

Simple future and the present value of money, EAIR

1. What amount will you be able to withdraw from your bank account after 9 years if you deposit CZK 50,000 today and the deposit bears interest at 2.5% per annum?
2. What is the present value of an investment that will yield a return of 1 million after 15 years? The opportunity cost is 8% per annum.
3. The entrepreneur expects a profit of 500 thousand CZK this year. In one year he would like to invest in new production technology 580 thousand CZK. At what return can he realize his plan if he invests the profit?
4. What is the present value of a bond with a nominal value of CZK 3,000 if you know that the yield to maturity is 6.7% per annum, the annual coupon payment is 5.5% and the bond matures in 5 years.
5. Compare the following two incomes if the opportunity costs are 11% p.a.:
 - a) after 3 years you will receive 15 million.
 - b) after 5 years you will receive 20 million. CZK
6. Do you want to deposit 50k CZK into the bank for one year? One bank offers a quarterly interest rate of 2.8% p.a. and a second one offers a continuous interest rate of 2.7% p.a.
 - a) what is more convenient for you?
 - b) what will be the situation after 2 and 3 years in both banks?
7. The bank offers an interest rate on deposits of 3% per annum:
 - a) annually
 - b) semi-annually
 - c) quarterly
 - d) monthly
 - e) daily
8. What will be the value of 12 thousand CZK after 5 years with all types of interest from the previous example?
9. What will be the value of your deposit in the bank if this deposit bears interest at 1.7% per annum for two years and then quarterly for the next 4 years? The amount of the deposit is 90 thousand CZK.
10. What is the effective annual interest rate if the account bears interest at 2.7% continuously?
11. CNB treasury bill with a nominal value of 100 thousand CZK with a maturity of 1 year reaches a market price of CZK 89 000. Calculate the discount factor (*present value factor*) and the relevant opportunity cost.

12. Imagine that you have won 100,000 CZK in the lottery today. You are going to save it in your account and buy a used car in 5 years. You assume that you will need CZK 161 050 for it at that time. At what interest rate must your savings account bear interest? Is this a realistic rate today?

13. Mrs. MOUNTAIN intends to buy the lucrative land around the future highway. The land is now for sale for 8.5 million. The experts expect the price to rise to around CZK 9.1 million in one year. That would represent a profit of CZK 600,000.

a) Is such an investment profitable if Mrs. MOUNTAIN can invest the money at a return of 10% per annum?

b) What would have to be the interest rate for Mrs. MOUNTAIN to have a profit of CZK 600 thousand?