

# 1. Random Walk

## Applying Mathematics in Finance WISM410

In this assignment you will determine a fair price of a €12 call option on ING shares, expiring June 17 2016.

The ING share has a drift of 2% and a volatility of 20% per year. There are no dividend or transaction costs. Please use a starting price (spot) of €11.

Two template functions are given: `randomWalk.m` and `optionPrice.m`. The `randomWalk` function should return a column vector of doubles representing the share price during a random walk, given a start value, drift, volatility and time until expiry. The length of this vector is determined by the number of steps in the random walk. Selecting the “right” number of steps is up to you. It should however be the same each time the function is called.

The `optionPrice` function should return a double representing the price you would pay for an option, determined by a Monte Carlo process, given a start value, drift, volatility, exercise price and time until expiry.

Take care of readability and running time of the code. Discuss your methods, results, implementation choices and any other interesting findings in a short, clearly written report.