

lecture19

Solvent: Assets > Liabilities (Assets: loans, stocks, office furniture)
Liquid Reserves > Desired Withdrawals

If insolvent, a bank closes and is liquidated; depositors get back only cents on the dollar after a big delay.

If illiquid, banks could suspend payments and hope the bank run goes away. Borrow reserves. Convert assets to reserves.

The word liquidity really means how easily something is converted into cash (or other goods). Money is extremely liquid. Stocks and bonds are very liquid. Pablo Picasso paintings and office furniture are not as liquid.

Banking Panics

As you know, through the process of money creation, a bank will have more deposits than they have reserves. Perhaps a bank has deposits that total \$500, and reserves in the vault of only \$50.

Suppose that for simplicity's sake, each customer in this bank has \$10 of deposits at the bank, and thus there are 50 customers.

Surely, if 8 people show up to the bank all at once, there is a problem. The bank does not have \$80 in the vault to give them. In the modern day, the way to solve this problem would be to call up the Fed or another bank and borrow some reserves. These were not viable options in the early 20th century (read on).

Suppose you are the 5th person in line. You get your \$10. Suppose you're the 6th person in line? What do you get? The bank is out of reserves. It does not have cash to give you. It must somehow come up with more cash. Perhaps it can sell some stocks and bonds. Perhaps it can call in a loan. Perhaps the bank will offer the 6th person an old desk, or a loan from some guy named Bob. Eventually the bank will run out of reserves. The 8th person will be turned away. His deposit is lost. The bank has become insolvent and has gone out of business. The bank closes its doors. In a lengthy bankruptcy process, the person who lost his deposits will eventually receive only a fraction of his original deposit.

Based on this story, if you see a bank run happening, or hear a rumor that a bank is going to go out of business (or a bank run will happen soon), you want to be first in line. People at the beginning of the line get their cash, while those at the end of the line get fractions of their original deposits much later. You don't want to be last in line. Everyone is in a panic to get to the front of the line. Go watch *It's a Wonderful Life*.

Bank run on a shaky bank

Now suppose that this bank was shaky originally. Banks earn a profit by paying interest to depositors, then loaning out this money to others at a higher interest rate. If they make poor investments or loan money to people who cannot repay them, the bank will lose money and perhaps close. Banks loan out the money to people with long run business ventures, real estate and also hold a portfolio of financial instruments (stocks, bonds). Maybe this bank is on shaky ground because it made a bunch of loans to shady characters, or people with stupid business ventures. Maybe they invested in wildcat oil operations. So there's a bank run on this bank. We don't feel so bad about this bank going out of business. We would guess that this bank is insolvent, meaning assets were less than liabilities. Oh well. The bank run was the event that put it out of its misery, but this bank was insolvent to begin with.

Bank run on a sound Bank

However, consider an upstanding bank, doing everything that it should. It is solvent. Now, suppose an entirely false rumor about it being on shaky ground starts. As no one wants to be last in line to get his or her deposits, everyone rushes to the bank. The bank has a temporary problem, illiquidity. Its reserves are not sufficient to meet the desired withdrawals of the customers. It doesn't have enough cash to pay its

lecture19

customers. It must convert some of assets into reserves. Bonds and stocks are easy to sell. What about loans? Office furniture? In their haste to convert, they may sell these assets at less than favorable prices. As a result, the bank may become insolvent, all because of a bank run (based on a false rumor). A false rumor that the bank is shaky may cause the bank to become shaky (because everyone gets in line). It is a self-fulfilling prophecy. This is a harder bank failure to swallow. This bank was sound to begin with.

Banking system history

So, the general psychology of the public is important. You'll hear a few stories of how this sentiment is reversed. Minneapolis, Salt Lake City, etc. It is really a lack of confidence in the banking system (temporary) as it might be, that causes the trouble.

The original banking panics (prior to 1907) tended to begin in agricultural communities. Think of a bank that only makes loans to farmers. Suppose there is a big drought. All the farmers' crops are destroyed. None of the farmers can pay back their loans. This bank that loaned all of these farmers money will become insolvent. It will go out of business. People with deposits will line up outside. The bank will eventually fail.

However, the next bank across the street (or in the next town) might be ok. But people lose confidence in this bank, and line up outside. Soon the banking panic spreads to the next town, to Chicago, to New York? Major banking panics occur in 1873, 1884, 1890, 1893, and 1907.

Prior to the Fed, several banks would band together and form a consortium. They would agree to meet each other's withdrawals. Thus, with the whole consortium united, customers needn't worry about the whole thing going out of business. The consortium would be "too big to fail". This usually worked. J.P. Morgan was often the ringleader of these consortiums when NYC was involved.

Eventually, the panics got so severe that panics couldn't be stopped by consortiums, the first that made it to NY occurred in 1907. This panic started as an agricultural problem, in the Midwest. It is significant that in this panic, the first big NYC bank failed, a bank called Knickerbocker Trust Company. It had 18,000 depositors, \$67 million of deposits. Withdrawals are \$12 million during the day. Someone finally shows up with a check for \$1.5 million and that's all the reserves the bank has. They close their doors. The guy after him in line didn't get his money. A JP Morgan-led consortium saves the next bank.

As a result, the Fed was created to rectify this problem in 1913.

Amusing stories?

Newspaper article says something negative about "a Harlem savings bank", causing a run on Harlem Savings Bank (not the one referred to in article), and it fails.

San Antonio Story –
Minneapolis Story –
Salt Lake City Story –
New Jersey Story – posterboard

Purpose of Fed

It is worth reiterating that illiquidity is a temporary problem that need not lead to the demise of an otherwise sound bank. It just needs some time to convert its assets into reserves. The Fed was created to serve this purpose. The point was for the Fed to loan banks reserves when they were illiquid. If a banking panic occurred, the Fed would loan banks reserves, the banks would convert some assets into reserves (or pay back the Fed), and pay the customers. Once the customers were assured everything was Ok, they'd put their money back into the bank. The purpose of the Fed was to provide reserves. This is what is meant by providing an elastic currency (a money supply that can increase and decrease when need be).

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Today we have the FFR borrowing available as well, and there were similar arrangements in the 1930s. Notice however, that borrowing at the FFR merely rearranges existing reserves, so it wouldn't be likely to help out of a banking system wide panic (though it could help out a localized banking panic). Only the Fed would be able to create new reserves for the banking system and provide liquidity into the banking system. This is why the Fed is called "the lender of last resort". It is supposed to inject reserves into the banking system during times of panic, by lowering the discount rate.

By doing so, the Fed would increase $C + R$, increasing the monetary base, thus increasing the money supply, and increasing aggregate demand. Lowering the DR would thus offset the decrease in AD caused by the bank run. This is exactly what the Fed is supposed to do.

State of Fed policy on eve of Great Depression

Open Market Operations – no portfolio of bonds, could buy but couldn't sell

Discount Rate – chief tool

RRR – controlled by congress

We'll look at the Fed's historical record with monetary policy from 1914 – 1940.

Important events

- 1913 – Fed created by Federal Reserve Act
- 1919 – fed changes discount rate to curb post WWI inflation – oops
- 1929 – Stock market crash (speculation, margin)
- 1930 – response to bank failures (B of US – Jewish?) is to do nothing – strike 1
- 1931 – more bank failures (Britain off gold standard) – no Fed action – strike 2
- 1932 – more bank failures (after Fed stops open mkt. purch) – still no action – strike 3
- 1933 – FDR declares banking holiday (March), closes all banks
- 1937 – doubles reserve requirement ratio - oops

Big recessions

- 1907 – banking panic with agriculturally beginning spreads all the way to NYC
- 1919-20 – Fed raises DR from 4% to 7%, see above.
- 1933-37 – Stock market crash, general economic conditions in beginning, greatly exacerbated by lack of Fed action in 1930, 1931, 1932, see above.
- 1933 – March, trough of Great Depression, $U = 25\%$, 1/3 banks have failed. GDP is 1/3 1929 level.
- 1937-38 – Very severe and rapid, see above. Fed doubled RRR, then undid in 1938.

Improvements – Things the Fed did that helped

Of course, the reversals of poor Fed decisions in 1919 and 1937. There was a temporary improvement in summer 1932 when Fed makes open market purchases. Big improvement occurs from 1933-1936 with gold purchases.

Key developments after 1933 (Banking Act of 1933 and Banking Act of 1935)

1. US purchases gold, pays for it by printing gold certificates
2. FDIC created
3. Fed gets power to change RRR
4. New Deal

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1. Gold purchase is key. Increases the monetary base, and offsets the decrease in the money multiplier brought on by banking panics and banks that are stockpiling excess reserves (in an attempt to have extra reserves on hand to prevent a fatal bank run). US buys gold from foreigners at a premium (\$35 vs. \$20.65) and forces US citizens to sell gold to US (\$20.65 / oz). US pays for all of these purchases by printing gold certificates. Result is a big increase in B, offsetting decreases in money multiplier. Net effect is positive. Economy improves markedly 1933-36.
2. FDIC – not a big deal now, but is very important later. Not without its problems, though, as we end up seeing in the S&L scandal of 1980s. As a result of FDIC, there is never a widespread banking panic again. There is no longer any incentive to be first in line, as federal government insures deposits (up to \$2500 – 100%, 50% beyond some level). FDIC is Federal Deposit Insurance Corporation.
3. Fed gets power to determine reserve requirement ratio. For some inexplicable reason in early 1937, the Fed is concerned that banks will loan out all of their excess reserves in 1937 (banks held twice the legal limit). Economy was picking up due to one time payment of the Soldier's Bonus in 1936 and Fed open market purchases. Fed is concerned about inflation. Why is the Fed concerned? U is still 12%. Should we be worried about inflation? Fed doubles RRR in 1937. Banks that had been stockpiling extra reserves are now back near the legal limit again. Extremely violent reaction, sharp decline in AD. Fed reverses decision in 1938. Things level off.
4. New Deal. Not as big a deal as most people think. Under the Hoover administration, much of the relief efforts being done were at the state and local level. FDR's legislation wiped out all the state and local relief efforts (which were growing under Hoover) and made them federal programs. In early alphabet soup programs (1933), there was a marked increase in aggregate demand. However, at the end (1939), one more WPA carpenter meant one less private sector carpenter. The programs were competing significantly with private sector jobs. Roughly 85% of "new jobs" were really just people moving from private sector to public sector in 1939. (Perhaps only 5% in 1933). More bang for the buck in the earlier period.

The punch line

By 1940, nominal GDP had finally returned to its 1929 level (yet per capita GDP is down 15%). From 1929 to 1933, real GDP fell by 33%, prices fell by 33%, 33% of the banks failed. U = 25%.

While there was no doubt going to be a minor recession brought on by the crash in October of 1929 (and the economic conditions that caused the crash), it could have been a minor recession but for the actions of the Fed.

Fed played a key role in great depression by failing to serve as lender of last resort in 1930, 1931, 1932. Key to economic recovery was gold purchases by printing money. Again, this was what the Fed was born to do.

The economic recovery was nearly completed prior to WWII, and would have been completed prior to WWII if Fed hadn't goofed in 1937.

Not WWII that saved us from great depression, although it did finish off the remnants.