

## 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.