

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2021

Subject CM2 – Financial Mathematics and Loss Reserving Core Principles Paper B

Introduction

The Examiners' Report is written by the Chief Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and using past papers as a revision aid and also those who have previously failed the subject.

The Examiners are charged by Council with examining the published syllabus. The Examiners have access to the Core Reading, which is designed to interpret the syllabus, and will generally base questions around it but are not required to examine the content of Core Reading specifically or exclusively.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report; other valid approaches are given appropriate credit. For essay-style questions, particularly the open-ended questions in the later subjects, the report may contain more points than the Examiners will expect from a solution that scores full marks.

The report is written based on the legislative and regulatory context pertaining to the date that the examination was set. Candidates should take into account the possibility that circumstances may have changed if using these reports for revision.

Paul Nicholas
Chair of the Board of Examiners
July 2021

A. General comments on the *aims of this subject and how it is marked*

1. The aim of Subject CM2 is to develop the necessary skills to construct asset liability models, value financial derivatives and calculate reserves for insurance or guarantees. These skills are also required to communicate with other financial professionals and to critically evaluate modern financial theories.
2. The marking approach for CM2 is flexible in the sense that different answers to those shown in the solution can earn marks if they are relevant and appropriate. Marks for the methodology are also awarded including marks for using the right method even if an error in an earlier part of the question prevents the final answer from being correct. The marking focusses on rewarding candidates' understanding of the concepts, including their ability to articulate arguments clearly.

B. Comments on *candidates' performance in this diet of the examination.*

1. Candidates who scored well were those who were able to set out their workings clearly and follow through later question parts even if they had made a mistake in an earlier part. This allowed them to score marks for their method even if their final answers were not correct.
2. This paper was answered. The question causing the most difficulty seemed to be question 3 on credit rating transitions and bond pricing, and the notes later in this report give more detail on this. It is worth noting that the topic had not been examined before in this format.
3. Candidates should note that showing their full calculations is vital in the B paper. In this sitting any answers without workings scored zero marks.

C. Pass Mark

D.

The Pass Mark for this exam was 60.

1,309 candidates presented themselves and 445 passed.

Solutions for CM2A - April 2021 – please refer to excel file

Q1

This question was answered well on the whole, with most candidates calculating the numerical answers in parts (i) and (ii) correctly. Parts (iii) and (iv) were not answered quite so well with some candidates not making enough distinct points for the marks on offer.

Q2

This question proved to be quite tricky, with many candidates making some good points and picking up marks but not managing to produce the correct values for the option in parts (i) and (ii). Parts (iii) and (iv) were answered better, with most candidates making some good points and picking up marks.

Q3

This question was generally not answered very well, with many candidates unable to construct and use the transition matrices in parts (i) to (iii). Part (i) seemed to cause the most difficulty and candidates were given credit in later question parts if their answers were correct apart from the error carried forward from part (i). Parts (iv) and (v) were answered a little better, with most candidates showing good understanding of how default risk impacts the credit spread in part (v).

Q4

This was probably the best question in this paper considering candidates' answers, with plenty scoring full marks for the reserve calculations. The most common mistakes were incorrect development factors or not summing the claims correctly at the end of the calculation.

[Paper Total 100]

END OF EXAMINERS' REPORT