

HOW TO FINANCE SIFIS?

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MOTIVATION

- Financial Stability Board recently issued a Consultation Document on the Total Loss Absorption Capacity (TLAC) that Systemically Important Financial Institutions (SIFIs) should keep as a buffer against losses.
- **Qualitative question** (size of the buffer) echoes the controversy between Admati and Hellwig (2012) and many other academics: Calomiris (2013), DeAngelo Stulz (2013)...
- This paper examines the **qualitative question**: what hybrid securities should be eligible for the TLAC, on top of equity?
- Related to the many recent papers that have tried to show that different forms of CoCo bonds can be useful.

THIS PAPER

- Looks for the optimal way to finance SIFIs, both from the private and public perspectives.
- Uses a very stylized model of a SIFI, defined as a financial institution whose closure entails important costs for society.
- Closure externality is the justification for regulating the financing mode of SIFI.

SUMMARY OF THE RESULTS

- In the absence of exogenous benefits of debt (tax advantage, disciplining managers, premium on liquid assets) **any form of debt** (straight, coco, subordinated,...) **is sub-optimal**.
- However, **contingent capital contracts** can improve both private and social value of a SIFI, because they involve a **commitment to inject cash** when the SIFI needs it.
- By contrast, **convertible debt** does not bring the benefit of a new cash injection.

SUMMARY OF THE RESULTS (2)

- With tax deductions on debt, CoCos are good both for shareholders and the regulator because they allow to reduce taxes while decreasing probability of default (loss absorption).
- However social welfare (which includes taxes) is always lower with any form of debt: equity financing of SIFIs is socially optimal.

Model(1)

- Most of the literature on CoCos uses models in the spirit of Merton (1974)/Leland (1992) where banks/firms keep no cash reserves because they can continuously issue new equity. Only default for solvency reasons.
- But in practice, equity issuance is lumpy, due to fixed transactions costs.
- Moreover, banks typically default for liquidity, not solvency reasons.

Model (2)

- We use instead Radner-Shepp (1996): a profitable firm/bank may be forced to close down because of liquidity problems.
- Fixed issuance costs prevent continuous injection of capital. Liquidity management becomes crucial.
- Bank (FI) transforms A units of risk-free deposits into D unit of risky assets
- All investors are risk neutral, risk free rate= r .

Model (3)

RISKY ASSETS A	DEPOSITS D
CASH RESERVES m	Market finance

For simplicity A and D are fixed (book values) but may generate losses. Net earnings (after tax): $dC_t = \mu dt + \sigma dZ_t$

Since issuance of new securities is costly and uncertain, bank needs market finance to absorb losses.

Model (4)

- When bank is started, owner issues securities to finance cash reserves.
- No corporate governance problems (moral hazard, asset substitution, cash diversion...)
- Two frictions:
 - 1)(re)issuance of new securities is costly.
 - 2) There is an opportunity cost of cash reserves.

Model(5)

- SIFI character is very stylized: closure entails a social cost that is not internalized by shareholders.
- Security design problem: what is the best way to finance the SIFI (both from the private and public perspectives) ?
- We do not make any restriction on the type of securities issued by the SIFI, other than limited liability (non-negative payments).

Privately Optimal Security Design

Result 1:

- Privately optimal financing mode: 100% equity.
- Initial owners issue number of stocks needed to finance productive assets and target cash reserve m^* .
- Earnings are retained whenever cash reserves are below the target. Excess cash distributed as dividends.
- Firm is closed whenever cash reserves fall below zero.

Socially Optimal Security Design

Result 2:

- Socially optimal financing mode is also 100% equity.
- However regulator requires more capital than what the owner would issue. Target cash reserve is now

$$m^R > m^*$$

- Dividend distribution is prohibited until cash reserves exceed new target m^R , or equivalently if capital is below some minimum value.
- Probability of default is reduced by regulation.

COMMENTS

- Property that 100% equity is the best financing mode is very general. It can be extended to other cash-flow processes (e.g. Merton Leland), new security issuance, interest paid on cash,...
- Intuition is simple: because of financial frictions, cash is (strictly) more valuable inside the firm than outside, until the target cash reserve is attained. Any security that draws cash before the target is attained is suboptimal.

COMMENTS

- Variant of debt overhang problem: continuation = investment opportunity.
- 100% equity financing implies that cash reserves m move one to one with book value of equity.
- Minimum cash reserves is here equivalent to minimum capital ratio (book value).

COMMENTS

- To get any form of debt (including CoCos) one needs to make additional assumptions: tax advantage or public subsidy, agency problem, demand for safe assets by investors.
- Thus all the models that look for optimal cocos without making one of these assumptions are doomed to fail.

COMMENTS (3)

- Regulation is needed because shareholders do not internalize the social cost of closure.
- The best way to attain the second best optimum is to impose a minimum capital and to prevent the firm from distributing dividends until target capital (or reserves) are reached.
- Again, 100% equity is optimal.

CONTINGENT CAPITAL

- Assume now that SIFI can sign a contract with some financial institution that **commits to inject some amount of cash Δm** (in some well specified conditions) **in exchange for some form of payment (initial payment, continuous premium, stocks,...)**.
- Note that it may look similar to a CoCo: continuous premium is like a coupon, seller injects «capital» in exchange for stocks.

CONTINGENT CAPITAL(2)

- However this **a contract, not a security**: it violates limited liability.
- Likes a futures or an option contract, it requires some control on the seller's solvency to guarantee that the obligation will be fulfilled.

Introducing tax subsidies for debt

- When coupon payments are not taxed, hybrid debt is a good compromise for regulators and bankers
- Indeed it has a higher loss absorption capacity than straight debt but allows banks to benefit from tax exemptions: hybrid debt increases the value of the SIFI and the regulator's objective
- However social welfare (which includes taxes) is decreased by any form of debt.

Conclusion(1)

Any sound reflection on hybrid debt instruments for FIs must clarify what type of financial friction they are intended to mitigate.

1. If it is some imperfection of financial markets (e.g. issuance costs)

Then this paper shows that **any kind of debt is dominated by equity and that CoCos are dominated by contingent capital.**

Conclusion (2)

2. If the friction is some imperfection of the tax code (e.g. subsidy to debt)

Hybrid debt= good trade-off between tax optimization and expected cost of failure.

However it is socially inefficient!

If the purpose of hybrid debt instruments is exploit loopholes between tax code and banking regulation they should be banned altogether.

Conclusion (3)

- **If the friction is some agency problem:**

Debt may be good for disciplining managers (??)

Anyway we are not convinced that the magnitude of the effect (if any) is large: empirical evidence is needed.

But debt is bad for asset substitution (even cocos, if they are not well designed: Berg-Kaserer 2012).

Also debt is bad for systemic stability (externality).

Conclusion (4)

- In any case, corporate governance issues are best addressed by changing managers compensation rather than the liability structure of banks.
- Not clear why regulators feel entitled to impose constraints on banks' financing modes but not on the remuneration packages of bank managers.