

SECTION - 5

INTEREST RATE CAPS, FLOORS AND COLLARS

This Section includes

- **Interest rate caps**
- **Need to Control Capital Assets**
- **Investment and Return**
- **Time Value of Money**

5.1. INTEREST RATE CAPS

- 5.1.1 Interest rate caps is a popular interest rate option offered by financial institutions.
- 5.1.2 Floating rate note is one where the interest rate is reset periodically equal to LIBOR. The time between the resets is known as the tenor. In this case, the LIBOR may go up or go down after three months. Hence, there is still the risk of the LIBOR going up.
- 5.1.3 An interest rate cap is designed to provide insurance against the rate of interest on an underlying floating rate note rising above a certain level, in this case the LIBOR.
- 5.1.4 Principal amount is 10 million USD, the tenor is 3 months, life of the cap is five years and the cap rate is 8%. This means that the maximum rate is restricted to 8%.
- 5.1.5 Example:
- On a particular reset date, the three month LIBOR interest is 9%. What is the value of the cap?
- If the rate is 9%, the amount of payment involved equals $0.25 \times 0.09 \times 10 \text{ m} = 225000$
 - The amount to be paid is $0.25 \times 0.08 \times 10 \text{ m} = 200000$
 - The value of the cap equals = 25000

5.2. FLOORS AND COLLARS

- 5.2.1 Interest rate floors and interest rate collars are similar to caps. A floor provides a pay off when the interest rate on the underlying floating rate note falls below a certain rate. So, the lender will get a minimum.
- 5.2.2 A collar is an instrument designed to guarantee that the interest rate on the underlying floating rate note always lies between two levels.
- 5.2.3 A collar is a combination of a long position in a cap and a short position in a floor.

**5.2. 4 Illustration of Caps and Floors:**

- A company for five years at LIBOR plus a spread can purchase a cap at 8%
- In effect, it is purchasing a series of call options on LIBOR with a strike price of 8%
- A commercial lender has a 300 million portfolio of loans to commercial borrowers.
- Borrowers pay interest based on the prime rate plus a spread that depends on their credit worthiness.
- At January 1, 2004, the prime rate is 7%
- The average credit spread on the loan portfolio is 150 basis points (1.5 percent)
- Because the economy is slowing down, the lender fears that the prime rate will decrease, reducing the interest income on its loan portfolio
- To hedge this risk, the lender pays 1200000 to a large bank for a two year 6.5 % floor contract with a 300 million notional amount
- In any quarter for which the prime rate at the beginning of the quarter is below 6.5%, the lender receives a payment equal to the difference between the 6.5% and the prime rate multiplied by 300 million
- If the prime rate is higher than 6.5%, the lender receives no payment