar to Calvo (1988): high interest rate leads to partial default here via inflation.

So the point at which $r(b)$ goes from r^* to $r^* + \bar{\pi}$ is indeterminate.

Ties in well with Reinhart/Rogoff/Sevastano (2003) debt intolerance notion: countries with bad histories have lower thresholds.

Interesting Potential Sunspot Story

One could imagine having the lower support of the high interest rate / high inflation region, b_π, move too.

Markets come to believe that even at a seemingly modest debt level b, the current government is "less disciplined".

So interest rate on your debt jump up from r^* to $r^* + \bar{\pi}$.

This induces you to raise inflation $\pi_t : 0 \longrightarrow \bar{\pi}$,

and you start saving to get below new lower b_π.

Missing Element on Inflation

Treating the government choice as π_t.

But in reality government's can influence inflation but process is a bit slower:

$$\dot{\pi}_t = F(x_t),$$

where x_t is policy choice. This leads to

$$\pi_t = \pi(0) + \int_0^t F(x(s))\partial s.$$

Both the level of inflation and the efforts to change it could be costly.

Introduces interesting hysteresis but adds state variable.

Self-Fulfilling Rollover Crisis

Two scenarios: (1) government rollover it's debts paying $r(b)$, and (2) cannot rollover forcing drastic choice:

A. Default

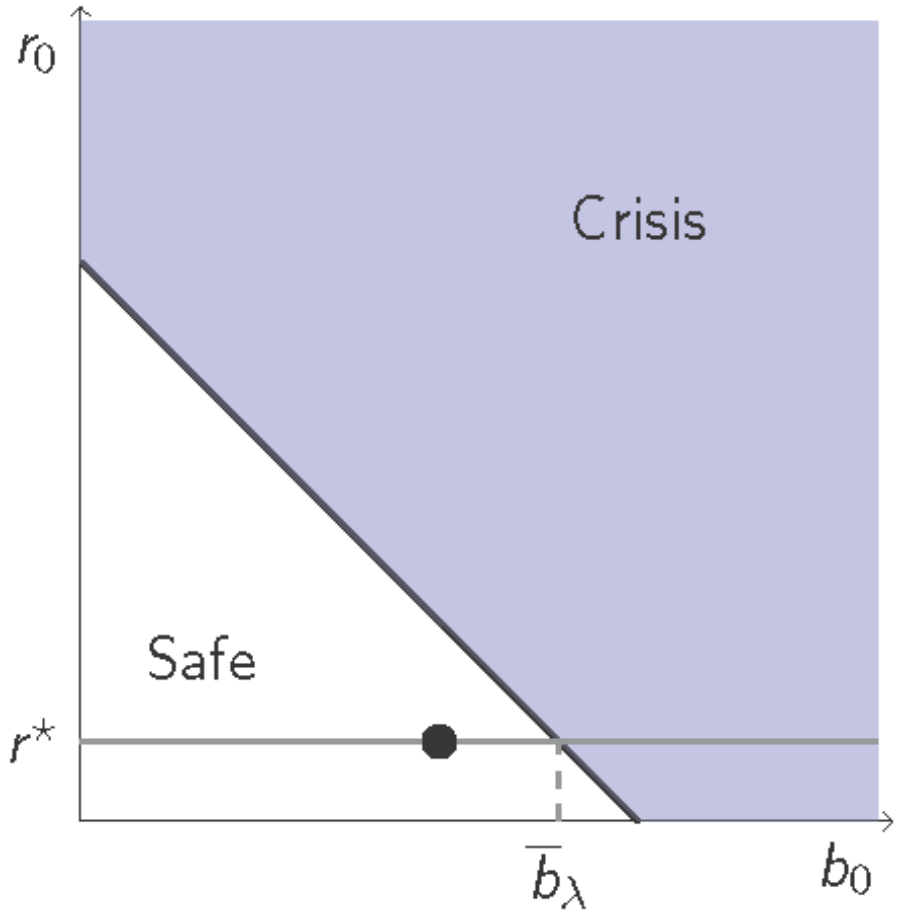
B. Inflate and save like crazy during grace period to repay all.

If rollover failure leads to default, then it was self-fulfilling.

Results in two distinct regions in b state space - region with rollover crisis and region without.

In crisis region sunspot determines which outcome occurs.

Relationship More Complicated



Being in Crisis Zone leads to risk premium $r_t > r^* + \pi_t$

Still have high and low interest rate/inflation regions $[0, \underline{b}_\pi]$ and $(\underline{b}_\pi, \bar{b}_\pi]$

Comparative Statics

Interesting to think about changing cost of inflation ψ or length of grace period δ.

With commitment contingent debt is a good thing and small ψ plus big δ helps approximate this.

Useful here since easier for country to avoid default in rollover crisis.

However, ψ going down expands high inflation region because it worsens commitment problem. So on the other hand bad.

δ going up is good here since shrinks crisis region. However, one missing element with respect is longer maturity debt worsens tempation to inflate away.

Clever Structure But Hard to Quantify

Elegant structure allowed for a lot of insight. Combines major strands in the literature and allows for nice insights:

- Self-fulfilling inflation/interest rate and rollover/default multiplicity seem fundamental
- Changing costs of inflation has interesting effects - some + and some -.

Reservation: quantification tricky. Lack of micro-structure makes this difficult:

- δ standing in for maturity structure, but a bit one dimensional and doesn't capture higher δ makes Calvo problem worse
- Time hard to interpret. Period length important in setting both ψ and δ, but really the ratio of the two seems key.

Back to Big Picture

Paper brings out national connection between inflation, debt and default.

The range of possible indeterminacy now very large.

This may be an inherent feature of these issues: feedback from expectations to interest rates to inflation/default is just very strong.

Leaves us on shaky ground with respect to policy recommendations:

- Debt may be dangerous or not.
- Inflation option may make things better or worse.

Good luck on the Sunday talk shows with that message!

Model does speak to circumstances underwhich bad outcomes can arise.