2.

- overnight yield:

- fluctuates

- decreasing at first, with the minimum point at 3.263, then increasing to 4.614 in the end

- overall: decreasing

* 5-year yield
  + - Fluctuates less
    - Overall: decreasing
    - Start: 5.572, end: 4.518

3. Line graph.Based on the graph, the shorter the year to maturity is, the stronger the correlation is. Take for • Observation1: a comparison from Year 1 to the subsequent years, the correlation decreases to below 0.5 when it’s Year 25. • Observation 2: comparison of Year 15 to subsequent years, the correlation is decreasing as well, however, it’s higher than Observation 1.• Observation 3: comparison of Year 20 to subsequent years, the correlation decreases, however, it’s higher than Observation 1 and Observation 2.

Therefore, the pattern can be concluded. The closer the base year we used for comparison, to the year of maturity, the higher the correlation.

Dependency can be explained by the scatterplot

4. Why we don’t need to standardize the data this time?

- = transforming data into mean=0, sd=1 around the center

- don’t have to because the data is of the same scale – i.e. not carrying any units

OR

* The mean and sd of the Change dataset is already close to 0 and 1

4.

* PC1: equally influenced by everything except overnight and 6-month.
* PC2: weakly influenced by overnight, negatively influenced by year 11 onward, equally influenced by the rest
* PC3:
  + - V2 till V6: positive, high
    - V12 till V24: negative, also high
    - Rest: negligible
* PC4:
  + - V2, V3, V4, V22 till V34: negative, high
    - V44 till V51: positive, also high
    - Rest: negligible

5.

- PC1:

- V21 till V51: positive, equally

- V1 till V13: negative

- rest: insignificant

* PC2
  + - All negative
    - Opposite effect
* PC3
  + - V1, V2: negative, significant
    - Rest: negligible