

A New Capital Regulation For Large Financial Institutions

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Motivation

- If there is one lesson to be learned from the 2008 financial crisis, it is that large financial institutions (LFIs) are too big to fail.
- This could be for (sound) economic reasons or (less sound) political economy ones. The economic ones usually given are that LFIs are highly interconnected through a web of contracts, that the failure of one will lead to the failure of others, and that while the economy can survive the loss of a single LFI it cannot survive the loss of the entire financial sector.
- Of course, a regime in which LFIs won't be allowed to go bankrupt in the normal way can impose large costs on society. First, there is the possibility of large future taxpayer losses to cover bail-outs. Second, knowing that they will be saved, LFIs may engage in risky behavior that will bring about the next crisis.
- We already see signs of problems: Large banks, which before the crisis could borrow at 29 basis points below small banks, can borrow at 78 basis points below today. For the 18 bank holding companies with more than \$100 billion in assets the 49bps advantage corresponds to a \$34.1 billion subsidy a year.
- Given that society will bear the ex post costs of LFI failures there is a strong argument for regulating them ex ante.

How to regulate?

- Many suggestions have been made: limit the size of LFI; restrict the kinds of activities an LFI can undertake; encourage LFIs to issue convertible debt or write living wills; constrain executive pay; require contingent capital insurance, etc.
- We suggest that, rather than micro-managing the activities of an LFI, it might be better to implement an early warning system that will alert the regulator to the fact that an LFI is in trouble. The regulator can then intervene before the damage spreads to other institutions and social costs are incurred. We propose a market-based mechanism that achieves this goal.
- We distinguish between an LFI's "systemically relevant" obligations, e.g., short-term interbank borrowing, derivative contracts, and bank deposits; and "non-systemically relevant" ones, e.g., long-term debt.
- Long-term debt of banks mostly resides in the portfolios of mutual funds and pension funds, which can absorb losses on this debt in the same way that they can absorb the losses on equity investments.
- Therefore, our approach is to protect the systemic obligations in all circumstances but leave open the possibility that the non-systemic obligations will be unprotected.

Our Mechanism

- We would require banks to hold two layers of capital below fragile, systemic obligations. First, as currently, a layer of equity. The second layer would consist of long-term debt that is junior to the systemic obligations.
- Our mechanism mimics the way margin calls function. (Briefly describe.)
- LFIs will post enough collateral (equity) to ensure that their debt is paid in full.
- If the fluctuation in the value of the underlying assets puts junior debt at risk, LFI equityholders will be faced with a margin call and they must either inject new capital or face intervention by the regulator.

Some important differences from standard margin calls: LFI assets are not easily valued, and creditors are dispersed and cannot easily act.

So how do we know when the second cushion of long-term debt is in trouble? One can exercise political pressure on a credit rating agency or a regulator. But it's hard to influence a market.

Therefore we use price of CDS on LFI junior debt as a trigger, and regulator to coordinate action.

- Trigger mechanism: CDS price. A CDS is a contract that promises to exchange a bond with an amount of cash equal to the bond's notional value in the event of default. The price of this contract in basis points is the insurance premium paid every year on a notional amount of \$100 of debt. By arbitrage the price satisfies

$$\frac{P_{CDS}}{10000} = \pi(1 - \text{recovery rate})$$

where π is the (risk neutral) probability of default and the recovery rate is the proportion of the value of the debt recovered in the event of default.

- The trigger is activated if the CDS price rises and stays above a threshold for an extended period of time. During this period the LFI can raise equity to bring the CDS price back down. If this effort fails and the CDS price stays above the threshold for a predetermined period of time (say its average over the preceding month exceeds 100 basis points),the regulator intervenes.
- If the regulator intervenes, she first inspects the firm—in effect, carries out a stress test— and :

- If she decides the debt is not at risk, she declares the firm adequately capitalized and injects some government funds that are pari passu with existing financial debt.
- If she decides the debt is at risk, she replaces the CEO with a receiver (trustee). The trustee eliminates all the debt except for the systemic obligations and runs the new “debt-lite” firm until he can find a cash buyer (alternatively, he may raise cash by recapitalizing the firm and carrying out an IPO). Any cash raised is used to pay off creditors partially—however, they receive a haircut of at least 20%. Shareholders are wiped out . Any remaining funds go to the taxpayer.
- The stress test is important to eliminate the incentive to carry out bear raids.
- The haircut is important to ensure that the CDS price is informative about the risk of default on the junior debt.
- Relationship between our approach and others.....

Why the CDS?

- CDS is where price discovery first occurs
 - It leads the stock market (Acharya and Johnson, 2007), the bond market (Blanco et al, 2005) and even the credit rating agencies (Hull et al, 2004).
- Other debt-like instruments (bonds, yield spreads) good as long as
 - Liquid
 - Not easy to manipulate
 - Easily observable
- Equity not good because
 - Affected by the upside
- CDS should be traded in a regulated market and properly collateralized

Layer of junior debt

- The junior long-term debt cushion has a double function:
 - 1) It provides a security that can support the CDS
 - 2) It provides an extra layer of protection for the systemic obligations
- Minimum amount of long-term debt should be mandated by regulation
 - Hardly a problem, today it is 19%

Injection of government funds

- The injection of government funds is designed to
 - Make it politically costly to say that the LFI debt is not at risk
 - Protect systemically relevant contracts (which are senior) from the regulator's mistakes
- Political cost maximized by making the government claim junior to financial debt
- But we want to reduce lobbying pressure from claimholders -> debt senior
- Pari passu debt strikes a reasonable balance.

Would This Rule Have Worked?

(Bps of premium to insure against default)

Financial Institution	8/15/2007	12/31/2007	3/14/2008	9/29/2008
BoA	11	29	93	124
CITI	15	62	225	462
JPMORGAN	19	32	141	103
WACHOVIA	14	73	229	527
WAMU	44	422	1,181	3,305
WELLSFARGO	23	45	113	113
BEAR STEARNS	113	224	1,264	118
GOLDMAN	28	78	262	715
LEHMAN	38	100	572	1,128
MERRILL	29	159	410	666
MORGAN	31	129	403	1,748
AIG	31	59	289	821

False vs. True Positives

"Failed" institution	Date of Default	Average CDS 6 months before	Average CDS 9 months before
BEAR STEARNS	3/14/2008	121	10
LEHMAN	9/15/2008	288	106
WAMU	9/25/2008	957	430
WACHOVIA	9/30/2008	176	45
MERRILL	9/15/2008	282	177
AIG	9/16/2008	234	70
CITI	9/30/2008	162	44
"Surviving" Institutions	False Positive Date with a Trigger at		
	100	40	
BoA	9/22/2008	1/22/2008	
WELLSFARGO	9/18/2008	11/23/2007	
JPMORGAN	9/29/2008	2/15/2008	
GOLDMAN	2/14/2008	8/20/2007	
MORGAN	11/13/2007	8/22/2007	

The Main Alternatives

Coco bonds (Squam Lake Report)

- Debt that converts into equity when a trigger is set off.
- Advantage: This does not require any resolution authority
- Disadvantages:
 - 1) Which trigger?
 - Market price of equity -> manager can talk down value of the bank to obtain equity on the cheap
 - Accounting numbers -> possibility of manipulation
 - Political decision -> lobbying, influence

Coco bonds -2

2) They do not enhance protection of systemic obligations, only delay bankruptcy

- Our mechanism forces equity issues, boosting the protection offered to systemic claims

How does mechanism compare with the Dodd-Frank Bill?

- Resolution authority useful step but
 - Not clear what the rules of impairment are
 - What triggers intervention?
 - Too late
 - Too clumsy
- Our mechanism could be implemented in the context of Dodd-Frank

Does It Help to Avoid Systemic Crisis?

- 2 reasons why an LFI failure has systemic effects:
 - 1) Losses on the credit extended to the insolvent LFI can make other LFIs insolvent.
 - Our mechanism eliminates this problem since no LFI will become insolvent.
 - 2) The failure of an LFI can force assets' liquidation leading to downward spiral in asset prices
 - Our mechanism does not force any asset liquidation, thus avoiding a downward spiral in assets prices.

Other Advantages

- 1) Easy to apply across different institutions (banks, hedge funds, insurance companies).
- 2) Except for the new resolution and trigger mechanism, not very far from existing capital requirements.
- 3) Easy to implement in an international setting.
- 4) The mechanism encourages early action: banks must issue equity well before they are close to default. A crisis is nipped in the bud.

Conclusions

- The too-big-to-fail problem arises from a combination of
 - an economic problem : cost of default on systemic obligations is very large
 - a political economy problem: time inconsistency induces the government/regulator to sacrifice the long-term effect of permitting default to avoid the short-term costs
- Our mechanism addresses both these problems.
- It is similar to existing and proposed capital requirements:
 - two layers of protections for systemic obligations: equity capital and junior long-term debt.

Conclusions -2

- It differs in
 - trigger mechanism (based on CDS)
 - resolution mechanism.
- Very importantly, our mechanism encourages early action: banks must issue equity well before they are close to default.
- Credit default swaps have been demonized as one of the main causes of the current crisis. It would be only fitting if they were part of the solution.