NPTEL

Course Name: Security Analysis and Portfolio Management

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Session 33: Interest Rate: Determination and Structure

1. Explain the term Interest Rate and various theoretical arguments in favour interest rate determination.

Ans.

- Interest Rate: It is the price that the borrowers must pay to lenders to obtain the use of money for a period of time. It is determined by the forces of demand and supply in the financial markets.
- Loanable Fund Theory: It combines the real and monetary factors as determinants of interest rate

- Determinants of Nominal Interest Rates: NI = RI + IP + RP

  Where, NI = Nominal interest rate
  RI = Real interest rate
  IP = Inflation premium
  RP = Interest rate risk premium

- Determinants of general Structure of Interest Rates: Default Risk
  Call Risk, Liquidity or Marketability, Tax Status

- Traditional Theories of the Term Structure:
  Expectations Theory: The term structure of interest rates reflects financial market beliefs about future interest rates.
  Market Segmentation Theory: Debt markets are segmented by maturity, so interest rates for various maturities are determined separately in each segment.
  Maturity Preference Theory: Long-term interest rates contain a maturity premium necessary to induce lenders into making longer term loans.

2. Write short note on:

i. Loanable Fund Theory

Ans.

- Loanable Fund Theory: It combines the real and monetary factors as determinants of interest rate
- It takes a short-run view of the process of interest rate determination
- Supply of credit is from banks and other financial institutions
- Demand for credit would be for financing investment plus holding of idle cash

ii. Market Segmentation Theory

Ans.

Market Segmentation Theory: Debt markets are segmented by maturity, so interest rates for various maturities are determined separately in each segment.

- Assumption:
  - Investors are risk minimizer by matching maturities of assets and liabilities or by matching maturities with holding periods.
- Explanation:
  - the interest rate is determined by the interaction of demand for log-term capital and they supply of short-term money. The long-term rate is always above the short-term rate

iii. Preferred Habitat Theory

- Borrowers and lenders can be induced to shift maturities if they are adequately compensated by an appropriate risk premium which is expected
- Term Interest rate = f (expectations, Liquidity Premium)

3. What is Yield Spread?

Ans.

- Yield Spread: Relationship between bond yields and particular features on various bonds such as quality, callability and tax. These are often calculated among different bonds holding maturity constant.
- The yield spread is the difference between the yield on a bond and the yield on a similar risk free debt instrument
- The yield spread has advantages over the use of changes in a short rate alone, since the effects of external shocks can be dampened, leading to a better indicator of deliberate policy actions.
- There has been a good deal of recent interest in the link between yield spreads and aggregate economic activity, As it has been found to be one of the most useful business cycle leading indicators and as an indicator of the direction of
  monetary policy.

4. Explain Expectation Theory of Interest rate.

Ans.

Definition:

- Today's long-term rate is the (arithmetic or geometric) average of the current short term rate and the successive forward or expected one period short-term rates during the period of long-term loan.
- Example: Current one year bond rate: 7%, two expected or forward rate: 7.5% and 8.2% then term rate will be: $[(1.07)\ (1.075)\ (1.082)]^{1/3} - 1=7.566\%$

Assumptions:

- Perfect competition in the financial market

- Investors are rational: they want to maximize the yield of their holding period
- Every investor has the uniform expectation about the future short-term interest rate
- There is no transaction cost
- Securities of different maturities are perfect substitutes

Implications:

- Long-term rate will be more than short-term rate if investors expect future short-term spot rates to be higher than the current short-term rate.
- Long-term rate will be lower than short-term rate if investors expect future short-term spot rates to fall below the current short-term rate.
- Long-term rate is equal to short-term rate if no change is expected between future short-0term spot rates and current rate

Drawbacks:

- Faulty assumptions
- Does not explain how the short-term rate is determined