NBA 5420 – Investments and Portfolio Management Problem Set 11 – Financial Crises
Name:Hanwen Wang NetId hw544

a. Explain what a bank run is and why it is bad economically? Also, how does FDIC insurance stop bank runs? Lastly, why do you think FDIC insured banks should have some regulations?
Answer: The bank run happens when too many people want to withdraw their assets form bank, while the bank can not get enough liquity assets to meet the demand of withdraw. Then the bank has to sell their loan with a low price. If too many people come to bank to withdraw their money. Then the bank just default and go bankrupt.
Answer: see here for more details about information for FDIC:
https://www.fdic.gov/consumers/banking/facts/
The insured banks should have some regulations, because, they will pay money for FDIC for the insurance per depositor. So, they do not one depositor to open too many accounts.
Also the FDIC also need some regulation so that the banks they insure have enough liquity when many people withdraw their money.

b. Why do broker-dealers (i.e. investment banks, securities firms) use repos to fund their balance sheets? What do we mean by a "run on repo"? Why can funding balance sheet using your assets as collateral amplify financial cycles and lead to higher volatility?
See here for more information about repo https://www.treasurers.org/ACTmedia/Repo_faqs.pdf

why broker-dealers use repo to fund their balance sheets:
Answer: The first reason is that the broker-dealers need to make sure their assets are safe.
The second reason is that the FDIC does not cover the institution investment, so the institution's money has to go to the broker-dealers.

run a repo:Answer: means that one party sells an asset (usually fixed-income securities) to another party at one price at the start of the transaction and commits to repurchase the asset from the second party at a different price at a future date or (in the case of an open repo) on demand. Now the party to sell the assets is banks. the party to buy the assets is broker-dealer.

Answer:
So when bad things happen, the bank can not get enough money to buy back their assets. Then they will lose their assets the price of which is higher than the money that they should pay to the buyer. So they lose the money. And they may also do not have money to pay other broker-dealer. Then the crisis happens. The bank has to default.

c. What are money market mutual funds? Are deposits or wholesale funding more stable? Why did the Fed step in to guarantee money market mutual funds after the Reserve Fund broke the buck after the collapse of Lehman?
Answer:
see wiki https://en.wikipedia.org/wiki/Money_market_fund
It provides money for companies and institution to make sure their money is safe.
The deposits is stable, the money market mutual funds will do swap with bank to make sure their money is safe.
So because of the bankrupt of Lehman, than it has many assets of the bank as swap. So if it is bankrupt, the assets of Lehman will be sold at low price. The bank can not get their assets back. So they will lose a lot of money. The Reserve Fund stepped in to make sure that the bank site can get their assets back.

Problem 2

a. Suppose an investment bank has $900 billion in assets and leverage (i.e. assets to equity) of 30 to 1. If the bank earns a 5% annual return on its assets and pays 2% annual interest on its debt and deposits, what is the annual return on equity (ROE)?

The liquity should be 900 billions, because the leverage is 30 to 1, the deposits is 900 * 29.

So when they earn 900 * 30 * 5%. they need to pay 900 * 29 * 0.2.

then the profit is 900 * 30 * 5% - 900 * 29 * 2%.

The rate of return is (900 * 30 * 5% - 900 * 29 * 2%)/900 = 0.92

So the annual return is 92%

b. Suppose the same investment bank from the previous question (i.e. $900 billion in assets, leverage of 30 to 1) suffers a 3% loss of the value of its assets due to a decline in the value of its mortgage portfolio. Due to concerns that potential bankruptcy might have adverse effects on the stability of the financial system, the government decides to purchase a $50 billion equity stake in the bank (it gives the bank $50 billion in cash in return for $50 billion in newly created equity). What is the resulting leverage ratio (Assets / Equity) of the bank?

Answer: the original assets is 900 * 30 = 27000 billion.

and it suffers 3% loss the loss would be 27000*3% = 810 billion.

So if the government returns 50 billions, it just changes the liquity percent of the bank and does not chenge the leverage ratio. So the ratio would be (27000*(1-3%))/(900 - 810) = 291