

Financial Restructuring and Resolution of Banks

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Roadmap

Introduction

Model

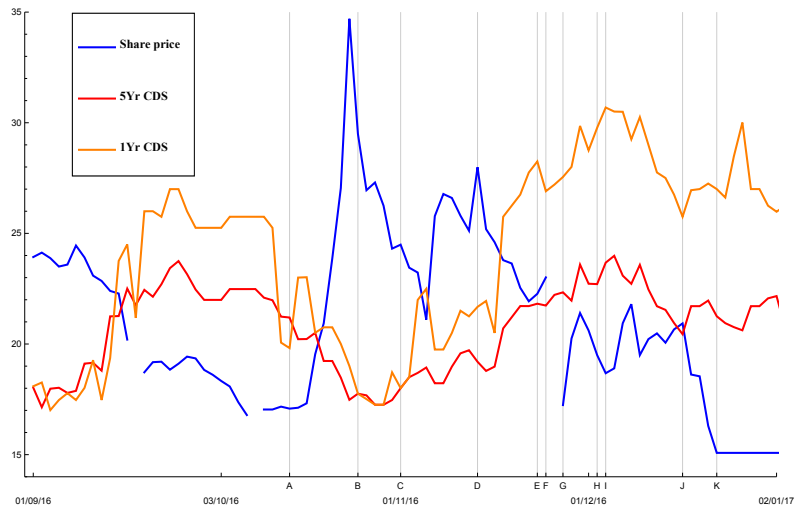
Private restructuring

Conclusion

Bank resolution and restructuring

- ▶ Bank resolution regimes:
 - ▶ Forced restructuring of liabilities (bail-out/bail-in)
 - ▶ US Dodd-Frank Act
 - ▶ EU Bank Recovery and Resolution Directive
- ▶ Aims:
 - ▶ Minimize costs to the taxpayer (bail-outs)
 - ▶ Avoid adverse consequences of disorderly failures
- ▶ Banks also restructure privately
 - ▶ Claimants renegotiate liabilities
 - ▶ E.g. European banks' Liability Management Exercises
 - ▶ But this process can be less than smooth

Monte dei Paschi di Siena



The main idea

1. Why are private restructurings long and inefficient?

- ▶ **Asymmetric information** over assets \Rightarrow **Delay** as signal
- ▶ **Externality on gvt**: Lower bail-outs and social costs of default

2. Impact of tougher resolution regimes (i.e. lower bailouts)?

- ▶ **Surplus effect** \Rightarrow Delay \searrow
- ▶ **Signaling effect** \Rightarrow Delay \nearrow

3. Implications for resolution design?

- ▶ **Optimal bail-out** trades off both effects (tougher \neq better)
- ▶ Government direct involvement in negotiations?

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The bank

- ▶ Assets:

- ▶ With probability p , payoff $Z > 0$ (payoff = 0 otherwise)
- ▶ Only the bank manager knows quality p

- ▶ Liabilities:

- ▶ Insured deposits D
- ▶ Uninsured debt R_0

- ▶ Monitoring:

- ▶ The manager (= shareholders) can incur cost $c > 0$
 $\Rightarrow p$ increases to $(p + m)$

- ▶ Debt overhang problem:

- ▶ Denote $X = Z - D$

$$mX > c \quad \text{but} \quad m(X - R_0) < c$$

- ▶ \Rightarrow Gains from bargaining

Restructuring/Resolution

- ▶ The manager chooses:
 - ▶ Debt write-down offer: from R_0 to R
 - ▶ Time of offer $t \in [0, +\infty)$
- ▶ Creditors accept if payoff exceeds statu quo
- ▶ In each period dt , the game stops with proba βdt
- ▶ Resolution:
 - ▶ The bank defaults with proba. $(1 - p)$ or $(1 - p - m)$
 - ▶ Insured deposits D paid in full from insurance fund
 - ▶ Uninsured creditors R incur a haircut $h \Rightarrow$ Gvt pays $(1 - h)R$
 - ▶ Shareholders get 0

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- ▶ In status quo, shareholders and creditors obtain:

$$S_0(p) = p(X - R_0)$$

$$C_0(p) = [1 - (1 - p)h]R_0$$

- ▶ **Asymmetric information** \Rightarrow Creditors' belief \hat{p} is important
- ▶ For a given belief \hat{p} , creditors accept a write-down of:

$$R_0 - R(\hat{p}) = \frac{mh}{1 - (1 - \hat{p} - m)h} R_0$$

- ▶ \Rightarrow Manager wants to convey p is **low** to get larger write-down

Equilibrium

- ▶ Post-restructuring payoffs:

$$S(\hat{p}, p) = (p + m)[X - R(\hat{p})] - c$$

$$C(\hat{p}, p) = [1 - (1 - p - m)h]R(\hat{p})$$

- ▶ Delay as signal
 - ▶ Bank with asset quality p offers $R(p)$ after delay $\Delta(p)$
 - ▶ Higher asset quality $p \Rightarrow$ Default is less likely
 - \Rightarrow Write-down more valuable \Rightarrow Delay is more costly
- ▶ Separating equilibrium: Shareholders' expected payoff should be max in $t = \Delta(p)$

$$\left[1 - e^{-\beta t}\right] S_0(p) + e^{-\beta t} S(\Delta^{-1}(t), p).$$

Equilibrium delay

$$\Delta(p) = \int_p^{1-m} \frac{-S_1(x, x)}{\beta[S(x, x) + C(x, x) - S_0(x) - C_0(x)]} dx$$

- ▶ Delay decreases in p
- ▶ Signaling effect
 - ▶ Delay increases in $|S_1|$
 - ▶ Larger gain from conveying p is low \Rightarrow Longer Δ to signal
- ▶ Surplus effect
 - ▶ Delay decreases with total bargaining surplus

$$S(x, x) + C(x, x) - S_0(x) - C_0(x)$$

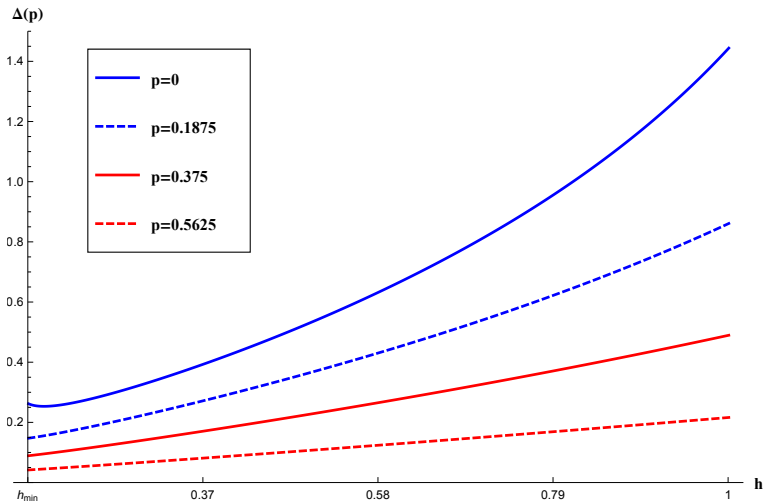
- ▶ \Rightarrow Higher cost of breakdown \Rightarrow Shorter Δ to signal

Haircut's impact on delays

- ▶ **Surplus effect:**
 - ▶ Less bailout \Rightarrow Lower total payoff w/ and w/o restructuring
 - ▶ But larger effect w/o restructuring as default proba is higher
 - ▶ \Rightarrow Higher bargaining surplus $\Rightarrow \Delta \searrow$
- ▶ **Signaling effect**
 - ▶ Less bailout \Rightarrow Creditors lose more w/o restructuring
 - ▶ Willing to concede larger write-offs
 - ▶ \Rightarrow More gain from pretending p is low $\Rightarrow \Delta \nearrow$

Corollary

As haircut h increases, delay $\Delta(p)$ first decreases and then increases for low enough asset quality p , and always increases otherwise.



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- ▶ Other themes
 - ▶ Optimizing haircut
 - ▶ Government involvement in negotiations
- ▶ Model complex distressed bank restructurings
 - ▶ No frictions \Rightarrow efficient restructuring
 - ▶ Frictions: asymmetric information and externalities
- ▶ Stylized model highlighting two general effects:
 - ▶ Surplus effect: more to gain fosters restructuring
 - ▶ Signaling effect: information-sensitivity hinders restructuring
- ▶ Optimal resolution framework must trade-off these two effects as well as ex-post efficiency
- ▶ Relevant for banks... but not only (Alitalia, Greece)