Towards Time Consistency in Bank Regulation
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The existence of a social cost of bankruptcy makes bail-out an attractive strategy for regulators.

It is well known that bail-outs generate moral hazard. The model makes explicit the interaction between bail-out policy and banks leverage choice.

Contrarily to previous models, the regulator may be seen here as a Stackelberg leader provided it has the ability to commit to a bail-out policy.

The regulator compares the cost of bailing out the bank with the social cost of its bankruptcy (exogenously given).

(Question: what is the cost of injecting funds?)

Banks create liquidity by issuing debt. Liquidity has a social benefit, so debt is preferred to equity from that perspective

MM holds: debt and equity have the same cost.

Banks are indifferent between debt and equity but the possibility of a bail-out will lead them to prefer subsidized debt. So, if liquidity aspects are of second order, the regulator should commit never to bail-out banks or impose a 100% capital coeficient.

The optimal leverage policy should take into account ex post time consistency and the banks' moral hazard (effort). Under commitment the regulator choice will determine the banks' leverage; under non commitment, the choice of effort will determine the time-consistent leverage.

Liquidity is associated with deposits, yet the MM approximation fits better wholesale funding.

Insuring deposits would have two effects: 1) it may decrease the cost of a bank bankruptcy X and 2) it reduces the additional amount to be brought in by the Treasury to bail-out uninsured depositors. Still, under moral hazard it may increase risk.

An alternative view

Assume equity is limited (infinite cost of raising equity)

$F(A \mid e)$ yields $\overline{A}$ with probability e and $\underline{A}$ with probability $1 - e$

Then, optimal $e = e^*$ is given by 100% equity

$$\max_e e\overline{A} + (1 - e)\underline{A} - C(e)$$

Assume now debt $D(e)$ satisfying $(\overline{A} > D(e) > \underline{A})$

If the market for debt is perfect, then under risk neutrality, zero interest rates and excess supply of savings,

$$eD(e) + (1 - e)\underline{A} = I$$

and, replacing we still obtain $e = e^*$

The moral hazard case

Investors have rational expectations on the profit maximizing level $\widehat{e}$

Banks solve:

$$\max_e e(\overline{A} - D(\widehat{e})) - C(e)$$

which yields $\widehat{e}$,and investors participation constraint determines $D(\widehat{e})$:

$$\widehat{e}D(\widehat{e}) + (1 - \widehat{e})\underline{A} = I$$

The level $\widehat{e}$ is inefficiently low.

Bail-outs S

Investors have rational expectations on the profit maximizing level $\widehat{\widehat{e}}$

Banks solve:

$$\max_e e(\overline{A} - D(\widehat{\widehat{e}})) - C(e)$$

which yields $\widehat{\widehat{e}}$,and investors participation constraint determines $D(\widehat{e})$:

$$\widehat{\widehat{e}}D(\widehat{\widehat{e}}) + (1 - \widehat{\widehat{e}})(\underline{A} + S) = I$$

Because $D(\widehat{\widehat{e}}) < D(\widehat{e})$, we have $\widehat{e} < \widehat{\widehat{e}} < e^*$ bail-outs reduce the probability of bankruptcy and improve efficiency.

With fixed amount of equity, bail-outs decrease the cost of debt and increase the size of bank projects.

(Something similar to liquidity in the paper)

Implication: the trade-off is between banking activity in good times and taxpayers costs in bad times.

Now, does the MM apply? In good times yes but not in times of crisis.

If the cost of a bail out is taxpayers cost we should
1) tax the banks
2) introduce bail-ins that will reduce the cost

A challenging, thought provoking approach that allow us to understand the issue of commitment and its impact on leverage, risk taking and moral hazard.