Comments on

"On the Optimal Design of a Financial Stability Fund"

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- Extremely interesting and impressive project

- Very timely: assessment of a stability fund, like the ESM

Topic

- Risks of sovereign default in the EMU has led to
  - Creation of the European Stability Mechanism (ESM) by EU members

"The purpose of the ESM shall be to mobilise funding and provide stability support under strict conditionality, appropriate to the financial assistance instrument chosen, to the benefit of ESM Members which are experiencing, or are threatened by, severe financing problems, if indispensable to safeguard the financial stability of the euro area as a whole and of its Member States."

- ESM can borrow from financial markets and is endowed with a capital stock
  - Example shares: Austria 2.8%, Greece 2.8%, Italy 18%, Netherlands 6%

ACM's paper

- Analysis of a Financial Stability Fund
  - Between a small open economy and a risk-free lender
  - Providing maturity transformation and state contingency borrowing/lending

- Welfare comparison
  1. Borrowing/lending via financial markets and
  2. Participation in the fund contract

- Main result: Substantial welfare gains of fund participation

Main differences

- Instruments

  1. Non state-contingent one period debt contracts

  2. Fully state contingent transfers specified in a long-term contract

- Default

  1. Borrower can default on debt contract

  2. Optimal fund contract designed such that no one reneges

The model

- Infinite horizon small open economy
  - Preferences for consumption and leisure
  - Impatient compared to the risk-free rate $\beta < 1/(1+r)$
  - Production with decreasing returns $f(n)$
  - Shocks s to labor productivity θ and government expenditures G
- International financial markets
  - Risk-neutral investors discount with the world interest rate r

The incomplete market case

- Borrowing from abroad in terms of one-period non-state contingent bonds ($-b$)

- Lack of commitment: Borrower might default on outstanding foreign debt

  – Discrete choice: default if $V^{Aut}(0,s) > V^{I}(b,s)$

$$V^{I}(b,s) = \max\left\{\mathcal{U}(c,n) + \beta E V^{ID}(b',s')\right\}, \text{ s.t. } \theta f(n) \geq c + G + qb' - b$$

$$V^{Aut}(s) = \max\left\{\mathcal{U}(c,n) + \beta E V^{Aut}(s')\right\}, \text{ s.t. } \theta f(n) \geq c + G$$

  where

$$V^{ID} = \max\left\{V^{I}, V^{Aut}\right\}.$$

  – Default is costly due to future autarky (no return to financial markets, $\lambda = 0$)

The fund contract I/II

- State contingent transfers
  - Transfers τ between the small open economy and a risk-neutral lender

$$\tau = \theta f(n) - c - G$$

    can be negative (borrowing) or positive (lending).

- Outside options
  - Borrower: value under autarky $V^{Aut}(s)$
  - Lender: fixed value $Z \leq 0$

The fund contract II/II

- Participation constraints

$$\text{small country} \quad : \quad E_t \sum_{r=t} \beta^{r-t} \mathcal{U}(c_r, n_r) \geq V_r^{Aut} \quad \forall t \geq 0 \tag{1}$$

$$\text{lender} \quad : \quad E_t \sum_{r=t} (1+r)^{-(r-t)} \tau_r \geq Z \quad \forall t \geq 0 \tag{2}$$

- Dynamic contract with two-sided limited commitment (2S)

$$\max E \left[\mu_{b,0} \sum_{t=0} \beta^t \mathcal{U}(c_t, n_t) + \mu_{b,0} \sum_{t=0} (1+r)^{-t} \tau_t \right]$$
$$\text{s.t. (1), (2), and } \tau_t = \theta_t f(n_t) - c_t - G_t$$

- Problem reformulated using Marcet and Marimon's (2011) "recursive contracts"
  - Allocation depends on a pre-determined state $x_t = \left(\mu_{l,t}/\mu_{b,t}\right) [(1+r)\beta]^{t-1}$

Decentralization I/II

- Implementing the allocation under the fund contract in a competitive equilibrium
  - Endogenous borrowing constraints (Alvarez and Jerman, 2000)

$$a_{b,t+1} \geq A_{b,t+1} \text{ and } a_{l,t+1} \geq A_{l,t+1}$$

- Risk-avers & impatient borrower and risk-neutral & less impatient lender
  - with access to a complete set of one-period state contingent claims
  - subject to borrowing constraints that prevent default

$$W(A_{b,t}, s_t) \geq V_t^{Aut} \quad \text{and} \quad W(A_{l,t}, s_t) \geq Z$$

Decentralization II/II

- Computation of net asset holdings and asset prices
  - Primary surpluses or deficits

$$\sum_{s'} q(s', s)a'(s') - a(s) = \tau(s)$$

  - Bond price $q(s) = \sum_{s'} q(s', s)$ can be larger than the risk-free price

$$q(s) = \mathsf{max}\left\{\beta E u_c(x', s')/u_c(x, s), (1 + r)^{-1}\right\}$$

- Welfare comparison: V^{ID} vs. W_b, where

$$W_b(a_b, s) = \mathcal{U}(c, n) + \beta E W_b'(a_b', s')$$

Results

- Policy functions
  - Incomplete market economy distorted by default decision
  - Fund contract (2S) mimics First Best within bounds on Pareto weights

- Simulations
  1. Incomplete markets similar to autarky, sustained period of maximum debt
     - Default occurs in favorable productivity states
  2. Fund facilitates borrowing: higher average amount and price of debt
     - High primary surpluses associated with negative spreads

I SUMMARY

II COMMENTS

The fund I/III

- Comparison to ESM
  - Fund not only provides support in case of "severe financial problems"
  - Participating in the fund as a full substitute for borrowing from markets

- Why has only the lender access to markets?
  - Contract considers autarky value V_t^{Aut} as the borrower's outside option
  - Why isn't the incomplete markets value V_t^{ID} the outside option?

The fund II/III

- Two views

  1. "*contract between representative agent of a small open economy and a risk-neutral lender, who can freely borrow and lend in the international market*"

     – Lender borrows from international markets but lacks commitment

     – Why doesn't the lender face budget/solvency constraints?

  2. "*global riskless economy composed of small countries who borrow and lend .... through a worldwide FSF*"

     – Borrowing via the fund that discounts at a relatively low rate $\beta < 1/(1+r)$

     – What determines the risk-free rate r when funds are just intermediated?

The fund III/III

- Negative spreads and negative interest rates
  - Simulations show that bond price satisfies $q \geq 0.99$ under the fund contract
  - Bond price can even exceed one according to policy functions
    - Are negative interest rates actually realized in simulations?

- Welfare effects (in table 2)
  - Welfare gains differ "depending on having good or bad shocks"
  - What about means for the $V's$ for multiple/long simulation periods?
  - Comparison of welfare under autarky and first best

Incomplete markets I/II

- Reference for incomplete markets: Arellano's (2008) endowment economy
  - Direct output costs of default important for the quantitative analysis
- Here, loosing access to financial markets is the only cost of default
  - Evidence on additional costs associated with default (see, e.g. Ugo's papers)
- Further differences
  - What is the role of endogenous labor supply and decreasing returns?
  - How does stochastic government spending affect the borrower's trade-off?

Incomplete markets II/II

- Simulation of the incomplete market case
  - Default is more likely in good TFP states $\longrightarrow$ intuitive but unrealistic pattern
  - Economy close to maximum debt level for a longer period
  - Once default occurs, the economy stays in autarky

  $\longrightarrow$ How does the initial debt affect the difference between V^{ID} and V^{Aut}?

- Some further information
  - How early does default occur on average (or default probability)?
  - Comparison of mean debt between incomplete markets and the fund

Numerical analysis

- Stochastic process

  1. Bai and Zhang's (2010) world TFP estimates, including data e.g. from Senegal
     - Regime switching process approximated with 9 state Markov chain
  2. Process for government expenditures with 3 states
     - How does your government spending process relate to usual estimates?

- Solving discrete choice problem with state space technique
  - Number of grid points substantially affects results (Hatchondo et al. 2010)

Minor issues

- Add more details on the solution methods
  - Currently, only information on how the fund contract is solved

- Values for the lender's outside option
  - How can $Z = -0.1$ and -1 be interpreted (for "the short-term contract")?

- Notation
  - Replace θ by e and V^A by V^{af}
  - Add definitions: n_b^*, τ_b^*, τ_l^*

- Rigorous analysis of a financial stability fund
  - Looking forward to the next version...