

FINC6010 Derivative Securities Assignment

2022

Due time for submitting the assignment report is 3:00 pm, 19 October (Wednesday) 2022, Sydney time.

The deadline cannot be deferred further. If you or your team want to ask for special consideration, please contact the student center for formal approvals.

Upload your assignment work in Word format (.docx) or pdf format (.pdf) from “Assignments” tag on Canvas.

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CME Group is the world's leading derivatives marketplace. The group has four exchanges, CME (Chicago Mercantile Exchange, established in 1848), CBOT (Chicago Board of Trade), NYMEX (New York Mercantile Exchange) and COMEX (The Commodity Exchange). These four exchanges offer a wide range of trading benchmarks for all major asset classes. CME Group's website (<https://www.cmegroup.com/>) provides comprehensive information on derivatives trading and can be used as the major information source of this assignment.

Student teams from University of Sydney's FINC6010 course are going to investigate derivative securities trading using the trading simulator provided by CME. The simulator can be accessed after registration (free) and login (see following link). Initially, each trading team will have \$100,000 to trade but you do not need to use all the amount.

Register and login from the following link:

https://www.cmegroup.com/trading_tools/simulator.html

The investigation report should be in a Questions/Answers format (you don't need a cover page, executive summary, introduction etc.), answering the questions listed

below in sequence. **The report does not need a separate cover page.**

The 10-page report should include **everything** the student team wants to report. The submitted report should not be more than 10 pages.

“**Everything**” means student traders should not send an enquiry email, asking whether certain items are included in the 10-page limit. The answer is always - yes included.

Please provide some screenshots at the end of your report to show your actual trading practice. Reports without any trading evidence will incur 5 marks penalty.

Student(s) sending in emails, asking whether an item is included in the 10-page limit, will incur 3 marks penalty.

You or your team do not need to send group formation information by emails. Put student IDs and student names of your team on the first page of the report. **For each team, only submit one document and once.** Please put “(submitter)” after the submitter’s name. <https://powcoder.com>

For example: Green Soros (submitter), SID 123456; Walsh Buffett, SID 234567; Jack Rogers, SID 345678. Add WeChat powcoder

Example for one-person team: Joe Soros (submitter), SID 987764.

The report can use charts, tables, calculations, screenshots, or references (cite sources) for explanation purpose. There is no font size or line spacing constraints if others can read your report. Try to summarize the information and write the report within the 10-page limit.

Marks: 3 marks each for questions 4, 5, 6, 7, and 8; and 2 marks each for other questions (25 marks in total).

Login and open the CME simulator using your practice account. The questions are as follows.

1. Move to the main chart of your trading simulator. Click on “Equity Index” tag and these are equity index derivatives. In recent years, investors continue to be drawn to the emerging market opportunities of the Brazilian economy for the steady, consistent growth and diversification potential it provides. If a U.S. fund manager has a Brazilian stock portfolio, which equity index derivative should be used for the hedging purpose? What are the key potential benefits?

2. Click on “Equity Index” tag and we can find “E-mini Russell 2000 Index”. What does “E-mini” mean? What is the contract size of “E-mini Russell 2000 Index”?

3. Examine the available futures contracts for E-mini Dow (\$5). They have the contract codes such as YMU2, YMZ2, YMH3 and YMM3. Your task now is to decipher these codes. Please explain the meaning of (or rules to construct) contract codes for E-mini Dow (\$5). What will be the available contracts for E-mini Dow (\$5) in year 2030 and what will be their contract codes?

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4. The trading desk manager wants you to long one RTYZ2 futures contract with a market order. The manager did not tell you the underlying asset. Please report what is the underlying asset for RTYZ2 contract. Provide screenshot(s) to show how you conduct the transaction to establish the long position. Hold your position for 1 trading day. After 1 trading day, try to liquidate your position and obtain larger than \$5 profit. It may take some time. You may provide screenshot(s) to show how you did it. If your screenshots are too large, then use your computer skill to modify them to fit in your report.

5. Suppose you work for a European company. Due to the recent 2022 Russia-Ukraine War, you are worried about future energy price movements. Click on

“Energy” tag and these are energy derivatives. Use trading simulator chart to compare futures prices of WTI Crude Oil and Natural Gas, both with December 2022 delivery. Present your comparison in one chart. You may use 3-month (3m) or 6-month (6m) time windows. And summarize the price performance of WTI Crude Oil and Natural Gas in your chart and communicate the key findings from comparison to your trading desk manager. You need to figure out the “key findings” by yourself.

6. Again, you work for a European company. However, the derivatives (both futures and options) of WTI Crude Oil and Natural Gas are quoted in U.S. dollars. Thus, foreign exchange exposure is also a key concern for your company. Click on “FX” tag and these are foreign exchange derivatives. Go to “Euro FX” panel and look at the quoted price. How is Euro quoted? If the quoted price is 1.02655, what does it mean? Now check the option series (Select “OPTIONS” at the upper right corner) on futures contract 6EZ2 (December 2022 Euro FX). Explain which call and put options are closest to be at-the-money and how do you figure out the answer (provide screenshots if necessary).

7. Again, you work for a European company (reporting earnings in Euros) and your company needs to long 1,000 U.S. barrels of WTI Crude Oil in the spot market in December 2022. What are the main risks that your company wants to mitigate with? Using futures contracts available on CME simulator, design a trading strategy to hedge against the risks that your company may face.

8. Cryptocurrencies suffered crashes in 2022. Frequent price recoveries also happened after crashes. Go to “Cryptocurrencies” tag and these are cryptocurrencies derivatives. Implement a trading strategy by taking long positions in one call option and one put option on the same “Bitcoin” futures contract (same underlying asset).

The call and put options should have the same maturity and same strike price. You need to open and close the long positions in call and put options simultaneously. Your goal is to execute this trading strategy and take records of your transactions. You need to use screenshots to show your transactions and performance. Identify the underlying asset, strike price, maturity, and transaction time of option contracts. Explain why you have gains (or losses) from your transactions.

9. Now we go back to FX derivatives. Click on “FX” tag and these are foreign exchange derivatives. Go to “Australian Dollar” panel and now check the option series on futures contract 6AZ2 (December 2022). Use screenshots to identify one in-the-money (ITM), one at-the-money (ATM, or closest to be ATM), and one out-of-the-money (OTM) put options, respectively. Now compare the prices of these three contracts. Which one is the most expensive contract? Can you provide some economic intuition about the price difference among these three contracts?

10. Go to “FX” tag and these are foreign exchange derivatives. Are futures prices on “Euro FX” and “Japanese Yen FX” highly correlated? How do you know? Please provide some evidence.