The financial crisis

Introduction

- Consider the following setting:
  - The US were experiencing low interest rates, large capital inflows (especially from Asia)
  - The FED did not counteract the build-up of the housing bubble
  - The creation of new securities facilitated the large capital inflows from abroad

- What we want to show:
  - Role of capital regulation: creates incentives to lend more, aggravagates loss spirals
  - Role of securitization

Banking industry trends

- Instead of holding loans on their balance sheets, banks moved to an “originate and distribute” model, packaging loans and selling these packages to other financial investors, offloading risks

- Banks increasingly financed their assets with short maturity instruments, exposing themselves to maturity mismatch and liquidity risk;

- To offload risks structured products were created (typically CDOs);

Shortening the maturity structure

- Maturity mismatch of the banks balance sheets: Long-term loans vs. short term financing (including deposits)

- The same mismatch exists for off-balance-sheet investment such asset backed securities (including corporate loans and mortgages)

- This creates a funding liquidity risk: Investors can stop buying ABS, preventing banks from rolling over their short term debt.

Rise of securitized structured products

- During the build up of the crisis, banks did originate and buy massive quantities of structured products

- One distorting force leading to the popularity of these products was regulatory and ratings arbitrage

  – The Basel agreement's capital requirements were low for contractual credit lines. Hence, buying these CDOs and other structured products allowed banks to hold less capital.

  – The statistical model used to rate structured products also proved to be too optimistic

Consequence: cheap credit and housing boom

- The popularity of structured products led to a fall in lending standards

- Mortgage brokers offered:
  - teaser rates
  - no-documentation rates
  - ninja loans

- The assumption was that because housing prices were rising, borrowers could always refinance their loans

The unfolding of the crisis

- As the default rates on mortgages started to increase and banks started to refrain from trusting each other, the crisis became extremely serious

- Various interventions of the Fed through rates cuts and rescue packages did not prevent the crisis from fully unfolding and causing various important defaults such as that of Bear Sterns, Lehman Brothers, etc…

- Banks, and their vehicles and conduits, could not finance themselves any more and the liquidity mismatch described above became unsustainable.

Amplifying mechanism

- Market liquidity risk: low when it is difficult to raise money by selling the asset (instead of by borrowing against it).

- With market liquidity risk, it can be costly to shrink the balance sheet. Forms of market liquidity:
  - Market depth , ie how many units can be sold without moving the price too much
  - Market resiliency, ie how long it takes for prices to recover after having temporarily fallen

Loss spiral

- Loss spiral: for leveraged investors, the decline is assets value erodes their net worth more than their gross worth, because of leverage.

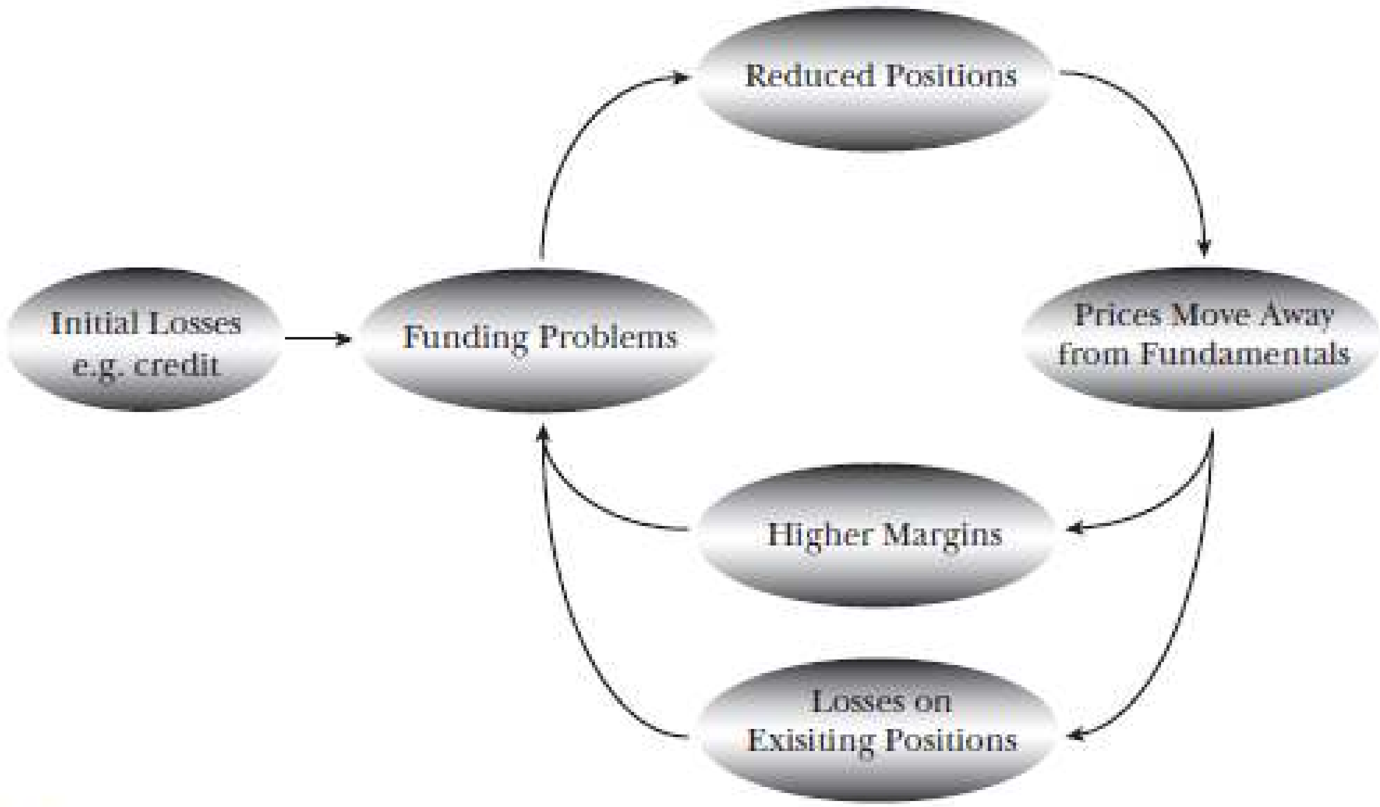
- A small depreciation in the value of assets can force investors who target a particular capital level to sell a large quantity of assets.

- This depresses prices further, forcing more selling, etc.

- Fire-sale creates an externality, in the sense that lower assets prices forces other banks to shrink their balance sheet

Figure 4

The Two Liquidity Spirals: Loss Spiral and Margin Spiral



Source: Brunnermeier and Pedersen (forthcoming).
Note: Funding problems force leveraged investors to unwind their positions causing 1) more losses and 2) higher margins and haircuts, which in turn exacerbate the funding problems and so on.