FIN 480 – Derivatives Securities

Group Assignment – 25%

Submission Date: 2nd April 2020, 5pm UAE time.

**Option Strategies**

Your task, as the recently recruited PWC’s Quant Analyst, is to provide a thorough analysis of the following parts:

1. The price of a non-dividend paying stock is $29, its volatility is 30%, and the risk free rate for all maturities is 5% per annum.

Construct a table showing the relationship between profit/loss and stock prices. Select only one strategy, depending on your group selection.

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| **Group** | **Strategy** | **Additional information** |
| A | Bull spread | European call options with strike prices of $25 and $30, maturing in 6 months |
| B | Bear spread | European put options with strike prices of $25 and $30, maturing in 6 months |
| C | Butterfly spread using calls | European call options with strike prices of $25, $30 and $35, maturing in 1 year |
| D | Butterfly spread using puts | European put options with strike prices of $25, $30 and $35, maturing in 1 year |
| E | Straddle | Options with strike price of $30, maturing in 6 months |
| F | Strangle | Options with strike prices of $25 and $35, maturing in 6 months |

1. Three options (put) on a stock have the same expiration date and exercise prices of $55, $60 and $65. The option prices are $13, $15 and $18. Demonstrate for which range of prices would a butterfly spread lead to a loss. Show clearly your workings.
2. Assuming that the strike price in a straddle is half way between the two strike prices in a strangle, demonstrate which trading position is created by combining a short straddle with a long strangle, when both have the same time to maturity? Clearly show your working and final profit and loss diagram.

Although it’s a take home assignment, just be aware that plagiarism is a form of cheating. The penalty for plagiarism is a mark of zero and possible expulsion from the unit and/or course of study.

For those aiming a higher grade in the project, you should be able to demonstrate your finance skills through various concepts learnt through the course. Your work experience can add value as well, if appropriate.

***Maximum number of students per group:*** 6

***Grade Allocation:*** 25% of your total course grade. There will be 15% allocated for the report and 10% allocated for presentation.

Please submit both a soft copy of your project (in word) and the excel worksheet with all your workings to your Professor by email. Also, upload one copy of the word report in the Turnitin Assignment link on your Moodle platform.

**Scoring Rubric for Oral Presentation/Written Summary of Research Project** (for the written component, omit Style/Delivery column)

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| **Level of****Achievement** | **Clarity** | **Content** | **Style/Delivery** | **Use of Visual Aids** | **Integration of****Knowledge** | **Ability to Answer****Questions** |
| ***Excellent*** **40 Points**  | • Well thought out • Use of proper language • Significance clearly stated • Previous work sets the stage for this study • Handout and bibliography provided for audience  | • Identifies the research question or work • Has advanced understanding of he experimental approach and significance • Critically evaluates results, methodology and/or conclusions  | • Uses time wisely • Logical progression • Speaks with good pacing • Makes eye contact  | • Well placed images • Charts summarize data and/or conclusions • Size and labels are clear • Very little text • Figures and images explained and described well  | • Integrates research findings to broader context • Understands implication of data or method • Identifies future avenues of investigation • Supports arguments or explanation with references  | • Anticipates audience  questions • Understands audience  questions • Can integrate knowledge to answer questions • Thoroughly responds to questions  |
| ***Good*** **30 Points**  | • Use of proper language • Significance clearly stated • Handout and bibliography provided for audience  | • Identifies the research question or work •Has basic understanding of the experimental approach and significance • Critically evaluates results, methodology and/or conclusions  | • Spends too much time on introduction • Speaks well, but often back tracks • Makes good eye contact and looks at notes occasionally  | • Excellent images but not always well placed • Size and labels are clear • Very little text • Figures and charts are explained well  | • Supports arguments or explanation with references • Minimally integrates findings to broader context and identify future area• Has some understanding of the implications of data or method  | • Does not anticipate audience questions • Understands the audience questions • Can integrate knowledge to answer the question • Thoroughly responds to most questions  |
| ***Adequate*** **20 Points**  | • Talk a bit disorganized • Shows some effort to use proper language • Significance a bit unclear • Handout and bibliography are not well formatted  | • Research question a bit unclear • Description of experimental approach a bit confusing • Results and conclusions stated but not critically evaluated • No use of outside readings  | • Presentation poorly timed • Presentation jumping from different topics • Some hesitation and uncertainty are apparent • Makes little eye contact • Monotone and non-engaging delivery  | • Labels and legends are a bit unclear• Size might be a bit too small • Too much detail • Blocks of text onhandouts or slides • Figures are explained well  | • Does not integrate the work or method into the broader context • Supports argument or explanation with few references • Makes some errors in interpretation and application of data or method  | • Does not anticipate audience questions • Makes an effort to address question • Can address some questions • Overlooks obvious questions  |
| ***Inadequate*** **10 Points**  | • Talk difficult to follow • Unclear language • Does not understand significance of paper  | • Does not understand research or work • Does not understand experimental approach  | • Presentation poorly timed • Jumbled with no logical progression • Makes no eye contact and reads from notes  | • Labeling is not clear • Too small to see • No logical placement • Mostly text and very few images  | • Does not integrate the work or method into the broader context • Makes little effort to use data to support arguments  | • Either makes no effort to respond to questions or does so poorly  |