Jeanne and Wang:
Fiscal Challenges to Monetary Dominance

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Motivation of the Paper

Why Europe?

- Primary deficits and net debt quotas in US, UK, Japan are high but sovereign debt crisis struck Euro area

- Maybe because ECB is more likely to let sovereigns fail than Fed, BoE, BoJ

Perspective

- "Monetary backstop" in Euro area is different than elsewhere, and this affects default risk

- Monetary backstop does not simply rule out bad equilibria but it changes the equilibrium and leads to inflation

The Big Picture

Sargent and Wallace's (1981) unpleasant arithmetic

- Both fiscal and monetary policy choices enter the government's budget constraint

- In equilibrium, the government's budget must be balanced inter temporally

- Equilibrium therefore requires some form of coordination between fiscal and monetary policy

Leeper's (1991) classification

- Equilibrium subject to given fiscal policy rule (FPR), monetary policy rule (MPR) implies difference equations in b, π

- Non-explosive, unique (b, π)-paths require one "active", one "passive" PR

- E.g., active (inflation stabilizing) Taylor rule, passive FPR with tax policy absorbing shocks

- E.g., active ("fiscally irresponsible") FPR, passive MPR with inflation responding to revenue needs

"FTPL"

- Active FPR, passive MPR equilibrium may exist absent real balances if nominal debt can be revalued through inflation

Uribe's (2006) additional jump variable

- With *two* active PRs, difference equation system is unstable

- But with an additional jump variable, equilibrium may nonetheless exist

- Default rate on government debt does the job

- In active FPR, active MPR equilibrium debt stock adjusts through haircuts (in addition, possibly, to inflation)

Davig, Leeper and Walker's (2010) broader and mixed regimes

- Two FPRs rather than one

  - Tax PR and transfer PR

  - Unique equilibrium if one out of three PRs (tax PR, transfer PR, MPR) is active

- Varying characters (active vs. passive) of PRs

  - Characters change exogenously, or at the "fiscal limit"

  - System stability and thus, equilibrium properties hinge on "average" characters (cf. Davig and Leeper, 2007)

  - Blurred distinction between monetary and fiscal dominance

The Big Picture—Where Do We Stand?

Pick your preferred policy instruments; pick your preferred PRs for those instruments; make sure enough PRs are active and passive; equilibrium will exist

- But which active or passive PRs are reasonable?

Pick your preferred laws of motion for characters (active vs. passive) of PRs; get the eigenvalues right; equilibrium will exist

- But which laws of motion are reasonable?

Disconnect between "stability" and political economy literatures

- PRs should be endogenous outcomes

- If characters of PRs change, then PRs (or even policies) should be outcomes of sequential choice

- Policy interaction should be modeled as game between authorities (with commitment or not) and the private sector

- Krusell, Quadrini and Ríos-Rull (1997)

- Dixit and Lambertini (2001), Dixit and Lambertini (2003)

The Big Picture—Jeanne and Wang's Contribution

Substantive contribution

- Analysis of role of monetary backstop for rollover risk (this doesn't come out that clearly in the title)

Methodological contribution (the big picture)

- Some aspects of endogenous policy choice

- Sometimes, fiscal authority may *choose* to deviate from passive FPR

The Paper

Model

Household

- Works ℓ, consumes c, saves real bonds b and balances m

Firm

- Uses labor to produce output

- Exogenous labor productivity θ; reduced to $\theta(1-\gamma)$ in times of default

Fiscal authority

- Levies distorting tax τ, issues bonds to finance exogenous primary spending g

- "Normal" tax PR is passive (if debt is priced risk free), $\tau(b)$

- Sometimes, with exogenous probability the authority gets to choose between following PR or triggering a rollover crisis with subsequent default or inflation

Monetary authority

- "Normal" MPR generates no seignorage

- During crisis times, with exogenous probability the authority generates high seignorage over random duration (banking system in the background)

Convenient preferences

- Labor determined by tax distortion, $\ell(\tau_t)$

- Consumption determined from resource constraint, $c_t = y(\ell(\tau_t), \tilde{\theta}_t) - g$ with $\tilde{\theta}_t = \theta_t$ or $\theta_t(1 - \gamma)$

- Money holdings determined from monetary policy

- Flow utility, $u(\tau_t, \tilde{\theta}_t, m_t)$

Debt rollover crises due to inability or unwillingness to rollover

- Unable to rollover if FPR and debt-Laffer curve make it impossible to satisfy budget constraint absent monetary backstop

- Unwilling to rollover if fiscal authority prefers rollover crisis with subsequent default or inflation over FPR

Value Functions

State $s_t = (b_t, \theta_t)$

- $V(s_t) = \begin{cases} V^n(s_t) \text{ if able to rollover} \\ V^r(s_t) \text{ if unable to rollover} \end{cases}$

- $V^n(s_t) = \lambda V^c(s_t) + (1 - \lambda)\max[V^c(s_t), V^r(s_t)]$

- $V^c(s_t) = u(\tau(b_t), \theta_t, m) + \beta \mathbb{E}_t V(s_{t+1})$

- $V^r(s_t) = \begin{cases} \mu V^d(s_t) + (1 - \mu)V^i(s_t) \text{ or} \\ V^d(s_t) \text{ if seignorage too small to balance budget} \end{cases}$

- $V^d(s_t) = u(\hat{\tau}_t, (1 - \gamma)\theta_t, m) + \beta \mathbb{E}_t V(\hat{b}, \theta_{t+1})$

- $V^i(s_t) = u(\tau(b_t), \theta_t, \tilde{m}) + \beta \mathbb{E}_t[\nu V^i(s_{t+1}) + (1 - \nu)V(s_{t+1})]$

Simulations

Some parameters and magnitudes

- $\lambda = 0.8, \nu = 0.8, \gamma = 0.05$

- Monetary backstop: Seignorage/GDP $= 0.09$

Comparative statics with respect to μ, the probability of haircut and no monetary backstop, conditional on rollover crisis

Challenged central bank always surrenders ($\mu = 0$)

- No spreads, due to absence of default risk and due to real rather than nominal debt

- Therefore never inability to rollover

- But sometimes unwillingness: Fiscal authority chooses to trigger rollover crisis with subsequent inflation

- This happens when debt is high and inflation distortions are smaller than tax distortions

- Monetary backstop does not simply rule out bad equilibria but it changes the equilibrium and leads to inflation (but only rarely)

Challenged central bank does not always surrender ($\mu > 0$)

- Spreads, due to default risk

- Therefore inability to rollover for high levels of debt

- In addition more aggressive unwillingness: Fiscal authority chooses to trigger a rollover crisis with subsequent default or inflation already for lower levels of debt than when $\mu = 0$

- This happens because inflation is more costly than default; for intermediate levels of debt, the fiscal authority therefore chooses to trigger a rollover crisis only if the probability of subsequent inflation is not too high

Further result

- Inflation risk is maximal when $\mu = 0.5$

- Due to imperfect monetary backstop, spreads are not eliminated

- Both inability- and unwillingness-driven rollover crises occur, and in every second of them inflation surges

Extensions

Currency union

- Many fiscal authorities, one central bank

- Less inflation is needed at the level of the currency union to rescue a single country in crisis

- From a single country's perspective, the monetary backstop becomes more attractive

- Fiscal authority therefore chooses to trigger rollover crises (hoping for the central bank to succumb) whenever possible

Comments

Paper usefully moves towards endogenous policy choice; but only partially, and some elements of the model therefore remain fragile

For example the effect of μ on frequency of crises

- Unwillingness-driven crises are more frequent with $\mu > 0$ because inflation is more costly than default

- But this reflects built-in "inflation overkill": A succumbing central bank generates an exogenous inflation rate; if the central bank could choose, it might choose lower inflation

- *Strong* assumption that inflation is more costly than default!

For example the role of uncertainty

- Some of the risk is artificial: Optimizing authorities would be predictable

For example the welfare effects of moving towards currency union

- Clearly, free riding makes rollover crisis and inflation more attractive for fiscal authority (as has been argued before, e.g. by Chari and Kehoe (2007))

- But whether this is good or bad depends on whether there is too little/too much inflation in the single country case; with mostly exogenous policy choices, this is unclear

Absence of (destabilizing) spreads when central bank always succumbs relies on assumption of real rather than nominal debt

- Discussion in the paper

Interesting work!

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