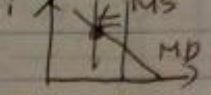
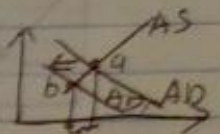
Monetary Policy : The best case.

Negative shock to AD
eg: MS growth rate ↓ : firms don't want to borrow
banks will lend less
⇒ M1, M2↓



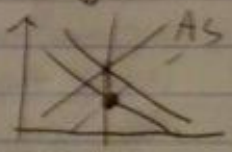
⇒



Two difficulties make it hard for the Fed to get this right all the time.

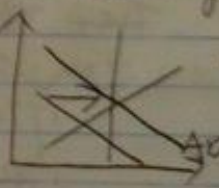
① Fed must operate in real time when much of the data about the state is unknown.
Take time to gather data.
2007 Aug Subprime market fails.
⇓
2008 Spring GDP growth still strong
⇓
Nobody (Fed) knows ~~to~~ banks & Financial Institutions ~~are falling down~~. will fail

growth Rate of GDP ↓ when MS↓ keep contraction
⇒ γ_g ↓ ⇒ Recession
⇓



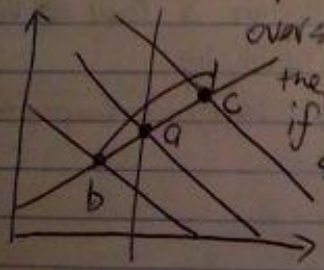
Takes time

if Fed ↑ MS growth rate ↓ i encouraging ↑ banks lending & investor borrowing



Shift back ⇒ reduce recession.

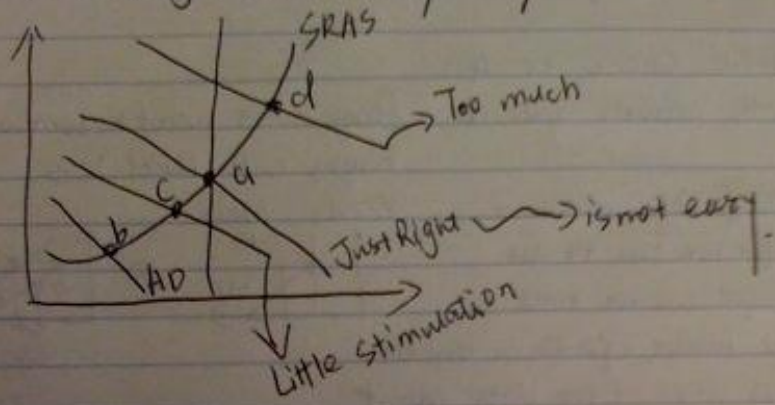
② Fed's control of MS is incomplete & subject to uncertain lags.
– MS typically affect the economy with a lag that can vary from 6–18 months



overshooting the good if large stimulus is given.

This is too easy.
Nothing is easier than shifting a curve.
there are two difficulties

More realistic of ~~Mont~~ Monetary Policy



~~Rules v.s. Discretion~~

Reversing Course & Engineering a decrease in AD

Suppose the Fed does overestimate, Pushing AD too much →

What then?

~~Rec~~ at point d, ~~it has~~ there is high inflation.

but if use contractionary m policy, it may cause a recession. So, what?

High inflation or Recession (Unemployment)

~~Their~~ To 1980 Paul Volcker

~~1970s~~ B

1970s, overestimate the economy.

1980., inflation ↑ 13.5%

1983, Ronald Reagan & Paul Volcker ↓ 3%

But. Cigar-Chomping.

Very severe recession with unemployment rate more than 10%.

04/16/10 (F):

1. Chapter 14: Monetary Policy (Dynamic Model)
2. Chapter 15:

The Federal budget: taxes and spendings

- Tax Revenues
- The individual Tax
- The Social Security & Medicare Tax
- The corporate Income tax
- Bottom line on the distribution of Federal Taxes

Spending: National Defense; Medicare & Medicaid; Unemployment Insurance and welfare spending

National Debts, Interest

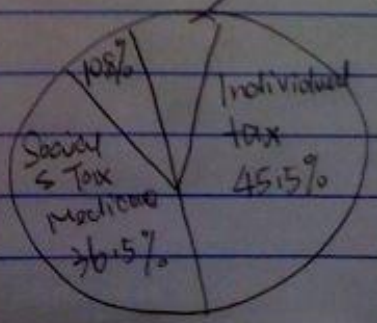
I. Revenues

1. Tax Revenues:

In 2007, Federal government was taking in 2.4 billions a year
8,000 /person

Sources 90%
- Individual income tax
- Social Security & Medicare taxes
- Corporate Tax Income.

- Custom duties 1.3%
- Estate; Gift 1%
- others



(2007)

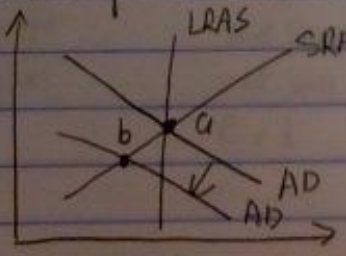
2. Individual Taxes:

Marginal tax rate: the tax rate paid on an additional dollar of income.

Chapter 15 : Fiscal Policy

Fiscal Policy: Taxes & Spending (T, G)
is federal government policy on taxes, spending and borrowing that is designed to influence business fluctuation

1. Fiscal Policy: The best case.



$AD = C + G + I + NX$

in recession C↓, G↑

⇒ govt spending ↑ ⇒ Where is money from? { ① Tax ② Borrowing

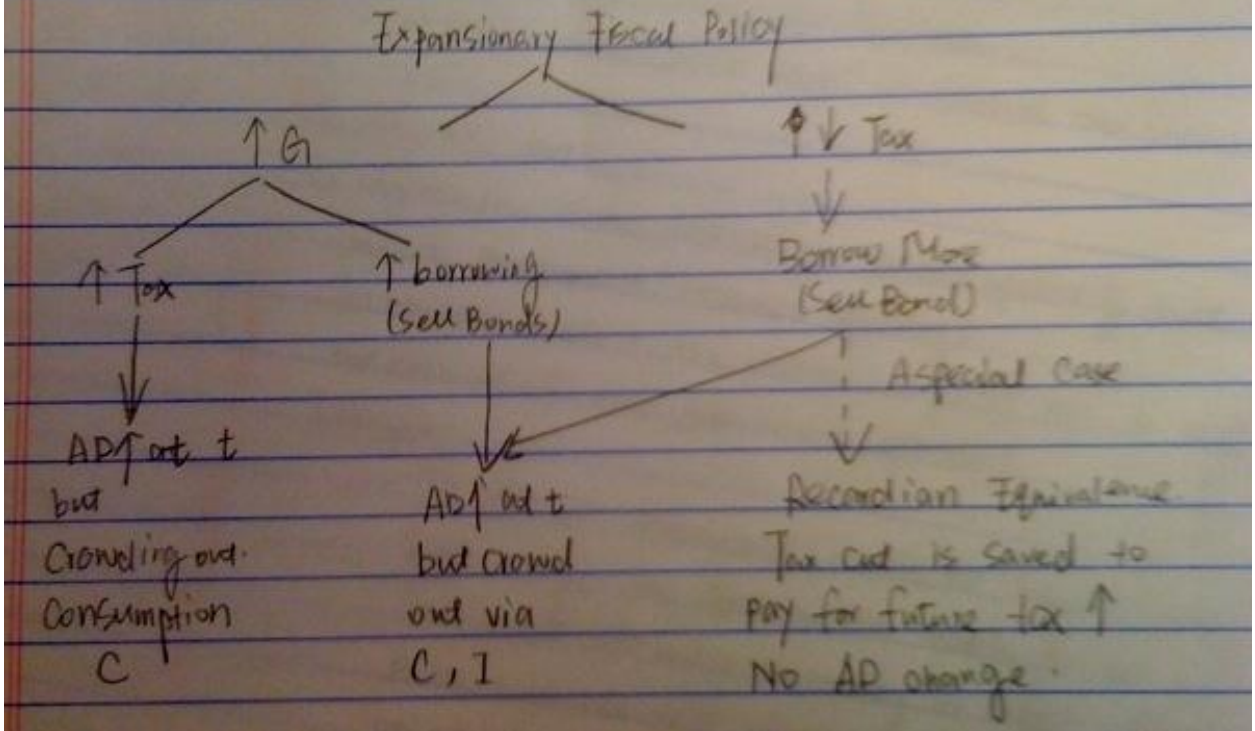
The multiplier Effect: is the additional increase in AD caused when expansionary fiscal policy increases income and ~~this~~ thus Consumer spending.

2. The limits to Fiscal ~~policy~~ policy

① Crowding out: If government spending crowd out private spending the increase in AD is reduced or naturalized on net.

② A drop in the bucket: The economy is so large the government can rarely increase spending enough to have a large impact

③ A matter of timing:
It can be difficult to time fiscal policy



04/19/2010 (Mon)

Crowding out ; Ricardian Equivalence;
Fiscal policy doesn't work well to combat real shocks?

1. Crowding out

(1) definition: is the decrease in private spending that occurs when government increases spending's.
In another words, the initial shift of AD is less than the amount of new government spending

Example:

If federal government wants to build interstate high way, the construction needs to be paid. Government either borrow money or collect higher taxes. Both methods will decrease private consumption and private investment.

(a) Raising taxes to finance Fiscal Policy:

Government ↑ G spending is financed by Taxes ↑
⇒ leads to consumers have less money to spend.
⇒ AD ↑ less than G ↑, Crowding out
More effective when people are afraid of spending money
Eg: Government ↑ taxes by $300 million to build new high way.
If private sector won't spend $300 million, fiscal policy works. For instance, private sector would have spent 90% of $300 million, 270 million and hold 30 million

(b) Selling bonds to finance fiscal Policy

Government prints bonds and sell it to investors.

Bond is an IOU.

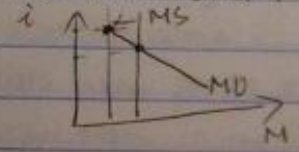
Government ↑ spending.

If government & consumers ↑ spending at the same tax rate, is there no Crowding out?

Two Sources of crowding out.

— When investor choose to purchase government bonds instead of private bonds, which are used to finance factories, it crowds out private ⊕ investment. If it's 100%, AD won't shift at all.

— Also, when bond ↑, interest rate ↑



Bond-financed expansionary fiscal policy is most likely to be effective when private sector is reluctant to invest.

The case for fiscal Policy is the strongest when economy is in recession because AD is too low.

(c) Tax rebates, Tax cuts

Example: 2008 economy was weakening due to a slump in housing prices.

Bush administration tried to send taxpayers checks — the tax rebates for $300 - $600 or 78 billion in total.

If taxpayers spend rebates, AD↑

or Taxpayers may use money to pay for debts.

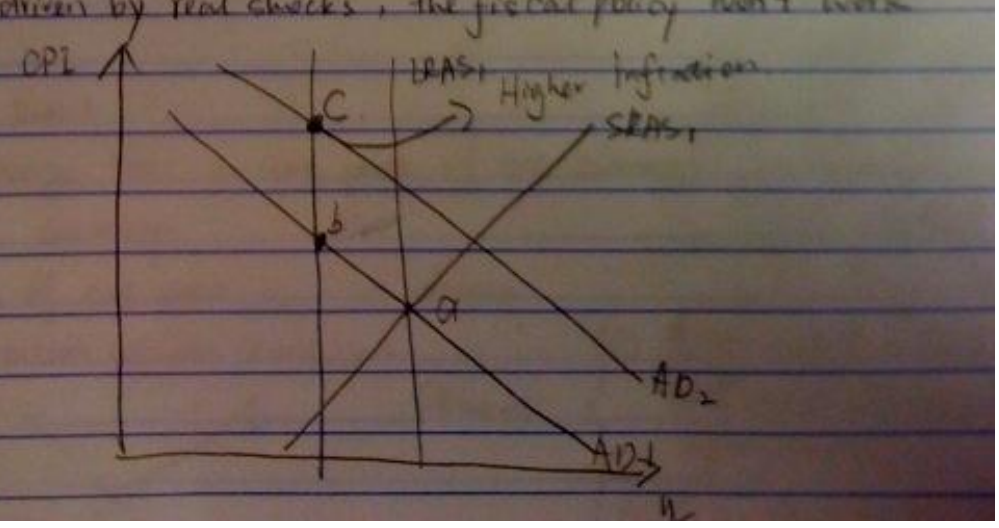
Government borrow money → Rebate → Pay debts.

No AD ↑

62/78 billions are used to pay debts.
Why?
What is the difference between Rebate & ↓ marginal tax rate?
Rebate: It doesn't ↑ incentive to work or invest.
Cut tax rate: ↑ spending, ↑ labor supply / investment
A temporary tax credit can accelerate investment that would have happened anyway
or ↓ Sales tax / Payroll tax are the same

(d) A special case of crowding out: Ricardian Equivalence
Ricardian Equivalence:
occurs when people see that lower taxes today mean higher taxes in the future. So instead of spending their tax cut they save it to pay future taxes.
This doesn't ↑ AD in short run.

Fiscal policy doesn't work well in real shocks
Recession driven by real shocks, the fiscal policy won't work



⇨ Midterm

04/21/2010 LW)

~~When fiscal policy might make~~ ~~matters worse?~~

Balance of Payment:

This is a yearly summary of all of the economic transactions between residents of one country and residents of the residents of the rest of the world.

Current Account; Financial Account; Capital Account.

Current Account = Sum of { balance of trade { Good / Services
~~balance of~~
Net income on capital held abroad
Net transfer ~~payment~~

Balance of trade = Export − Import

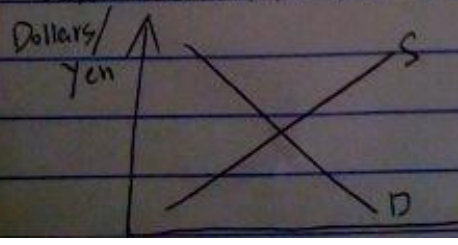
Capital Account: Measures foreign ownership of domestic assets including financial assets like stocks and bond as well as physical assets

Exchange Rate:

An exchange rate is the price of one currency in terms of another currency.

The price of one euro is 1.5 dollars

Determination in the short run:



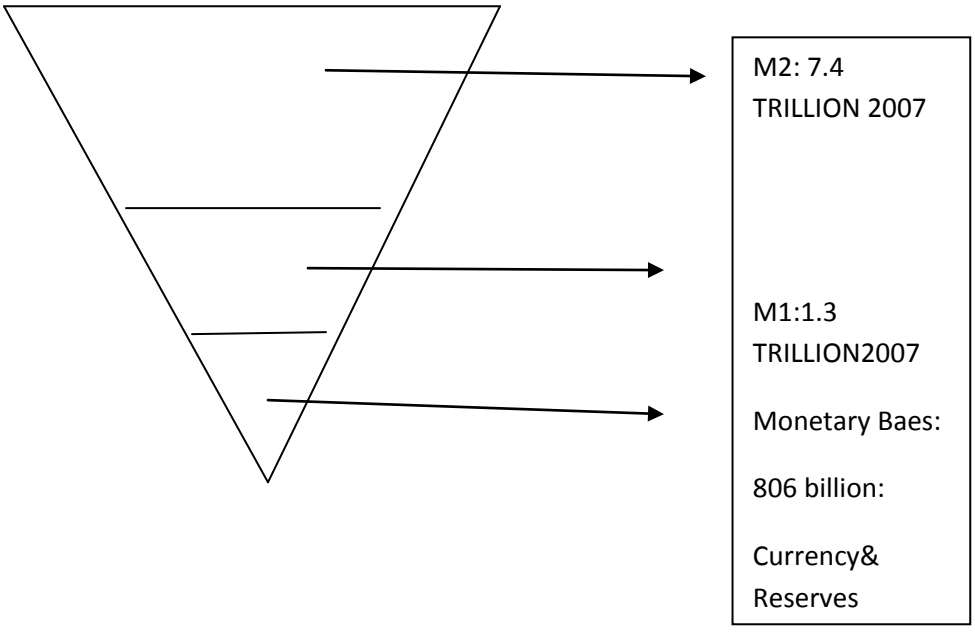
Demand: { ① ↑ in export ↑ D ⇒ ↑ value of currency appreciation
② ↑ in FDI, FPI ↑ D

II. Federal Reserve System:

What is Federal Reserve? How does it create money? What does it use its power for?

The Fed→ Money Supply→Monetary Policy→ Affecting AD

1. What is Federal Reserve System?
   - The only bank in U.S. provides money . It has the power to create money.
   - Print money? No. Add reserves to banks account held in Fed by computers.
   - Its consumers: Bankers and Government
     - It maintains bank account of US. Treasury: receiving
     - Borrowing: Manage Treasury bond, bill, notes
     - Lending: bankers'bank: Large private banks keep their own accounts at the Fed. Why? (1). Safe (2) required.
     - Manage payment system.eg: it's possible to write check from one bank to another
   - Ben Bernanke- Chairman of The Fed- The second most powerful person.
2. The U.S. money supply
   - Most important assets that serve as means of payment in U.S.
     (1). Currency: Paper bills and coins (800 billion 2007)
     (2). Total reserves held by banks at the Fed
     (3). Checkable deposits: Your checking or debit account
     (4). Savings Deposits, Money market mutual funds and small time deposits.
     The money pyramid:



3. How Federal Reserve control money supply?
   1) Open market operation

<1>Control Money supply by trading treasury bonds. Example: Apple.
Short term bond: called treasury bills or T-bills. Also called , treasury securities or treasuries.
(1). Fed could increase or decrease reserves at banks by buying or selling government bonds
(2). Increase reserves boost the money supply through a multiplier process
(3) the size of the multiplier is not fixed .
<2> OMOPERATION with interest rate: buy-low sell-high

2) Discount rate lending: Federal reserve lend to banks and other financial institutions Lender of last resort
   Discount rate: the interest rate banks pay when they borrow directly from the Fed.
3) Required reserve ratio: change the RR rate to deposit
   Required reserve: the portion of their deposits that banks are required by law to hold as reserves.

4. Who control Fed?
   - Seven members: board of governors: They are appointed by president and confirmed by The Senate. Term is 14 year; can't be renewed.
   - Chairman is appointed by president and has a term of 4 years
   - 12 Fed banks regions across U.S.
   - In each regional Fed: 9 directors: 6 are elected by commercial banks from that region and 3 are selected by the Board of Governors. 6 of directors must be nonbankers: 2008 one of director of Atlanta Fed is Chairman of UPS.

Chapter 17. Macroeconomics in an Open economy

1. How balance of payments is calculated.
   - Open economy: An economy that has interactions in trade or finance with other countries
   - Balance of payments: The record of a country's trade with other countries in goods. Services and assets.
   - Current accounts: The part of the balance of payments that records a country's net exports, net investment income and net transfers.

   Example of balance of payment of U.S. 2007 : unit billions of dollars:

TABL

The I of th (billi

CURRENT ACCOUNT		
Exports of goods	$1,149	
Imports of goods	–1,965	
Balance of trade		–816
Exports of services	479	
Imports of services	–372	
Balance of services		107
Income received on investments	782	
Income payments on investments	–708	
Net income on investments		74
Net transfers		–104
Balance on current account		–739
FINANCIAL ACCOUNT		
Increase in foreign holdings of assets in the United States	1,864	
Increase in U.S. holdings of assets in foreign countries	–1,206	
Balance on financial account		658
BALANCE ON CAPITAL ACCOUNT		**–2**
Statistical discrepancy		83
Balance of payments		0

Source: U.S. Department of Commerce, Survey of Current Business, June 2000

Chapter 14. Monetary Policy

14.1 Define monetary policy and Goals of the Fed

1. Definition:

Monetary policy is the actions the Fed takes to manage the money supply and interest rate to pursue its macroeconomic policy objectives.

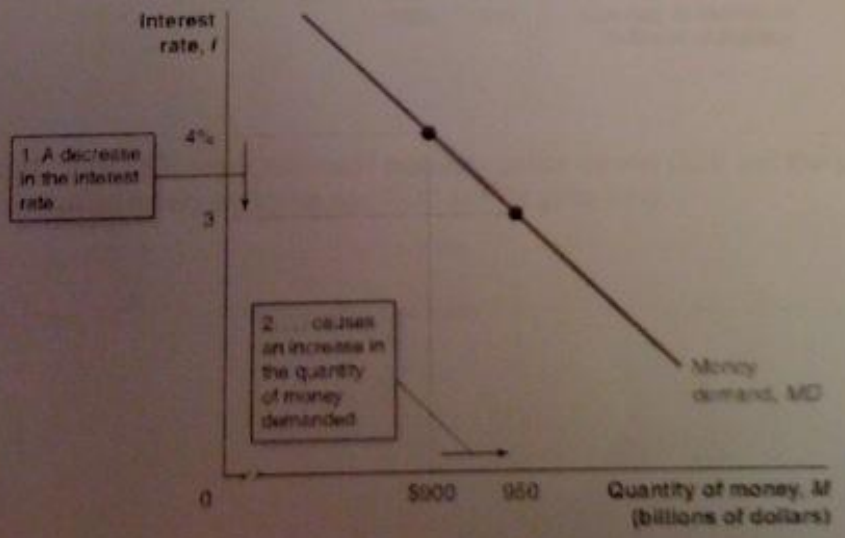
Goal of Monetary Policy:

- Price stability
- High employment
- Economic growth
- Stability of financial markets and institutions
-

14.2 The Fed's monetary policy targets and how expansionary and contractionary monetary policy affects interest rate.

1. Monetary targets: Variables the Fed is able to use to affect variables such as real GDP, employment and price level.

2. Demand of money:

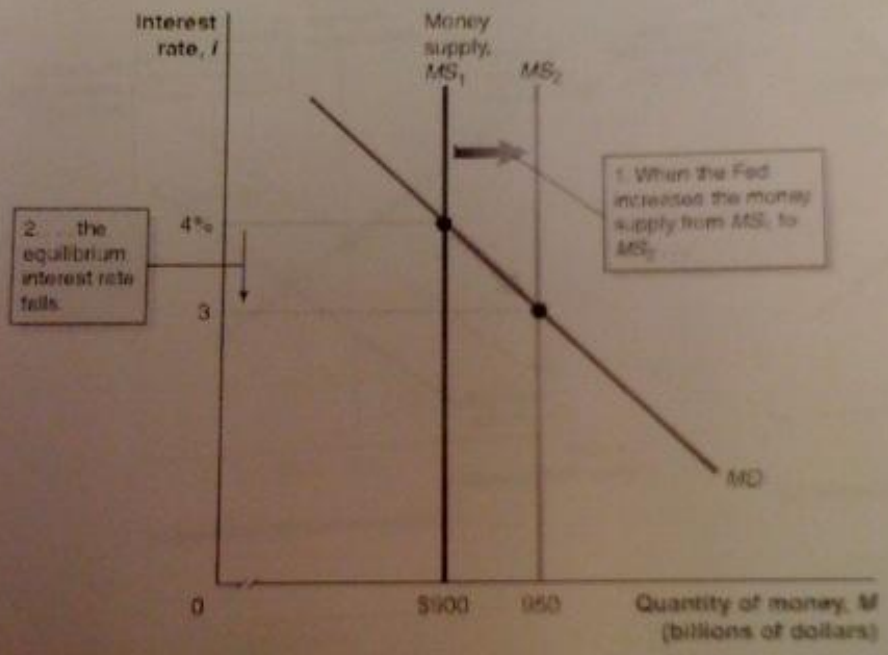


Shifting

demand: real GDP and price level

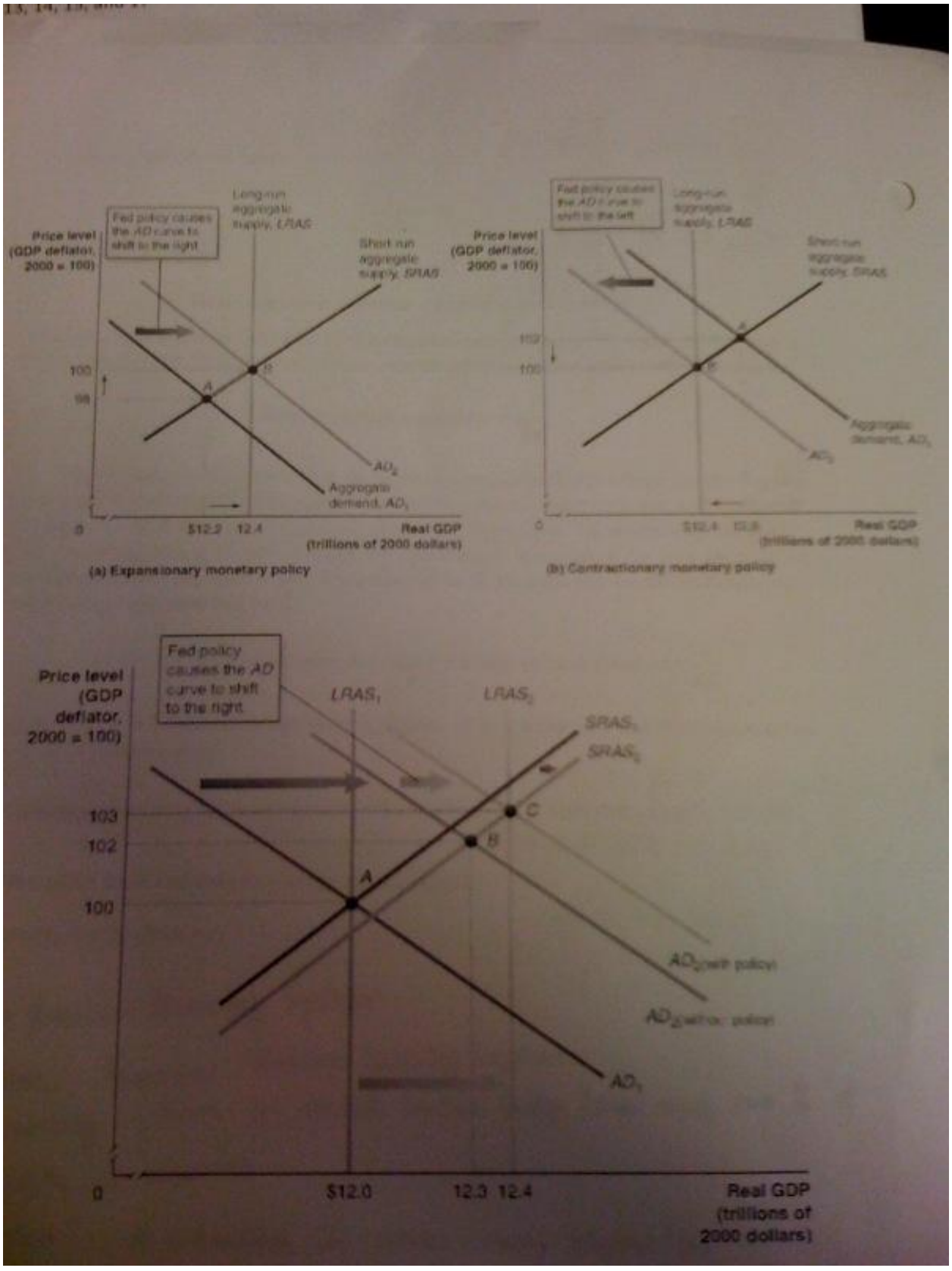
3. Review: How Fed manage money supply?

4. Equilibrium in Money Market.



14.3 Use AD&AS to show effects of monetary policy on real GDP and the price level.

1. Effects of monetary policy on real GDP and the price level:


Price level (GDP deflator, 2000 = 100)
Fed policy causes the AD curve to shift to the right
Long-run aggregate supply, LRAS
Short-run aggregate supply, SRAS
100
98
A
B
AD_2
Aggregate demand, AD_1
0
$12.2
12.4
Real GDP (trillions of 2000 dollars)
(a) Expansionary monetary policy
Price level (GDP deflator, 2000 = 100)
Fed policy causes the AD curve to shift to the left
Long-run aggregate supply, LRAS
Short-run aggregate supply, SRAS
102
100
A
C
AD_3
Aggregate demand, AD_2
0
$12.4
12.3
Real GDP (trillions of 2000 dollars)
(b) Contractionary monetary policy
Price level (GDP deflator, 2000 = 100)
Fed policy causes the AD curve to shift to the right
$LRAS_1$
$LRAS_2$
$SRAS_1$
$SRAS_2$
103
102
100
C
B
A
AD_2 with policy
AD_2 without policy
AD_1
0
$12.0
12.3
12.4
Real GDP (trillions of 2000 dollars)

Simplifying further, we have:

$$\frac{1}{0.10} = 10.$$

So:

$$\text{Total increase in deposits} = \$1{,}000 \times 10 = \$10{,}000.$$

Note that 10 is equal to 1 divided by the required reserve ratio, *RR*, which in this case is 10 percent, or 0.10. This gives us another way of expressing the simple deposit multiplier:

$$\text{Simple deposit multiplier} = \frac{1}{RR}.$$

This formula makes it clear that the higher the required reserve ratio, the smaller the simple deposit multiplier. With a required reserve ratio of 10 percent, the simple deposit multiplier is 10. If the required reserve ratio were 20 percent, the simple deposit multiplier would fall to 1/0.20, or 5. We can use this formula to calculate the total increase in checking account deposits from an increase in bank reserves due to, for instance, currency being deposited in a bank:

$$\text{Change in checking account deposits} = \text{Change in bank reserves} \times \frac{1}{RR}.$$

For example, if $100,000 in currency is deposited in a bank and the required reserve ratio is 10 percent, then:

$$\text{Change in checking account deposits} = \$100{,}000 \times \frac{1}{0.10} = \$100{,}000 \times 10 = \$1{,}000{,}000.$$

IV. Three policy tools Fed uses to manage money supply

V. Quantity theory of money

Federal Reserve- Banking System:

Definition: Fractional Reserve banking System:
A banking system in which banks keep less than 100 % of deposits as reserves.

Bank run: A situation in which many depositors simultaneously decide to withdraw money from bank

↓

when ~~add~~ many banks experience bank runs, it's a bank pani

Early years: lender of last resort. ad Great depression.

3 policy tools:

1. open Market operation
2. Discount Policy
3. Reserve requirements.

1. Open Market operation:

Federal open Market Committee: (FOMC).
8 time/year at DC. ; 12 members

Buy Sell

Treasury Bonds. ⇒ ↑ Money Supply. : buy Bonds
⇒ ↓ Money Supply. Sell Bond.

2. Discount loans.

Interest Rate = Discount rate.

3. Required Requirement.

RR : Ask banks to ↑ or ↓ ~~ratio~~ ~~into~~ RR.

Quantity Theory of Money.

Notes on Chapter 13, 14, 15, and 17

Chapter 13. Money, Bank and Federal Reserve

I. Define money and discuss four functions of money

1. What is money:

Money are assets that people are generally willing to accept to exchange for foods and services for payments of debts.

Commodity money: A good used as money that also has value independent of its use as money.

Fiat Money: Money such as paper currency that is authorized by a central bank or governmental body and that does not have to be exchanged by central bank for gold or other commodity money

2. Functions of Money

_Medium of Exchange

_Unit of account

_Store of value

_Standard of deferred payment

3. Five Criteria to make a good suitable to use as medium of exchange

_ The good must be acceptable by most of people

_It should be standardized quality so that any two units are identical

_It should be durable so that value is not lost by spoilage

_It should be valuable relative to its weight so that amounts large enough to use in trade can be easily transported.

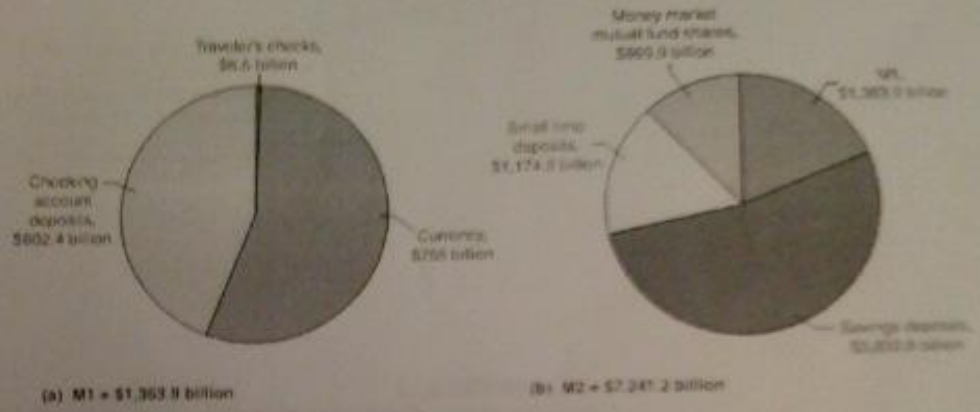
_ The medium of exchange should be divisible because different goods are valued differently.

II. Define money definitions and money supply in US

1. How does money measured in U.S.?

M1, M2:

M1: The narrowest definition of the money supply: The sum of currency in circulation, checking account deposites in banks and holdings of traveler's checks.



(a) M1 = $1,363.9 billion (b) M2 = $7,241.2 billion

III. How banks create money

(1) Bank Balance sheets

ASSETS (IN MILLIONS)		LIABILITIES AND STOCKHOLDERS' EQUITY (IN MILLIONS)	
Reserves	$32,749	Deposits	$407,458
Loans	416,798	Short-term borrowing	50,020
Deposits with other banks	2,167	Long-term debt	138,594
Securities	108,619	Other liabilities	41,333
Buildings and equipment	6,141	Total liabilities	$637,405
Other assets	140,647		
		Stockholders' equity	69,716
Total assets	$707,121	Total Liabilities and stockholders' equity	$707,121

Figure 13-2 | Balance Sheet for Wachovia Bank, December 31, 2006

The items on a bank's balance sheet of greatest economic importance are its reserves, loans, and deposits. Notice that the difference between the value of Wachovia's total assets and its total liabilities is equal to its stockholders' equity. As a consequence, the left side of the balance sheet always equals the right side.

Note: Some entries have been combined to simplify the balance sheet.

Source: Wachovia Corporation and Subsidiaries Consolidated Balance Sheets from Wachovia Corporation, Annual Report, 2006.

a. M1: The narrowest [illegible]
currency in circulation, checking account balances in banks, and

Assets		Liabilities	
Reserves	+$1,000	Deposits	+$1,000

Your deposit of $1,000 into your checking account increases Wachovia's assets and liabilities by the same amount.

Step2:

Assets		Liabilities	
Reserves	+$1,000	Deposits	+$1,000
Loans	+$900	Deposits	+$900

1. By loaning out $900 in excess reserves

2. Wachovia has increased the money supply by $900

Step3:

Wachovia

Assets		Liabilities	
Reserves	+$100	Deposits	+$1,000
Loans	+$900		

1. When the $900 check that was deposited in a PNC account arrives to be cleared, the increase in Wachovia's reserves (shown in the previous T-account) falls by $900 to $100.

2. ... and the increase in Wachovia Bank deposits falls by $900 to $1,000.

PNC Bank

Assets		Liabilities	
Reserves	+$900	Deposits	+$900

1. After the check drawn on the account at Wachovia clears, PNC's reserves and deposits both increase by $900.

Step4:

PNC Bank

Assets		Liabilities	
Reserves	+$900	Deposits	+$900
Loans	+$810	Deposits	+$810

By making an $810 loan, PNC has increased both its loans and its deposits by $810.

BANK	INCREASE IN CHECKING ACCOUNT DEPOSITS	
Wachovia	$1,000	
PNC	+ 900	(= 0.9 × $1,000)
Third Bank	+ 810	(= 0.9 × $900)
Fourth Bank	+ 729	(= 0.9 × $810)
•	• •	
•	• •	
•	• •	
Total change in checking account deposits	= $10,000	

$$\$1{,}000 + [0.9 \times \$1{,}000] + [(0.9 \times 0.9) \times \$1{,}000] + [(0.9 \times 0.9 \times 0.9) \times \$1{,}000] + \ldots$$

Or:

$$\$1{,}000 + [0.9 \times \$1{,}000] + [0.9^2 \times \$1{,}000] + [0.9^3 \times \$1{,}000] + \ldots$$

Or:

$$\$1{,}000 \times (1 + 0.9 + 0.9^2 + 0.9^3 + \ldots).$$

The rules of algebra tell us that an expression like the one in the parentheses sums to:

$$\frac{1}{1-0.9}.$$

loanable funds (MS increase)

(3) Measurement of Money

a. M1: The narrowest Definition of the money supply: the sum of currency in circulation, checking account balances in banks, and holding of traveler's checks;

b. M2: M1 + saving account balances, small denomination time deposits, balances in money market deposit accounts in banks, and no institutional money market fun shares;

c. M3: M2 + large denomination time deposits, and institutional money market fund share.

d. *In our analysis, money refers to currency plus checking account deposit – M1, which carries no interest rate or little interest rate payment. So the opportunity of holding "money", is the forgone interest rate payment of other assets.*

2. Money Demand (P442 – P443)

(1) Demand for money is the relationship b/t the sums of money that people are willing to hold, and the level of interest rates in the economy, given all other influences on the desirability of holding money instead of other assets.

a. Money demand curve shows a relationship b/t the level of interest rates in the economy and the stock of money demand at a given point in time;

b. Money demand is a downward sloping curve. The price (opportunity cost) of holding money is the interest rate. As the interest rate rises, there is less desire to hold money and more desire to place it in interest-bearing accounts.

(2) Factors that shift MD curve

a. Changes in price level :

Increases in price level → need more money to make the same

b. Changes in real GDP:

Real GDP increases → real income increases → want to hold more money → MD shifts right;

c. Changes in transaction cost

Cost of converting near money to money increases → people tend to make fewer transaction, thus they convert more near money to money at one time → hold more money → MD shifts right.

3. **Money Supply (P444, P415-P427)**

(1) Money supply is the stock of money available at any given time.

(2) It is determined by the Federal Reserve through 3 ways

----- Monetary Policy (2)

Monetary Policy (2)

1. The Fed can influence money supply (and therefore the macroeconomy) in three main ways.
   a. Controlling the required reserves ratio (RRR)
      i. The legal percentage of a bank's checkable deposits that must be retained (i.e. can't be loaned out)
   b. Controlling the discount rate (rarely used)
      i. The rate of interest that the Fed charges banks that borrow directly from the Fed.
   c. Conducting open market operations.
      i. Buying or selling government securities (bonds) on the open market.

Bank Reserves:

1. RRR – the percentage the bank must retain of checkable deposits.
   a. Suppose the RRR is 10% = .10 You deposit $200 dollars into you checking account. The bank must retain $200*.10 = $20. This leaves $180 for it to loan out.
      i. If the bank's reserves exactly equaled its required level before you deposit the bank would have $180 excess reserves.
   b. The bank will likely loan out the $180. If the person that the bank loans the money to puts it into a checking account perhaps at another bank that bank would have to retain $180*.10 = $18. This leaves $162 for that bank to lend out.
      i. This continues and each times the retained amount and the amount available to be loaned out decreases.
   c. A formula for calculating the increase in money stock resulting from this process is $\frac{1}{RRR} \times \begin{pmatrix} Original \\ Excess \\ Reserves \end{pmatrix}$. In our case we have $\frac{1}{.10} \times (\$180) = 10 * \$180 = \$1800$.

      $\frac{1}{RR}$ x chang in bank rese = change in chec acco

      i. Increases in RRR decrease the money supply because banks must retain larger portions of checkable funds and thus have less to lend out.
      ii. Decreases in RRR increase the money supply because banks must retain smaller portions of checkable funds and thus have more to lend out.

2. Discount Rate

loanable funds (MS increases).

c. An increase in the discount rate will tend to decrease the potential supply of loanable funds (MS decreases).

Open Market Operations

a. Most preferred method of the Fed.
b. At any given time there are a certain number of bonds held by both the Fed and US banks. The Fed can choose to buy or sell these bonds.
   i. If the Fed buys bonds it puts money into the economy and thus increases money supply. Banks are receiving money, their balances the accounts at the Fed are increased, in exchange for the bonds.
   ii. If the Fed sells bonds it is taking money out of the economy and th decreasing the money supply. The banks give the Fed money (out their reserve accounts) and receive bonds.
   iii. Through this process the Fed can effect the money supply successfully.

locity of Money:

The velocity of money is a measure of how many times the average dollar is spent over the course of a year. The formula is: $v = \frac{NGDP}{M1}$. This formula divides the money stock into nominal domestic income.

Another expression commonly used is derived from above. It is MV = PQ , where MV is the nominal dollar expenditure during the year and PQ is the nominal dolla ncome during the year. Since income must equal expenditure at the macroeconom evel, the equation of exchange is an identity. If a change occurs in any term, ano erm will immediately adjust to maintain the identity.