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AMS 394

3.1:

stocks <-read.table("http://www.ams.sunysb.edu/~xing/statfinbook/\_BookData/Chap03/d\_logret\_6stocks.txt", header=T)

(1)

> t.test(stocks[,5],mu = 0)

One Sample t-test

data: stocks[, 5]

t = 0.18782, df = 63, p-value = 0.8516

alternative hypothesis: true mean is not equal to 0

95 percent confidence interval:

-0.006792534 0.008201838

sample estimates:

mean of x

0.0007046519

(2)

> wilcox.test(stocks[,5],mu = 0)

Wilcoxon signed rank test with continuity correction

data: stocks[, 5]

V = 1153, p-value = 0.3225

alternative hypothesis: true location is not equal to 0

(3)

> t.test(stocks[,2],stocks[,5])

Welch Two Sample t-test

data: stocks[, 2] and stocks[, 5]

t = -1.0028, df = 118.21, p-value = 0.318

alternative hypothesis: true difference in means is not equal to 0

95 percent confidence interval:

-0.014118044 0.004626111

sample estimates:

mean of x mean of y

-0.0040413145 0.0007046519

(4)

> wilcox.test(stocks[,2],stocks[,5],mu = 0)

Wilcoxon rank sum test with continuity correction

data: stocks[, 2] and stocks[, 5]

W = 1757, p-value = 0.1662

alternative hypothesis: true location shift is not equal to 0

(5)

> var.test(stocks[,2],stocks[,5])

F test to compare two variances

data: stocks[, 2] and stocks[, 5]

F = 0.5914, num df = 63, denom df = 63, p-value = 0.03896

alternative hypothesis: true ratio of variances is not equal to 1

95 percent confidence interval:

0.3592924 0.9734621

sample estimates:

ratio of variances

0.591403

3.2:

> rats = matrix(c(152,157,179,182,176,149,384,369,354,375,366,423),nrow = 6,ncol = 2)

> wilcox.test(rats[,1],rats[,2],mu = 0,conf.intervl = .95)

Wilcoxon rank sum test

data: rats[, 1] and rats[, 2]

W = 0, p-value = 0.002165

alternative hypothesis: true location shift is not equal to 0

Response: The sample size is small, so a non parametric test should be used. Since the p-value is less than .05, we should conclude that rats exposed to a 5 degree Celsius environment have a higher mean blood pressure than rats exposed to a 26 degree Celsius environment.

3.3: