

Comments on
ROLLOVER RISK AND MARKET FREEZES

by
Viral Acharya
Douglas Gale, and
Tanju Yorelmazer

Michael Manove
Boston University

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General Remarks

- What can happen when long-term assets are used as collateral for short-term debt?
- Different information structures are captured in the model.
- The results are presented as a possible explanation for “market freezes” and some of last year’s events.
- The model is a very clever one.
- This paper is extremely well written.

Ups and Downs of Debt Capacity

- **Suppose we borrow short term at the full debt capacity of our asset.**
- Then the consequences of a rise or fall in debt capacity in the next period are asymmetric,...
- because a rise leads to the rollover of debt,...
- whereas a fall leads to default and an asset fire sale (at a discount).
- This asymmetry drives the results of the paper.

Debt Capacity at Next Period's Expected Value

- Suppose $\lambda = .75$ meaning that the loss in a fire sale is 25 percent of asset value.
- Let D be the current debt capacity, and B_1 and B_2 be next period's pessimistic and optimistic debt capacity, with $B_1 < D \leq B_2$.
- Now suppose $B_1 = 0$, $B_2 = 15$, and the probability of the low outcome is $p = .2$.
- Then $D = .2 \times (\lambda \times 0) + .8 \times 15 = 12$, the expected value of next period's debt capacity.

Divergence from Expected Value

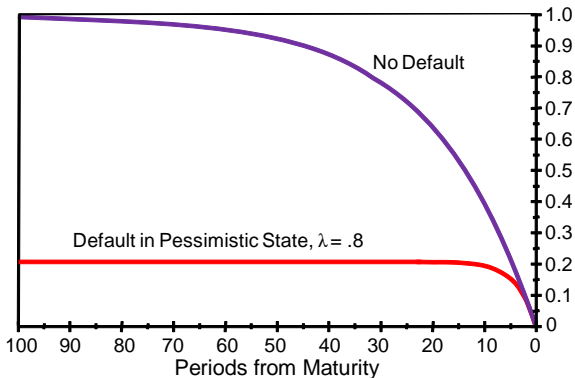
- But suppose $B_1 = 10$, $B_2 = 15$, and the probability of the low outcome is $p = .6$
- Then the expected value of next period's debt capacity remains at 12 ,...
- But $D = .6 \times (\lambda \times 10) + .4 \times 15 = 10.5$.

Why are the Two Situations are Different?

- In the first case, the probability of default is small,...
- and though the loss of asset value is severe, there is nothing more to lose in a fire sale.
- But in the second case, the borrower faces a substantial probability of default,...
- along with the fire sale of a valuable asset, with large attendant losses.
- Given an asset with an equal expected value in both the optimistic pessimistic scenarios,...
- default along the way cannot occur in the former,...
- but is very likely in the latter.

Pessimistic Scenario with and without Default

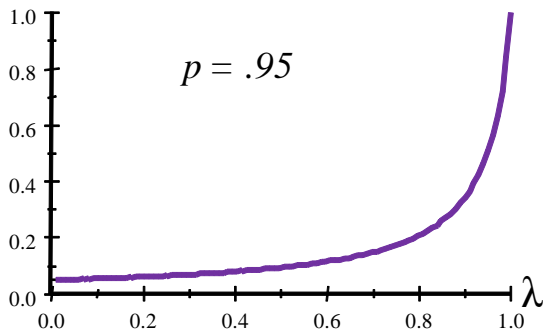
- Pessimistic scenario with probability of good news at .05.
- At the time of most of the 100 rollovers, the credit risk is negligible.
- Graph shows debt capacity in pessimistic state as a fraction of value at maturity in the optimistic state.



Debt Capacity with Default in the Pessimistic State

- If default always occurs in a subsequent pessimistic state,
- then debt capacity as a fraction of value at maturity value is at most

$$\frac{1 - p}{1 - \lambda p}$$



Avoiding Fire Sales in the Pessimistic Scenario

- Until maturity approaches, the difference between debt capacity in two adjacent pessimistic scenarios is very small.
- So the investor can avoid default in the next period by posting that small difference in liquid form along with the asset.
- This means that the investor can stay on the no-default trajectory of debt capacity...
- by keeping a bit of cash around, right?

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- This means that the investor can stay on the no-default trajectory of debt capacity...
- by keeping a bit of cash around, right?
- Wrong. Next period's debt capacity would be on the default trajectory,...
- so removing the risk of default for one period wouldn't increase debt capacity very much.

The Paper and the Crisis

- Was the crisis caused in part by a mechanism like the one described here?
- It's difficult to confirm any model based on beliefs like this one.
- Do real-world agents use long chains of backward induction in their calculations?
- And if this model applies, what are its policy implications?

Good Solutions are Hard to Find

- Financing long-term investments with short-term debt can cause market freezes.
- And adding a small portion of equity or long-term debt to the financing mix won't help very much.
- Financing with nonleveraged equity would be much less profitable than debt financing.
- Using long-term debt to finance long-term investments would lack the benefits described in Diamond-Dybvig.

What Can Regulators Do?

- In a crisis, say the authors, the regulators could reduce liquidation costs by lending against assets at the buy-and-hold value,...
- or by effectively swapping the assets for T-Bills or other liquid instruments.
- Regulators could require the use lots of equity financing with limited leverage [even if less profitable in good times].
- Since markets are efficient, the regulators could simply let nature take its course.

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- Since markets are efficient, the regulators could simply let nature take its course.
 - ▶ No, I'm not serious.

Haircuts and Bank Runs

- Perhaps market freezes could be more simply described as a kind of bank run:
 - ▶ Short-term lenders (think: depositors) know that if other lenders pull out, the investment firm would be forced into fire sales of its assets.
 - ▶ And if the fire sales start, it would be difficult for would-be buyers to get financing.
 - ▶ Remaining lenders may not be paid.
 - ▶ So there's a bad equilibrium in which all short-term lenders pull out. Is the process described here equivalent to a slow bank run?
- To me, this paper provides an ingenious dynamic account of something similar to a bank run,...
- and it has the great advantage of providing quantitative results.