Non-Performing Loans, Prospective Bailouts and Japan’s Slowdown

Discussion

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Overview

- Deposit insurance makes bad loans a public liability
  - crowding-out effect
- Delay in government bailout implies growing public liability
- Rationalizes slowdown. Quantitatively significant
  - decline in physical capital
  - decline in labor input (hours)
  - decline in productivity (selection effects)
- Key issues
  - are bad bank loans really a public liability?
  - is deposit insurance credible? bailout perfect foresight?
Crowding-out Mechanism

Two-period-lived OLG example

- Savings out of net wage income equal deposits
  \[
  s_t = \frac{\beta}{1 + \beta}(w_t - \tau_t) = d_t
  \]

- Bad loans at beginning of period, given initial \( b_0 \) surprise
  \[
  b_{t+1} = R_{t+1}(b_t - \tau_t)
  \]

- Capital formation equals loans to firms equals net deposits
  \[
  k_{t+1} = l_t = d_t - b_t + \tau_t
  \]
Given $b_0$ surprise, compare two government bailout policies

- **Instant bailout**
  
  set $\tau_0 = b_0$
  
  and then $\tau_t = 0$, for $t > 0$

- **Delayed bailout**
  
  set $\tau_t = 0$, for $t < T$
  
  and then $\tau_T = b_T$

  with bad loans growing until bailout ($T$ endogenous)
  
  $b_{t+1} = R_{t+1}b_t$, $t < T$
Instant bailout: Tiny blip in capital stock

- Capital
- Bad Loans

Period after shock: 0 to 20
Delayed bailout: Bad loans grow at rate of interest
Significant crowding-out

period after shock

return

capital

bad loans
Bailout occurs when banks can no longer cover old deposits.
Lump-sum tax wipes out stock of bad loans

Period after shock

Return

Capital

Bad loans
Quantitative Model

- Longer expected lifetime
- Endogenous labor supply, age-varying disutility from labor
- Endogenous TFP
  - monopolistically competitive firms with heterogeneous productivities
  - sunk entry cost, fixed overhead costs
  - entry/exit dynamics
Intuition for Fall in TFP

- Basic crowding-out effect reduces capital stock
  - reduces gross profits
  - reduces managerial wage (operating costs)
  - for low-productivity firms, net profits positive so more operate
  - reduces average productivity, TFP
• Bailout as soon as possible
  – if bad loans are 39% of GDP, then average yearly declines

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<th>capital</th>
<th>labor</th>
<th>solow</th>
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<tbody>
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<td>0.33%</td>
<td>0.34%</td>
<td>0.16%</td>
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  – bailout by 40% increase in labor tax, takes 24 years!

• Match decline in investment/output ratio
  – if bad loans are 50% of GDP, then average yearly declines

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  – bailout by 30% decrease in government spending, takes 18 years!
Main Comments

• ‘Bad loans’ not bad, banks are indifferent. If so
  – consumers should have confidence in banking system
  – banks should be able to easily borrow from foreign banks

• But as Levon rightly notes
  – consumers favor postal deposits over banking deposits
  – banks face high inter-bank loan rate (premium 10 bp)

• Consistent with credible full deposit insurance?
  – probably not
Other Remarks

• Perfect foresight bailout: critically affects nature of bank assets
  – in what sense is bailout ‘prospective’?
  – should we ignore actual interim bailout attempts? (e.g., in 1998-1999)

• Would be nice to document out of sample predictions
  – how believable are 20-year bailout packages?

• In model
  – decline in establishments/steady state is ‘small’
    (1% vs. 7% in data)
  – real interest rates are ‘flat’
    (small increase vs. decline in data)