

HOMEWORK INTERNATIONAL FINANCE (10 points)

Part I (7 points)

State the date of your analysis, your name, and UČO. The recommended length of Homework is a minimum of 700 words. State all the sources and hand out the report in MS Word and calculations in MS Excel. No PDF, please. Upload the Homework to Handouts in IS by 15th November 2024. Please support all your statements with relevant arguments.

Go to the website [investing.com](https://www.investing.com) and download monthly data for EURUSD from 1.1.2000 to 15.10.2024.

- Calculate the percentage price changes over one-month intervals (monthly price returns).
- Draw the histogram of monthly percentage changes in the EUR/USD exchange rate in Excel, where the horizontal axis describes the monthly percentage changes observed for the EUR/USD rate and the vertical axis describes the percentage frequency of occurrence of the rates of the exchange rate.
- Interpret the shape (symmetry) of the probability distribution and provide the economic interpretation of the probability distribution.
- 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 (15.10.2024) and we have a historical dataset of monthly returns, we can find the probability distribution of future exchange rates in 30 and 180 days. For the $s(t)$ use the EURUSD market close price on 15.10.2024. The *conditional mean* (the expected mean at time t of the future spot exchange rate 15.11.2024 and 15.4.2025) can be represented by the market forward prices. As you will calculate the probability distribution for the following 30 and 180 days, the conditional mean is expected price in 30 days from now (15.10.2024) will be the forward price on 15.11.2024. For 180-day prediction use the forward price for 15.4.2025 (.e.g. you make the analysis on 1st November, you take a spot price on 1st November and calculate what would be the forward price on 15.4.2025 by adding/subtracting swap point of forward instrument of adequate length to the spot price at 1st November.). Make the print screen of the website, you take the forward rates from and state the url of the website. Armed with the conditional mean and conditional standard deviation of the future exchange rates, 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 30 and 180 days to at least an exchange rate of 1.1050.
- Please calculate the price range, where the price of EURUSD might be in 30 (15.11.2024) and 180 (15.4.2025) days with the probability of 95.45%. For both calculations use NORM DIST EXCELL FUNCTION.

Part II (3 points)

- Compare your calculations with the Refinitiv FXVE (FX Volatility Explorer Function). Click on Spot Volatility. Comment on similarities/differences with your results.
- Calculate the following scenarios of price and return movement. The scenario settings are the same as in Part 1.
 - Price movement in 1 Month (1M expiration) and 6 Months (6M expiration) using 10-year historical data.

- How likely it is that the EUR will strengthen over the next 30 and 180 days to at least an exchange rate of 1.1050.
- Calculate the price range, where the price of EURUSD might be in 30 and 180 days with the probability of 95.45%.

Make a print screen and comment on the results and differences between your calculations in Part I and calculations provided by Refinitiv (FXVE function).

· Compare your calculations with FXVE FX Polls. According to professional analysts and economists, what is the most probable EURUSD price in 1M and 6M? What information are their expectations based on? (Go to FX polls and read relevant analysis).