TS Module 14: Model diagnostics HW

(The **two** attached PDF files have better formatting.)

Homework assignment: quantile comparison (q-q) plots

Quantile comparison plots are explained in the regression analysis on-line course, and they are used also in the time series course. If this homework assignment is difficult, review the module of quantile comparison plots in the regression analysis course. (Module 3, "Quantile comparison plots," on pages 34-37, especially Figures 3.8 and 3.9; you can search for *quantile comparison plots* or *q-q plots* on the internet to see several examples.)

The four figures below show quantile comparison plots for four distributions. For each one

A. Is the distribution symmetric, right skewed, or left skewed? Explain how the quantile comparison plot shows this.
B. If the distribution is symmetric, is it heavy tailed or thin tailed? Explain how the quantile comparison plot shows this.

Quantile comparison plots are a useful tool for actuarial work, so it is worth knowing how to use them. For your student project, you may test if the residuals of an ARIMA process are normally distributed by forming a quantile comparison plot.
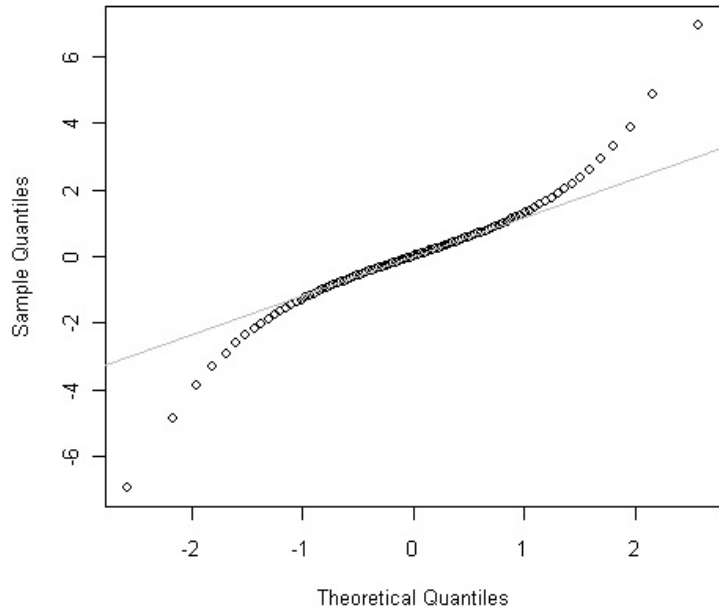
lognormal distribution
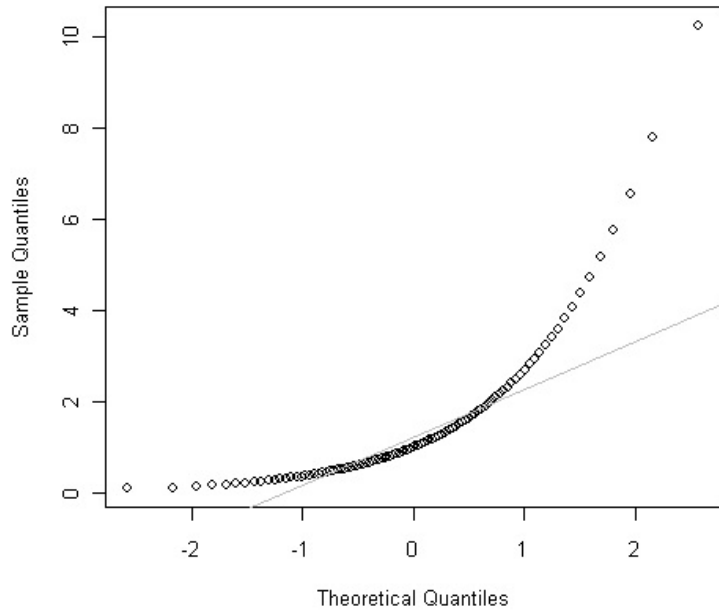
1 - lognormal distribution
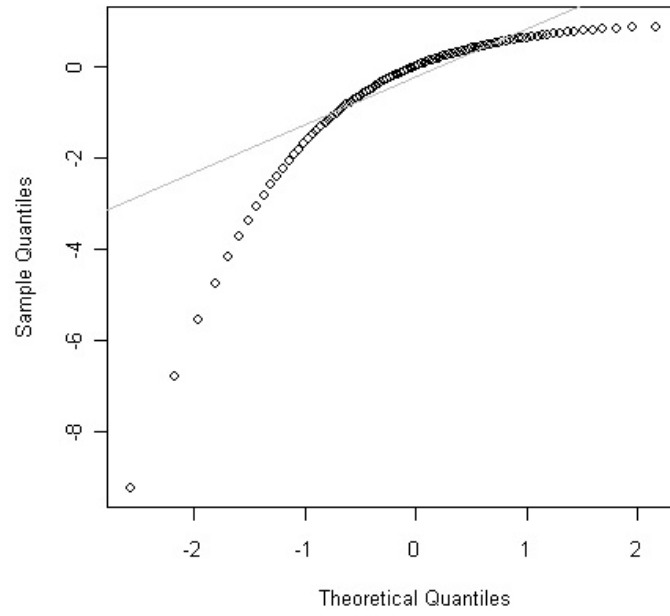
t distribution with 1 df

uniform distribution