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DISCUSSION OF GABRIELLA CHIESEA'S “MONITORING-ENHANCING CREDIT RISK TRANSFER: THE CASE OF BANKS”

by

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1

THE SETTING

- Big issue in banking: implications of credit risk transfer (CRT), whereby banks either use loan sales or credit risk derivatives to transfer the credit risk in their loan portfolios to third parties

PROS AND CONS OF CRT

Pros

- Makes banking sector more resilient and able to withstand shocks because the risks are more spread out throughout the system

Cons

- Causes financial system to be less stable because banks' monitoring incentives are diluted and thus credit risks may be elevated

QUESTION POSED IN THIS PAPER

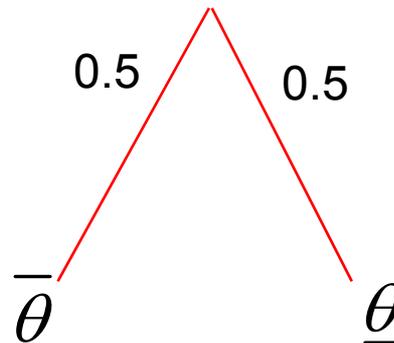
- What effect does CRT have on the monitoring incentives of the bank?

ANSWER: KEY RESULTS

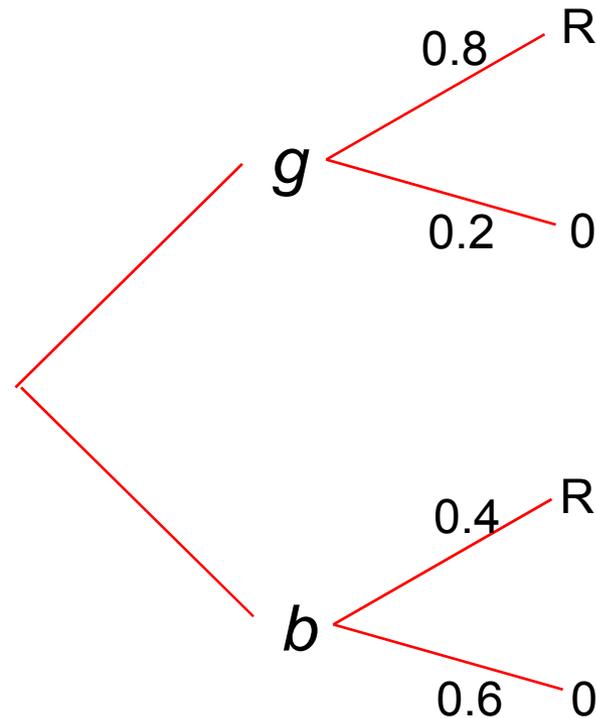
- Optimal CRT enhances loan monitoring incentives of banks
- But...extent of credit enhancement needs to be *limited*. Above the precise level, monitoring incentives are weakened
- Credit enhancement below the precise level is avoided due to the implied price effects
- Risk-based capital requirements can provide appropriate incentives.

THE INTUITION BEHIND THE MODEL: AN EXAMPLE

- Consider two macroeconomic states $\underline{\theta}$ (downturn) and $\bar{\theta}$ (upturn)



- Two types of projects (borrowers)



- If $\theta = \bar{\theta}$, project succeeds with probability 1.

WHAT DOES MONITORING DO?

- If $\theta = \underline{\theta}$, project is b if bank does not monitor and it is g if bank monitors.
- Think of probabilities (0.8 and 0.4) as fractions of loans that pay off.

OBJECTIVE

- Maximize the bank's expected profit subject to: (i) breakeven constraints for investors and depositors, and (ii) IC constraint for the bank to monitor

SOLUTION WITHOUT CRT

Bank's expected profit if it monitors:

$$= \Pr(\theta = \bar{\theta})[R - D]$$

$$+ \Pr(\theta = \underline{\theta})\{[\text{Fraction of successful loans with } g][R] - D\} \\ - K - F$$

where D = repayment obligation on deposits

K = equity capital

L = \$1

F = monitoring cost

$$= 0.5[R - D] + 0.5[0.8R - D] - K - F$$

$$= 0.9R - D - K - F$$

(1)

where I've assumed that $D < 0.8R$

If bank does not monitor, then its expected profit is

$$= \Pr(\theta = \bar{\theta})[R - D] + 0.5[\text{Max}\{0.4R - D, 0\}] - K$$

But if we assume $D > 0.4R$, then

$$= 0.5[R - D] - K \tag{2}$$

The IC constraint for the bank to monitor is that (1) \geq (2):

$$0.5[R - D] + 0.4R - 0.5D - K - F \geq 0.5[R - D] - K$$

$$\text{or } 0.4R - 0.5D \geq F \quad (3)$$

Now in equilibrium the IC constraint is satisfied and the bank monitors. So, as long as $D < 0.8R$, deposits are riskless. With a zero riskless rate, the bank raises D in deposits at $t = 0$.

$$\Rightarrow D = 1 - K$$

Substituting $D = 1 - K$ in (3) and solving for (3) as an equality yields the minimum capital level K^* to incent the bank to monitor.

$$\boxed{K^* = 1 - 0.8R + 2F} \quad (4)$$

Note that if $K \geq K^*$, then (4) implies

$D = 1 - K \leq 0.8R - 2F$, so our earlier assumption that $D < 0.8R$ is valid.

- K^* defines bank's lending capacity for any given level of capital.

SOLUTION WITH CRT

- Bank sells loan for P_0 to investors along with a put option. Investors can sell loan back to bank for P .
- Set $P \leq P_0$ for feasibility since bank will post cash bond of P . It can do so from loan sale proceeds.
- Now $P_0 = 0.5[R] + 0.5[0.8R] = 0.9R$ (5)
if investors believe the bank will monitor.

- The bank's expected profit with monitoring is:

$$\underbrace{0.5[P_0]} + \underbrace{0.5[P_0]} - \underbrace{D - K - F} \quad (6)$$

State is $\theta = \bar{\theta}$ so investors do *not* sell portfolio back to bank because $P < P_0 = 0.9R < R$, and portfolio is worth R .

State is $\theta = \underline{\theta}$ and bank monitors, so portfolio worth $0.8R$. Assume $P < 0.8R$, so investors don't exercise put.

Bank can repay depositors in both states if it monitors.

If the bank does not monitor, its expected profit is:

$$\underbrace{0.5[P_0 - D]}_{\downarrow} + \underbrace{0.5[-P + \text{Max}\{0.4R - D, 0\}]}_{\downarrow} - K$$

State is $\bar{\theta}$ and investors don't exercise put. Bank keeps proceeds from loan sale and pays off depositors.

State is $\underline{\theta}$ and portfolio pays off $0.4R$. Investors exercise put since $P > 0.4R$. Bank pays out P , receives $0.4R$ and pays off depositors. Since $D > 0.4R$, bank's payoff from loan is 0.

$$= 0.5[P_0 - D] - 0.5P - K \tag{7}$$

The IC constraint is $((6) \geq (7))$:

$$P_0 - K - D - F \geq 0.5P_0 - 0.5D_0 - 0.5P - K$$

which means

$$P_0 - D \geq 2F - P.$$

Substituting $D = 1 - K$ and $P_0 = 0.9R$ (from (5)) yields

$$\boxed{K^{**} = 1 - 0.9R + 2F - P} \quad (8)$$

- Comparing K^{**} and K^* , we see that $K^{**} < K^*$
 - ⇒ CRT expands the bank's lending capacity. It can lend more with a lower amount of capital and still maintain its credibility to monitor because its monitoring incentives are strengthened

Intuition: The put option sold to investors with CRT imposes losses on the bank when high loan defaults occur due to lack of monitoring.

⇒ Bank's payoff in high default state is no longer 0 as it is without CRT due to limited liability.

⇒ CRT is a way to weaken the effect of the limited liability constraint (like collateral).

ADDITIONAL RESULT

- Excessive credit enhancement can hurt. If $P > 0.8R$, then when $\theta = \underline{\theta}$, investors will put the loan to the bank even in the monitoring case. This can weaken monitoring incentives and transfer wealth from depositors

ASSESSMENT

- Interesting paper. Provides a counterpoint to the usual argument that CRT weakens monitoring incentives and worsens credit risk.
- Paper needs to focus more on accessibility and intuition.
- The essential message of the paper is that securitization with just the right amount of recourse can lead to *stronger* monitoring incentives.
- The issue of the need to precisely calibrate the amount of credit enhancement to get the right incentives is correctly analyzed in the paper, but one wonders if the problems people are worried about have anything to do with banks retaining *excessive* credit risks through too much credit enhancement.

- Some of the recent empirical evidence suggests that securitized loans have experienced higher default rates than very similar unsecuritized loans, which seems to suggest that CRT has weakened monitoring incentives.

This paper would suggest that it is due to excessive credit enhancement. It would be interesting to examine that carefully in future empirical work.

- **In fact, an important case this paper does not analyze is what happens when the bank essentially *purchases* puts on its loan portfolio through the credit derivatives market rather than selling puts to investors. It is the consequent weakening of monitoring incentives due to this that people have been worried about.**
- Moreover, credit derivatives seem to have had a limited effect on the supply of bank credit, i.e. only large firms seem to have experienced a higher supply (e.g. Beverly Hirtle, forthcoming, *JFI*). So, welfare implications of this market would be interesting to analyze.