

### Notes:

- This exercise uses the datafile TrainExer31 and requires a computer.
- The dataset TrainExer31 is available on the website.

### Questions

- (a) Use dataset TrainExer31 to regress the change in the log of the S&P500 index on a constant and the book-to-market ratio, and check the result presented in Lecture 3.1 that

$$\text{change in log(SP500 index)} = 0.177 - 0.213 \times \text{Book-to-market} + e.$$

- (b) Now regress the S&P500 index (without any kind of transformation) on a constant and the book-to-market ratio. Consider whether the effect of book-to-market on the index is significant in this specification.
- (c) Make a plot of the residuals  $e$  from both question (a) and (b) and comment on the difference.