IEOR 4735 - Fall 2018 - Project

We would like to buy a derivative contract paying the amount $\max(0, S_T - K)$ in USD at a pre-specified expiration date T, with S_T the price of STOXX50E denominated in EUR and K a given strike price in USD.

Additionally if the level of 3-month USD LIBOR observed on a specified date $T_1 < T$ is above a known barrier level L^* then the contract will "knock out" and terminate immediately without any payments.

Provide a pricing routine (e.g. Python script) calculating the price of this contract, taking as inputs the deal terms (K, T, L^*, T_1) and relevant market data.