CT8b (MA3418): Financial Engineering

Mini-project 2020

Your task:

Prepare an essay on one selected model of the term structure of interest rates

In the essay, you must address the following objectives in order to achieve a pass mark:

1. You should state clearly the model, defining all notations used.
2. Describe the desirable characteristics of the model.
3. Describe how the model can be applied to the pricing of zero-coupon bonds and interest-rate derivatives.
4. Discuss the limitations of the model and show how these issues can be addressed.

To achieve a higher mark, the essay should seek to

5. Describe/discuss how the model can be applied to insurance/actuarial science.

Deadline: **4pm on Monday, 27 April** 2020 (both hard copy and TurnItIn).

- Please submit your essay via ***Turnitin*** on Module Blackboard site before the deadline.
- Students are also required to hand **one hard copy** to the college house before the deadline.

Instructions to candidates:

General guidance

- This project represents 30% of the module assessment.
- You are required to write an essay of **about** 15 pages (with **single space**) in length (excluding, table of contents, references and appendices).
- You should number all pages.
- You must work individually and all submitted reports will be checked for plagiarism using on-line tools.
- Any literature used should be formally cited.
- You may incorporate knowledge from other CT modules.

Presentation:

- Your **student name and ID** should appear on the first page of your essay.
- The essay should contain both an abstract and/or conclusion and a main body.
- Full references and other sources of information used should be included.
- You may use Appendices to include detailed calculations, data, supporting information etc.
- Equations, graphs and tables etc. should be effectively communicated and cross-referenced within the essay.

Useful information

Please refer to:

- Module reading list
- Journal articles
- Module Blackboard site

Basic references:

Baxter, M. and Rennie, A. (1996) *Financial calculus: an introduction to derivative pricin,* Cambridge University Press (online resource available)

Carins, A. (2004) *Interest rate models: an introduction,* Princeton University Press.

Panjer, H. H. (2001) *Financial economics: with applications to investments, insurance, and pensions,* The Actuarial Foundation.