# Investments Problem Set 1 Lent 2023

**The object of this problem set is:**

* **to get you accustomed to using actual, real time data**
* **to remind you of how to compute means, standard deviations, correlations etc of returns, using share price data**
* **to do the same for portfolios**
* **to ensure your Excel skills are practiced**
* **to give you some sense of the magnitudes, and to strengthen intuition about the extent to which underlying economic factors drive share price behaviour.**
* Get price series for 5 stocks for 52 weeks – pick 5 companies you are interested in - and for some suitable market index. Ideally, you should have prices that are corrected for dividends, splits etc. This means in effect that you are looking at the value of a portfolio invested in one share and where, whenever a dividend is received the money, is used to buy more shares in the same company. Similarly, if the company raises more money from shareholders, the portfolio finances this by selling shares on the market to raise the cash to buy the new shares.
* Compute mean and standard deviation of the weekly returns for each stock separately, and also the correlations between weekly returns across each pair of stocks.
* Plot the returns on each stock against returns on index in the same week (do as a separate scattergram for each stock) and compute the correlation between the return on each stock and the return on the market. Compute the line of best fit (regress returns on each stock separately against returns on the market)
* Form a portfolio where you keep 20% of your money in each of the five stocks. Compute the portfolio’s mean return and standard deviation, and correlation with index
* Write up and comment on your results. Are the numbers what you would expect given what you know of the companies and the similarities and differences between them, their riskiness and so on?

**More detailed help on the exercise**

**Data**

For data, you can go to websites such as <https://uk.investing.com/equities> or <http://uk.finance.yahoo.com/>.

Enter the symbol for the company you are interested in, and hit “historical prices”. You can choose start and end date and frequency – I would suggest the last year, weekly data.

Do this for five companies, and for the FTSE 100 index (^FTSE), using the same start, end and frequency.

Note: You can also choose any other market; it does not have to be the UK market. But the aforementioned links are applicable only to the UK market.

**Computations**

Put all the adjusted price data on to one sheet, and do the exercise, calculating the return on each stock each month

In Excel, the functions you will need are Average, Stdev, Correl, Covar and, for the regression:

* + - either the function Linest
    - or the Tools/Data Analysis/Regression commands
    - or plot (XY plot, no lines), highlight the chart, use the Chart/Add Trendline command, choose linear (the default), click “options” tab and tick the two boxes “Display equation” and “Display R-squared”