Rules versus discretion in bank resolution

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Bank resolution and the post-crisis agenda

- Ingredients of 'too big to fail'
  1. Important bank fails
  2. Bankruptcy regime is too disruptive
- Policy 1: More capital under Basel III
  - Capital $\geq$ 10.5% of RWA
  - Failures less likely but still possible
- Policy 2: Bank resolution procedures
  - Long-term (>1y) debt designated as 'bail-inable'
  - Regulators recapitalize failing banks by writing down this debt or converting it into equity
  - Capital + Bail-inable debt $\geq$ 16-20% of RWA
- Current proposals allow wide discretion on bail-in
- Are bail-in plans *credible*?

Credibility, rules and discretion

- Threat to credibility: spooking the markets

  'Regulators are reluctant to actively force a recapitalization because doing so will send a negative signal about the bank's current financial status, possibly exacerbating a bad situation'
  Bulow and Klemperer (EJ 2015)

- Alternatives to discretion:
  - Policy rules
  - Contingent capital instruments (e.g. CoCos)
- Open questions:
  1. Why is discretion problematic?
  2. What is the trade-off between rules and discretion?
  3. How does contingent capital interact with resolution?
  4. How does resolution interact with other financial policies?
- This paper: model of bank resolution subject to frictions
  1. Illiquidity and runs by uninsured creditors
  2. Asymmetric information between regulator and creditors

Preview

1. Why is discretion problematic?
   - Asymmetric information: signalling
   - Illiquidity: Signalling bad news destroys value
   - Excessive weakness as regulators attempt to mask bad news
2. What is the trade-off between rules and discretion?
   - Rules (based on public information): Toughness
   - Discretion: Accuracy
3. How does contingent capital interact with resolution?
   - Converts based on public information
   - Commitment device to implement optimal rules
4. How does resolution interact with other financial policies?
   - Natural complements: Lender of last resort, liquidity requirement (LCR). These target a *sufficient statistic* for the effectiveness of bail-in
   - Capital is complementary but blunt

Literature

1. Time inconsistency in Macro: Kydland and Prescott (1977), Barro and Gordon (1983), Cukierman and Meltzer (1986)
2. Contingent capital design: Flannery (2005), Martynova and Perotti (2012), Pennacchi et al. (2013), Sundaresan and Wang (2014), Bulow and Klemperer (2015)...

Agents and outstanding contracts

- Two dates $t \in \{1, 2\}$
- Agents: Bank, creditors, benevolent regulator (all risk-neutral and patient)
- Bank balance sheet with legacy debt:

<table>
<tr><th>Assets</th><th>Liabilities</th></tr>
<tr><td rowspan="3">Long-term assets V</td><td>Short-term debt D</td></tr>
<tr><td>Long-term debt B</td></tr>
<tr><td>Equity capital E</td></tr>
</table>

- Bail-in $t = 1$: Regulator writes down $a \in [0, B]$ of long-term debt

Bank-dependent surplus and first-best

- Bank equity after bail-in is

$$E(a, v) = v - (D + B) + a$$

- Surplus at $t = 2$ is $U(E(a, v))$
- $U(.)$ is concave. Reduced form for MM violations:
  1. Too little capital is bad: skin in the game requirement, gambling for resurrection, default costs...
  2. Too much capital is bad: informational advantage of debt, risk-aversion in incomplete markets, debt discipline...
- First-best bail-in policy is

$$a^{\star}(v) = \arg\max_{a} U(E(a, v)),$$

which is *decreasing* in v

Frictions: Information and illiquidity

1. Asymmetric information
   - Regulator and bank know V at $t = 1$
   - Creditors see a noisy public signal S and action a
   - They form public beliefs $\beta(v|a, s)$ – signalling game
2. Illiquidity
   - Outsiders can extract fraction λ of asset value V
   - Liquidation value of assets at $t = 1$ is $\lambda E_\beta[V|a, s]$
   - Diamond-Dybvig withdrawal game among short-term creditors. Bank run possible if

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

     When this holds, run with probability π
   - In that case, expected cost of runs is

     $$\kappa(v) = \pi(1 - \lambda)v$$

Welfare function and assumptions

- Welfare is surplus net of run costs:

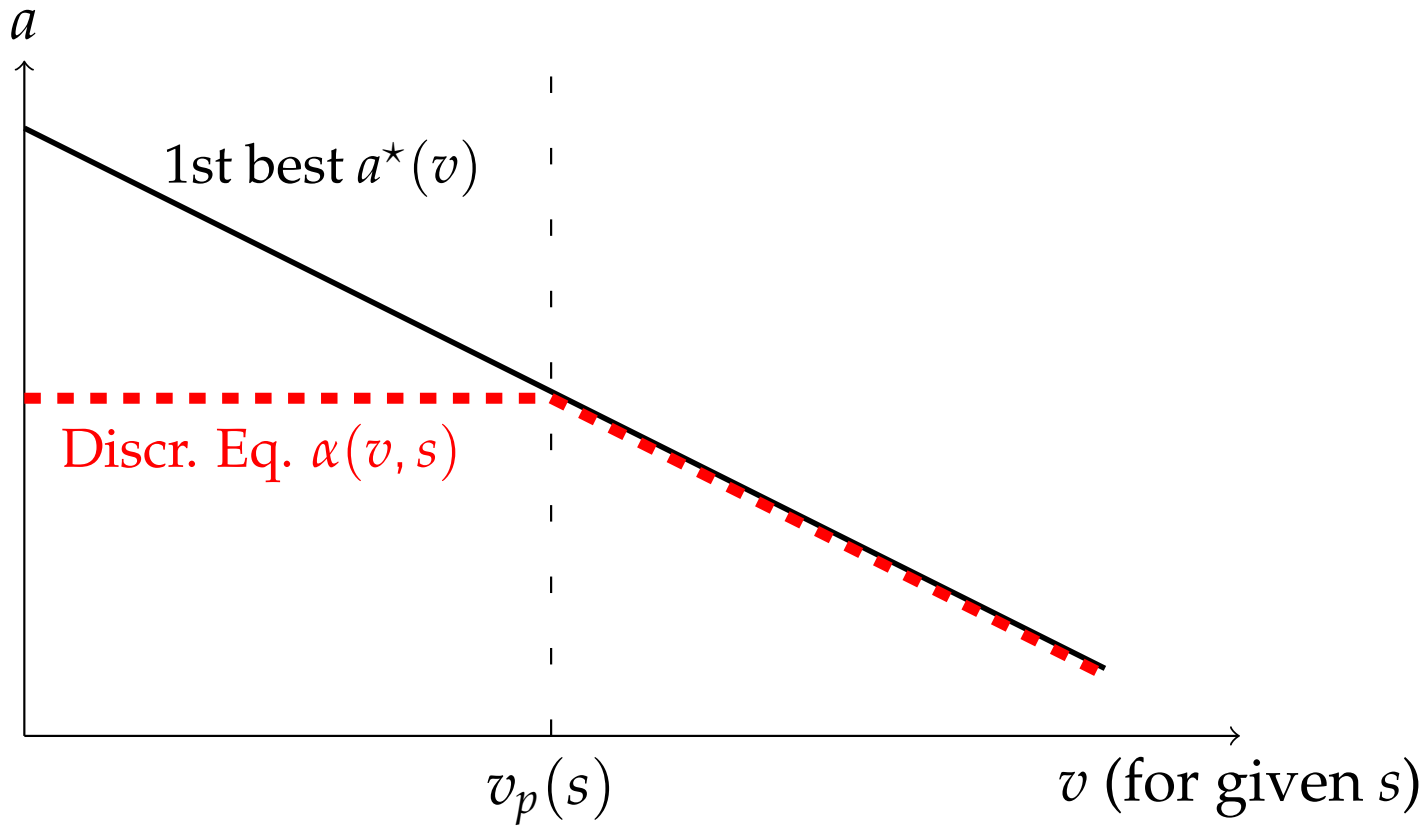
$$U(E(a,v)) - \kappa(v) \times \mathbf{1}(\lambda E_\beta[V|a,s] < D)$$

- EU Regulation 806/2014, Article 14:
  - First resolution objective is *'to ensure the continuity of critical functions'*
  - *'When pursuing the objectives (the authorities) shall seek to minimise the cost of resolution and avoid destruction of value'*
- Parametric assumptions:
  1. Runs are costly (high $\kappa(v)$, prefer 'wrong' a to a run)
  2. Public information alone cannot trigger runs

Rules versus discretion

- **Equilibrium with discretion**: For each realization of public and private information (v, s):
  - Regulator chooses $a = \alpha(v, s)$ to maximize welfare given beliefs $\beta(v|a, s)$
  - Beliefs $\beta(v|a, s)$ are consistent with Bayes' rule
  - Multiplicity: Apply Cho-Kreps intuitive criterion, consider best survivor
- **Rules**: For a some realizations of *public* information s, commit to fixed $a = A(s)$

Q1: Why is discretion problematic?

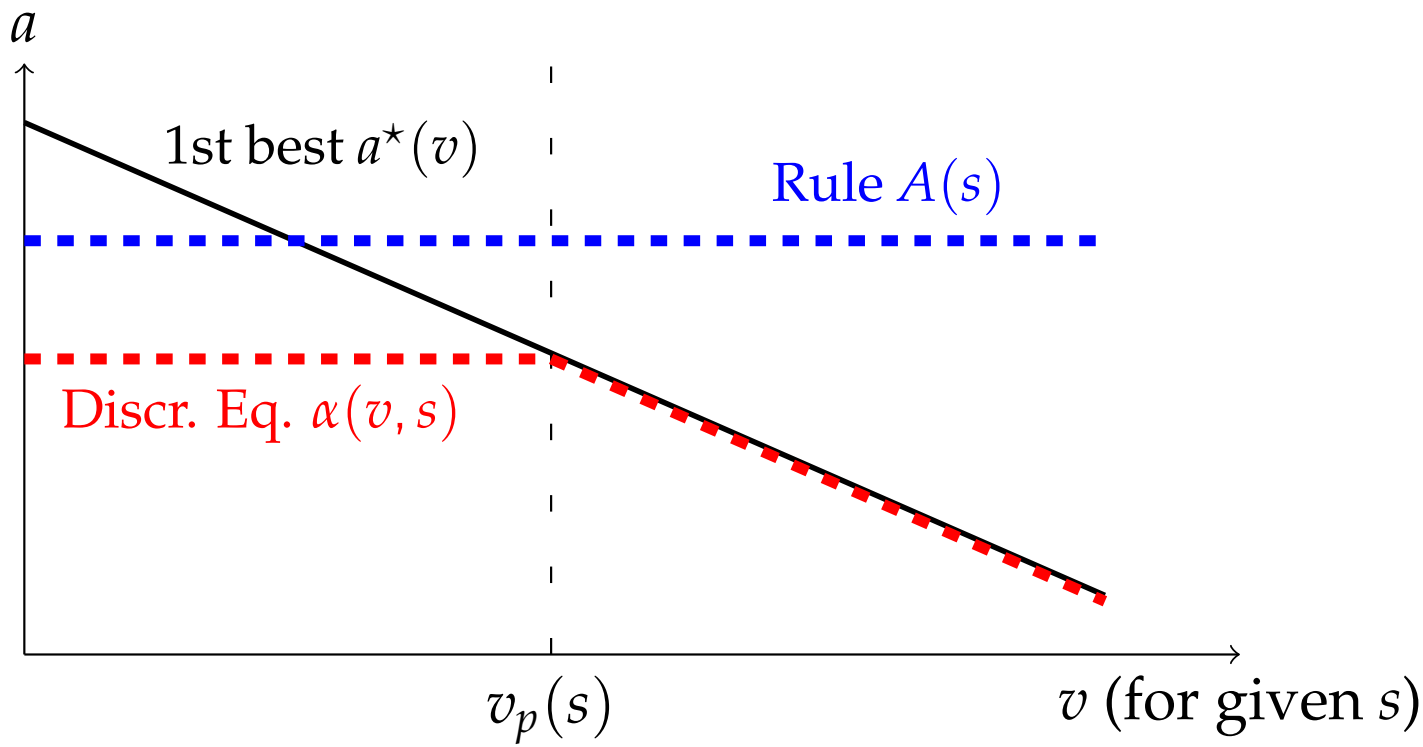


- Pooling region up to $v_p(s)$, which solves

$$\lambda E[V|V \leq v_p(s), s] = D$$

  Regulator with bad news 'pretends' to have better news
- *Excessive weakness* when tough bail-in is desirable

Q2: What is the trade-off between rules and discretion?



- Rule: *Toughness* after bad news v (closer to 1st best)
- Discretion: *Accuracy* after good news v (1st best achieved)
- Optimal mix: Commit whenever $s \leq s^\star$

Q3: How does contingent capital interact with resolution?

- Contingent debt: converts if S falls below a trigger
- Caveat: S must not be affected by conversion (no death spiral)
- Implementation of optimal rules:
  - Replace $A(s)$ of long-term debt with contingent capital with trigger s or higher
  - No trigger higher than $s^\star$: Retain discretion where valuable
- Contingent capital serves as a *commitment device*

Q4: How does resolution interact with other financial policies?

- More effective bail-in policy $\Leftrightarrow$ Low $v_p(s)$!
- **Lender of last resort**: reduces liquidity shortfall and $v_p(s)$
- Balance sheet policy: Introduce cash holdings C. Now $v_p(s)$ solves

$$E[V|V \leq v_p(s), s] = \frac{D - C}{\lambda} \equiv \Delta$$

- **Liquidity requirement**: Basel-style LCR *directly* targets the sufficient statistic Δ!
- **Capital requirement**: Targets $D + B$, reduces Δ for reasonable objective functions, but blunt instrument.

Conclusion

- Asymmetric information and illiquidity inhibit bail-in
- Discretion leads to excessive weakness
- Commitment is blunt, but desirable after bad news
- Contingent capital adds value by implementing commitment
- Complementary policies: Additional marginal benefit of LOLR and balance sheet policy