Global Financial Crisis

Econ 690

Spring 2019

Timeline of Global Financial Crisis

2002-2007	US real estate prices rise
mid-2007	Mortgage loan defaults rise, some financial institutions have trouble, recession begins
March 2008	Bear Stearns fails
Sept. 2008	Lehman fails, AIG fails, stock market crashes, dollar appreciates
2008-2009	Global crisis, unconventional monetary policy, automatic stabilizers and fiscal stimulus
2009-2011	Very slow recovery

Timeline of European Debt Crisis

Feb 2010	Greece reveals debt problem
2010-2011	Interest rates rise 3.5%→ 9.8% (9/10) → 12.3% (1/11) → 26.7%(7/11)
2012	Greek debt to GDP rose toward 170%
2010-2011	IMF/EU bailouts
Feb. 2012	Greek debt restructuring (default)
2012	Contagion to Spain, Portugal, Italy
July 2012	Draghi “The ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough”

What was the global financial crisis?

- Home prices in the US rose.
- Borrowers thought they could afford expensive homes with large mortgages because they thought home prices would keep rising. Optimism and misunderstanding.
- House prices peaked and defaults began.
- As prices stopped rising, more homeowners realized they could not pay back loans. Defaults increased. This led to greater fall in prices, and a vicious cycle of defaults.
- Financial institutions got into trouble, and were near bankruptcy. They stopped making loans to households and businesses
- Economy was on verge of collapse
- Policy stepped in – rescued financial institutions; unconventional monetary policy; fiscal stimulus

Causes of crisis

1. Deterioration of household balance sheets
2. Increased riskiness of portfolios of financial institutions
3. Proliferation of new financial instruments (CDOs)
4. Credit default swaps (CDSs)
5. Rating agencies
6. Risk-taking incentives for employees of financial institutions
7. Regulatory policies
8. General miscalculation of systemic risk


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GLOBAL RECESSION
MEGA-DEFICITS
WALL ST
LAYOFFS
BUNDLED SUBPRIME MORTGAGE SECURITIES
THIS IS ALL YOUR FAULT... YOU BOUGHT A HOUSE YOU COULDN'T REALLY AFFORD!
TOXIC ASSETS
EXECUTIVE BONUSES
BEAR STEARNS
GM
THE POOR
THE PUNDITS
LEHMAN BROTHERS
Countrywide Financial
Washington Mutual
GREENBERG

Balance sheet of commercial bank

It is helpful and important to understand the balance sheet of banks and financial institutions in “shadow banking”

“Shadow banking” refers to financial institutions that offer ‘safe’ assets to groups with pools of cash, and makes loans to businesses, real estate, etc.

- Shadow banking is less regulated
- Liabilities not guaranteed by government
- Includes hedge funds, money market funds, structured investment vehicles (SIVs), credit hedge funds, private equity funds, broker-dealers, finance companies

We will call all of these “banks” for now.

Commercial Bank	
Assets	Liabilities
Loans to businesses, homeowners	Deposits (and other short-term loans, such as money raised on money markets.)
“Liquid” assets such as cash, Treasury securities, deposits at Central Bank	Net worth

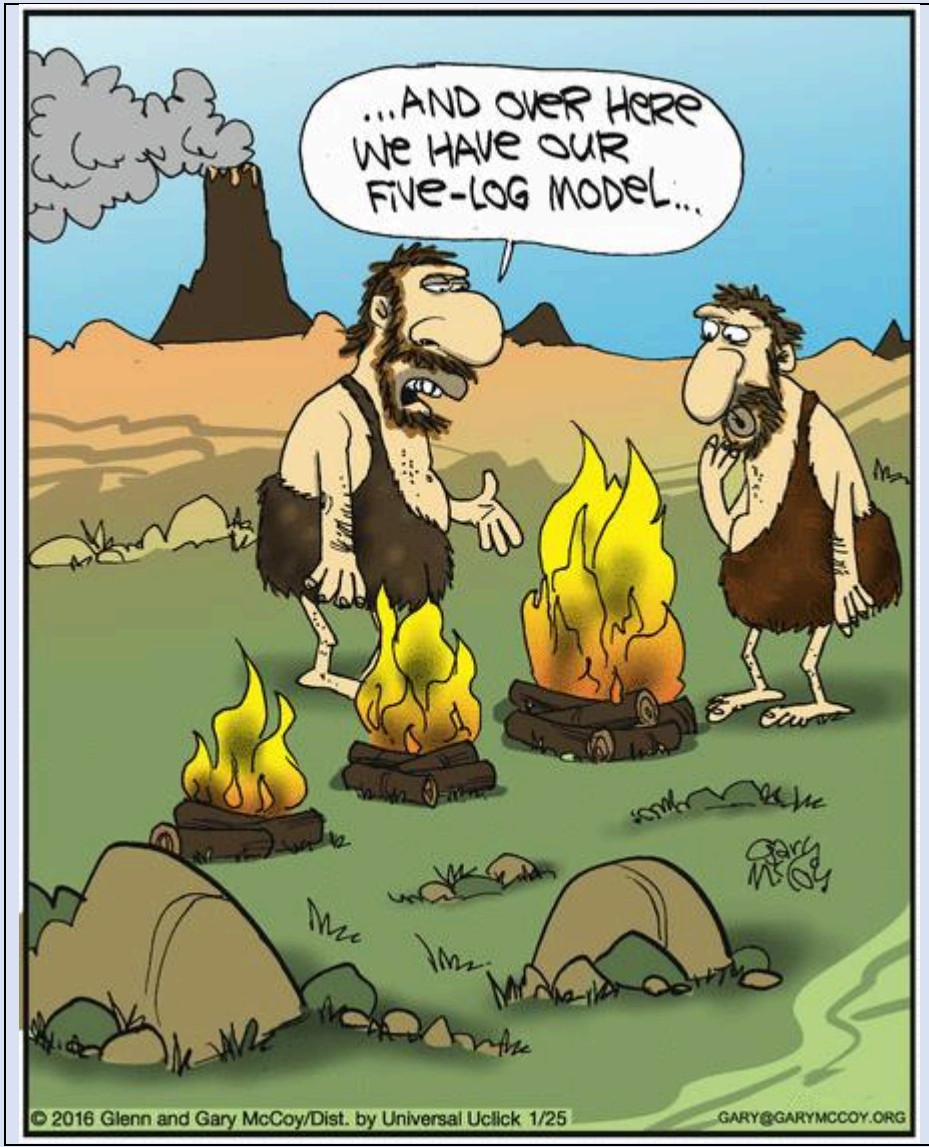
Insolvency or bankruptcy:

- When Net Worth < 0
- Value of loans + liquid assets – deposits < 0

Illiquidity

- When loans cannot be sold at market value
- "Fire sale" – when a distressed bank must sell its illiquid assets at less than true value
- The bank is said to be illiquid when
  Fire sale value of loans + liquid assets – deposits < 0

Why would a fire sale occur?
Why could a bank not sell an asset for its true value?



1. Bank needs money immediately, but the market does not have time to assess value of assets.
2. Bank has private information about value of assets. Market fears "adverse selection."
3. The rest of the market is also illiquid, so cannot "afford" to pay the true value of the asset.

Liquid Assets

Liquid assets are cash, or assets that can be quickly converted to cash with little or no loss of value.

Liquid assets tend to pay a lower rate of return on average than other loan opportunities for banks.

Why do banks hold liquid assets?

Why do liquid assets pay a lower average rate of return?

How much liquid assets should a bank hold?

1. The more uncertain withdrawals are, the more they should hold.
2. The costlier it is to sell loans and other assets , the more liquid assets the bank should hold.
3. The higher the cost of insolvency, the more liquid assets.
4. The larger the spread between returns on loans versus liquid assets, the less liquid assets the bank should hold.

Bank runs and deposit insurance

- When depositors believe a bank is insolvent, they may rush to withdraw their deposits – before the money is all gone.
- Bank panics can be "self-fulfilling" – if for some reason, depositors believe the bank is insolvent, they may rush to withdraw their deposits
  - Even if the bank is not truly insolvent, it may not be able to pay depositors because it is illiquid.
  - It is forced to sell its assets at fire-sale prices, and could go bankrupt.
- Likelihood of a self-fulfilling bank run is reduced by government deposit insurance. Depositors know they will get their money back
- Regulation requires banks with insured deposits to hold sufficient liquid assets, and limits "leverage".
  - Leverage is the ratio of value of assets to net worth.

Repurchase Agreements ("repo")

If a bank or shadow bank does not have enough liquidity, it does not have to sell its other assets. It can take out a short-term (overnight) loan from another bank.

- These loans are "collateralized". The borrowing bank gives the lending bank another asset, which the lending bank can keep if the borrower does not pay back.
- Technically, the borrower sells the asset to the lender, and agrees to buy it back the next day at a slightly higher price (the interest payment.)
- The asset that the borrower pledges is actually valued more than the amount of the loan (the amount the lender pays for the asset). The difference is called the "haircut", and is what the borrower loses if it doesn't pay back.

Asset-Backed Securities (ABS)

A financial innovation that is potentially a valuable way to spread the riskiness of a bank's balance sheet is an asset-backed security.

For example, before ABSs, a local bank faced a lot of risk if there was a downturn in the local economy. Its entire portfolio of loans may lose value at the same time. (The returns are correlated.)

An ABS can package bank loans from banks all over the country. Mortgage loans, car loans, commercial loans are packaged together.

The risk is spread across the banks. Returns are less correlated. But if there is a nationwide downturn in, for example, the value of home loans, the risk is still there.

The Crisis

- Home values were over inflated. When home prices began to fall, many homeowners could not repay their loans.

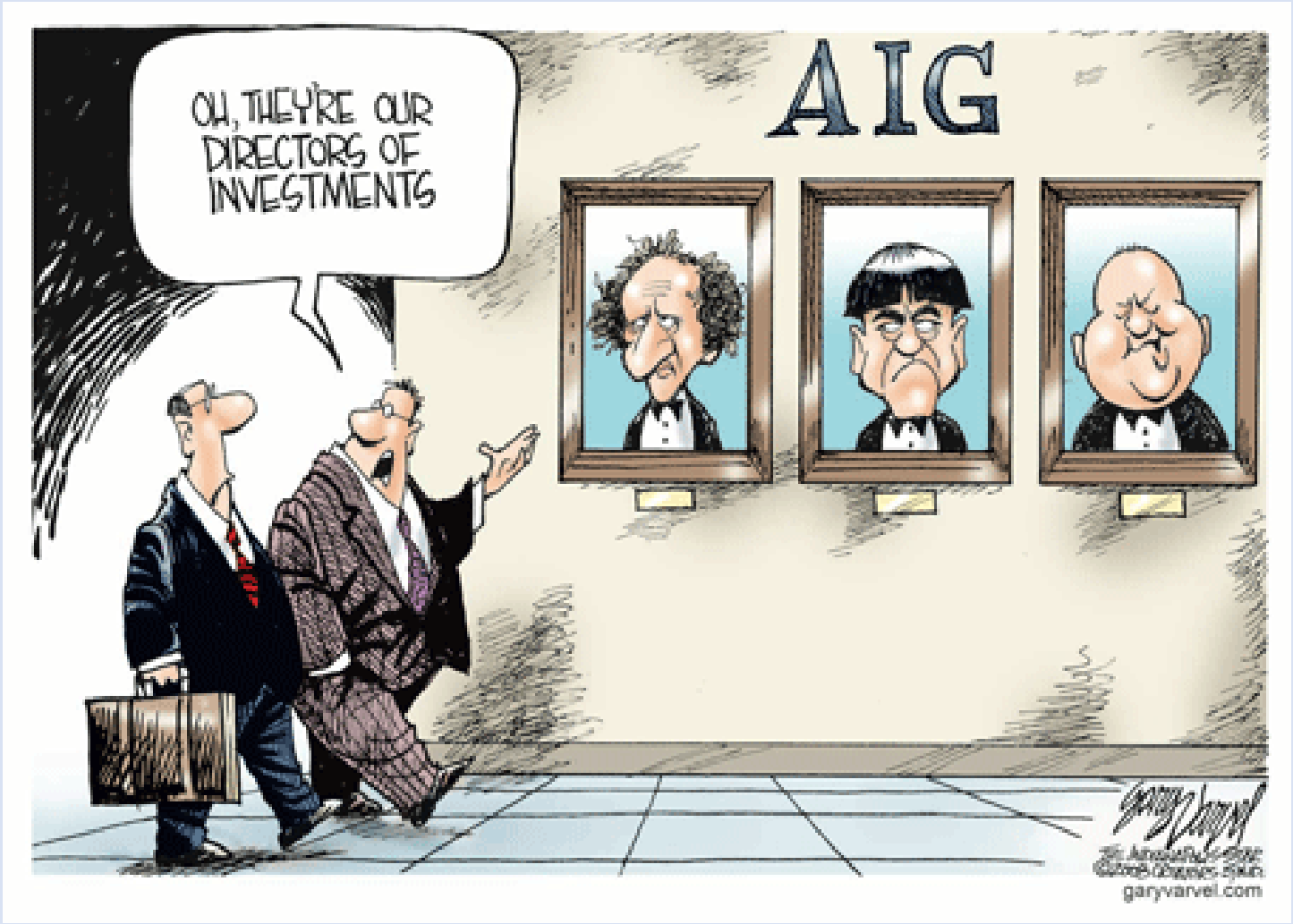
- ABSs may have made the situation worse. Each bank had less incentive to check on the creditworthiness of borrowers, since they were going to sell the loan off to an investment bank that would put it in an ABS.

- Indeed, there was a lot of fraud. Lenders pretty much knew a lot of borrowers were bad risks, but didn't care. And they lied about the creditworthiness of the borrowers.

- Moreover, investors, banks, shadow banks, etc., miscalculated the risk of a nationwide downturn in home values.

Why Did a Mortgage Crisis lead to the GFC?

- Before the crisis, banks used the ABSs as collateral for repo.
- ABSs were considered safe. Especially if the ABS was a claim to the "upper tranche" of mortgage payments.
- To be double-sure, many holders of ABSs bought insurance. Insurance pays off when the asset loses value. These are called "credit default swaps".
    - AIG, a global insurance company, was a big insurer of ABSs
- But the ABSs did lose value. And they lost so much value that AIG could not pay off on the insurance, and itself was effectively bankrupted.


OH, THEY'RE OUR DIRECTORS OF INVESTMENTS
AIG
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Illiquidity, Fire Sales, Crisis

It is easy to see what might have happened in the absence of policy intervention:

- Banks would have to sell assets at fire-sale prices.
- The drop in asset prices would worsen the balance sheets of other financial institutions, as well as private investors.
- Financial institutions would become insolvent.
- Even the solvent institutions would be reluctant to make new loans.
    - Businesses rely on loans in the short run as working capital
    - Businesses rely on loans to finance long-term investments
    - Households rely on loans to buy homes
    - Households rely on loans to make many other purchases
- The economy could have spun into a depression worse than the Great Depression

Policy Reaction by the Fed and other policymakers

- The Fed and other central banks around the world quickly lowered short-term interest rates to zero (the "zero lower bound", ZLB) to make it cheap to borrow.

- The Fed entered the market for ABSs, and purchased billions of dollars worth
  - This was entirely unprecedented. It was as if the Fed was in the business of making home loans, car loans, business loans.

- The Fed took over AIG, and paid off all of the insurance claims
  - It was controversial that the Fed paid these claims off in full.
  - Courts have subsequently ruled that the Fed overstepped its authority in taking over AIG, and rewarded previous owners of AIG exactly zero dollars.

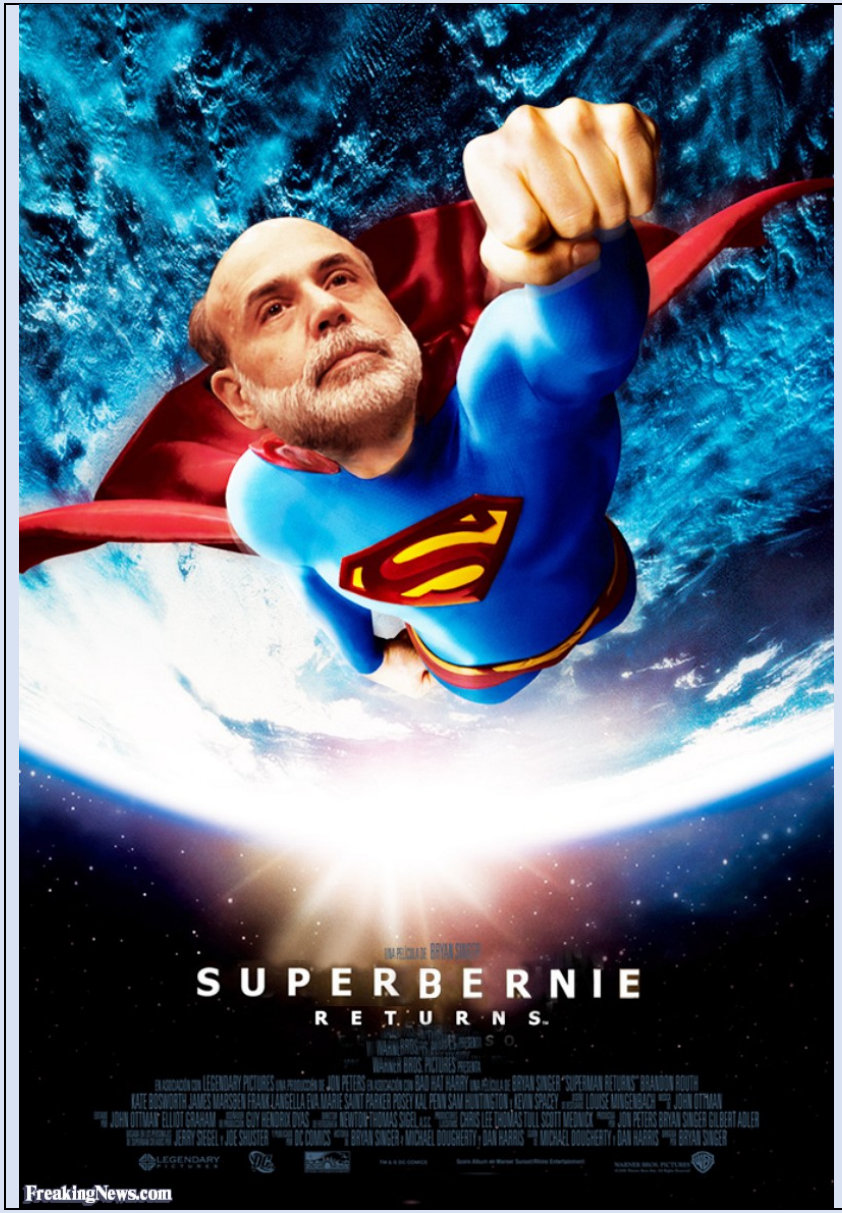
- The Fed engineered mergers of financial institutions
  - A bank may have been solvent if its assets were valued fairly, but insolvent when valued at fire-sale prices.
  - That is

    True value of loans + liquid assets > deposits

    Fire sale value of loans + liquid assets < deposits
  - Banks that were more liquid could buy the illiquid banks. Then the assets of the illiquid bank can be valued at the fair market value.

- The Fed extended loans directly to banks at low interest rates

- The Fed loaned dollars to central banks around the world, so they could lend to their banks that needed dollars
  - A lot of short-term funding for banks around the world is in dollars.

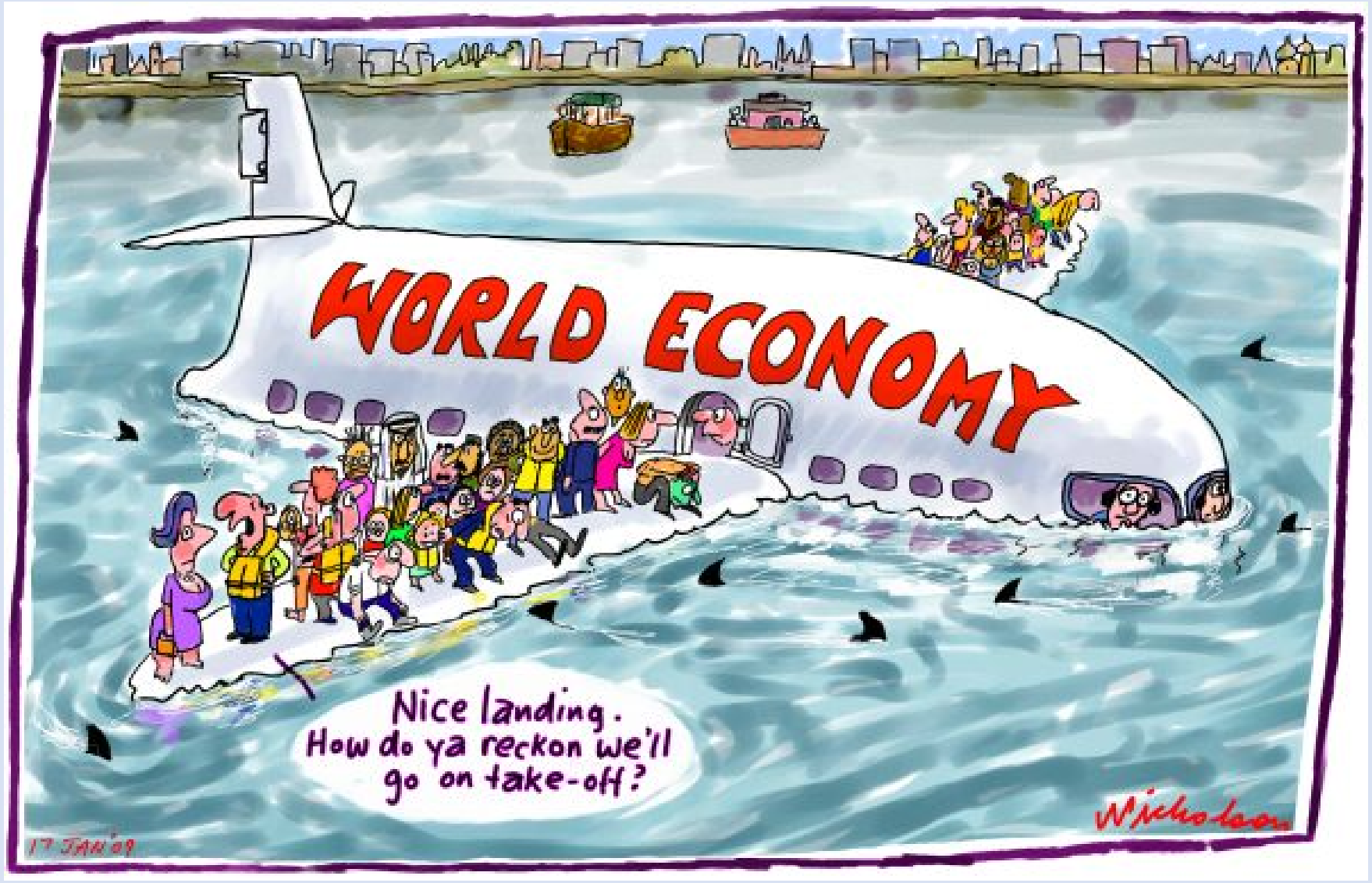


It is worth emphasizing that the Fed's actions were entirely unprecedented.

They have been criticized for bailing out the banks, but they averted a catastrophe.

It took an enormous amount of courage to undertake these policies.

By luck, Ben Bernanke, was chair of the Fed. He was the leading academic expert in financial crises


WORLD ECONOMY
Nice landing.
How do ya reckon we'll
go on take-off?
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