Quantitative Risk Management
Assignment 11

Question 1: Suppose X has excess distribution over the threshold u of $F_u = G_{\xi,\beta}$. Show that the excess distribution over the threshold v is equal to $F_v = G_{\xi,\beta+(v-u)\xi}$ for $v \geq u$.

Question 2: Download 5 years of Microsoft stock prices beginning on November 26, 2011.

1. Compute the negative log returns and reproduce the sample mean excess plot shown in the lecture.

2. Select a threshold of 0.01 for the negative log returns and fit a GPD model to the excess distribution over the threshold by maximum likelihood estimation. The Matlab function `gppdf` may be useful.

Question 3: Read the paper *Option-Implied Spreads and Option Risk Premia* available on Moodle. Reproduce the plots in Figure 3. Now compare it to those in Figure 1. What do you observe?