

Subject ST9

CMP Upgrade 2017/18

CMP Upgrade

This CMP Upgrade lists the changes to the Syllabus objectives, Core Reading and the ActEd material since last year that might realistically affect your chance of success in the exam. It is produced so that you can manually amend your 2017 CMP to make it suitable for study for the 2018 exams. It includes replacement pages and additional pages where appropriate. Alternatively, you can buy a full set of up-to-date Course Notes / CMP at a significantly reduced price if you have previously bought the full-price Course Notes / CMP in this subject. Please see our 2018 *Student Brochure* for more details.

This CMP Upgrade contains:

- all significant changes to the Syllabus objectives and Core Reading.
- additional changes to the ActEd Course Notes, Question and Answer Bank and Series X Assignments that will make them suitable for study for the 2018 exams.

0 *Changes to the Syllabus objectives*

There has been no changes to the Syllabus objectives.

1 **Changes to the Core Reading**

This section contains all the *non-trivial* changes to the Core Reading.

As mentioned in the 2017 course notes, the Core Reading now refers to the new edition of Sweeting:

- *Financial Enterprise Risk Management* – Second edition – Paul Sweeting. Cambridge University Press, 2017. ISBN: 9781107184619

Retakers with the first edition may prefer borrow a copy. It is expected to be available from the IFoA library.

For more information see:

<https://www.actuaries.org.uk/studying/plan-my-study-route/fellowshipassociateship/specialist-technical-subjects/st9-enterprise-risk-management/resources-subject-st9>

Changes have been made throughout the course notes to refer to the new edition. For full details of the changes arising from the new text can be found at:

<https://www.actuaries.org.uk/documents/changes-syllabus-and-core-reading-subject-st9-2018-exams>

Other Core Reading changes are:

Module 5

Section 1.4

An additional line has been added to the Core Reading at the end of Section 1.4.

More detailed knowledge of the SIMR regime is not required for the examination.

Module 33

The following terms have been updated:

Expected shortfall

Expected shortfall at a given confidence level $x\%$ (and given time horizon) is the expected loss over the worst $(1-x\%)$ of possible outcomes, allowing for the probability of loss. It is closely related to TVaR.

Solvency II

Solvency II is the set of regulatory requirements that have applied to insurance firms in the EU from the beginning of 2016. The aim of EU solvency rules is to ensure that insurance undertakings are financially sound and can withstand adverse events, in order to protect policyholders and the stability of the financial system as a whole. Solvency II is based on a three pillar approach similar to Basel II but adapted for insurance.

2 **Changes to the ActEd Course Notes**

This section contains additional *significant* changes to the ActEd Course Notes. However, if you wish to have all the changes to the ActEd Course Notes, you will need to buy a full set of the up-to-date version (which you can do at a significantly reduced price if you have previously bought the full-price Course Notes / CMP in this subject).

Module 16

Page 25

The second bullet point of Section 2.4 has been updated to state that W is independent of Z , ie:

Let:

- W be some strictly positive random variable that is independent of Z

Module 18

Page 26

Self-assessment question 18.21 in Section 6.6 “The Frank Copula” has been updated to refer to the Frank copula.

Question 18.21

Discuss potential application(s) of the Frank copula. (*Hint: consider the nature of its tail dependencies.*)

Module 28**Page 23**

In the 2017 edition, the description of the TRORS in the final bullet point has slightly confused the two parties. The final sentence incorrectly stated:

However, if Bond B does default, then C will receive (from A) a net payment on default based on the face value of Bond B less the recovery, *ie* $100 - R$.

As Bond B has fallen in value, A should be getting payment from C. The final sentence should therefore state:

However, if Bond B does default, then **A will receive (from C)** a net payment on default based on the face value of Bond B less the recovery, *ie* $100 - R$.

3 Changes to the Q&A Bank

Other than the minor corrections listed below, there have been no significant changes to the Q&A Bank.

Q&A Bank Solution 3.19

The calculation of the BIC statistics and hence the discussion in (ii) has been corrected. The corrected terms are highlighted in the replacement spreadsheet extract below. For example: $47.0538 = 2 \ln(10) - 2(-21.2243)$.

	A	B	C	D	E	F	G	H	I	J	K
1	COMPARISON OF GAMMA AND EXPONENTIAL MODELS										
2											
3	Parameter	Actual	Model 1	Model 2			Fitted models		Parameters		
4	β	2	1.7539	3.4270			Model 1 = Gamma (β, γ)		2		
5	γ	1.75	1.9540	1			Model 2 = Gamma ($\beta, 1$) = Exp (β)		1		
6											
7	(A)	(B)	(C)	(D)	(E)	(F)					
8	Quantile	Data	Likelihood		Log-likelihood						
9			Model 1	Model 2	Model 1	Model 2					
10	0.05	0.52	0.1354	0.2507	-1.9993	-1.3834					
11	0.15	1.07	0.1970	0.2135	-1.6246	-1.5439					
12	0.25	1.56	0.2135	0.1851	-1.5443	-1.6869					
13	0.35	2.05	0.2095	0.1604	-1.5631	-1.8299					
14	0.45	2.58	0.1928	0.1374	-1.6459	-1.9845					
15	0.55	3.17	0.1677	0.1157	-1.7858	-2.1567					
16	0.65	3.86	0.1365	0.0946	-1.9914	-2.3580					
17	0.75	4.75	0.1002	0.0730	-2.3009	-2.6177					
18	0.85	6.04	0.0604	0.0501	-2.8072	-2.9942					
19	0.95	8.67	0.0190	0.0232	-3.9619	-3.7616					
20		10			-21.2243	-22.3169					
21											
22	LR test	2.1851		AIC	46.4486	46.6337	→ Model 1				
23	DF	1		BIC	47.0538	46.9363	→ Model 2				
24	p-value	13.94%	→ Model 2								
25											

The concluding statements in part (ii) of the solution should therefore state:

On the basis of the AIC, ... , the gamma distribution (Model 1) is preferred because its AIC value is lower.

On the basis of the BIC, ... , the exponential distribution (Model 2) is preferred because its BIC value is lower”

Q&A Bank Solution 3.20

In part (iii), the first entry in the matrix L should be changed to 5.4650 (not 0.5650).

4 *Changes to the X Assignments*

There have been no significant changes to the X Assignments.

5 *Other tuition services*

In addition to the CMP you might find the following services helpful with your study.

5.1 *Study material*

We also offer the following study material in Subject ST9:

- Flashcards
- ASET (ActEd Solutions with Exam Technique) and Mini-ASET
- Mock Exam A
- Additional Mock Pack.

For further details on ActEd's study materials, please refer to the 2018 *Student Brochure*, which is available from the ActEd website at www.ActEd.co.uk.

5.2 *Tutorials*

We offer the following tutorials in Subject ST9:

- a set of Regular Tutorials (lasting three full days)
- a Block Tutorial (lasting three full days)
- a Revision Day (lasting one day).

For further details on ActEd's tutorials, please refer to our latest *Tuition Bulletin*, which is available from the ActEd website at www.ActEd.co.uk.

5.3 *Marking*

You can have your attempts at any of our assignments or mock exams marked by ActEd. When marking your scripts, we aim to provide specific advice to improve your chances of success in the exam and to return your scripts as quickly as possible.

For further details on ActEd's marking services, please refer to the 2018 *Student Brochure*, which is available from the ActEd website at **www.ActEd.co.uk**.

5.4 *Feedback on the study material*

ActEd is always pleased to get feedback from students about any aspect of our study programmes. Please let us know if you have any specific comments (*eg* about certain sections of the notes or particular questions) or general suggestions about how we can improve the study material. We will incorporate as many of your suggestions as we can when we update the course material each year.

If you have any comments on this course please send them by email to **ST9@bpp.com**.