Macroeconomics | Lecture 7

The Short Run: Leverage, Runs and the Financial Accelerator

Group Activity - 6 -

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How this block runs. You work in your home group of three or four, textbook open. Roles rotate: **Scribe**, **Reporter**, **Sceptic**, **Timekeeper**. Money is in US dollars ($).

- **Phase 1, Concept checks (~10 min).** Each group votes together, argues for 90 seconds, then settles on one answer.
- **Phase 2, Desk problem (~20 min).** One bank's balance sheet, put under stress, part by part.
- **Phase 3, Case (~25 min).** One real story, ending hidden. Your group commits a prediction, then we reveal what happened.

Word list. A bank's balance sheet must balance: **assets** = **debt** + **equity**. **Leverage** is assets divided by equity, the number of dollars of assets each dollar of the bank's own money supports; if assets fall by 1/leverage, the equity is wiped out. **Deleveraging** is selling assets to bring leverage back down, which can force a **fire sale**. A bank is **insolvent** when its assets are worth less than its debts (negative equity); it is **illiquid** when its assets are sound but it cannot fund them right now. A **run** is a rush by depositors or short-term lenders to pull their money out.

Phase 1 – Concept checks ~10 min

ConcepTest 1. A bank holds $2,000 of assets, funded by $1,900 of debt and $100 of its own equity. Its leverage is

(a) 2.

(b) 19.

(c) 20.

(d) 100.

ConcepTest 2. For that same bank, the fall in the value of its assets that would wipe out all its equity is about

(a) 1 per cent.

(b) 5 per cent.

(c) 20 per cent.

(d) 50 per cent.

ConcepTest 3. A bank is **insolvent** when

(a) it is temporarily short of cash but its assets are sound.

(b) the value of its assets has fallen below what it owes, so its equity is negative.

(c) it has too many branches.

(d) interest rates are high.

ConcepTest 4. Several highly leveraged banks are hit by the same shock and all sell assets at once to cut their leverage. The likely result is

(a) asset prices rise.

(b) asset prices fall further, worsening every bank's balance sheet.

(c) nothing changes.

(d) leverage falls painlessly.

Phase 2 – The desk problem ~20 MIN

One balance sheet under stress

A bank's assets are funded by debt (deposits and borrowing) and by its own equity: assets = debt + equity. Leverage is L = assets/equity.

Assets	$2,000
Debt	$1,900
Equity	$100

(a) Leverage (worked for you). L = assets/equity = 2,000/100 = 20. Each dollar of the bank's own money supports twenty dollars of assets.

(b) A 5 per cent loss. The bank's assets fall in value by 5 per cent. Find the new asset value and the new equity (debt does not change). What has happened to the bank?

(c) A 4 per cent loss. Suppose instead assets fall by 4 per cent. Find the new equity and the new leverage (new assets divided by new equity). A leverage of that size means the assets can fall only about how much further before the bank is insolvent?

(d) The way down. The bank now wants to bring its leverage back down, and the only quick way is to sell assets and repay debt. In one or two sentences, if many banks are forced to do this at the same time, what happens to asset prices and to the other banks?

Phase 3 – The case ~25 MIN

The queue outside the branch

How to run this. Read the story with your group. The ending is hidden on purpose. Answer questions 1 and 2, commit a written prediction to question 3 before the reveal, and do not search the internet.

The story. One British mortgage lender had grown very fast. Most banks fund their loans mainly from ordinary savers' deposits, which tend to stay put. This one did it differently: it lent long, for twenty-five-year mortgages, but funded about three-quarters of that lending by borrowing short-term in the wholesale money markets, rolling the borrowing over again and again. Its mortgages were not, for the most part, bad loans. Then, in the summer of 2007, the wholesale markets froze as banks everywhere grew afraid to lend to one another. The lender suddenly could not roll over its funding. In September 2007 the news broke that it had asked the central bank for emergency support.

The story stops here.

Four questions (commit your answer to question 3 in writing before the reveal):

1. Was the lender's core problem most likely that its mortgages had gone bad, or that it could not fund good assets once the market froze? Name which of the two this is: insolvency or a liquidity problem.
2. It funded long-term loans with short-term borrowing. Explain in one or two sentences why that structure is safe in normal times but dangerous when lenders suddenly step back.
3. **Predict.** The morning after the news broke, ordinary savers with money in the bank had to decide what to do. What do you think they did, and what did that do to the bank?
4. A sound bank can still be destroyed by a loss of confidence. What does this suggest a central bank or government must do when an otherwise sound bank is hit by a run?

End of activity handout. Solutions are distributed after the block.