Rules versus discretion in bank resolution

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The post-crisis agenda

Reducing the costs associated with failure of systemic banks:

1. Reduce *probability* of failure with capital requirements
   - Basel III: 10.5% of RWA
2. Reduce *cost* of failure with resolution regimes
   - Losses imposed on creditors, not taxpayers (bail-in)
   - Total Loss-Absorbing Capacity (capital + bail-in bonds): 16-20% of RWA

- Potentially large improvement in stability!

The resolution debate

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- **Pragmatics**: Prefer contracts (e.g. Cocos) to regulatory discretion
  "Compared to the historical performance of supervisory discretion (...) coco bonds may improve supervisors' ability to maintain adequate bank capital" (Flannery, 2013)

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- **This paper:** Should bail-in be governed by rules or discretion?
  - Model: Conduct bail-in to recapitalize bank, potential bank runs
  - Rules: policy hard-wired based on public information
  - Discretion: allow regulator to fine-tune based on private information

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2. Optimal regime: discretion in boom, rules in bust
3. Case for combining regulatory and contractual solutions (contingent debt)
4. Complementarities bewteen resolution and capital/liquidity regulation

The bail-in game

- **Date** 1**:** Bank balance sheet is given:

Assets	Liabilities
Long-term assets V	Short-term debt D
	Long-term debt B
	Equity capital E

  1. Regulator sees V, creditors see noisy signal S
  2. Regulator writes down fraction a of long-term debt (rules or discretion)
  3. Fraction ϕ of creditors run
  4. Bank fire-sells fraction σ to repay them. Value to outsiders is $p = \lambda E_1[V]$, so $\sigma = \min\{\phi D/p, 1\}$.

- **Date** 2**:** V becomes public, assets mature, outstanding debt is repaid if possible

Preferences

- **Regulator** cares about bank equity $E = V - D - (1-a)B$ and the cost of early liquidation. Welfare:

$$W = U(E) - (1-\lambda)\sigma v,$$

  $U(E)$ is concave, increasing then decreasing in equity.
- **Creditors** are risk-neutral and pay a small cost of withdrawal

Objective function and microfoundations

- *Increasing part* of $U(E)$ represents desire to
  - Alleviate debt overhang
  - Prevent gambling for resurrection
  - Avoid future runs in a dynamic game (we're working on it)
- *Decreasing part* of $U(E)$ represents costs of intervention

Auxiliary policies?

- We take balance sheet and fire sales as given
- Later we consider complementary policies to bail-in
  - Ex ante balance sheet requirements (capital, liquidity)
  - Lender of last resort
- Assumption for now: Requirements are not strict enough, and LOLR is not lenient enough, to rule out runs altogether
  - Is this an optimal arrangement? Hotly debated (Admati-Hellwig...)
  - Is this a constraint we face in reality? Definitely

Solving the model

- Characterise when a bank run occurs
- **Discretion:** Choose bail-in a contingent on public information S and private information V (signalling game!)
- **Rules:** Choose a contingent on S only

Pessimistic investors run on the bank

- Suppose that
  - Short-term debt has priority in default (conservative assumption)
  - $V > D$ with probability 1 (no fundamental runs)
- Self-fulfilling runs happen in equilibrium if and only if

$$\lambda E_1[V] < D$$

- "No run" equilibrium also exists; run happens with probability π (sunspots)
- Assumption: Private information can trigger runs but public information (on its own) cannot:

$$\lambda E[V|s_{min}] > D > \lambda v_{min}.$$

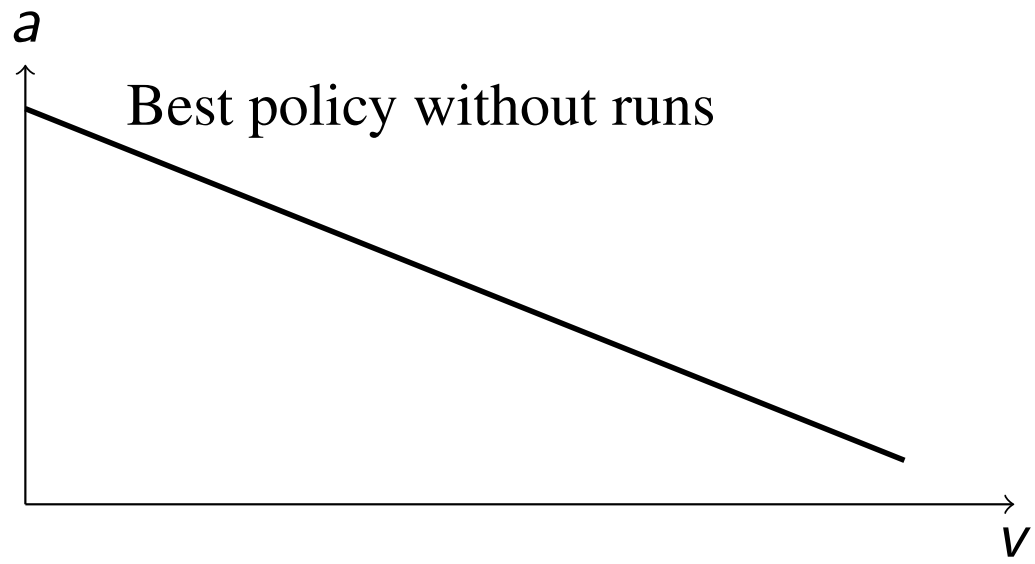
Discretion as a signalling game

- Regulator chooses bail-in based on both public and private information
- Creditors see this and form beliefs
  - Bayesian on equilibrium path
  - Discplined by Cho-Kreps intuitive criterion off equilibrium path
- Based on these beliefs, they decide whether to run
- Run can happen if

$$\lambda E[V|a,s] < D$$

Discretion leads to forbearance

- Illustration of equilibrium play after public signal $S = s$:



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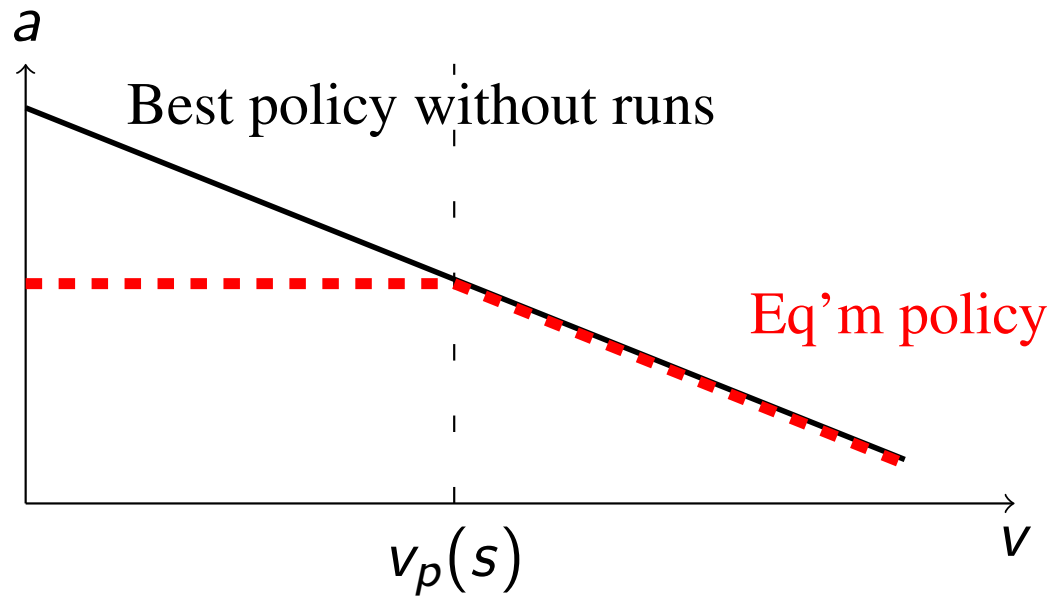

- Regulators with bad news $v < v_p(s)$:
  - Mimic the weaker strategy of a regulator with $v = v_p(s)$
  - "Pretend" that they have better news by bailing in less

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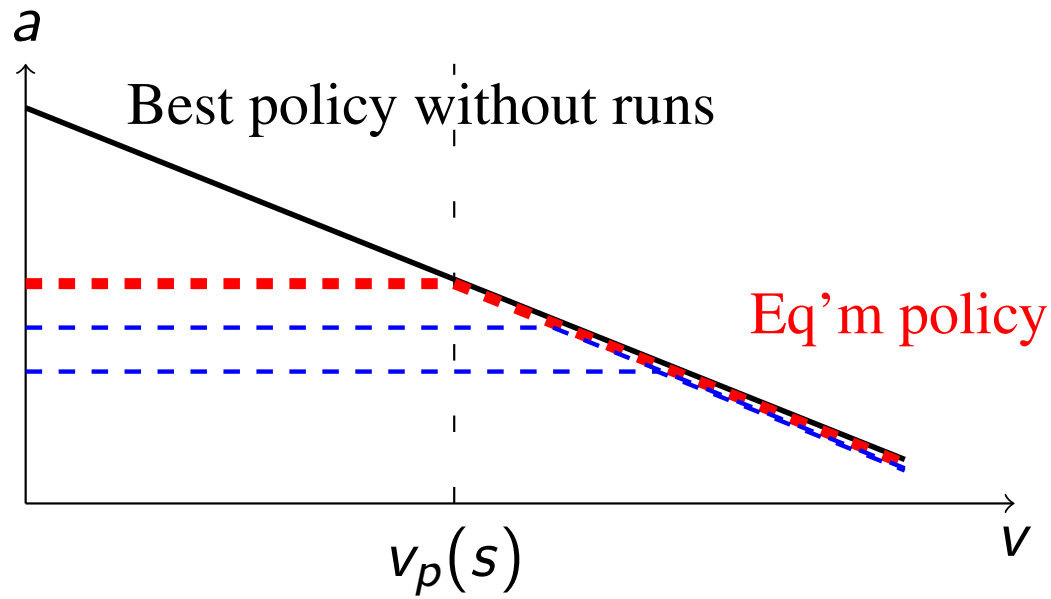

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  - Mimic the weaker strategy of a regulator with $v = v_p(s)$
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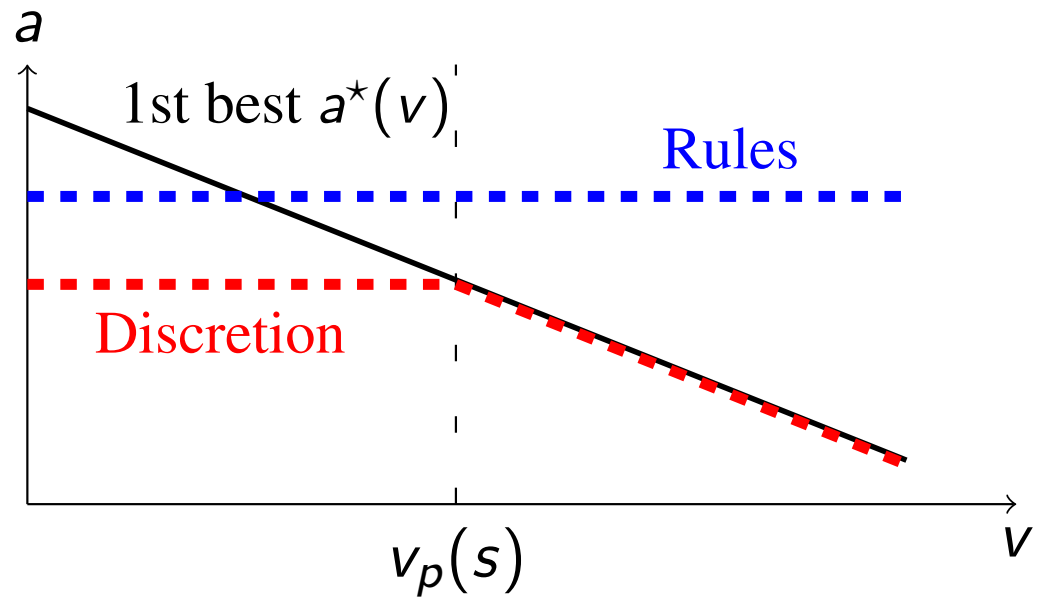
- Other equilibria are strictly worse

Rules enforce toughness at the cost of accuracy

- Rules can lead to tougher action than we get with discretion:



- Benefit: Avoid "chickening out" when banks are troubled
- Cost: Needless interventions when banks are healthy
- Different from Kydland-Prescott: Government moves first

We recommend discretion in boom, rules in bust

- The general policy problem is to write a rulebook:
  - "When the public signal is s, the regulator must bail in $a = A(s)$"
  - "When the public signal is s', the regulator has discretion"...
- Optimal policy: Write rules which bind for bad public signals
  - Good $s > s^{\star}$: The bank is likely to be healthy, avoid needless interventions by giving discretion
  - Bad $s \leq s^{\star}$: The bank is likely to be troubled, avoid weakness by mandating tough $A(s)$

Contingent debt as a commitment device

- Contingent debt: converts if s falls below a trigger
  - Caveat: s is exogenous in our model (accounting-based, not market price)
- We can implement optimal policy without explicit rules:
  - Replace $A(s)$ of long-term debt with contingent capital with trigger s or higher
  - No trigger higher than $s^\star$: Retain discretion when it is valuable
- Rationale is different from incentive channel (Pennacchi 2013, Abdul-Jaffee-Tchitsyi 2013)
- Explicit reason for combination of contractual and regulatory solutions

Complementary policies

- Introduce some cash holdings C
- Sufficient statistic for effectiveness of (optimal) policy: Illiquidity

$$\Delta = \frac{D - C}{\lambda}.$$

- Liquidity constraint (Basel III LCR) directly lowers Δ
- Capital requirement lowers $D + B$: reduces Δ for reasonable objective functions, but blunt instrument.
- Lender of last resort reduces Δ by closing some of the gap $D - C$ with a loan

Conclusion

1. There is a case for rules in bank resolution
    1. Forbearance problem can outweigh concerns about accuracy
    2. Rules are especially valuable in bad times
2. Combining contracts and regulators is a natural solution
3. Complementary policies: Additional marginal benefit of liquidity requirements and liquidity assistance by central banks