FLG5013 Postgraduate Certificate in Valuation & Risk (Product Control) - November 2022

ASSIGNMENT FOR FLG5013

Your assignment should be between **three and five thousand words** and you may also include a section for notes and diagrams. **You should include a bibliography or references section** with your submission, but the number of words in this element will not be included in determining the word count.

You should not exceed the upper word count limit of five thousand words. Any submissions which exceed the word count will only be marked up to 5000 words plus 10%. The remaining part of your assignment will not be marked. If you wish to add additional information to your assignment, this should be added as an appendix.

Candidates will be assessed on their knowledge and understanding of the topics covered as well as the lucidity and **conciseness** of their answers. **You will be especially rewarded for demonstrating analytical reasoning skills** and revealing an ability to balance a *big picture* assessment of the topics being examined, **as well as providing details and specific examples to show that you have a comprehensive understanding of the products discussed.**

GENERAL GUIDELINES

While it is perfectly legitimate to make reference to various Excel workbooks which are part of the course it is not acceptable to simply take them in existing form and submit, in support of your assignment, the specific values that were included in them at the time they were uploaded to the learning platform. There must be evidence that you have changed inputs and performed re-calculations or added some additional logic to support your arguments.

Please do not submit actual Excel files but rather you should "print" relevant sections to a Microsoft Word document, or take a screen shot of the relevant sections of a worksheet and insert the graphic along with the text in the Word document. **Any Excel files which are submitted will not be assessed by the examiner.**

You should attempt all questions and are advised that the word count on each question should be between 600 and 1,000 words. Diagrams and Excel tables (screen shots of the tables) are recommended in the approach you take to the answers. Providing examples and detailed references to actual products and specific events will enable you to earn a higher overall score.

It is not necessary to include a recital of the questions for this Assignment within your submission.

Submissions using the Microsoft WORD document format would be preferred but Adobe Acrobat submissions are also acceptable.

QUESTIONS

1. A client has requested the bank to provide a customized call option on a listed equity. The client has requested a European style option to acquire 100,000 shares of XYZ Corporation with a strike price of $100 and an exercise date one year from now. The shares of XYZ Corporation are currently trading in the market at $90 and the bank does not currently own any shares. Firstly, explain the factors that the bank would need to take into account to determine the pricing of this option for the client, and using the Black Scholes model calculate the fair value for this option. Secondly, provide an illustration of the different outcomes and risk scenarios for the client. Thirdly, discuss how the bank could implement dynamic delta hedging as a suitable risk management strategy for its exposure. Fourthly, illustrate the manner whereby the bank can make a profit on this trade if the customer exercises the option.

2. It can be inferred from the currently quoted spread of a five-year Credit Default Swap (CDS) on a corporate obligor that the annual PD is 3%. Explain what is meant by this inference and, using a detailed illustration of the mechanics of a CDS, discuss what other factors would need to properly determine the initial pricing and ongoing valuation of this CDS. CDS instruments can be used for speculating and your answer should provide a detailed example of a hedge fund could use a naked CDS position to speculate on the changing creditworthiness of a reference entity.

3. The Basel Committee on Banking Supervision (BCBS) has finalized the specification for the new Standardized Approach to Operational Risk which banks are required to implement by January 2023. Outline what you believe were the principal motivations that brought the BCBS to the decision to replace the three previous methods for capital charge calculations with the new method. Explain, by reference to a bank where the value for the Business Indicator is equal to €85 billion how the Business Indicator Component (BIC) is determined. If the average value for annual operational losses for the same bank over the last ten years is €700 million, illustrate how the overall capital charge for operational risk is calculated. Provide your own assessment as to whether the new approach is superior to the Advanced Measurement Approach which was previously employed by most large banks.

4. A speculator expects the rate on investment grade, five-year fixed rate bonds to decrease from their current 4% level. Firstly, discuss the key features of a US Treasury futures strategy that would enable the speculator to benefit if the expected outcome is realized. Use a specific example and indicate the potential benefits and risks to the strategy (this should include a discussion of the initial and variation margin requirements of the clearing house for the exchange). An alternative strategy would be to use a swaption on a forward starting swap. Explain the key terms relevant to using a swaption strategy for the speculator's expectation. You should provide specific details on the applicable terms for the forward swap and the costs of the option. Finally, outline the different scenarios that could arise affecting the pay-off function for the swaption.

5. Value at Risk methods can be used with respect to the likelihood of changes in credit risk over time. Firstly, explain the background to this technique and how it can be applied within the context of credit migration data published by CRA's. Secondly, illustrate, using different potential ratings outcomes for a particular three-year bond, how one might be able to calculate the Credit VaR for this particular bond at the 99% confidence level over a one year time horizon. Thirdly, discuss why using a parametric approach to calculating the Credit VaR from ratings migration will be flawed. Fourthly, discuss why interpolation will provide a more accurate assessment of the VaR than a purely parametric approach to the calculation.