Topic 2: Interest Rates

Nature of interest rates

Interest rates can represent:

- The cost of borrowing funds
  - Paid to the lender for the use of funds
- The rate of return from lending
  - Received from the borrower of your funds
- The opportunity cost of holding money
  - Could have lent it and earned interest
- The time value of money
  - The difference between money's present value and its future value

Interest calculations

The time value of money: Future Value = Present Value + Interest

Simple interest: or flat interest is calculated on the principal sum.

FV = PV(1+I x t)

Where I =interest amount

PV=present value

i = annual interest rate

t = term of the investment in years

Compound interest: interest is calculated on the accumulated principal amount; interest is added to the principal.

$$FV = PV(1 + \frac{i}{m})^{t\ x\ m}$$

Where t = number of years

m = number of compounding periods per year

i = annual interest

Effective interest rate, i_e: the rate of interest after taking account of the frequency of interest compounding periods.

$$i_e = (1 + \frac{i}{m})^m - 1$$

Discount rate: discount securities do not pay interest, sold at a discount and face value paid at maturity.

$$PV = \frac{FV}{(1+\frac{i}{m})^{t\ x\ m}}$$

Determination of the level of interest rates

The level of interest rates: describes the overall position of interest rates, as a whole, within the aggregate economy or financial system.

It can be described as high or low, expected to increase or fall.

The loanable funds theory: the level of interest rate can partially be explained by the loanable fund theory. The price of loanable (interest rate) will be the equilibrium price established by the interaction of the supply of and demand for loanable funds.

Supply of loanable funds: determined by savings, and lending, decisions of surplus economic units.

The supply of loanable funds is viewed as being directly or positively related to the level of interest rates as:

- High interest rates reflect greater returns from lending and thus provide an incentive to save and lend on the part of surplus economic units.
- High interest rates encourage financial intermediaries to reduce their holdings of cash and increase lending, as the opportunity cost of holding money is high.

Demand for loanable funds: determined by the expenditure plans of deficit economic units.

The demand for loanable funds is viewed as being inversely related to the level of interest rates as:

- Business demand for finance will increase at lower interest rates as it is more likely that the rate of return on real investment will exceed the cost of finance.
- Household demand for finance will be higher at lower interest rates.