

# SF2701: Homework 1

## Guide to the Quantlab workspace

This document is intended to assist you with the Quantlab workspace used in the assignment on stock prices, providing short descriptions of the different parameters and data fields. Figure 1 shows a screen shot of the workspace as it looks when you open it the for the first time. While working on problem a), all

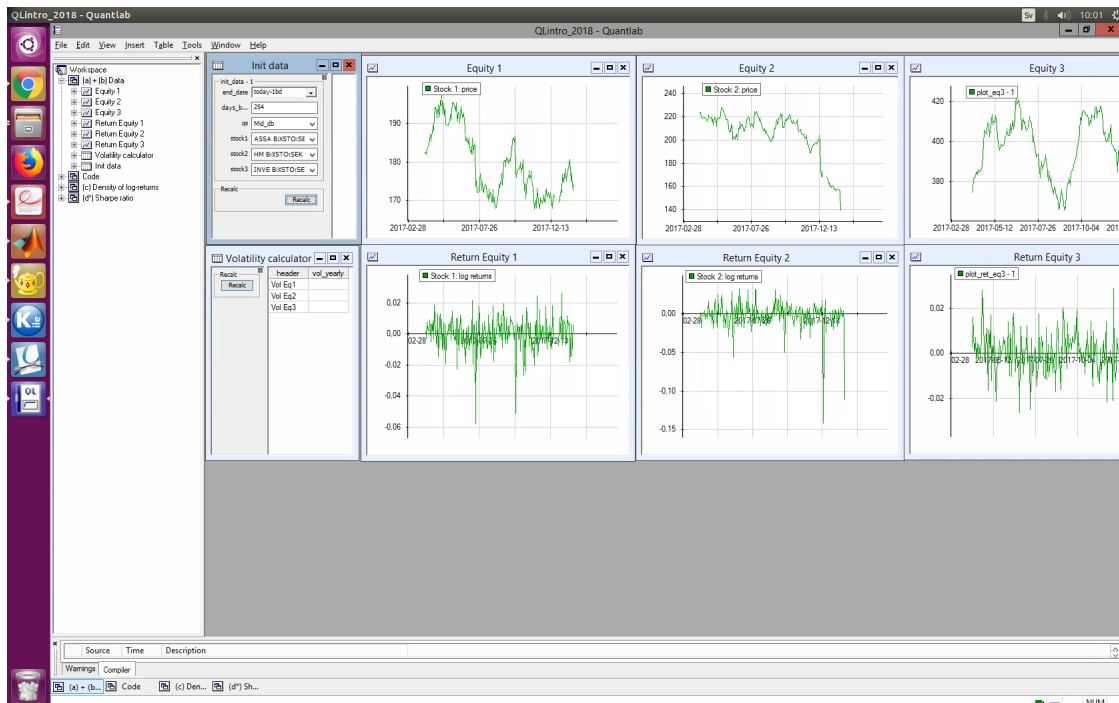


Figure 1: A screen shot of the workspace.

your actions will be performed in the window “Init data”, shown in Figure 2. The selection in `stock1`, `stock2` and `stock3` determines which stocks you will analyze. When you open the workspace, three stocks are already selected but you can easily select other stocks from the drop-down lists. By the selection in `days_back` you choose the number of business days you want to include in analysis and `end_date` sets the end day of this time period. The default setting is a 254-business days ( $\approx 1$  year) time period ending yesterday. The tab `q` determines which price quotes that are used (use the default setting `Mid_db`). Update the graphs by clicking the “Recalc” button.

In the graphs “Equity 1”, “Equity 2” and “Equity 3” the price of selected stocks is plotted. In the graphs “Return Eq1”, “Return Eq2” and “Return Eq3” the corresponding log-returns are plotted.

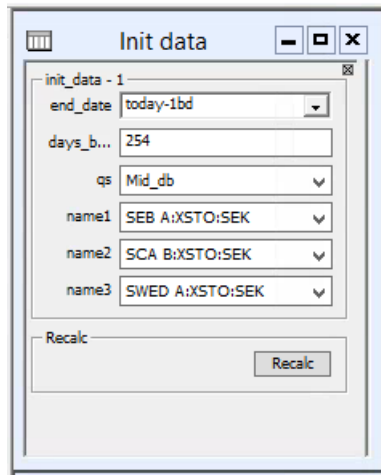


Figure 2: A zoom on the “Init data” window.

To solve part b) you will use the “Stats” window, see Figure 3 for a close up view. By clicking the “Recalc” button, the historical estimate of the yearly volatility for the selected stocks is presented in the column `vol_yearly`. The estimate is based on data from the time period you have selected in the “Init data” window, i.e. the data that is plotted.

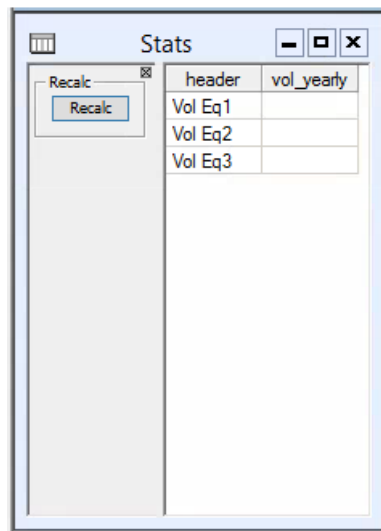


Figure 3: A zoom on the “Stats” window.

For part c), double-click the tab “(c) Density of log-returns“. Figure 4 presents the tab. In the window ”Init data“ you select historical stock price data. The graph ”Normal comparison“ shows the empirical density of log-returns as a histogram (the number of bins can be changed in the field **bins**) along with a normal density function whose mean and variance are estimated from the selected data.

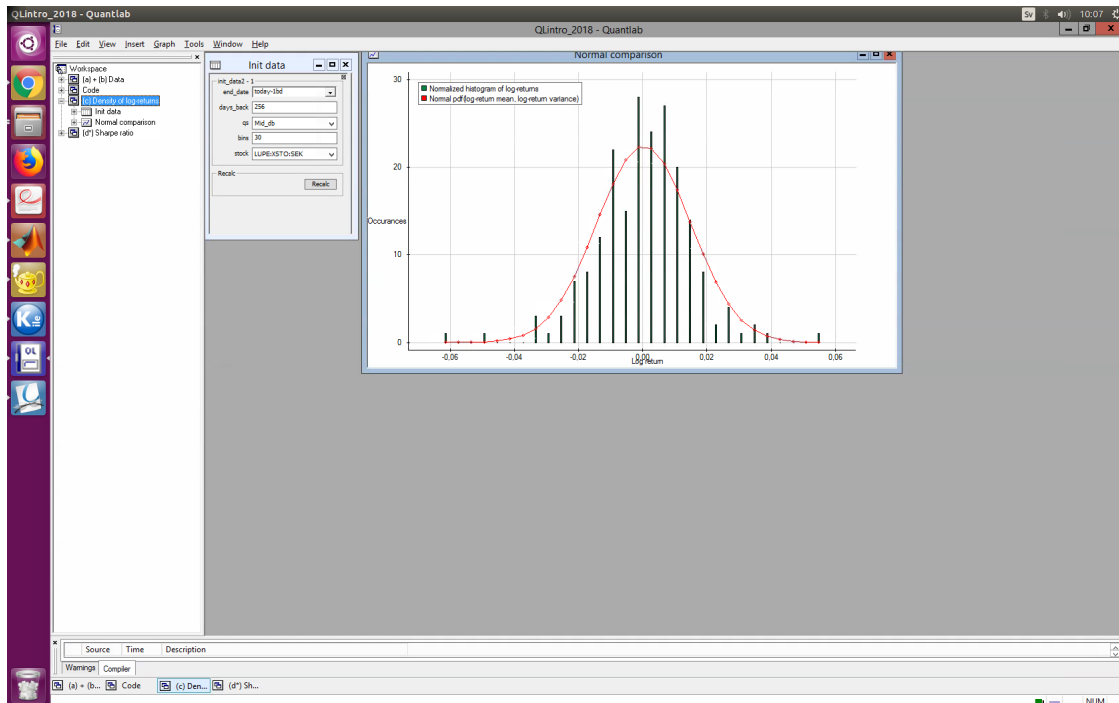


Figure 4: (c) Density of log-returns

Part d\*) involves coding in Qlang. Go to ”Expressions“ under the tab ”Code“. In the bottom of the code window you will find the commented function `find_sharp_ratio`, see Figure 5. Uncomment it and follow the in-line instructions.

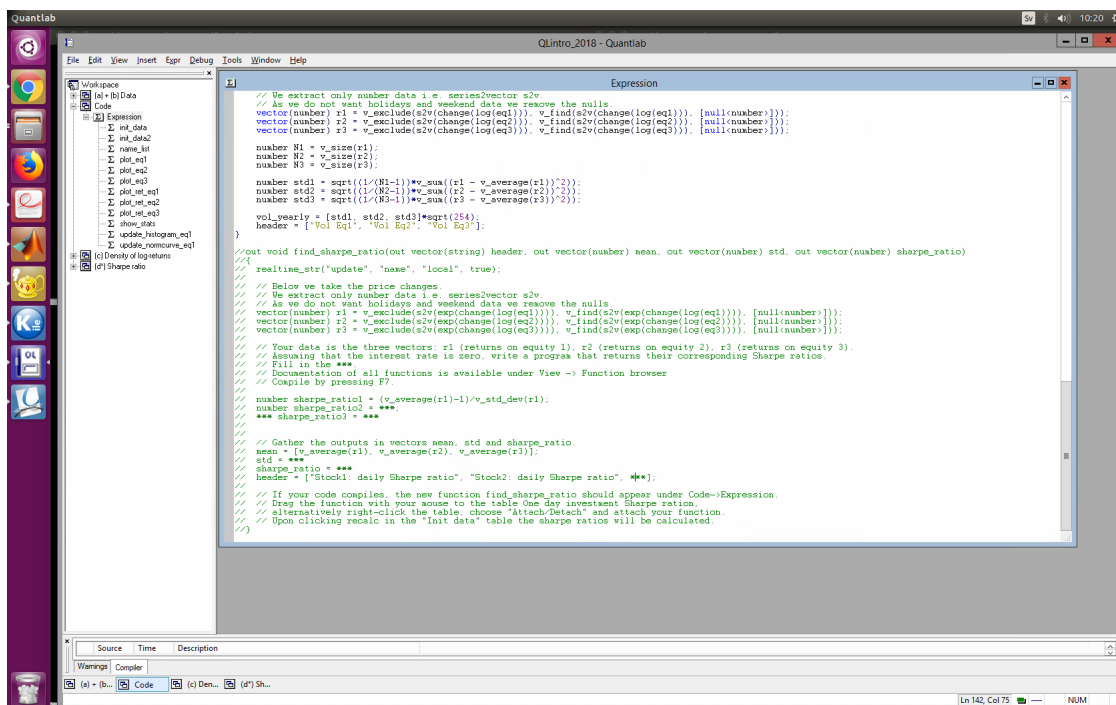


Figure 5: (d\*) Sharpe ratio.