2021 IFE Term Project(Deadline: Dec. 15, 8pm)

- Find the fair price of the following note on November 9, 2020(call it 'today') and describe what could be your Δ-hedged position if you are the bond issuer.
  - The bond is issued today, and
  - its principal is $100 and its maturity is 2 years.
  - The coupon payments will be made every three months (3M, 6M, 9M, 12M, 15M, 18M, 21M, 24M):
    - If the S&P500 index increases over than 7% (from the closing price of the nearest day between 'today' and the last coupon payment date) at the closing time of each coupon payment date, you get a 5% coupon.
    - If the S&P500 index increases less than or equal to 7% (from the closing price of the nearest day between 'today' and the last coupon payment date) at the closing time of each coupon payment date, you get a coupon of S&P500 growth rate. (e.g., the index increases 5% then you get a 5% coupon.)
    - You get nothing if the S&P500 index does not increase (from the closing price of the nearest day between 'today' and the last coupon payment date) at the closing time of the coupon payment date of each sub-period.
- A brief summary of your valuation method (2-3 pages) and your program code should be contained in your report.
- You can utilize any program language, but should disclose the risk-free rate/rates and the stock volatility/volatilities which you used.
- You should submit your report to both of the TAs via e-mail.
  (jht6448@postech.ac.kr, rlaalswn4582@postech.ac.kr)
- You can exploit both US LIBOR rates and US Treasury rates as the risk-free rates.
- You can find the stock market data from Yahoo Finance (https://finance.yahoo.com/quote/%5EGSPC/history?p=%5EGSPC).
- You can make of a team with 1 or 2 members.