

MA-111 Mathematics for Finance

Tutorial Sheet 2

Simple Discount and Negotiable Instruments

- 1) Ivan promised to pay a bank €630 at the end of 30 days for a loan. If the bank charges 12% interest in advance (a) what is the discount? (b) how much does Ivan receive now?
- 2) What is the final amount of a loan if a bank charges €5 interest in advance for 120 days at 5%?
- 3) Margaret received €712.50 in cash as the proceeds from a bank loan of €750. The discount rate was 15%. Find the discount period in months.
- 4) Nancy had a note for €800 with an interest rate of 5%. It was dated April 7, 1999, the maturity date was 60 days after date. On April 22, 1999, the note was discounted at a rate of 6%. How much did Nancy receive as the proceeds from the discounting?
- 5) Discount €2000 for 90 days at 5% by using (a) the bank discount method and (b) the simple interest method. What are the discount and the proceeds by method (a)? What are the present value and the discount by method (b)? How much is the difference between the two types of discounts?
- 6) At what rate should a bank discount a 75-day note if the bank is to earn 19% simple interest equivalent?

Basic Compound Interest

- 7) What is the effective interest rate if money is worth 3% compounded quarterly?
- 8) Find the nominal interest rate, compounded quarterly, which is equivalent to 6% compounded monthly.
- 9) Which of the following interest rates gives the better return on an investment:
a) 15% compounded quarterly (b) $15\frac{1}{2}\%$ compounded semi-annually?
- 10) You borrow €1000 for 2 years from a lender who charges a 5% discount rate.
 - a) How much money do you receive under 5% simple discount?
 - b) How much money do you receive under 5% compound discount?
 - c) How much must you ask for to get €1000 cash under 5% simple discount?
 - d) How much must you ask for to get €1000 cash under 5% compound discount?