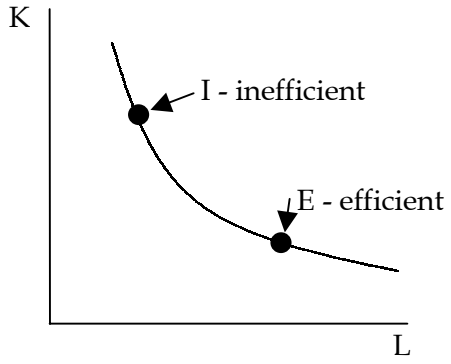
- financial policy:
  - the government has two macroeconomic tools: 1) fiscal policy, which refers to tax revenue and expenditures and 2) monetary policy, which refers to the money supply, interest rate, etc.
  - financial policy, as discussed in this chapter, includes both monetary policy in the conventional sense and other policies affecting banks and other financial intermediaries
- inefficient allocation of capital:

  capital can be inefficiently marshaled and used because of 1) inefficient choice of technique 2) inefficient allocation in the economy 3) artificially low interest rates leading to low financial system intermediation (savings mobilization)

  1. inefficient choice of technique:

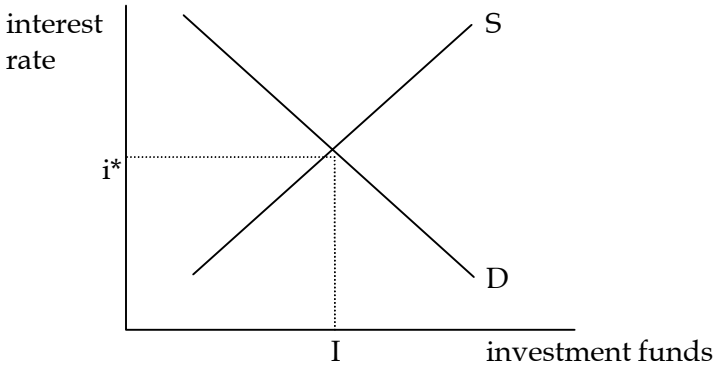
  where capital is scare and labor abundant, more labor-intensive methods (E) are probably more efficient than more capital intensive methods (I):



  however, the most efficient choice of technique is not always chosen because prices do not reflect scarcity; capital might be artificially cheap because of caps on interest rates, an overvalued exchange rate, etc.; private producers will get the wrong signal and use an inefficient combination of labor and capital

  2) inefficient allocation in the economy:

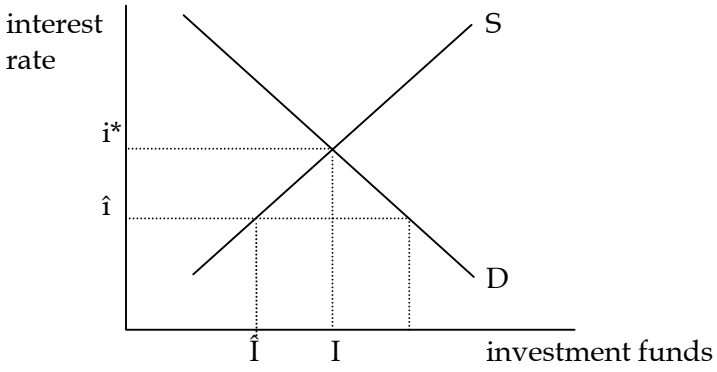
  the interest rate can be considered the cost of investment funds; as the interest rate increases, the supply of investment funds increases; as the interest rate decreases, the demand for investment funds increases:



in a competitive market, only investments with a return greater than i* will receive investment funds – other investments will not be funded because the cost of funding them is higher than their return

in a market without distortions, the value of the marginal product of capital in each investment project should be the same

however, if the interest rate is fixed at î, then Î investment funds will be supplied:



because the quantity of investment funds supplied is less than the quantity of investment funds demanded at the fixed interest rate, firms will compete for the available investment funds

although it would be most efficient to allocate the available funds to investments with the highest rates of return, those with low- return projects (projects with rates of return between î and I*) will also be seeking funds, and funds might be allocated inefficiently (through corruption, or simply the indifference of the banks); thus, both high return and low return investments will receive funding, and the low return investments will prevent some high rate investments from getting funding; thus, investment funds are misallocated

3) artificially low interest rates:

in order for saving to be available for investment, people must save in liquid assets (such as bonds, securities, etc.) in banks; however, if the interest rate is low (perhaps because

there is a ceiling or inflation is high), people might not deposit their savings into banks or might save in nonliquid assets (such as gold), which do not allow their savings to be available for investment; thus, the supply of investment funds might be insufficient if interest rates are artificially low

- calculating the real interest rate:
  - the real interest rate can be calculated from the formula:

$$(1+r)=\frac{(1+i)}{(1+p)}$$

r = the real interest rate
i = the nominal interest rate
p = the inflation rate

this can be rewritten as:

$$r=\frac{(1+i)}{(1+p)}-1$$

for example, in Ecuador in 1992, the nominal interest rate was 34% and the inflation rate was 45%, so the real interest rate was:

$$r=\frac{(1+0.34)}{(1+0.45)}-1=0.924-1=-0.076=-7.6\%$$

thus, the real interest rate was negative and money lost 7.6% of its value per year; this compares to a loss of 45% per year if the money was not invested

  - the real rate of return after taxes can be calculated from the formula:

$$r_n=\frac{1+[i(1-t)]}{(1+p)}-1$$

r_n = the real rate of return after taxes
i = the nominal interest rate
t = the tax rate
p = the inflation rate

for example, if the nominal interest rate is 34%, the tax rate is 20%, and the inflation rate is 45%, then the real rate of return is:

$$r_n=\frac{1+[0.34(1-0.20)]}{(1+0.45)}-1=-0.123=-12.3\%$$

- inflation:
  - the ultimate cause of inflation is an expansion in the money supply – "too much money chasing too few goods"; inflation can be decreased by reducing a government's deficit, which will help the government to reduce the rate of expansion of the money supply
  - the government can use the money printed from expanding the money supply for expenditure; inflation erodes the purchasing power of money and can be seen as a tax

(an inflation tax could be used by a government if cannot effectively collect tax revenue by conventional means);
• development economists used to believe that the government should target a mild inflation rate because printing money (which leads to inflation) would allow greater government investment; however, this idea has gone out of favor because countries printing money to finance government spending have developed chronic inflationary problems and people develop inflationary expectations
• inflation is undesirable for the following reasons:

1. it is difficult to control
2. high transaction costs – when there is high inflation, people spend more time checking prices, there are higher costs to carrying around money
3. vulnerable groups can become impoverished – especially those with fixed incomes, such as retired workers
4. demonetization of the economy – people will barter or use foreign currency
5. a lower real interest rate – at a given nominal interest rate, higher inflation lowers the real interest rate and people become less willing to save

• page 486, table 13-3 – inflation rates by region:

inflation rates have been higher in developing countries than in developed countries; between 1963 and 1992, inflation increased in developing countries, but it then declined from 1992-1998
• classification of inflation:

chronic inflation – 25-50% inflation for 3 consecutive years
acute inflation – 50-200% inflation for 3 consecutive years
hyperinflation (runaway inflation) – >200% inflation for at least 1 year

• page 484, table 13-2 – chronic, acute, and hyper- inflation:

chronic inflation can lead to acute inflation, such as in Argentina where inflation was 27% from 1950-1974 and increased to 147% from 1977-1982

• the demand for liquid assets:
the demand for liquid assets in an economy is given by the equation:

$$\frac{L}{P} = d + d_1 Y + d_2 g + d_3 r$$

L = liquid assets demanded
P = the price level
Y = the real income level
g = the rate of return on nonliquid (nonfinancial) assets, such as gold
r = the real rate of return on financial assets
d_1, d_2, and d_3 are constants: $d_1 > 0$, $d_3 > 0$, $d_2 < 0$

liquid assets will be greater if the rate of return on liquid assets increases or real income increases; liquid assets will decrease if the rate of return on nonliquid assets increases

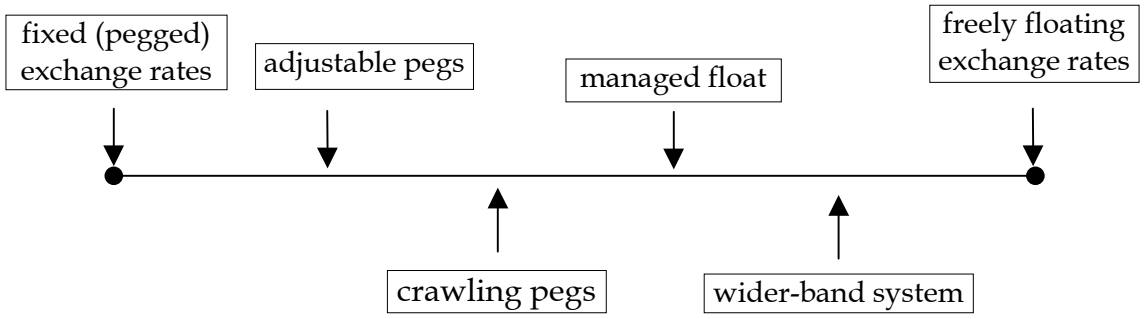
the 4 models of saving discussed previously did not consider the rate of return as an explanatory factor of saving

- definitions of the money supply:
  - narrow money = currency + demand deposits
  - broad money = currency + demand deposits + time and saving deposits
  - page 480, table 13-1 - broad money as a fraction of GDP:

    poor countries have a lower ratio of broad money to GDP than do rich countries; the level of monetization varies with the level of development – poor economies are less monetized because people often make their own goods and more economic activity does not involve money
- financial intermediation:
  - often the agents doing the saving in the economy are not the same as those doing the investing (for example, households save, but firms invest); banks are the main intermediaries in poor countries between savers and investors; if financial intermediation is poor (the real interest rate is negative, people do not trust banks, etc.) then people will keep their savings at home or in nonfinancial assets, which prevent the savings from going toward investment
  - financial intermediaries also help manage risk by diversifying its portfolio of investment; an individual could invest his saving in a single firm and bear a lot of risk or put his saving into a less risky bank account which invests his money in a diversified portfolio of loans
  - financial intermediaries also play a stabilizing role in the economy
- interest rates and saving decisions:
  - total saving is somewhat responsive to the interest rate, although the evidence from studies is not clear
  - the holding of financial/liquid assets is more responsive to the interest rate
  - thus, the interest rate does not affect saving as much as it affects where people put their savings
- shallow finance versus deep finance:
  - under deep finance, the real interest rate is positive, more funds are channeled through intermediaries, signals are better, resources are better allocated and choice of technique is more efficient
  - under shallow finance, the real interest rate can be low or negative which discourages investment; governments have inadvertently adopted shallow finance by capping interest rates to encourage investment; however, capping the nominal interest rate will discourage saving (especially if there is inflation, which reduces the real interest rate); as a result, there is a both a shortage of investment funds and a misallocation of available investment funds (for the reasons discussed earlier)
- panics and financial collapse:
  - because banks lend out the money deposited in them, not all depositors can get their money back at the same time; as long as people trust banks, they will deposit their funds, but if they believe the bank might collapse, then they will all try to withdraw their funds; this will lead to a crisis because a bank only keeps a fraction of the money deposited on reserve

- governments could increase confidence in the banking system by insuring banks (however, this requires people to trust government's ability to insure banks)
- during the Asian financial crisis in 1997, foreign lenders to the banks and firms of the affected countries believed that the banks would collapse or that there wasn't enough foreign exchange to repay loans; because many tried to withdraw their funds, a financial crisis ensued

- microcredit:
  - lending money to small borrowers can have a significant impact on poverty; however, administrative costs of lending to small borrowers can be too high to make it worthwhile to formal credit institutions; small borrowers are left to informal credit institutions, such as money pooled by family and friends or loans from local money lenders
  - the Grameen Bank In Bangladesh provides small loans to poor people using a small-scale group-borrowing scheme ("microcredit"); the Grameen Bank loans money by organizing people into groups, so that all individuals rely on each other to pay back the loan; additionally, people receiving loans are educated in groups and required to pledge to certain principles, which can ultimately improve their living conditions, lower the fertility rate, etc.
  - although the Grameen Bank has been very successful, efforts to replicate it have had varying success
- foreign exchange markets and inflation:
  - most developing countries can be considered small open economies; even if a developing country has a large population, its international trade is small, especially relative to the international trade conducted by the US, Japan, and EU; almost all countries are engaged in international trade
  - the foreign exchange rate regimes lie along a continuum ranging from fixed to freely floating:



fixed (pegged) exchange rates – the exchange rates are fixed
adjustable peg – similar to a fixed exchange rate, but the exchange rate is changed occasionally
crawling peg – a series of fixed exchange rates with a clear trend
managed float – the exchange rate is allowed to float within bounds
wider-band system – similar to a managed float, but the bounds are wider
freely floating exchange rates – the exchange rates depend on supply and demand entirely, without government intervention

- if a country fixes its exchange rate, it must import any world inflation and the government loses control of the money supply:
  the money supply of a country is given by:
  $M = DC + IR$
  DC = domestic credit
  IR = international reserves
  if monetary expansion occurs abroad and leads to world inflation while the domestic money supply remains stable, then the prices of internationally-traded goods rise; thus, imports become more expensive and exports become cheaper to foreigners; thus, imports decrease, but exports increase

  the balance of payments shifts in favor of a surplus and the country's stock of foreign reserves (the IR part of M) grows; thus, the country's money supply grows and domestic prices rise. Thus, a small open economy that observes a fixed exchange rate regime gives up the use of monetary policy as a tool
- the central bank influences the money supply, inflation, and the interest rate:
  the central bank of a country has three tools to influence the money supply, inflation, and the interest rate:

  1) reserve requirements – by raising the proportion of money that banks must keep on reserve, the central bank reduces the money supply, which could reduce inflation; however, this also has a contractionary effect on investment and causes the interest rate to rise

  2) credit ceilings – by limiting the amount of money banks can lend out (such as by limiting the size of a loan); the government could steer lending to certain sectors through different ceilings for different sectors – however, when Indonesia tried this, the rules for lending were so complex that Indonesian banks lent their money to banks in Singapore, and Indonesian borrowers borrowed from the banks in Singapore instead of ones in Indonesia

  3) open-mouth (jaw-opening) operations – the government might be able to use moral suasion to affect lending