University of Applied Sciences Cologne
Faculty of Economics, Business Administration and Law
Prof. Dr. Arrenberg
Room 221, Tel. 39 14
jutta.arrenberg@fh-koeln.de

Exercises Quantitative Methods

Worksheet: Levene Test

Exercise 4.1 (Berenson et al., page 489)
The following data represent the US-nationwide highest yield of different types of accounts in 2007:

Money Market	Six-Month CD	One Year CD	2.5-Year CD	Five-Year CD
5.21	5.50	5.41	5.35	5.35
5.19	5.44	5.40	5.25	5.30
5.20	5.40	5.40	5.20	5.25
5.16	5.40	5.40	5.20	5.25
5.12	5.39	5.39	5.15	5.22

At the 0.05 level of significance, is there evidence of a difference in the variation in yields among the Money-Market and the Six-Month CD accounts?

Solution:

1. Goodness of fit test Normal distribution of **Money Market**
   $S_{\text{SPSS}} = -1.064 \Rightarrow S = -0.714$
   $K_{\text{SPSS}} = 0.202 \Rightarrow K = 2.051$
   No test recommendation
   p-value Lilliefors-Test ≥ 0.2
   p-value Shapiro-Wilk-Test $= 0.451$
   i.e. yield of Money Market has Normal distribution

2. Goodness of fit test Normal distribution of **Six-Month CD**
   $S_{\text{SPSS}} = 1.433 \Rightarrow S = 0.961$
   $K_{\text{SPSS}} = 1.424 \Rightarrow K = 2.356$
   test recommendation
   p-value Shapiro-Wilk-Test $= 0.124$
   i.e. yield of Six-Month CD has Normal distribution

3. Test of Homogeneity of the variances
   p-value Levene-Test $= 0.632$
   There is no evidence of a significant difference in the variation of the yields.