Actuarial Society of South Africa

EXAMINATION

October 2019

Subject N211 — Communications

EXAMINERS' REPORT

This subject report has been written with the aim of helping candidates. This report summarises the main points that the examiners were looking for and some common problems encountered.

The examination required the candidates to draft

1. An email to their aunt to explain the potential rewards and risks inherent in an insurance scheme
2. Presentation slides to outline a business case for cyber insurance

General examiner's comments

Question 1

This question tested student's ability to communicate the expected profit and accompanying risk from an insurance scheme to a non-actuarial family member who understood working with fractions. The explanation was to be based on a detailed description of a much simpler ball game at a local carnival. This was done to guide students towards a suitable explanation of the more complex insurance scheme.

Ideally, a solution would explain how both the aunt and her husband were correct in terms of expected profit and accompanying risk. The crux of the argument was that there is a difference between the expected result from many games played and the experience in any single game. Equations were to be used as minimally as possible; no reference was to be made to permutations or combinations.

Many students did not draft their explanations from the ground up, starting with an explanation of how the results of the ball game could be derived from fractions based on the game itself. Those who did not explain how the fractions related to drawing objects in succession performed poorer in both the technical and communication sections.

It was possible to use tables and pictures in the e-mail, although pictures would have taken some time to create and were seldom used. Better students successfully used tables to assist in explaining where the fractions came from.

Some students did not base their explanation of potential risk on that experienced in the ball game, jumping straight to an explanation of card game risk.

The question was not technically challenging, but some students did not calculate expected profit correctly. Students were not expected to side with either the aunt or uncle, but rather to present a clear, unbiased explanation.

Question 2

This question tested candidates' ability to construct a persuasive presentation to the board of trustees of a retirement fund. A large amount of information that had to be rearranged and edited to ensure that the trustees were aware of the liability they faced as well as the various options for assistance available to them. There was an opportunity to utilise different types of graphics and pictures to enhance the presentation.

Candidates were not given a draft agenda slide, but most used the instructions provided in the question as a broad guide for the structure. More successful candidates were able to arrange the information in a manner which would enable the trustees to make a decision on the need for further investigation into the need for cover and other risk management strategies. The challenging aspect of this question was to construct a sound argument with the wide array of information given in a clear and concise manner and structure played an important role here.

Candidates were expected to use terminology appropriate for retirement funds (members, fund, trustees etc) and not those consistent with a commercial enterprise.

Many candidates were able to include the information given in the question in their slides, but a number were not able to strike an appropriate balance between sufficient detail and clarity. Very few candidates reworked the question wording to make the content appropriate for a presentation as opposed to written notes. Better candidates were able to synthesise the information to focus on aspects that the trustees would not have been aware of. Most candidates missed out on setting up an appropriate introduction and conclusion for the persuasive nature of the presentation and focussed only on repeating the information given in the paper.

Better candidates were able to build an argument with the information given that would persuade the trustees to investigate further options to protect themselves, the fund and most importantly, its members.

Question 1 - Draft Solution

From: Jo Peters <jo@gmail.com> <date/time>
To: Lindiwe Peters < lpeters@gmail.com>
Subject: Card game insurance profits and risks

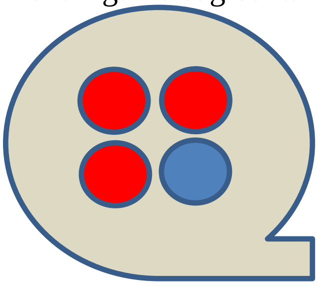
Dear Aunt Lindiwe

As strange as it may seem, both you and Uncle Lucky are correct. For every 1 828 hands of cards played, Lucky can expect to make R828. However, he could also end up R999, or more, poorer on any card night. There is a difference between the expected result from many hands played and the experience in any single hand. I will explain how this works in the carnival game example and then apply it to the proposed insurance scheme.

Fair game

Expected long-term result

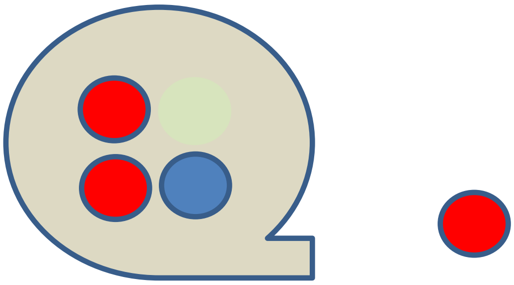
The fair game bag contained 3 red balls and 1 blue ball.



As confirmed by your table, players have a 3 in 4 chance of drawing a red ball on their first ball draw. This chance can be represented by the fraction ¾.

First ball drawn	After first draw			
red	possible win	Red	red	blue
red	possible win	Red	blue	red
red	possible win	Blue	red	red
blue	loss	Red	red	red

If they drew a red ball first, there are now 2 red balls and 1 blue ball left in the bag.



They have a 2 in 3 chance (⅔) of drawing a second red ball. Your table shows that the player would win in 2 out of the 3 remaining possible outcomes.

First ball drawn	Second ball drawn	After second draw		
red	red	Win	red	blue
red	red	Win	blue	red
red	blue	Loss	red	red
blue	red	Loss	red	red

The player is expected to win only half of the time. You can use fractions to get to the same answer:

$\frac{2}{3} \times \frac{3}{4} = \frac{1}{2}$

This approach can be used to work out the expected outcome in all similar games of chance. However, the result of any single game can differ from the expectation.

Actual experience
Players draw 2 balls in random order. It is therefore possible for the stall to have a run of gains or losses at any time. Players can only be expected to win around half the time if they play many games. The fewer games they play, the more likely it is that their actual winnings will vary from that expected. The stall was given R100 at the start of each day to cover the random chance of a run of losses at the beginning of the day.

Insurance scheme
There are 20 high value and 32 low value cards in every pack of 52 cards. The chance of a player getting a low value card as the first card he is dealt is $^{32}/_{52}$. There are now 31 low value cards left in the remaining pack of 51. The chance of getting a second low value card drops to $^{31}/_{51}$ and so on. The chance that the last card dealt to the player is a low value card, given that the previous 12 were also low value, is $^{20}/_{40}$.

Multiplying the chance of getting successive low value cards together, we get a $^{1}/_{1828}$ chance of getting a hand of only low value cards. This means that Lucky can expect to pay out R1000 in every 1 828 hands played. You can therefore expect a long term expected profit of R828 per 1 828 hands played.

However, it is possile that Lucky will have to pay out R1000 in the first hand he insures, leaving him with a loss of R999. If his bad luck continues in the second hand, he will have lost R1 998. However, if enough hands are played, he can expect to make an overall profit.

If Uncle Lucky lives up to his name, he could make the profit he is expecting. However, a risk of high losses also exists. I'd be happy to chat to both of you together about this.

Love
Jo
618 words

<u>Question 2 - Draft Solution</u>

Retirement Fund Trustee Liability

TO: The Trustees of XYZ Retirement Fund

FOR: Employees of ABC

BY: Alex Moodley (actuary at ABC)

QUERIES: contact alex.moodley@abc.com

DATE: 24 October 2019

1

Agenda

Background to fund liability

Fund size and rules

Objectives, duties and responsibilities of trustees

Extent of liability

Possible solutions

Additional risk management services

Risk management strategies

Conclusion

2

Background to fund liability

Can trustees be held personally liable for losses incurred by XYZ Fund?

Yes

but there are steps that can be taken

- Trustees should ensure they understand
  - their role as defined by regulation
  - the extent of their liability
- Liability insurance and other measures are available to mitigate some of the risk

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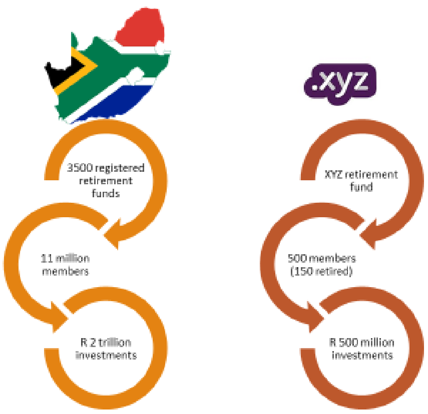
Fund Size and Rules



Trustees manage the retirement Fund

Eight members, four are independent of the funders and members

Rules of the Fund

- Set out objectives, responsibilities, and duties of trustees
- Determine how the Fund must be managed
- Correspond with requirements of the Retirement Fund Act

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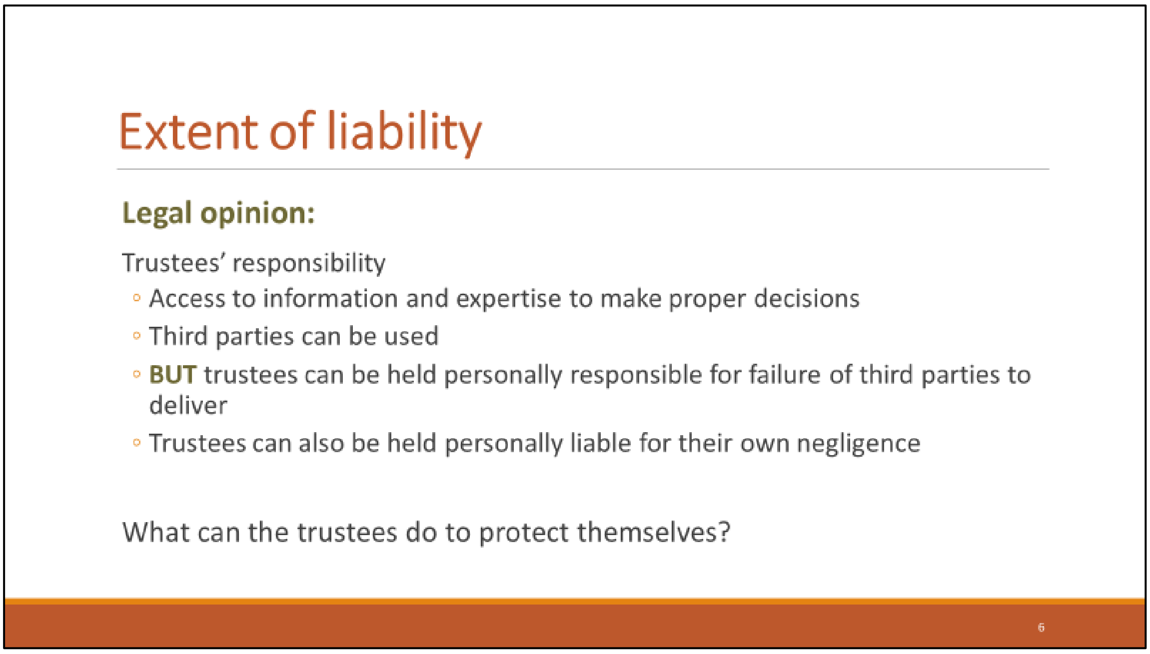
Objectives, duties and responsibilities
DUE DILIGENCE
RULES AND REGULATIONS
Conflict of Interest
Objective
• Manage Members' investments
Act with
• Care
• Due diligence
• Good faith
• Impartiality
Take reasonable steps to
• Protect member interests
• Comply with Rules and Act
Avoid
• Conflicts of interest
5


Extent of liability
Legal opinion:
Trustees' responsibility
◦ Access to information and expertise to make proper decisions
◦ Third parties can be used
◦ BUT trustees can be held personally responsible for failure of third parties to deliver
◦ Trustees can also be held personally liable for their own negligence
What can the trustees do to protect themselves?
6


Possible solutions
Professional Indemnity and Fidelity Guarantee cover for trustees of retirement funds
Cover for
◦ Errors & Omissions
◦ Emotional Distress
◦ Legal fees and expenses for pension arrangement investigations
◦ Professional indemnity cover for trustees and principal officers
◦ Fidelity cover to protect trust assets against theft or fraud by a trustee
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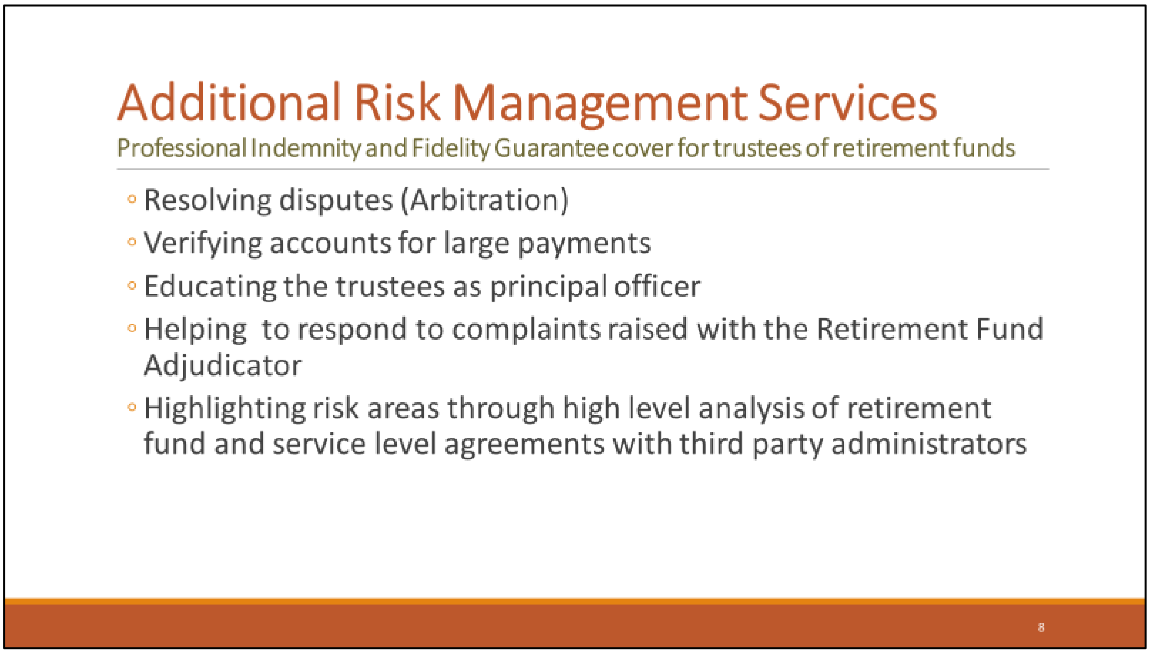
Additional Risk Management Services
Professional Indemnity and Fidelity Guarantee cover for trustees of retirement funds
◦ Resolving disputes (Arbitration)
◦ Verifying accounts for large payments
◦ Educating the trustees as principal officer
◦ Helping to respond to complaints raised with the Retirement Fund Adjudicator
◦ Highlighting risk areas through high level analysis of retirement fund and service level agreements with third party administrators
8

Risk Management Strategies

Options to assess and select for the XYZ Fund

Consider your risk management options

- Vetting of third parties
- Tender processes for third party contracts
- Regular training for trustees

Choose cover/strategy

- Professional Indemnity and Fidelity Guarantee
- Added risk management benefits for members
- Suitable providers
- Other risk management strategies

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Conclusion

Trustees

- responsible for appropriate management of members’ funds
- can be held personally liable for losses incurred by trustees or by third parties if trustees do not act in the members’ best interests

Cover is available to protect the trustees and provide assistance in managing risks.

Cover is beneficial to both the trustees and the members.

Other risk management strategies could also be considered.

Thank you! Any questions

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END OF EXAMINERS’ REPORT

