HOMEWORK INTERNATIONAL FINANCE

PROBLEM 1: (10 points)

Go to the website investing.com and download monthly data for EURUSD from 1.1.2000 to 31.10.2022.

- Calculate the percentage changes over one-month intervals.
- Draw the histogram of monthly percentage changes in the EUR/USD exchange rate, where the horizontal axis describes the monthly percentage changes observed for the EUR/USD rate and the vertical axes describes the percentage frequency of occurrence of the rates of the exchange rate.
- Describe by the words the shape (symmetricity) of the probability distribution and explain the economic interpretation.
- Calculate and interpret the mean and standard deviation for the probability distribution.

Financial managers are also interested in the probability distribution of **future** spot exchange rates. Given that we observe an exchange rate of *s(t)* today, we can find the probability distribution of future exchange rates in, say, 180 days from the probability distribution of the percentage change in the exchange rate. For the *s(t)* use the EURUSD market price on 31.10.2022 at 10 p.m.
The conditional mean (the expected mean of this conditional distribution) can be represented by the market forward prices (cite the source).
Armed with the conditional mean and conditional standard deviation of the future exchange rate, you can determine the probability that the future exchange rate will fall within any given range of exchange rates.

- Please, calculate how likely it is that the EUR will strengthen over the next 180 days to at least an exchange rate of 1.0500?
- Please, calculate the price range, where the price of EURUSD might be in 180 days with the probability of 95.45%.
- What loss would you take if you owed EUR 1 million and the dollar depreciated in 180 days by two standard deviations?

PROBLEM 2: (10 points)

You are the financial manager at a German automobile producer company. Your company has just sold 100 cars to Great Britain. You will receive 580 000 GBP in 90 days. Specify the transaction exchange risk your company is exposed to. How would you manage the risk? (provide specific recommendations on the transaction exchange risk management opportunities including hedging and specific instruments if necessary). Calculate the possible costs of managing the risk determined by different contracts. For the calculations, use the market data from the web. Please, state the source of the data used in your calculations. Which option would you decide on and why?

PROBLEM 3: (5 points)

- Describe by the words the monetary policy of the Czech national bank applied in 2013-2017 and in 2022.
- What is the impact on the EUR/CZK price?
- What is the impact on the CNB FX reserves and its balance sheet?
- Are the FX operations sterilized? Do they have an impact on the money supply and price level?
- Support all your comments with relevant charts and state the source of the data.

Homework requirements:

· Faculty's official formatting requirements must be fulfilled (Times New Roman, font size of 12
· points, 1.5 spacing between the lines, heading with student's name, UČO, and topic), no title page is required.
· The homework should be written in English, Czech, or Slovak language and be spell-checked, grammar-checked, and personally proofread.
· All mathematical formulas and calculations should be explained. All sources should be cited appropriately.
· Reports should be submitted "IS – Homework Vaults – Homework 1" by the deadline **(20.11.2022).**
· Please, focus on a clear structure, a good understanding of the material, and well defined scientific approach.