

## CAPM in R

1. Estimate by OLS a CAPM for PR15 over the sample 2000:1 2014:6 and then simulate the model with bootstrap and Monte-Carlo simulation to derive the VaR of holding Port15 in 2014:7, given the info available on 2014:6
2. Consider the model

$$\begin{aligned}y_t &= \alpha + \beta x_t + e_t \\e_t &\sim i.i.d. (0, 1)\end{aligned}$$

- (a) if you have a sample of two observations  $(x_1 = 0, y_1 = 1), (x_2 = -1, y_2 = 0)$ , compute OLS estimators of  $\alpha$  and  $\beta$ .
- (b) compute the  $R^2$  of your regression by hand and by writing a R code