<u>Exchange rate exposure – methods of measurement</u>

Basic terms:

- Transactional, economic and translational exposure
- Long and short position

Exercise 1

Consider foreign exchange exposure of a US based firm based on the below stated simplified balance sheet. Spot exchange rates are following: **1.2000 EUR/USD; 25.000 USD/CZK.**

Fictitious balance sheet of a firm			
ASSETS			**LIABILITIES**
Tangible property	60 mil. USD	Capital stock	117 mil. USD
Inventory	10 mil. USD	Operating result (profit/loss)	0 mil. USD
Bank account I	10 mil. USD	Accounts payable I	10 mil. USD
Bank account II	1 mil. EUR	Accounts payable II	1 mil. EUR
Accounts receivable I	50 mil. USD	Accounts payable III	50 mil. CZK
Accounts receivable II	1 mil. EUR	Bank loan I	2 mil. USD
Stocks	1 mil. EUR	Bank loan II	1.17 mil. EUR
TOTAL ASSETS	133.6 mil. USD	TOTAL LIABILITIES	133.6 mil. USD

- What is the net position regarding EUR?
- What is the net position regarding CZK?
- What will be the changes if USD appreciates against EUR?
- What will be the changes if USD appreciates against CZK?

Exercise 2

Let's assume that a US based company exported recently some goods to Germany and the receivable amounts to 1 million EUR. Maturity of the claim is in 30 days (in accordance with the granted supplier's credit). Current spot rate is 1.4000 EUR/USD. There are no other payables or receivables denominated in EUR. We have prepared the following possible scenarios of the EUR/USD spot rate development within 30 days:

	Exchange rate at the moment of maturity	Probability
Scenario 1	1.4500	30 %
Scenario 2	1.4000	20 %
Scenario 3	1.3500	30 %
Scenario 4	1.3000	20 %

- What is the expected value of this receivable in USD at the moment of its maturity?

Exercise 3

Let's assume that a Czech based company is long position regarding EUR (receivable that amounts to 1 million EUR). Current spot rate is 27.900 EUR/CZK. Expected percentage change of the exchange rate within one week is – 0.1 %. Standard deviation of these week changes is 0.5 %. Our next presumption is that percentage changes of EUR/CZK have normal distribution.

- Using VaR method, calculate the Maximum expected loss on the value of our receivable within one week on the 95 % confidence level.
- What are the main variables that influence the possible loss?
- How would the result change, if we were in short position regarding EUR (in the same value)?