Homework 4

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1.(a) Estimate of 5% VaR = 6613.594

   (b) The expected shortfall = 10498.23

2.(a) Estimate of 5% VaR by t-distribution = 7511.762

   (b) The expected shortfall = 15267.92

3.(a) The probability that R is greater than 0.03

   $= P(X > u)(1 + \xi \frac{VaR - u}{\beta})^{-1/\xi}$

   $= \frac{250}{8000} \times (1 + 0.36 \times \frac{0.03 - 0.02}{0.008})^{-1/0.36}$

   $= 0.0111328298372431$

   (b) Since the mean excess is linear,

   E[R − 0.04|R⩾0.04] = 2* E[R − 0.03|R⩾0.03] - E[R − 0.02|R⩾0.02]

   = 0.02