Discussion of "Liquidity, Risk-Taking and the Lender of Last Resort" by Rafael Repullo

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Objectives of paper

- Dispel some myths, eg,
- Bagehot (1873): LLR should only lend at high penalty interest rates
- Solow (1982): with a credible LLR, more risk will be taken

Rich simple model

- Agents
  - Bank, owners, depositors, regulator, deposit insurer, lender of last resort
- Risk management instruments
  - For bank: capital, safe liquid asset, risky portfolio with variable risk
  - For LLR: signal-dependent lending criteria

In model of the paper ...

- Penalty rates lead to more risk taking
  - In at least some aspects, eg,
  - Riskier choice of risky asset
- Existence of credible LLR
  - Leaves risk of risky asset unchanged
  - (Decreases holdings of safe asset)
  - On net, decreases probability of bank's failure

Lessons

- Softens Goodhart's (1999) dictum
  - "Moral hazard is everywhere and at all times a major consideration."
- There are mitigating factors
- Punitive rates may not be the answer

“Quiet” contribution of paper

- Paper avoids an unrealistic assumption made in many similar models
- This point is not stressed in paper

Stylized facts

- Many models assume that banks want to hold zero capital (unless constrained)
- In reality
  - Banks held (a lot of) capital before requirements were introduced
  - Banks current hold more than minimum required

In this paper

- Capital increases likelihood of lending from LLR
- Banks may want to hold capital even if not required to do so

Likelihood of support from LLR

$$\Pr(eligible \mid signal = i) = F\left(\frac{v_i + \lambda}{1-k}\right)$$

But ...

- Paper does not exploit potential incentive to hold capital based on LLR
- In fact, binding minimum capital requirement is quickly introduced
  - Constrained optima
  - Regulator controls capital

Consider

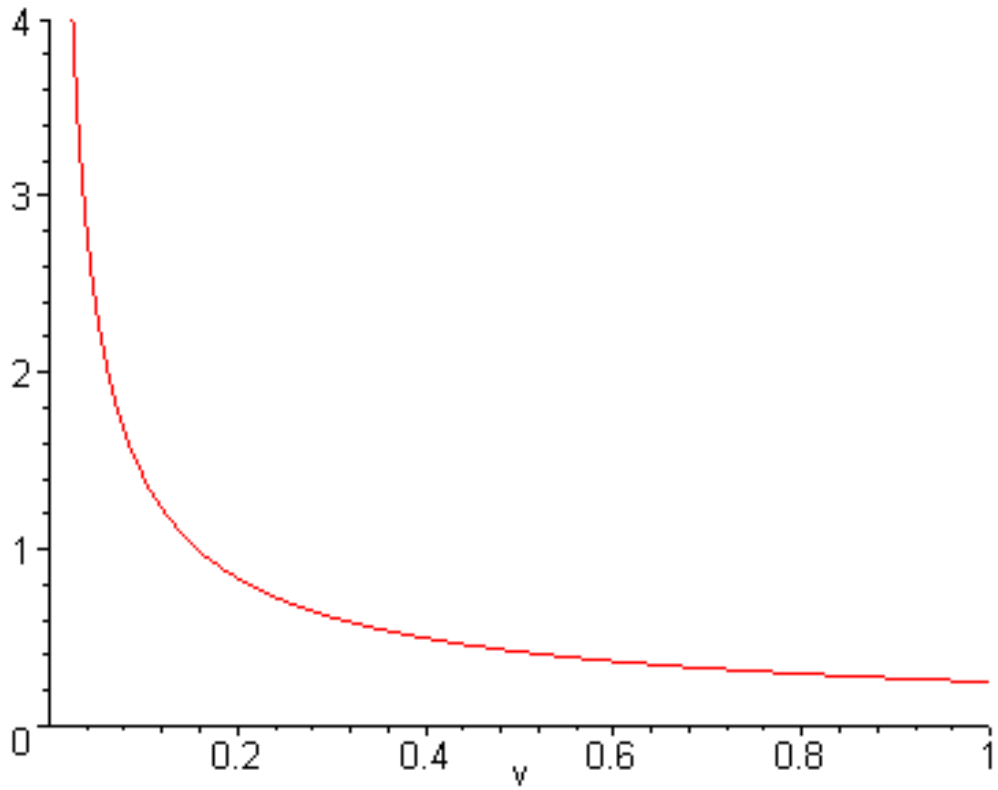
- What would happen here if capital were unconstrained?
- Robustness of results
- Would banks want to hold capital?

Elements of model

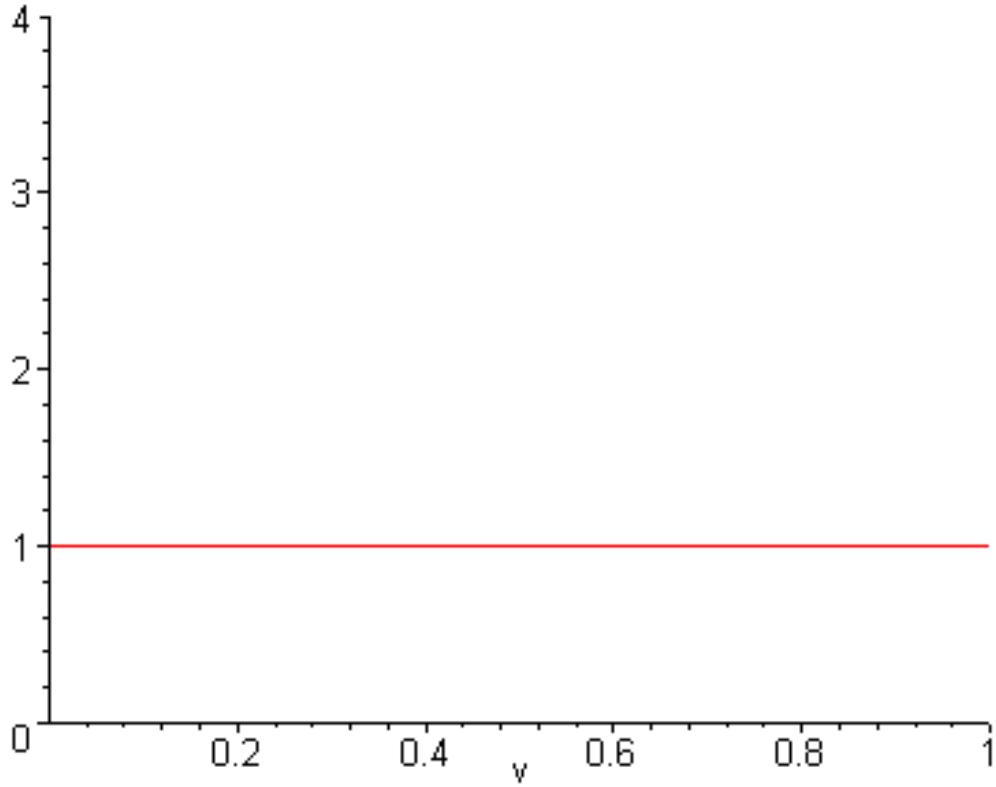
- *F(v)*: probability distribution of deposit withdrawals
- *p*: probability of good state (1-*p* = risk)
- *lambda*: holding of safe liquid asset
- *k*: capital

$$F'(v)$$

Paper's CDF, eta = .25 (mean = .2)
density function



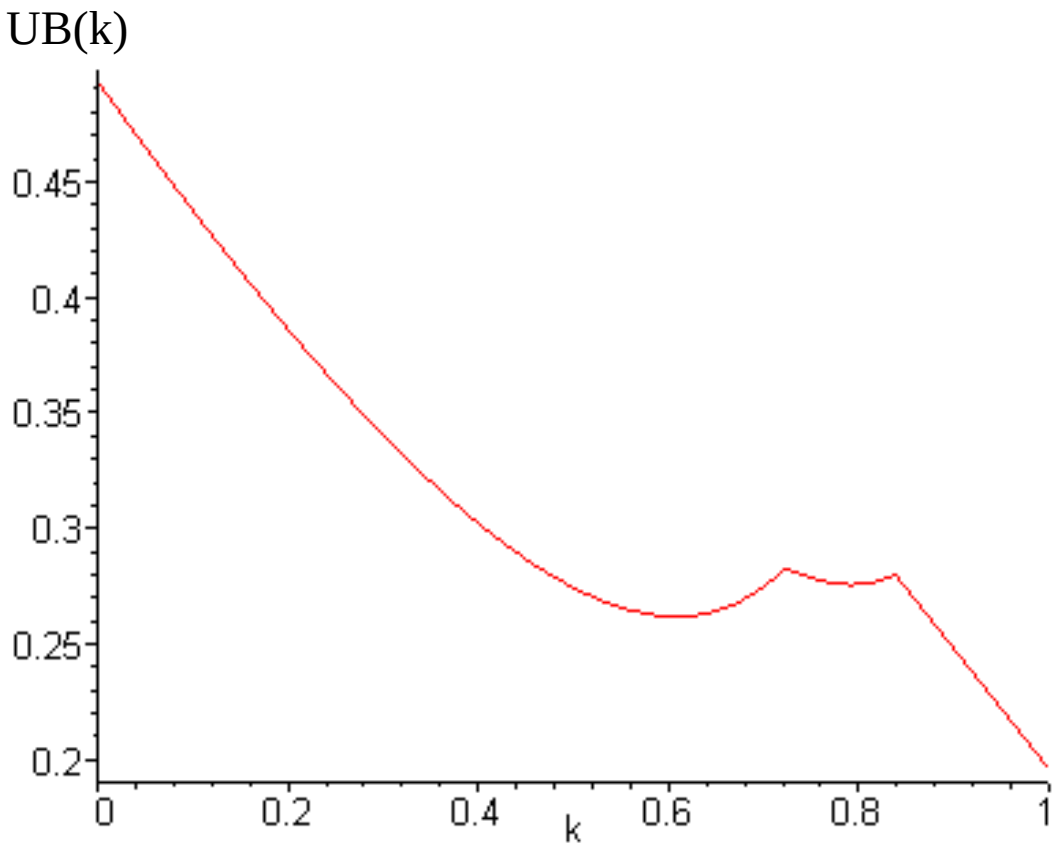
Uniform distribution (mean = .5)
density function



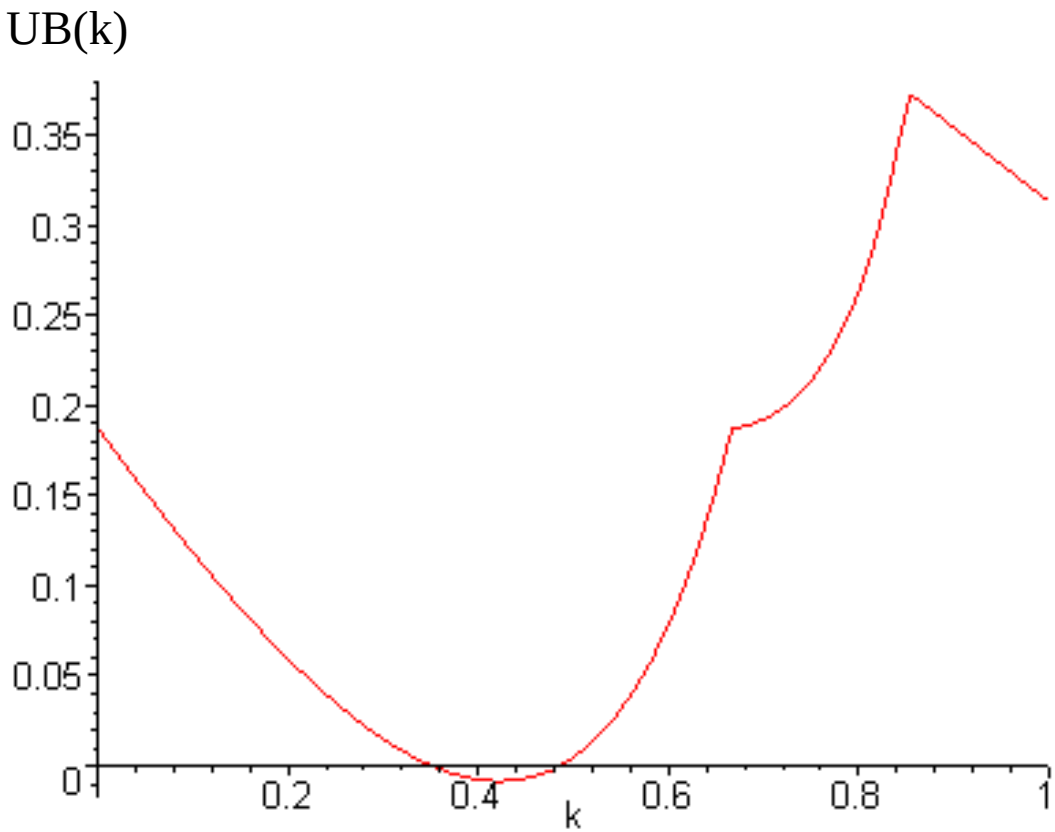
UB(k)

With unconstrained optimal
lambda and *p*

Paper's CDF, eta = .25 (mean = .2)
unconstrained lambda = .07, p = .58, k = 0



Uniform distribution (mean = .5)
unconstrained lambda = 0, p = .69, k = .85



Non-zero optimal capital

- When large losses are more likely
- No reliance on safe liquid asset
- Risky asset safer (higher p)

Unconstrained equilibria

Variable	Without LLR	With LLR	$r = 1$
lambda	.200	.074	.084*
k	0	0	0*
p	.577	.577	.574
*v*0	0	.091	.090*
*v*1	0	.205	.202*
pfail	.614	.601	.599

First order condition for p

$$R(p^*) + p^* R'(p^*) = 1 - \frac{k^*}{1 - \lambda^*}$$

Conclusions

- Paper compels us to rethink some elements of conventional wisdom regarding LLR
- Robustness of the results
- Potential for exploring unconstrained model with positive capital