

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

September 2019 Examinations

Subject CP3 – Communications Practice

Introduction

The Examiners' Report is written by the Principal 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.

Mike Hammer
Chair of the Board of Examiners
December 2019

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

Subject CP3 consists of two parts as follows:

1. Written communication (90 marks)

Produce a piece of written communication that explains a scenario typically faced by an actuary in their day to day work. This communication will be aimed at a non-actuary, although the target audience's level of financial knowledge and understanding will vary from question to question.

The communication needs to be of a standard that it would be acceptable as a first draft. It is important that the recipient would both understand the communication and be satisfied with the response. The marking schedules include details of the marks awarded for including the necessary content. To the extent that it makes the communication unclear or confusing for the audience, marks may also be lost for including irrelevant content or details that candidates have specifically been asked to exclude from their solution.

2. Reflective questions (10 marks)

A set of questions designed to allow students to consider the approach that they took in their communication and justify certain decisions. For example, students may be asked what information they felt was relevant for this audience, or which terms they specifically excluded because they would constitute jargon.

Students are provided with some background reading a few days before the exam (the Scenario Material) to allow them to familiarise themselves with the scenario without being under exam conditions. Students are expected to read the information provided, but are not required to do any further reading or research around the scenario.

B. Comments on student performance in this diet of the examination

Students were asked to draft a memo outlining details of the upcoming regulation changes affecting policyholder communications for retirement income products. A well drafted script typically included:

- Language and tone aimed at welcoming and reassuring the recipient.
- A short explanation of the current method for fund projections, mentioning the fact they are a weighted average of all funds, and describing the difference between the two growth rates used.
- An introduction to stochastic calculations.
- A simplified example of stochastic results (presented clearly with a table or chart) to demonstrate the identification of percentiles.
- Confirmation that some changes are mandatory and some optional, with two valid examples of each.

In general the question was well answered, with the majority of students picking up on the main points and pitching the explanation at the right level for the recipient. It has been noted anecdotally by the examiners that students appear to perform more strongly on average in exams where the topic is unfamiliar. Examiners do not know a student's professional background, and so this is based on the relative performance in exams that are perhaps less likely to form the core day to day work of the typical student, such as this one. Students should take care when answering CP3 questions on topics with which they are familiar to step back and consider the knowledge of the recipient, and ensure prior knowledge is not assumed unreasonably.

Students tended to score strongly on the key drafting skills, but lose marks for including unnecessary detail or superfluous points. Filtering the information to include only the points relevant to the request is key to ensuring marks are not lost here. For example, a long and detailed explanation (often including formulae) for the calculation of the existing growth rates is not necessary.

For visual aids, a chart or a table is acceptable in this case to demonstrate the output of a stochastic model. A visual aid should assist the audience in understanding the concept, rather than just produce a copy of the data. As such, an exact copy of the stochastic results from the scenario material would not receive any marks, but the same data rearranged to illustrate the meaning of a percentile would assist the recipient and gain marks.

Some students struggled with the explanation of a stochastic calculation. The recipient indicated that they found this area confusing, and therefore a basic explanation assuming no prior knowledge was needed. Some students made statements that were misleading, such as 'investment returns are picked at random'. While there are random inputs to stochastic models, implying that key parameters are just plucked from thin air is not an accurate description of the process.

In general marks for question two were poorer than question one. In particular 2(ii) was poorly answered. This is consistent with the comments on visual aids above; students should consider why they are presenting numerical data, and what exactly the data will do to aid the understanding of the recipient. The purpose of presenting data is to aid a key explanation, and answers to this question did not always indicate that students were clear on why their presentation aided the audience.

C. Pass Mark

The Pass Mark for this exam was 57.

Example Solution

Below is an example solution which would be considered a pass by the examiners. Note however, that this is not intended to be a perfect solution.

MEMORANDUM

To Sam Jones
From Alex Smith
<Date>

Safehaven Retirement Income Solution – Customer Projections and Regulatory Update 123

Thank you for your email and welcome to our company. I look forward to working with you on this project to implement changes so that we comply with the regulatory update. It will indeed be beneficial for you to have some understanding of both stochastic and deterministic methodologies mentioned in the update. Below I describe how we currently use a deterministic approach. I also cover a stochastic calculations including an example of how percentiles are derived from them. Finally I indicate some of the future changes that might arise from the update.

Projection methodologies

As you have aware, there are two possible calculation methods for fund projections; deterministic and stochastic approaches. Both use an existing fund value, assumptions about future growth rates, and allow for withdrawals and future charges to give possible fund values at different points in the future.

1. Deterministic Approach

Our current fund projections use a deterministic approach with two possible future growth rates. We call these the 'Basic Rate' and the 'Alternate rate'. They are set each year on 1 October using information in our annual investment report issued each 1 August. This report shows the actual return, expected long term growth rate and current value of each fund in our Retirement Income Solution product.

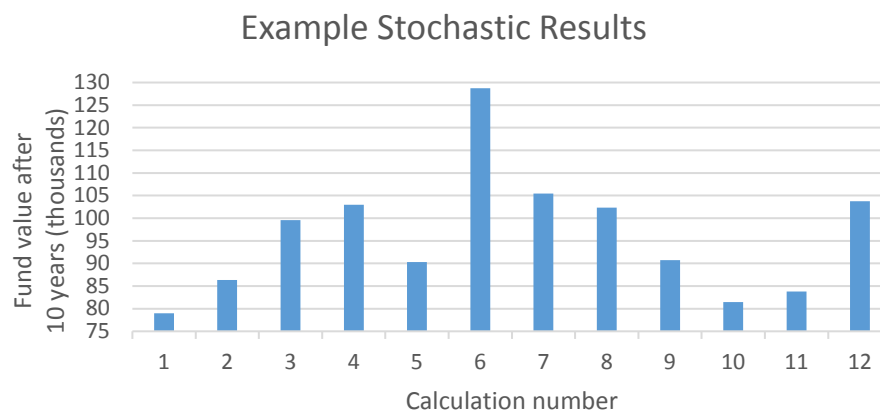
To determine the two rates, our investment team calculates the overall average expected long term growth rate across all funds taking into account the relative size of each fund. We round this up to the next whole number to arrive at the 'Basic Rate'. The 'Alternate Rate' is 1% below this. From 1 October 2019 the basic rate will be 4% and the 'Alternate Rate' 3%.

The term of our projection is 5 years. Starting with the individual policy fund value, we allow for the fund to grow at the specified rate, and to reduce with any regular withdrawals requested by the policyholder and any charges. The final answer is rounded down to whole Euros. This means we currently show a single value for each of the two growth rates.

2. Stochastic Approach

The stochastic approach is more complex but still starts with the fund value of the policy and allows for withdrawals and charges. However, instead of using a fixed growth rate, the rate is allowed to vary for each year of the projection, based on how variable growth rates have been in the past. Statistical techniques are used to pick growth rates for each year. The calculation is then repeated many times to give an indication of how the variability might impact the possible range of future fund values. Each calculation will give a different result and there is no regular pattern of results.

To give you an idea of how outputs may appear, I have produced the following graph using the example from Annex 1 of the Regulatory Update.



The graph clearly shows that the results differ for each calculation, and produce a range of possible future fund values. To add context to the range of answers and give an idea of how variable the future fund value is likely to be, percentiles are used. To determine a percentile, we first rank the results from smallest to largest. The results from the chart above have been ordered in the table below.

Calculation number	Fund value after 10 years in Euros
1	79000
10	81475
11	83765
2	86312
5	90333
9	90754
3	99543
8	102337
4	102986
12	103723
7	105432
6	128755

The 25th percentile is the result that falls a quarter of the way down the list. In this case it is calculation number 11 which is 83765 Euros. Our calculations therefore suggest that there is a 25% chance of getting a fund value lower than this, and a 75% chance of getting one that is higher. This might be thought of then as a low, but not particularly extreme potential outcome.

Note that this is a very simplified case with only 12 calculations. If we are to use this approach, the regulation stipulates 5000 calculations or more must be done. Whilst we do not use stochastic methods currently for projections, we do have expertise in these calculations within Safehaven.

Future Changes

The objective of the project is to recommend future changes, gain approval, and then work to implement them on time. Some changes are compulsory, but others are optional and we must make a decision what would be most useful for our customers.

Compulsory changes we must make include

- Allowance for individual policyholder fund choices in the projected growth rates. We cannot simply use the same growth rate for all policyholders as we do now.
- The projection term must be longer. It will be 10 years instead of 5.

Optional changes include:

- Using a stochastic method instead of a deterministic one
- Provide intermediate results at end of year 2, 4, 6 and 8 as well as at end of the projection. This is the case whichever method is chosen.

We will review all possible changes during the project to determine the best approach for our customers.

Summary

A deterministic approach is currently used, but changes to this approach will need to be made as a result of the FOS update. One possible approach is to change our projection method to use stochastic projections, which gives an idea of the variability of possible future fund values. I trust the above information has provided you with helpful background and I look forward to working with you on this important project.

I have booked the first meeting for 10 October and look forward to meeting you then. If you need any assistance beforehand, please contact me again either on email or my extension number is 5678.

Question 2

- a) As I have not yet met Sam I kept the memo friendly but still relatively formal. For example I have acknowledged that he is new and welcomed him to the company. I have remained professional for example not criticising our existing company approach or industry standards. Hence I chose not to repeat the word 'poor' in relation to existing letters but rather used encouraging words such as saying this is an important project to maintain his enthusiasm.
- b) I used both a table and a graph to present data from Annex 1 that was relevant and added value to my answer. The data I chose was for the stochastic method that Sam was least familiar with. Rather than copy the table, I used the data to create a graph because this illustrated the variability of the outputs well.

However, with the chart it is not easy to see which results might fall into which percentiles, so I ordered the results and presented these in a table. This made the concept of percentiles more intuitive because Sam can easily identify a value that is a quarter of the way down the list.

- c) I have not mentioned additional premiums as a feature that needs to be part of the projection calculation. This is because whilst it is included in the description of the process in the update, the Safehaven product does not allow increments. Mentioning increments could therefore add confusion.

I also excluded the background to why the Regulatory Update was instigated. It did not enhance Sam's understanding of the changes needed and his main focus was on projections.

Mark Scheme

FORMAT

Layout

[max 3]

Start with three marks, deduct two marks if the format is other than a memo (e.g. letter). If the memo has email addresses at the top (i.e. it is not really clear if it is written as an email or a memo) then give the benefit of the doubt and do not deduct two marks.

Then deduct the following marks if any of the following elements are missing:

Clearly addressed	(1)
Clear Author	(1/2)
Suitable title	(1)
Date	(1/2)

Cap at zero – no negative marks to be awarded.

Planning & Presentation

[max 12]

Grouping of ideas (Max 2)

Document is grouped into an appropriate number of sections (excluding intro and summary)

Award 2 marks if 3-5 sections, 1 mark if 2 or 6 sections, otherwise 0 marks

Logical order of points

BETWEEN SECTIONS (Max 2)

When awarding marks here consider the overall heading and purpose of the section rather than content within it - do sections flow in a sensible order, with knowledge that you need for a section having been previously included

If read once and clear then 2 marks, if needed to re-read parts then 1 mark, otherwise 0 marks

Between points WITHIN SECTION: (Max 3)

When awarding marks here consider the order of points within each section - do points flow and form a cohesive narrative

If read once and clear then 3 marks, if one section needed to be re-read then 1-2 marks, otherwise 0 mark

Points within the section are directly RELEVANT to the HEADING (1)

Appropriate short headings (Max 2)

Award one mark to each appropriate heading (excluding summary and introduction) up to 2 marks in total

Sentences are kept brief (Max 2)

Award 2 marks if there are no overly long sentences, 1 mark if there is 1 overly long sentence, 0 otherwise.

The principle is that a sentence is too long if it contains more than 1 message, too many subclauses, or if spoken needs repeated breaks to articulate

Visual Aids -Tables or Charts

[max 5]

Award two marks for presentation of the stochastic example data – this is the most appropriate data to present given the information the needs to be conveyed. The information must be tailored in some way – a straight copy of the table in the scenario material should be awarded zero.

Award up to three marks for the best visual aid showing any data from the scenario. Charts should be clear, with axes labelled and a short title. Tables should have clear headings, well formatted data, and no unnecessary columns.

For the avoidance of doubt, a single well formatted visual aid showing the stochastic data can score five marks by meeting both of the criteria above.

[Format max 20]

Language Used

[max 7]

Overall language (Max 5)

Language used should be simple (but not condescending) and easily understood from a new starter to a company with some financial services experience.

Award 5 marks if the document is understandable as a whole. Award 4-3 marks if up to 2 points need to be redrafted. Award 2-1 marks if three to four points or one section needs to be redrafted. Award 0 marks if more than 4 points or more than one section needs to be redrafted.

Professional tone (max 2)

Start with 2 and deduct 1 mark for each instance of unprofessional language. Examples might be comments that criticise existing practises, colleagues or regulators, or emotive language

NOTE a degree of informality is acceptable in this answer (eg can't rather than cannot is acceptable) but should not be over familiar or colloquial

Jargon and irrelevencies

[max 12]

Jargon mathematical complexity & Terminology

Absence of technical terms/formulae (max 6)

Award 6 marks if there are no terms present which are too technical for the recipient. Award 4 marks if there is one unexplained technical term, and 2 marks if there is two unexplained terms. Three or more unexplained technical terms score zero

NOTE

We are not expecting complex formulae in the answer. As a general rule, a simple calculation with figures (e.g. $75\% \times 12 = 9$) is fine if the context is reasonable, but any formulae with

letters should be considered jargon in this memo. A formula should be treated as a single piece of jargon.

The following is a list of potential jargon. The middle column will be considered jargon where it is used without an adequate explanation within the text of its meaning. This is not intended to be an exhaustive list.

Not jargon	Possible jargon	Always jargon
Statistical distribution	Weighted average	Money weighted rate of return
Drawdown	Significant figures	Investment mandate
Deterministic	Simulation	Monte Carlo simulation
	Model	Longevity risk
	Percentile	Any specific actual statistical distribution name eg Pareto, log normal
	Inputs	
	Outputs	
	Rank	
	Volatility	

Absence of irrelevant points of content to distract or confuse the audience. (Max 5)

Award 5 marks if no significant irrelevancies, 3 marks if one irrelevant point, 1 mark if two irrelevant points. If more than two irrelevant points award 0 marks.

Examples of irrelevancy include:

A detailed explanation of the calculation of the basic rate

Details of the new deterministic approach

Reasons behind the update of the FOS note

Mentioning switch charges as these will not be in the calculation

References to policyholder behaviour

Mentioning additional single premiums as these cannot be added to the policy under the terms for Safehaven Retirement Income Solution

Superfluous accuracy of numbers – if all figures are rounded to a reasonable degree then award one mark. (1)

Spelling and Grammar

[max 3]

Grammar Spelling & Punctuation (Max 3)

Award 3 marks if no significant grammatical, spelling or punctuation errors, 2 marks for one error, 1 mark for if 2 errors. Award 0 marks if more than two errors.

Each error should be significant enough to compromise the professionalism or comprehension of the document or require significant redrafting. Note this is intended to be a reasonable first draft, and therefore something like a comma in the wrong place should not be penalised unless it changes the meaning of the statement significantly.

[Language max 22]

CONTENT

Marks shown are awarded for each item of content identified in the candidate's answer. To be credited with the mark(s) the point needs to be clear and understandable. However, points that require only minor adjustment should be credited. Half marks can be awarded where the redrafting is not trivial but the point is still reasonably made.

Points do not necessarily have to appear in the order shown in the mark scheme, or even in the same section as long as the point is understandable in the context. The exception to this is the introduction and summary – these marks are only available if the points are mentioned in the introduction or summary sections of the document respectively.

Introduction

[max 3]

Acknowledges that Sam is new / welcomes him (if this is mentioned anywhere in the script marks should still be given) (1)

Show appreciation for getting in touch (eg Thank you for the email) (1)

Signpost the remainder of the letter clearly (1)

Deterministic / current method

[max 12]

Deterministic Method

Characterised by fixed assumption of growth (1)

Relatively simple model (1)

Current Approach to projection

Use a deterministic method (1)

.....using two rates of growth (basic and alternate). (1)

.....reviewed each year (1)

Basic rate based on weighted average of long term assumption (weighted average needs to be briefly explained) (1)

Rates DO NOT use actual holdings of individual customer (1)

Alternative rate is 1% below basic rate (1)

Projection term is 5 years. (1)

Allow for withdrawals where an ongoing instruction is held (1)

Result of rates are rounded up to next whole percentage (1)

Round projection to whole number (1)

Stochastic

[max 13]

Stochastic Approach

More complex (1)

This is the alternative method in Update 123 (1)

Simple explanation of a stochastic projection:

- Create many scenarios (1)

- To understand range of possible future fund values (1)
- Growth rate is varied in each scenario using statistical techniques (1)
- Different growth rate assumptions used are based on the expected variability of the growth rate (1)
- The results show how likely or unlikely certain resulting fund values are (1)
- Show possible output (graph or table) (1)

(NB specific distributions should NOT be mentioned as they may confuse Sam who has minimal statistics knowledge)

Explain concept and process to calculate percentile

- The results are ordered from smallest to largest (1)
- This shows the full range of projected results (1)
- The point at which 25% of the results are lower, and 75% of the results are higher is the 25th percentile (1) (other percentiles described here should be credited, e.g. 75th percentile)
- Percentiles are used to show how uncertain the results are by showing how wide or narrow the range of expected future fund values is (1)
- Give example (1) (can be any one of 25th, 50th or 75th but numbers must be correct)

Future Changes

[max 6]

There are some things that DO need to change (1)

TWO well explained examples (max 2)

Valid examples might be:

Must now be 3 sets of figures showing outcomes (not 2)

Must change rate of growth to reflect actual investments of the individual

Must use 10 years for term of projection

There are optional changes (1)

TWO well explained examples (max 2)

Examples are:

Include projection on line

Rounding of numbers may be changed to significant figures meaning that a result of 34567 will be shown as 34500

May choose to use stochastic approach

May show intermediate results at specified intervals 2,4,6 and 8

May show graph to customers of result of projections

May give date when fund will be eliminated in deterministic projections

Summary/close

[max 6]

Currently a deterministic approach is used (1)

Under the changes there will be the option to use a stochastic method to estimate future fund values (1)

Confirm there are a lot of decisions to make about optional choices (1)

Some definite changes are needed (1)

Provide date of project meeting as requested (this could appear elsewhere and gain credit if its placement is appropriate). (1)

Offer of further assistance (1)

[Content max 40]

MEETING OBJECTIVES

Colleague must be satisfied

6-8 marks

Colleague will be completely satisfied with the response to the question and the responder has made a good impression

The communicated answer is clear and easy to read and flows well. It looks good, is well set out and uses an appropriate tone. It satisfactorily answers questions in appropriate depth

3-5 marks

Colleague has been given an answer that is partially understandable although the flow may not be perfect. All questions have been addressed. Some technical terms may have been used that are unfamiliar or not entirely clear. There may be some excessive detail but not at the level to overwhelm the reader.

0-2 marks

Colleague is left with a poor impression of the responder.

The answer will leave the colleague confused and less enthusiastic about the project as the tone is inappropriate. The answer is poorly written and/or too technical and could be overwhelming due to inclusion of irrelevancies. There are excessive and obvious errors in spelling, layout etc. This leaves the colleague with a poor impression overall.

[Meeting Objectives max 8]

QUESTION 2

a) ½ mark per example and ½ mark for explanation

Responses can include reference to being

- Welcoming (eg welcome to the company/team)
- Friendly
- Formal
- Professional

To get full marks they should give explicit examples of how it is achieved referring to their actual response

[max 2]

b) One mark per reasonable point made. Points can include

- Used table and chart to add variety
- Used a chart because this is a good way to show the variability of results in the stochastic approach
- Did not simply replicate data that can read in Annex 1
- Ordered the results to make the calculation of percentiles more intuitive

[max 4]

c) 1 mark per example, and 1 mark per explanation. For example:

Did not give details of policyholder behaviour because each customer must be treated as an individual eg with regard to amount of withdrawals, fund choice etc

Did not include future additional premiums in discussion of projecting policy values because they are not permitted under the Safehaven product

Other answers are acceptable but must have a clear reasoning rather than simply say was not relevant to the question.

[max 4]

[Question 2 max 10]

[Paper Total 100]

END OF EXAMINERS' REPORT