
ECN 135 Lectures 14 & 15

Money, Banks & Financial Institutions

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02.22.2005 &
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Plan

- Midterm results
- Central Banks Structure
 - How independent should CBs be? Independence pros and cons
- Fed as US CB: the key features
- CB as monetary policy authority
 - Money Supply Process and Multiple deposit creation
- Some Current Puzzles of Financial Markets
 - See NYT materials from 02.24.2005
- Bits of history: 1985 dollar freefall and Malaysia CB "honest-to-God trading"

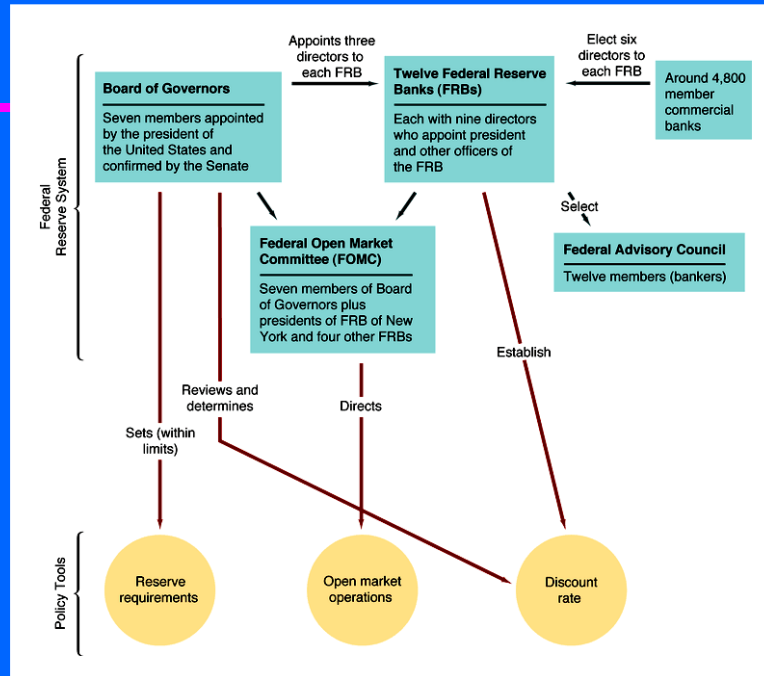
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CBs affect: interest rates & money supply (and thus, amount of credit) →
CBs influence aggregate output & inflation, and financial market behaviors
Questions: How CBs are organized? Who has real power?
Money supply: How does it work?

Formal Structure of the Fed



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Fed is an unusual CB. Its charter dates back to 1913.

Fed has decentralized structure.

Fed system consists of 12 Federal reserve banks (regional & semi-private institutions, which are overseen by directors from the private sector, who live in districts & represent its interests. Directors (9 in each) are in contact with Fed president).

Fed has diffused power structure, which resulted in FRBs, BoG, FOMC + Federal Advisory council and around 4,800 member banks.

This system resulted from hostility of American public to centralized authority and its opposition to the establishment of a single Central Bank like the Bank of England.

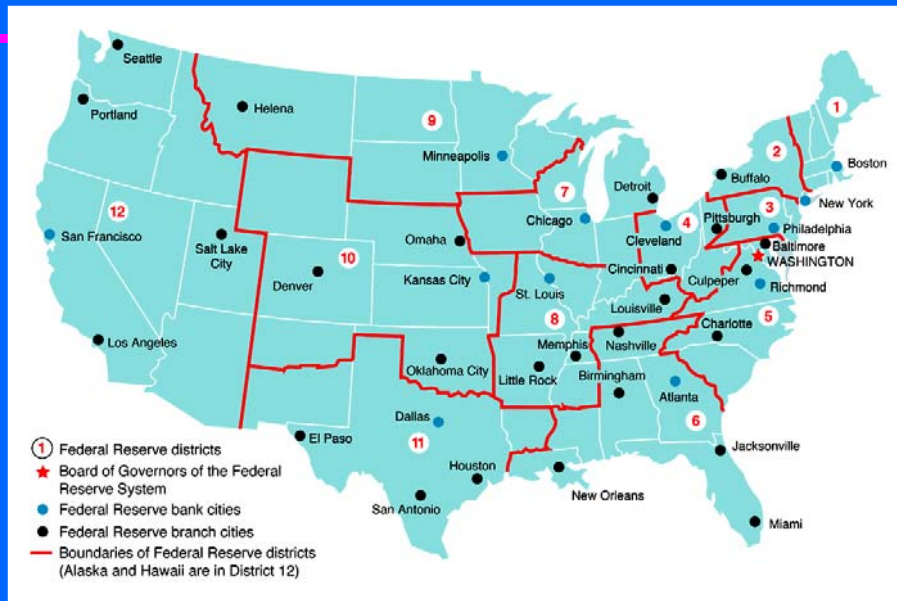
Americans feared government intervention

& even toyed with an idea of a private Fed.

Congressional Federal Reserve Act of 1913

has elaborate system of checks and balances.

Federal Reserve Districts



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NY Fed is the most important (it has $\frac{1}{4}$ of Fed's total assets)

NY Fed is the only Fed member of BIS (Bank for International Settlements)

NY Fed president is the only permanent member of FOMC (and its vice-chairman)

NY Fed houses open market operations

Member banks hold stakes in Fed, and get dividend rate limited by law at 6%.

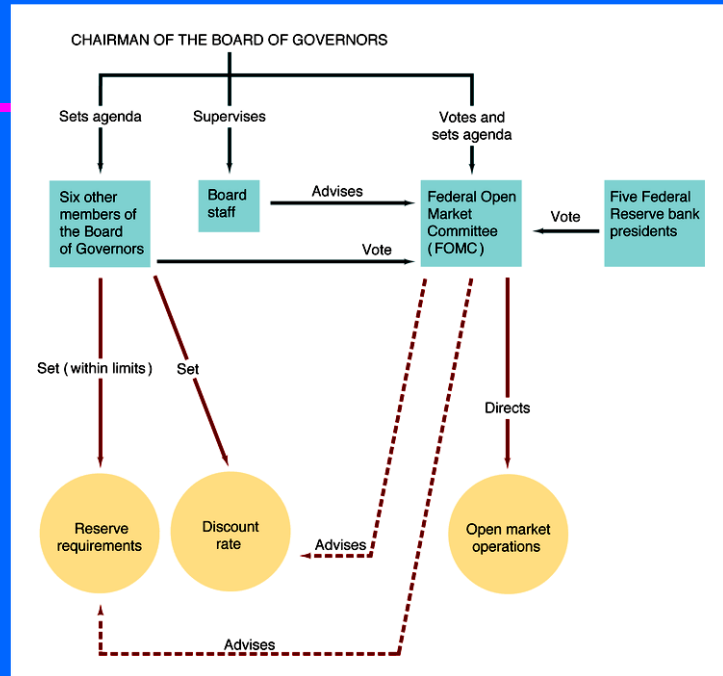
9 Directors:

3: A elected by member banks (bankers)

3: B also elected by member banks (industry, labor, or consumer sector leaders)

3: Appointed by BoG & cannot hold interest in member banks

Informal Structure of the Fed



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In press Fed = FOMC meeting (about every 6 weeks)

FOMC chair – currently Alan Greenspan (and also chairman of BoG) (appointed in 1987 by R. Reagan).

In 1913 – reserve requirement was fixed by the Act (it was not understood as a tool of monetary policy)

During great depression BoG is created & gets control of

1. Open market operations and
2. Reserve requirements

1933 Banking Act gives FOMC authority to determine open market operations

1935 Banking Act gives BoG authority to determine reserve requirements

Central Bank Independence: Fed

- **Factors making Fed independent**
 - 1. Members of Board have long terms
 - 2. Fed is financially independent: This is most important
- **Factors making Fed dependent**
 - 1. Congress can amend Fed legislation
 - 2. US President appoints Chairman and Board members and can influence legislation
- **Overall: Fed is quite independent**

Central Bank Independence: Other Central Banks

- 1. Bank of England is least independent: Govt. makes policy decisions (founded in 1694)
- 2. European Central Bank: most independent—price stability primary goal
- 3. Bank of Canada (founded in 1934) and Japan: fair degree of independence, but not all on paper
- 4. Trend to greater independence: New Zealand, European nations

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Only in 1997 Bank of England receives from chancellor of the Exchequer (analog of US treasury) a right to lower /raise interest rates

How to Explain Central Bank Behavior

- **Theory of bureaucratic behavior**
 - 1. Is an example of principal-agent problem
 - 2. Bureaucracy often acts in own interest
- **Implications for Central Banks:**
 - 1. Act to preserve independence
 - 2. Try to avoid controversy: often plays games
 - 3. Seek additional power over banks

Four Players in the Money Supply Process

1. Central bank: the Fed
2. Banks
3. Depositors
4. Borrowers from banks

Federal Reserve System

1. Conducts monetary policy
2. Clears checks
3. Regulates banks

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The Fed's Balance Sheet

Federal Reserve System

Assets	Liabilities
Government securities	C=Currency in circulation
Discount loans (reserves that Fed provides to banks at the rate called discount rate)	R=Reserves = deposits in Fed+ vault cash (i.e., cash stored in banks)
//Foreign reserves (Ch. 20)	

Monetary Base, $MB = C + R$ [or high powered money]

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Actually, R="Federal reserve Notes" + coins (less than 10% of reserves, coins belong to US Treasury)

MB also called high-powered money

C – currency in circulation

R – total reserves

Control of the Monetary Base

Open Market Purchase from Bank (T-bills or Treasury bonds or any US treasury securities)

<i>The Banking System</i>	
Assets	Liabilities
Securities - \$100	
Reserves + \$100	

<i>The Fed</i>	
Assets	Liabilities
Securities + \$100	Reserves + \$100

Open Market Purchase from Public (non-bank)

<i>Public</i>	
Assets	Liabilities
Securities - \$100	
Deposits + \$100	

<i>The Fed</i>	
Assets	Liabilities
Securities + \$100	Reserves + \$100

<i>Banking System</i>	
Assets	Liabilities
Reserves + \$100	Checkable Deposits + \$100

Result: $R \uparrow \$100$, $MB \uparrow \$100$

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Open market operations = Fed's means of controlling MB via purchase or sale of Government securities or through extension of discount loans to banks

MB also called high powered money (we will see why – via multiplier model)

The effect of an open market purchase on reserves depends on whether the seller of the bonds keeps the proceeds from the sale in currency or in deposits. (if keeps in currency no effect on reserves, if deposits – reserves increase by the amount of the purchase)

But effect of open market purchase on MB is always the same (MB increases by the amount of the purchase).

If Person Cashes Fed's Check

<i>Public</i>		<i>The Fed</i>	
Assets	Liabilities	Assets	Liabilities
Securities - \$100		Securities + \$100	Currency + \$100
Currency + \$100			
Result: R unchanged, $MB \uparrow$ \$100			
Effect on MB certain, on R uncertain			
Effect of open market operations on MB is much more certain than effect on reserves			
Shifts From Deposits into Currency (even if no Fed operations, shift from deposits to currency affects the reserves)			
<i>Public</i>		<i>The Fed</i>	
Assets	Liabilities	Assets	Liabilities
Deposits - \$100			Currency + \$100
Currency + \$100			Reserves - \$100
<i>Banking System</i>			
Assets	Liabilities		
Reserves - \$100	Deposits - \$100		
Result: $R \downarrow$ \$100, MB unchanged			

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This is called *T-accounts* (I guess for transaction accounts). It is a part of the bank's balance sheet, which lists only its changes.

Discount Loans

<i>Banking System</i>		<i>The Fed</i>	
<u>Assets</u>	<u>Liabilities</u>	<u>Assets</u>	<u>Liabilities</u>
Reserves	Discount	Discount	Reserves
+ \$100	loan + \$100 + \$100		loan + \$100

Result: $R \uparrow \$100$, $MB \uparrow \$100$

Conclusion: Fed has better ability to control MB than R

Deposit Creation: Banking System

Bank A			
Assets		Liabilities	
Reserves	+ \$100	Deposits	+ \$100

Bank A			
Assets		Liabilities	
Reserves	+ \$10	Deposits	+ \$100
Loans	+ \$90		

Bank B			
Assets		Liabilities	
Reserves	+ \$90	Deposits	+ \$90

Bank B			
Assets		Liabilities	
Reserves	+ \$ 9	Deposits	+ \$90
Loans	+ \$81		

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Table 1: Deposit Creation

Table 1 Creation of Deposits (assuming 10% reserve requirement and a \$100 increase in reserves)

Bank	Increase in Deposits (\$)	Increase in Loans (\$)	Increase in Reserves (\$)
First National	0.00	100.00	0.00
A	100.00	90.00	10.00
B	90.00	81.00	9.00
C	81.00	72.90	8.10
D	72.90	65.61	7.29
E	65.61	59.05	6.56
F	59.05	53.14	5.91
.	.	.	.
.	.	.	.
Total for all banks	1,000.00	1,000.00	100.00

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Deposit Creation by a Bank

If Bank A buys securities with \$90 check

Bank A

Assets

Liabilities

Reserves + \$10

Securities + \$90

Deposits + \$100

Seller deposits \$90 at Bank B and process is same

Whether bank makes loans or buys securities, get same deposit expansion

Deposit Multiplier

Simple Deposit Multiplier

$$\Delta D = \frac{1}{r} \times \Delta R$$

Deriving the formula [if ER=0]

$R = RR = r \times D$ (equation assumes that reserves = required reserves, i.e. banks hold no excess reserves)

$$\frac{D}{\Delta D} = \frac{(1/r) \times R}{(1/r) \times \Delta R}$$

$\Delta D = \Delta R [1 + (1-r) + (1-r)^2 + \dots] = 1/(1-(1-r)) \Delta R = (1/r) \Delta R$
What does the model ignore? (then, deposit multiplier is \downarrow)
1. If some loans were not deposited back (i.e., hold in cash)
2. If ER not equal 0

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ΔR – change in reserves

ΔD – change in total checkable deposits

r - required reserve ratio

Formal derivation follows from [M], p. 369 (Table 1), and p. 370 footnote

Deposit Creation: Banking System as a Whole

Banking System

Assets		Liabilities	
Securities	- \$100	Deposits	+ \$1000
Reserves	+ \$100		
Loans	+ \$1000		

Critique of Simple Model

Deposit creation stops if:

1. Proceeds from loan kept in cash
2. Bank holds excess reserves

Should Fed be Independent?

- *Case For:*
 1. Independent Fed likely has longer-run objectives, politicians don't: evidence is independence produces better policy outcomes throughout the whole
 2. Avoids political business cycle
 3. Less likely deficits will be inflationary
- *Case Against:*
 1. Fed may not be accountable
 2. Hinders coordination of monetary and fiscal policy
 3. Fed has often performed badly

Malaysian Central Bank: 1985-1994

- Malaysian Central Bank & its Financial Guerilla war
- Malaysian CB = Bank Negara
- How does it started:
 - G-5 (US, Japan, Germany, France & Britain) meet on September, 22, 1985, and announce "intention to encourage appreciation of non-dollar currencies"
 - Market reaction: Dollar free fall
 - Bank Negara - dollar reserves suddenly evaporated in their value (used to have \$4.8 billion) → Negara started a sort of financial guerilla war against world leading economic powers

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Source: Millman, "Vandals Crown"

How Rebel Currency Traders Overthrew The World's Central Banks

p. 226-230 "Hidden Risks"

Bank Negara

- Malaysian Central Banker (former Price Waterhouse accountant) Tan Sri Dato' Jaffar bin Hussein in 1988 admits
 - Bank Negara "honest-to-God trading" gives 40% of CB total overseas income (up from 20% a year before)
 - Negara currency trading made West (US & Europe) fear Malaysia
 - Jaffar exploited the greed of Western Bankers
 - Mechanism - similar to LTCM unwinding
 - Example: Negara placed several simultaneous transactions of £100 million. Such orders move markets
 - Selling short to trigger market panic
 - September 21, 1990 sale of £ 500 - 1 billion £ → £ down 4 cents
 - British banks incurred heavy losses. They attempted to form a cartel against Negara, but their foreign competitors accommodated Negara traders at non-cartel prices
- Analysis:
 - an exception? [yes] a rule of exceptions? [yes]
- CBs Competition & Cooperation: the rule of gains / profits

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Jaffar proudly notes that Negara had a reputation of running one of the most sophisticated currency operations in the world

“exchange rate volatility since Plaza agreement of September 1985 has changed the stakes of the game”

Prime Minister Mahathir bin Mohamad: “what is wrong with our protecting our own interest? Why is it when they [rich nations] can protect their interests we cannot? I can't understand it”

Bank Negara collapse

- US Central Banker comment:
- "If they tried this on any organized exchange in the world they'd go to jail"
- In the unregulated international currency markets, there were neither police, nor jailers or jailed: only rough justice of the vandals
- 1992 loss of \$3.6 billion when Britain withdrew from European Exchange Rate Mechanism (ERM) and £ collapsed, and then \$2.2 billion more. In 1994 Negara was insolvent and bailed by Malaysian ministry of finance. Jaffar resigned attributing losses to "poor judgment" (He expected Britain to maintain the discipline of ERM)
- Negara behavior is an equivalent of financial terrorism

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Next Lecture

- Next lecture ISLM model
 - The model explores how aggregate output /income and interest rates behave for a given price level [i.e., assuming that prices are fixed]
- Your preparation: read [M] Ch 23

Summary of Today

- Discussion of Midterm Results
- Central Banks in general & Fed in particular [M] Ch. 14
 - Organizational structure
 - Independence: pros and cons
- Money Supply Process and Multiple deposit creation [M] Ch. 15
- Current Puzzles: NYT, 2005.02.24 & 2005.02 20
- A story about Malaysian CB: a rise and a fall
- Have a Nice Night

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