

MATH48181/68181: EXTREME VALUES AND FINANCIAL RISK

SEMESTER 1

QUIZ PROBLEM 4

(Deadline: Tuesday 1 December 2020, 12:00noon)

Suppose a portfolio is made of up of k independent investments. Let X_1, X_2, \dots, X_k denote the losses. Assume that X_i has the Uniform $[-\theta_i, \theta_i]$ distribution for $i = 1, 2, \dots, k$. Find the cumulative distribution functions of the maximum and minimum portfolio losses.

This problem is worth 1 mark. Marking scheme: 1 mark if the answer is correct, and the derivation is correct and detailed enough; 0.5 mark if the answer is correct, and the derivation is incorrect or not detailed enough; 0.5 mark if the answer is incorrect or not given, but the derivation is correct and detailed enough; 0 mark if the answer is correct, but the derivation is not detailed enough; 0 mark if the answer is incorrect, and the derivation is not detailed enough.

Please email your solution to mbbssn2@manchester.ac.uk I will mark your solutions and email your mark, feedback and scanned work to you within 24 hours of the deadline. PLEASE DO NOT FORGET TO WRITE YOUR FULL NAME AND ID.