

# Comments on Overborrowing, Financial Crises and "Macro-prudential" Policy

Javier Bianchi and Enrique Mendoza

by Philippe Martin

Sciences Po (Paris) and CEPR

## *Motivation*

What is the rationale for public intervention on private borrowing? Externalities: Borrowers take actions that make sense from an individual point of view but do not take into account the impact on the financial system.

- Contagion: domino effect on cross-holdings of debt across borrowers (Allen and Gale, 2000)
- Fisherian debt deflation: deleveraging and fire sale of assets reinforce each other (Mendoza and Smith, 2006, Mendoza, 2010, Jeanne, 2008; Korinek, 2008; Lorenzoni, 2008, Bianchi, 2009). This paper: externality goes through the effect of deleveraging on asset prices.

## Key points:

- Externality exists not only ex post (in the crisis), but also ex ante;
- Level of debt accumulation is excessive (overborrowing but not in the sense of potential default): potentially large role of ex ante preventive (macro-prudential) policies
- Procyclical (small) tax on debt
- As in Mendoza (2010), model able to replicate financial crises: sharp decline in credit, consumption, asset price and output

*The externality at work in the paper*

Private Euler equation for bonds:  $u'(t) = \beta RE_t [u'(t + 1)] + \mu_t$

$\mu_t$ : Lagrange multiplier on collateral constraint

Optimality condition for constrained-efficient equilibrium

$$u'(t) = \beta RE_t \left[ u'(t + 1) + \mu_{t+1} \psi_{t+1} \right] + \mu_t$$

$$\psi_{t+1} \equiv \kappa K \frac{\partial q_{t+1}}{\partial b_{t+1}} - \theta n_{t+1} \frac{\partial w_{t+1}}{\partial b_{t+1}}$$

The planner internalizes how bond holding affects the tightness of credit constraint through its effect on land prices:  $\frac{\partial q_{t+1}}{\partial b_{t+1}} > 0$

- demand for saving (bonds and land)  $\uparrow$  with past demand for bond: bonds prices are fixed but not land so  $q_{t+1} \uparrow$ : what if interest rate is not fixed?

- when constraint binds: agents sell land to satisfy collateral constraint (fire sale) so  $q_{t+1} \downarrow$ ; more so the higher the debt (lower  $b_{t+1}$ ): Fisherian deflation with self reinforcing loop

How does expected  $q_{t+1}$  affect  $b_{t+1}$  (through the shadow price of relaxing credit constraint and the MC of debt)? Multiple equilibria with self-fulfilling expectations?

## *The role of housing*

In the model, housing is both used in production by firms ( $\alpha_K$ ) and as collateral for firms ( $\kappa$ ).

- $\alpha_K$  : target to replicate ratio of housing to GDP (real estate owned by households not firms)
- $\kappa$  (0.36): frequency of financial crises

Chaney, Sraer and Thesmar (2008): on US micro data; 1 \$ ↑ in collateral value (real estate price) ⇒ ↑ 0.06\$ in firm net debt issue (0.19 debt issue and 0.13 repayment)

$$-\frac{b_{t+1}}{R_t} + \theta w_t h_t \leq \kappa q_t k_{t+1}$$

$\kappa = 0.06?$

Effect of lowering  $\kappa$  is very non monotonic: lower  $\kappa \implies$  lower externality, but constraint more likely to bind

What effect on crisis frequency?

## *Why so small an effect?*

Small welfare effect of financial crises and (therefore?) small tax and small difference between debt in decentralized equilibrium and social planner (ex ante)

- when risk aversion  $\sigma \uparrow$  (2 to 2.5), welfare loss multiplied by 5 but tax  $\uparrow$  from 1.1% to 1.2%

- Note: choice of  $\kappa$  based on 3% frequency of crisis. But in last century, almost 50 years (before 1980) with financial regulation in the US which led to low level of debt

Model of decentralized equilibrium is based on deregulated financial markets (even if financial frictions): so 6% closer to spirit of exercise



- There is some distortion in production (with working capital constraint, cost of labor increases when constraint binds) but no sectoral misallocation of factors of production
- Wages are flexible
- Single representative agent: How do heterogeneous collateral constraints interact with the externality?

## *Other shocks*

Authors concentrate on one shock only: TFP

Are the positive and normative implications robust to other shocks?

- Shocks originating in the financial sector:  $\theta$  (working capital ratio) or  $\kappa$  (collateral coefficient)
- Shocks to labor disutility  $\varkappa$
- Demand shocks (on land)

## *Multiple assets*

Only one asset: land

If multiple assets (equity?) with different levels of the externality,

$$\psi_{t+1} \equiv \kappa K \frac{\partial q_{t+1}}{\partial b_{t+1}} - \theta n_{t+1} \frac{\partial w_{t+1}}{\partial b_{t+1}}$$

a single tax on borrowing may not be enough to restore planner's solution

Tax on borrowing is a blunt instrument if Fisherian deflation mechanism heterogeneous across assets

Multiple subsidies on assets?

## *The current account*

This is a small open economy

What happens if interest rate not fixed to world interest rate?

In the model, implicitly, foreigners cannot buy/sell domestic assets (land)

What happens to the current account? Before the crisis a small deficit, during the crisis a large surplus

Interesting, more comments needed

What happens if (world) interest rate falls? Externality gets worse?

## *Policy implications/questions*

1) Debt is often subsidized (indirectly) relative to equity through tax system

Would be interesting to quantify this bias and quantify its effect on crisis frequency...

2) What is the role of monetary policy in this context? Can it replicate this tax? interest rate too blunt an instrument to deal with overborrowing (may affect certain sectors but not all)