37011 Financial Markets Instruments

Whiteboard Tutorial 1

1. Consider a three–month deposit of $100,000 at the simple interest rate of 5.00% (per annum). What is the maturity value of the deposit?

2. If a three–month treasury bill with face value $100,000 is trading at $98,704.50, then what is the quoted rate in the market?

3. Consider a term deposit of $100,000 with maturity of two years. The term deposit earns quarterly compounded interest at 3.00% per annum and the interest payments are rolled over until maturity. What is the total value of the deposit at maturity?

4. For the quarterly compounded 3.00% term deposit in the previous exercise, what are the equivalent monthly and daily compounded rates that give the same value? Assume a 30/360 daycount convention.

5. Consider a four–year annuity in which the investor makes a deposit of $1,000 every six months. If the annuity pays 4.5% per annum compounded semi-annually, then what will be the value of the annuity after 2.5 years and at maturity?

6. What initial investment is required to yield $10,000 in two years' time at 4.5% per annum compounded quarterly?

7. Consider an annuity that pays $500 every six months for the next 20 years. If the annuity represents an investment with 4.5% interest compounded semi-annually, then what is the required initial investment?

8. What initial investment would provide a perpetuity that pays $500 every six months if it involves an interest rate of 4.5% per annum compounded semi-annually?

9. What initial investment would provide a perpetuity that pays $500 every six months if it involves an interest rate of 4% per annum compounded quarterly?

10. Suppose that continuously compounded interest rates for the maturities 1, 2, 3, 4 and 5 years are 4%, 3.7%, 3.5%, 3.3% and 3%, respectively. What is the value today of a coupon bond with face value of $1 million, paying a 6% coupon once per year, maturing in five years?