
How to Make the Banks Reveal Their Risks: the Case of Basel II

Michał Kowalik

University of Mannheim

Motivation

- Basel II – New Capital Accord for banks:
 - Capital requirements (CR) increasing in risk
- Risk is banks' private information
 - It may undermine banks' stability
- Basel II and academic literature virtually silent about how to make the banks reveal their risks
- Design of supervisory schemes, welfare analysis and policy implications

Framework (1/2)

- Agents: Insured depositors, bank's shareholders, outside investors and a supervisor
- Shareholders=managers of the bank
- Inside equity more expensive than deposits: $\delta > r_D$
- Nature determines type of project $i=H,L$:
 - i is bank's private information
 - Size of the project normalized to 1
 - No loss of generality: i represents quality
 - i has a **deterministic** net return: $r_H > r_L > 0$

Framework (2/2)

- Instead of the project i the bank can earn private benefits b
- Unregulated bank prefers b and goes bankrupt: $b > r_H - r_D$
- Bankruptcy cost so high that the supervisor wants to avoid it
- CR can prevent moral hazard: $k_i = (1 + r_D)^{-1}(b + r_D - r_i)$
 - Sensitive CR ($k_H < k_L$) \Rightarrow adverse selection arises and moral hazard reoccurs
- 2 possible remedies:
 - Insensitive CR: k_L
 - Sensitive CR with a supervisory scheme

Supervisory Scheme

- Supervisory scheme:
 - Inspection upon report of H :
 - ♦ Costly - m
 - ♦ Stochastic with probability q
 - ♦ Noisy: probability γ of being right
 - Penalty after the signal contrary to the report of H :
 - ♦ Recapitalization, downsizing, closure and fine

- Supervisor maximizes social welfare

Timing

1. Announcement and commitment to q and penalty
2. Bank learns i , finances itself and reports i
3. Inspection and possible punishment
4. Moral hazard problem
5. Returns are realized

Recapitalization

- Truth-telling constraint of the bank L :

$$r_L - r_D - (\delta - r_D)k_L \geq (1 - q\gamma)(b - k_H(1 + \delta)) + q\gamma(r_L - r_D - (\delta - r_D)(k_H + x))$$

- Effect of increase in cost of capital on truth-telling incentives:
 1. Capital is more costly: More willingness to misreport
 2. Penalty is more costly too!
 - Higher $\delta \Rightarrow$ Reduction in the supervisory intervention

Downsizing

- Bank sells part of the project keeping initial capital level to risk neutral investors with cost of capital δ on a competitive market
- Plethora of equilibria: Focus on truth-telling and reports of L (multiple equilibria eliminated with intuitive criterion)
- $\delta \uparrow \Rightarrow$ reduction in intensity of the supervisory intervention
 - Investors pass the cost of capital on to the bank
- Downsizing: **Less** incentives for truth-telling than recapitalization:
 - Positive premium for sold part of the project

Closure

- Penalty: Transfer of bank to new shareholders who run it under k_L
- Closing the bank involves social cost
- Truthtelling constraint of the bank L

$$r_L - r_D - (\delta - r_D)k_L \geq (1 - q\gamma)(b - k_H(1 + \delta))$$

- Higher $\delta \Rightarrow$ more supervisory intervention
 - Only direct effect is present

Welfare Analysis

- Welfare impact of sensitive CR:
 - Savings from lower burden on the bank H
 - Implementation cost coming from supervisory intervention

- Results:
 - Recapitalization better than downsizing
 - The highest welfare for the studied penalties:
 - ◆ High cost of capital: Recapitalization
 - ◆ Intermediate cost of capital: Closure
 - ◆ Low cost of capital: Insensitive CR
 - Optimal contract for sensitive CR: Recapitalization and fine

Policy Implications (1)

- Cost of capital=Profitability of investment (Parlour and Plantin 2008) => it can be cyclical (Green, Lopez and Wang 2003)

- Implications from the welfare analysis:
 - In booms: Sensitive CR with recapitalization
 - In downturns: Sensitive CR with closure
 - If closure is not feasible: Insensitive CR

 - **CR should move in an anticyclical way!**
 - **It contrasts with proposals to diminish pro-cyclical impact**

Policy Implications (2)

- Risk-based CR require high quality of inspection:
 - Overall opaqueness of banks increases
 - ♦ **CR based on self-reported risks may not be viable**
 - Inspection conducted with help of risk management models
 - ♦ These models may not distinguish between risk levels in good times when defaults are rare
 - ♦ **Scope for less sensitive CR for low risk in good times?**

Policy Implications (3)

- Consequences of the involvement of the market:
 - More supervisory intervention needed
 - Truth-telling feasible for smaller range of parameters
- **Supervisors should encourage inside equity injections rather than downsizing using market involvement**

Policy Implications (4)

- The optimal contract is a mixture of recapitalization and a fine:
 - Fine is the welfare transfer from the bank to the supervisor
 - However, recapitalization needed to eliminate the moral hazard still
- Very tempting but is it politically feasible?

Conclusions

- Pessimistic view of risk-based capital requirements:
 - Costly to enforce
 - Demanding conditions for viability

- Model and its policy implications show how complex the issues introduced by Basel II are
 - Misreporting versus pro-cyclicality effects