**Chapter Preview : Chapter 3 & 4**

1. **Define the term “Competitive market”, give examples of markets that are competitive and some that are not and discuss the importance of a competitive market in determining the value of a good.**

: A **competitive market** is a market structure with many buyers and sellers where no one can influence the price. Examples include stock and consumer goods markets. Monopoly, oligopoly, and monopolistic competition are non-competitive markets. Competitive markets determine the value of a good by reflecting its true cost of production and encouraging innovation and efficiency.

**2. Explain the concept of time value of money.**

: the difference in value between money today and money in the future

**3. Interest rate, interest rate factor, discount factor**

- **Interest rate** = convert money from one point in time to another

Specifically, an interest rate is like an exchange rate across time. It tells us the market price today of money in the future.

-**Interest rate factor** = it defines the exchange rate across time, and has units of “$ in one year/$

today.

-**Discount factor** = the price today of $1 in one year. (1/1+r)

The price of the future is interpreted in terms of the price of the present.

**4. Explain the PV, FV, and NPV(Net Present Value)**

: two results are equivalent but expressed as values at different points in time.

* PV = represents the value in terms of dollars today
* FV = represents the value in terms of dollars future
* NPV = PV of (Benefit) – PV of (Cost), Sum of Every project cash flow’s PV

= the NPV expresses the value of an investment decision as an amount of cash received today.

= If NPV > 0, it is a good decision.

**5. What is Arbitrage?**

- The practice of buying and selling equivalent goods in different markets to take advantage of a price difference

- positive NPV

- First discover and Fast transaction -> make a profit

- But vanished soon.

<-> Normal Market = A competitive market in which there are no arbitrage opportunities

**6. What is the law of One Price?**

: If equivalent investment opportunities trade simultaneously in different competitive markets,

then they must trade for the same price in all markets.

: We don’t have to check all the prices of the market, we just use any competitive price.

Because the price is same among the different market.

**7. When investors exploit an arbitrage opportunity, how do their actions affect prices?**

: If investors exploit an arbitrage opportunity, their buying in the market with the lower price and selling in the market with the higher price will increase demand in the lower-priced market and increase supply in the higher-priced market. This will ultimately lead to a narrowing of the price difference between the two markets as prices converge towards the fair value of the asset or security.

**8. Briefly explain the Separation Principle.**

: we can separate the firm’s investment decision from its financing choice, Because transactions in a normal market neither create nor destroy value on their own.

: Therefore, we can evaluate the NPV of an investment decision separately from the decision the firm makes regarding how to finance the investment or any other security transactions the firm is considering.

**9. Explain the concepts of compounding and discounting.**

-Compounding = to move a cash flow forward in time, you must compound it.

=> Compound interest : Interest of Interest

=> Calculation : C(Current Value) X (1+r)^n

-Discounting = This process of moving a value or cash flow backward in time—finding the equivalent value today of a future cash flow.

=> Calculation : C / (1+r)^n

**10. What are the annuities? Distinguish a perpetuity from a growing perpetuity.**

-Annuities

= a stream of N equal cash flows paid at regular intervals. (finite)

= an annuity ends after some fixed number of payments.

= PV = C/r X (1 - 1/(1+r)^n) -> C : Interest, r : interest rate, P : original price

-Perpetuity

= a stream of equal cash flows that occur at regular intervals and last forever. (Infinite)

= because the first cash flow is in one period, C0 = 0.=

= PV : C/r

-Growing Perpetuity

= is a stream of cash flows that occur at regular intervals and *grow at a constant rate* forever.

= first payment does not include growth

= grow rate < interest rate => g < r

= PV : C/(r-g)

**11. What is the internal rate of return (IRR) ?**

= he interest rate that sets the net present value of the cash flows equal to zero.

= IRR = (FV/P)^(1/N) – 1

**12-1. #3.7**

**12-2. #3.11**

**12-3. #4.4**

**12-4. #4.21**