2018 PART III EXAMINATIONS

Subject Title: C10 Commercial Actuarial Practice

Date: Friday, 4 May 2018

Time: 9:00am – 5:00pm

Time allowed: Eight (8) hours

Instructions: Type your answer to your chosen question using Microsoft Word and ensure that there are no links to spreadsheets.

Spreadsheets must be copied and pasted in your MS Word Document. Only your Microsoft Word document will be marked.

In your answers, include your candidate number in the header and footer on each page of the document.

You should save your work regularly.

Number of Questions: Five (5)

Candidates are required to answer only **ONE** question.

This paper has **TWENTY-ONE** (21) pages (including this page).

ENTERPRISE RISK MANAGEMENT

QUESTION

The XYZ Trustee Pty Ltd (Trustee) is responsible for the management of the Australian XYZ Super Fund (Fund). The Fund has around $10 billion of Funds under Management (FUM) invested on behalf of around 50,000 members in a simple balanced fund product. Over the last 15 years the Fund has grown strongly at around 7% p.a.

The Trustee undertakes its operational responsibilities through a combination of both in-house (Fund investment and administration) and outsourced (advice, custody and insurance) activities. To cover the costs of these various activities the Trustee charges management fees. With the residual management fee after meeting these costs, the Trustee seeks to (a) retain a sufficient level of operational risk reserve of around 0.25% of FUM to meet the potential impact to members of an extreme operational risk event, and (b) distribute any remaining excess back to members.

Historical data of operational risk events (refer Excel Workbook attachment (Tab (a)) shows a wide variety of events over the last 15 years, both in terms of size and type of event, with a single extreme event being observed in 2007 (External Fraud with all Trustee costs subsequently recovered from the third-party supplier deemed responsible). In the case of events impacting member superannuation balances, in all cases member balances have been able to be restored by the Trustee out of available capital reserves. This highlights the importance of the Trustee managing its operational risks, both by retaining a sufficient level of operational risk capital, and also by undertaking business with external service providers with sufficient financial resources to address any operational risk event for which they are responsible.

An independent analysis of historical operational loss data, to help the Trustee better understand their operational risks, has not been undertaken in the recent past. The Trustee Board has approached you, an independent consulting actuary with expertise in operational risk management and financial analysis, to prepare a report that will use this data, and your understanding of ERM, to recommend improvements to the management of operational risk. The Trustee defines operational risk as the risk of loss arising from inadequate or failed processes, people or systems. As part of this report they have asked you to:

1. Analyse the data provided to give a historical perspective to the XYZ Trustee and Fund operational risk experience. Outline key insights that will help the Trustee better understand its operational risk.

2. Use the data to review the current definitions being used to classify the impact of financial / operational risk events from insignificant through to severe (refer Excel Workbook attachment (Tab (b)) and recommend any changes.

3. Provide your view of the current risk profile of material operational risks. Take into account the recent management "material risk survey" (refer Excel Workbook attachment (Tab (c)), your analysis of historical loss data, your proposed impact definitions, and anything else you deem relevant. Comment on the extent to which the risk profile of each material risk is within risk appetite.

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4. Provide any other comments more generally that you think are important to the long term effective management of operational risks (no more than 5 additional points).

5. Summarise your key recommendations for the Board to help them improve their management of operational risk.

You have been provided the following information in an Excel workbook:

a) *Trustee Event History Data* - 15 years of operational risk event history;

b) *Risk Rating Approach* - The Trustee Board's current risk rating approach; and

c) *Material Risk Survey* - A summary of a recent XYZ senior management survey (December 2017) of the likelihood, potential impact and trend of current material operational risk types.

In addition, you have conducted an initial meeting to understand XYZ's requirements, where the following was discussed with senior management and Board representatives:

- Growing concerns around external cyber fraud risk;
- A general desire from the Board to be more engaged around more material operational losses and risks;
- Lower than expected staff engagement and satisfaction levels measured in the recent (December 2017) annual staff engagement survey;
- The increasing focus from the Australian regulator around improving the industry's risk culture.

Prepare your report.

Attachment

C10_ERM_S1_2018_Q_DATA.xlsx

END OF QUESTION

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GENERAL INSURANCE

QUESTION

It is 9am on 4th May 2018. You are Anne Actuary, an independent actuarial consultant in Capland. In the 10 years since you became an FIAA you have been engaged in many consulting projects for a range of customers, and now you have a new client, the Capland Insurance Trade Union (CITU). You have just completed a one-hour meeting with Trey Du, the public relations manager for CITU and he has engaged you to help CITU with an issue relating to Capcorp.

Capland is a developed nation with a population of 30 million. Capland is comprised of 3 states: New South Scotland, Western Capland and Kingsland. Its economy is strong with a wide range of successful industries. Average weekly earnings are close to $1,000 and the Capland Dollar (CPD) is approximately on par with the Australian Dollar (AUD). Capland has a sophisticated financial system, and strong regulators protecting insurance customers. The Capland government protects workers with strong laws for workplace safety, minimum wages, and generous retrenchment payouts.

With a 12% market share as measured by gross written premium, Capcorp is the third largest general insurer in Capland. It writes insurance both via the direct channel, using the Capcorp brand name, and via the agents and brokers channel, using the CapInsure brand. Capcorp sells direct insurance via both its call centre and its web site. Capcorp is a public company, listed on the Capland Stock Exchange. There are 25 insurers in Capland, with the 8 largest totalling 90% market share.

On Monday 11th September 2017, Capcorp released its annual results for the year ending 30th June 2017. Acknowledging the poor results, Catherine Everton-Overton, the CEO of Capcorp, released the following statement:

> *While we acknowledge that the reported loss for 2017 may look worse than usual, I believe that this is merely short-term growing pains. We achieved sales growth of 20% year-on-year, up from the 2% pa growth we had achieved historically. Over the coming year I will be personally overseeing further restructuring to capitalise on our recent growth:*
>
> - *expense savings that take advantage of economies of scale from growth, and*
> - *premium increases that will improve our margins and take advantage of our brand value.*
>
> *Make no mistake -in 2018, Capcorp will report profits and further growth.*

The CITU is the only trade union for the insurance industry in Capland. It is estimated that 65% of insurance employees are members of the union, and that membership is even higher for insurance call centre staff, with 97% of insurance call centre staff being CITU members.

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CITU has 3 core values:

1. Fairness to all
2. Safe and healthy workplaces
3. Quality of life for employees

Trey tells you that the Capcorp call centre staff have been complaining to CITU. Call centre staff have been reporting:

- lower remuneration and fewer sales bonuses
- higher staff turnover rates
- staff hiring freezes – resigning staff are not being replaced
- greater pressure to shorten phone calls and get sales quicker, due to fewer staff

Call centre staff are paid the minimum wage ($300 per week) but can significantly increase their remuneration via sales bonuses. They get a weekly sales bonus of $50 per sale, but those bonuses are not paid if they do not meet all of their other weekly KPI targets:

- number of calls taken >= 100 per week
- sale to call ratios >= 10%
- leave taken <= 1 day per week

Trey says that CITU does an annual survey of its members, and that Capcorp call centre staff remuneration (including bonuses) dropped by an average 15% in the February 2018 survey versus the February 2017 survey. Over the same period, members working for other insurance call centres achieved a 4% increase in remuneration on average. Furthermore, Trey has shared data from the weekly KPI reports of some of his members who worked for Capcorp in February 2017 and/or February 2018.

After Capcorp management refused to meet a CITU representative to discuss the call centre problems, CITU published a press release that made it into the national newspapers and TV yesterday. Here is an example article from the Capland Morning Herald:

> ***Fat Cat Managers Dodge Their Responsibilities***
>
> *The CITU reports that Capcorp is paying its call centre staff 15% less than a year ago, while making them work harder, for longer hours. "I can't afford to pay the rent any more. Many of my friends have resigned. The company lost money due to some bad decisions a year ago, and now they're cutting staff numbers, and forcing people to resign so they don't receive retrenchment benefits. Those fat cat managers are making me pay for their bad decisions!" reported Kylee Moran, a long-term call centre employee for Capcorp.*
>
> *Trey Du from CITU said that Kylee's comments were just the tip of the iceberg. He said that after Capcorp reported a loss in 2017, it embarked on a program of hiring freezes and cost cutting programs in parts of the company that had nothing to do with the losses. Furthermore, he claimed that staff health and safety are being put at risk due to reduced staff numbers. At the same time,*

Capcorp management were receiving bonuses and share options, and not feeling the pain that they caused. He called on Capcorp management to stop gutting the company, and to value its hardworking staff.

Capcorp share values opened strongly but weakened through the day, closing at a value 4% lower than yesterday.

The Capland Morning Herald contacted Capcorp for a response, but Capcorp management said that they did not wish to comment at this point of time.

Late yesterday, Percy Nell, General Manager - Human Resources at Capcorp, contacted CITU. He denied that there is any problem, saying that staff are paid well, and said that there are staff who earn much more than average weekly earnings. However, he did agree to meet CITU today at 6pm, and said that CITU needs to "put up or shut up" i.e. provide solid evidence or retract its press release, as it had negatively affected Capcorp's share price. Trey has dealt with Percy before and tells you that Percy tends to be defensive at first, but in the past whenever Trey has made a suggestion whereby both Capcorp and staff both get something out of the deal, then Percy becomes more reasonable and usually accepts the suggestion.

Trey has asked you to write a report:

- backing up the CITU press statement,
- explaining Capcorp's actions and motivations and how that impacts upon the negotiations,
- finding business changes that can be suggested to Percy that would be of benefit to both Capcorp and call centre staff,
- recommending improvements to call centre remuneration and staffing levels that are likely to be agreed to by Capcorp,
- explaining any bargaining leverage that the data reveals, and
- recommending anything helpful that comes out of your analysis.

He needs your report by 5pm so that he can use it in his 6pm meeting. He will use extracts from your report during his meeting with Percy and may possibly use extracts from your report in further press releases if today's meeting with Percy doesn't go well.

Note: All of the data obtained by CITU from its members was obtained legally according to Capland law and you can use it for your report.

Attachment

C10_GI_S1_2018_Q_Data.xlsx

END OF QUESTION

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GLOBAL RETIREMENT INCOME SYSTEMS

QUESTION

Fifi is a Trustee Director of a large Australian industry superannuation fund with over 250,000 members. The Fund is the default fund for the education sector and, while open to the public, mainly consists of members whose superannuation payments are directed to the Fund's defined contribution product by their enterprise bargaining agreements (i.e. do not have choice of super fund). Fifi is a member representative director and is also the general secretary of the National Education Union.

The Trustee's business strategy has been to achieve better economies of scale by increasing membership and assets under management. Currently, the only retirement pension product offered by the Fund is an account-based pension.

The Trustee has been considering introducing a new retirement product option. The Trustee is aware that the Australian Government recently introduced new regulations to facilitate innovative lifetime retirement income stream products. In addition, around 20% of current Fund members are expected to move into the retirement phase in the next decade.

Fifi has recently received some marketing material concerning Mercer's LifetimePlus product ("LifetimePlus"). She thought the projected retirement income graphs were interesting and has forwarded some screenshots to you, the Fund's product actuary, for your comment. She admits she has not looked into the detail behind the projections or the product design.

Appendix A shows the projected retirement income if a member was to use LifetimePlus. Fifi is particularly interested in the increasing retirement income at older ages and thinks that this would be attractive.

Appendix B shows the projected retirement income assuming the same member used an immediate lifetime annuity.

Fifi is interested in offering a pooled income stream product. The CEO has asked you to prepare a report for Fifi, covering at least the following:

a) Background

- Introduction to pooled income stream products, i.e. concept and underlying principles.
- How these products differ from guaranteed lifetime products provided by insurers, including advantages and disadvantages

b) LifetimePlus discussion

- Which retirement product is more comparable to Lifetime Plus (as shown in Appendix A): an immediate lifetime annuity (as shown in Appendix B) or a deferred lifetime annuity?

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- Whether or not the projected retirement income from LifetimePlus would be appropriate given a retiree's expected expenditure patterns.

c) Design and modelling results

- A workable pooled income stream product design, i.e. formulate your own methodology of how mortality/experience surpluses could be distributed.
- Various modelling results of your design that Fifi would need in order to understand the different aspects and impact on different stakeholders.
- Discussion on key risks of offering the product from both a member's and the Fund's perspective. More specifically, a member invested in the product would be exposed to various aspects of the product's mortality risk that would not be present if they were to purchase a deferred lifetime annuity. Your results should demonstrate to Fifi the volatility of this risk.

d) Recommendation

- Make and justify a recommendation on whether the Fund should introduce a pooled retirement product. If you were to introduce a pooled retirement product, would you recommend the Board investigate providing the product in-house, or white label the Mercer product?

Note to students:

For the purpose of this report, pooled income stream products are defined as any lifetime income stream products which involve sharing of longevity experience and/or investment experience within a pool. A wide variety of designs is possible under this definition. The Mercer LifetimePlus product is a specific form of arrangement that distributes mortality surpluses (as they arise) to survivors, reducing or eliminating the need for any reserving or assumptions about future mortality experience.

For your modelling in part c):

- You can choose any pooled income stream design to model. Ensure that your spreadsheet calculations are clear and easy to follow, and that the output in your report is comprehensive. Include all the assumptions/methodology you have used in an Appendix to your report.
- You do not need to allow for the Age Pension. To simplify your modelling, you can assume that members joining the product would not be eligible for any social security benefits.
- Your modelling should assume at least 1,000 members join.

You have been provided with limited background information on Fifi's Fund. You can introduce appropriate background facts if you are finding it difficult to arrive at a recommendation as required in part d).

Appendix A Mercer Lifetime Plus Materials

Appendix B Comminsure Lifetime Annuity Materials

Attachment ABS Life Tables: C10_GRIS_S1_2018_Life_Tables.xlsx

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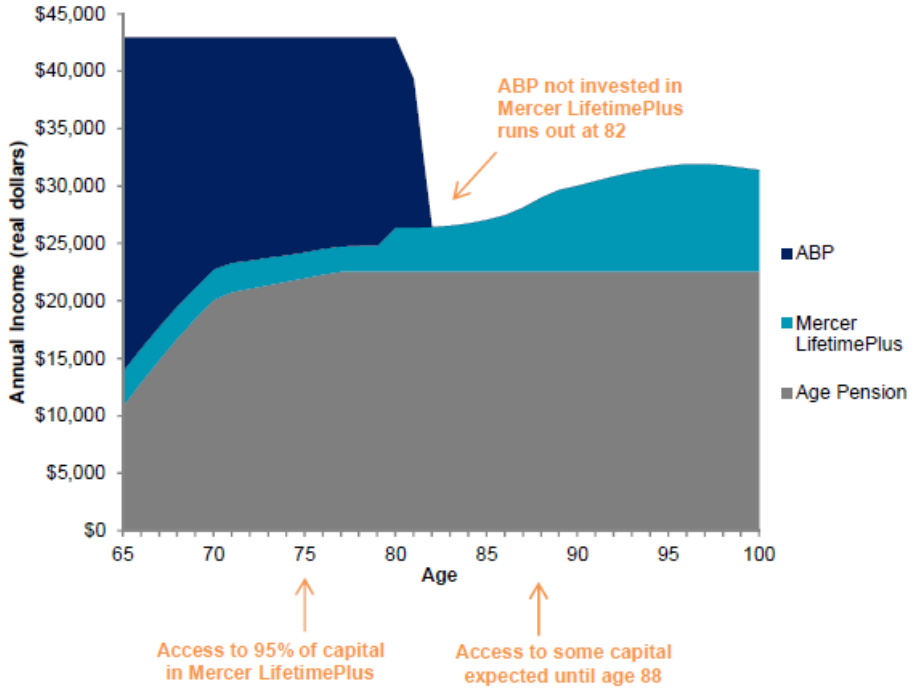
Appendix A

STRATEGY 6 – INVEST IN MERCER LIFETIMEPLUS AND HOLD FOR LIFE

Finally, Tom's adviser also considers investing $100,000 of his ABP in Mercer LifetimePlus, an investment option within the ABP, to generate an income above the age pension later in life.



The proportion of Tom's ABP that is not invested in LifetimePlus is expected to run out at age 82. However, Tom will continue to receive an income from Mercer LifetimePlus and can expect, in today's dollars, an income between $8,000 to $9,000 p.a. above the full age pension[13] later in life.

As Mercer LifetimePlus is designed to reward those that live longer, Tom's income from Mercer LifetimePlus is expected to increase as he ages. He also retains access to 95% of his investment in Mercer LifetimePlus until age 75, and following that, this capital access is reduced on a dollar for dollar basis by the income he receives from Mercer LifetimePlus after age 75. Based on this strategy he is expected to have access to some capital until about age 88.

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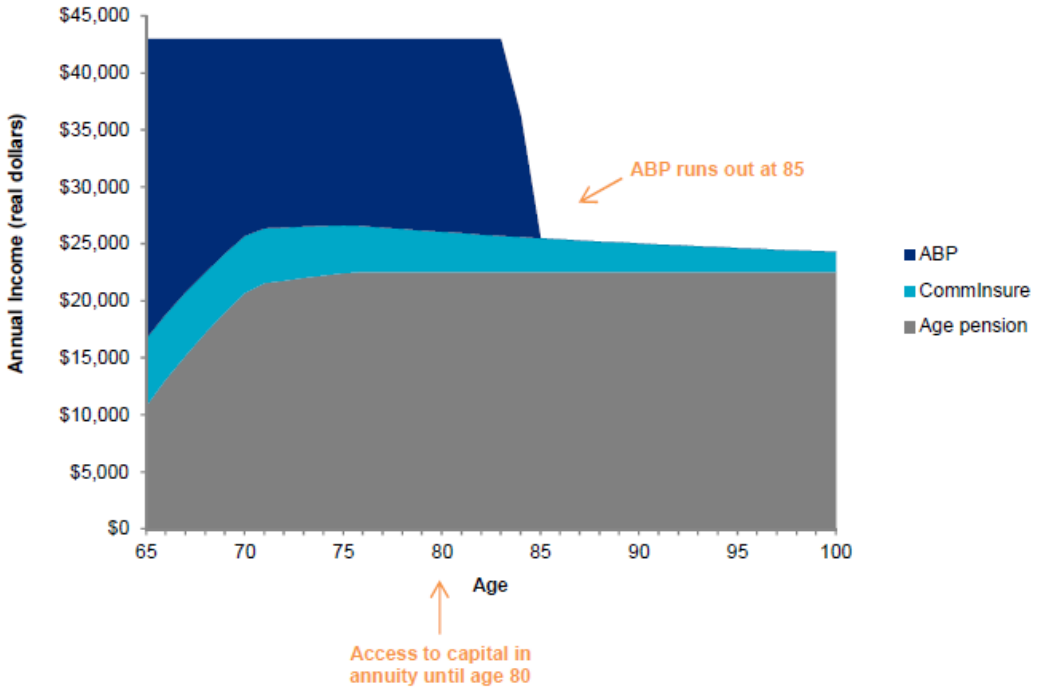
Appendix B

STRATEGY 5 – INVEST IN A COMMINSURE LIFETIME ANNUITY AND HOLD FOR LIFE

To ensure that Tom is receiving the best possible outcome from purchasing an annuity, his adviser also considered CommInsure Lifetime Annuities. A $100,000 investment in a non-indexed CommInsure Lifetime Annuity with a 15 year guaranteed period will provide an annual income of $5,900[10] as of the date of publication. As with strategies 3 and 4, the balance of his super ($300,000) is invested in the Mercer Allocated Pension.



Similar to Challenger Liquid Lifetime being held for life, Tom's ABP is expected to run out at age 85, three years short of his life expectancy. Whilst CommInsure Lifetime Annuity and Challenger Liquid Lifetime both provide access to capital for 15 years from the commencement of the annuity and no inflation protection, CommInsure offers a higher annual income than Challenger Liquid Lifetime, thus drawing down less from Tom's ABP.

Tom can expect, later in life, to receive an annual income around $2,500 p.a. above the full age pension[11] in real dollars. His total annual income when his ABP runs out is expected to be about $2,500 above the ASFA modest retirement standard[12].

END OF QUESTION

INVESTMENT

QUESTION

Capland has a well-developed financial sector. The financial regulator of Capland has, until recently, not allowed fund managers to offer derivative-related products to retail investors. However, the rules have now been relaxed and fund managers are allowed to sell products that use options.

SmallFund is a fund management organisation in Capland. SmallFund is known in the industry to provide innovative fund management opportunities to investors. In the past, the most successful investment offerings of SmallFund have been those that offered some form of investment guarantee.

A survey of investors' appetite has shown that there is significant appetite for guarantee products. However, in recent years, poor market outcomes have led to higher than expected use of shareholder capital to support investment guarantees on these products. This has led to an increase in the cost of capital from 13% to 17% per annum for SmallFund (but this may not necessarily be the case for the industry as a whole). While the Board of SmallFund is keen to continue offering guarantee products they have been concerned about the investors' appetite for such products due to the increase in fees. In light of the regulatory change, the Board is exploring the possibility of developing a guarantee product using options.

You are an Investment Actuary in SmallFund and have been asked to explore the suitability of such a product. Your manager is also aware of the fact that your partner works in the only options clearing house in Capland.

Draft a report to the Board.

Your report should:

- Compare an option-based product against a capital-based product. The comparisons must be based on suitable metric(s) relevant to the product and the Board.
- Outline the benefits and drawbacks of the option-based product compared to the capital-based product.
- Include a recommendation to the Board.

In order to aid you, you have been provided the following:

- Appendix A contains the details of a product that can be used for the comparison; rules and regulations and other useful information.

- Attachment B (C10_INV_S1_2018_Data.xlsx) contains relevant Capland Investment Data.

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Appendix A:

Product Specifications:

A guarantee product that provides a guaranteed return of Retail Price Index (RPI) + 2% per annum less fees. The investment period of the guarantee product is 3 years. This structure can be used for both the capital-based product and the option-based product. 100% of the members' funds will be invested in equities.

Retail Price Index Expectations

The RPI growth expectations for the next three years are as follows:

	T+1	T+2	T+3
Growth Rate	2.50%	2.75%	3.00%

Investment Expenses and Profit Targets

The investment expenses for SmallFund, as % of FuM, are as follows:

	Equities	Bonds	Cash
Fees (p.a.)	0.20%	0.15%	0.10%

Any option trade involves an additional 0.15% transaction cost per trade.

SmallFund's profit targets are a return of the greater of 0.40% p.a. of FuM or Return on Capital (if any).

Capital

The parent company of SmallFund has access to large amounts of capital, which can be deployed upon request for an appropriate RoC. According to the financial regulator of Capland, capital guarantee investment products require capital backing such that the product can withstand a one in a hundred-year event.

Tax

There are no tax implications.

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Option Price Formula

The Black-Scholes formulae for the prices of call and put options are:

$$C = S_0 N(d_1) - Ke^{-rt} N(d_2)$$

$$P = Ke^{-rt} N(-d_2) - S_0 N(-d_1)$$

where,

$$d_1 = \frac{\ln\left(\frac{S_0}{K}\right) + \left(r + \frac{s^2}{2}\right)t}{s\sqrt{t}}$$

$$d_2 = d_1 - s\sqrt{t}$$

$$N(x) = cumulative\ density\ function\ of\ standard\ normal\ distribution$$

Note: *In answering this question, the product specifications are NOT to be changed from the one specified above. The report should provide a complete and proper description of the experience analysis and the modelling process. Possible metrics for comparison can include final payouts and profitability.*

END OF QUESTION

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LIFE INSURANCE

QUESTION

Capland is a first world country with a fully developed financial marketplace.

First Life ("FL") is a medium sized life insurer which has been operating for many years. It provides a full product set:

- Investment: Retirement savings, Retirement income, Non-Retirement investment;
- Risk: Term, TPD, Disability Income, Trauma.

Five years ago, it recruited a new CEO after the retirement of the previous CEO. The new CEO introduced a bonus scheme for senior executives. The determination of bonuses was entirely at the discretion of the CEO. There were no explicit rules. While the senior executives welcomed their bonuses, there was growing anger about their arbitrary nature. It was felt by many that the size of your bonus depended on whether the CEO liked you rather than whether your performance was good.

This reaction of the senior executive group inevitably led to a decline in the overall performance of FL, driven mostly by a major drop in investment new business. As a result, the Board decided to replace the CEO. In addition, it gave the new CEO a directive that each executive's bonus was to be determined based solely on the actual performance of that executive. They also decided that each year the Board would decide the total bonus pool as a percentage of pre-tax profit. They indicated that the percentage would be higher for higher profits and zero if a loss was incurred by FL. They have stated that the final bonus scheme will require their approval before it is implemented.

You are the senior partner of Capland Independent Actuaries ("CIA"). CIA has a strong reputation of being able to provide truly independent advice to financial institutions.

The new CEO has asked you to provide a rigorously justified recommendation for a bonus scheme which will meet the Board's requirements. She emphasized that your report will be provided to the Board.

Her brief included the following requirements:

- The scheme must be based solely on performance
- The measurement of performance must include both short-term and long-term performance, e.g. underwriting performance can only be determined over time; short term performance is virtually impossible to measure for underwriting
- The scheme will operate on a yearly basis
- It can have bonuses which are paid immediately and others which are deferred and paid after a delay of some years
- It must be able to be very clearly understood by all senior executives
- It must include a set of principles for the Board to use in its determination of the percentage of pre-tax profit which will constitute the bonus pool.

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In her discussions with you she said that she wanted:

- a set of principles which would apply to both investment and risk business, and
- a specific illustration of the application of those principles to the YRT product.

Task

Prepare your report

Appendices

A: FL's Organisation chart

B: YRT Product Details

C: YRT Expense Analysis

D: YRT Experience

E: YRT Current Pricing Assumptions

F: FL's Capital Requirements

Attachments

C10_LI_S1_2018_Q_Premium Rates.xls (Also in Appendix B above)

C10_LI_S1_2018_Q_Pricing Assumptions.xls (Also in Appendix E above)

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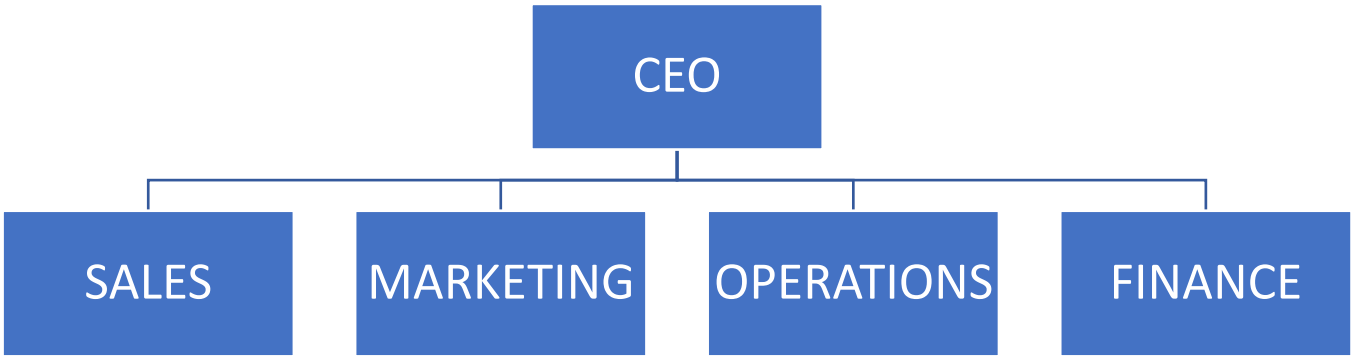
APPENDIX A: FL's Organisation chart

The CEO and the heads of Sales, Marketing, Operations and Finance are the senior executives. For the purposes of the bonus scheme the heads of the subsidiary units within each of the four units can be ignored.

Operations includes Personnel Management, Underwriting and Claims

Finance includes Investment Management, Actuarial and Accounting. The Head of Finance could also be the Chief Actuary, in which case they would also be the Appointed Actuary.



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APPENDIX B: YRT Product Details

The sum insured increases each year at the Consumer Price Index (CPI) unless the policyholder explicitly declines this.

Policy Fee $50 increasing annually in line with CPI
Premium Rates Males – Non-Smokers

Age Next Birthday	Premium per 1,000 Sum Insured	
	Death	TPD
<31	2.18	1.10
32	2.21	1.13
33	2.25	1.16
34	2.27	1.21
35	2.29	1.26
36	2.31	1.32
37	2.33	1.37
38	2.36	1.43
39	2.43	1.49
40	2.51	1.56
41	2.58	1.63
42	2.66	1.70
43	2.73	1.77
44	2.87	1.95
45	3.00	2.12
46	3.14	2.30
47	3.27	2.48
48	3.41	2.66
49	3.71	3.16
50	4.19	3.66
51	4.62	4.17
52	4.85	4.67
53	4.91	5.18
54	5.48	6.33
55	6.05	7.49
56	6.62	8.65
57	7.19	9.81
58	7.76	10.97
59	8.54	12.77
60	9.33	15.38
61	10.12	N/A
62	10.91	N/A
63	11.70	N/A
64	12.68	N/A
65	13.80	N/A

Commission: 20% of each premium

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APPENDIX C: YRT Products Expense Analysis

[Year Ending December 2017]

Expense Category	$'000
CEO	2,450
Finance	6,000
Operations - New Business Processing	15,250
Operations - Underwriting	4,900
Operations - Renewal Processing	5,800
Marketing	9,750
Sales (excl Commission)	8,400

All the expense figures are those that relate directly to YRT or have been specifically allocated to that business.

The business statistics for YRT business:

In Force 31/12/16	
Policies	100,000
Annual Premium ($m)	78
Avg Sum Insured	185,000
In Force 31/12/17	
Policies	135,000
Annual Premium ($m)	103
Avg Sum Insured	207,000
New Business 2017	
Policies	45,000
Annual Premium ($m)	44
Avg Sum Insured	228,000

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APPENDIX D: YRT Experience

The experience is shown as Actual/Expected measured by dollar amount. Expected is based on the pricing assumptions underlying the current premium rates. Actual claims is claim amounts incurred (including appropriate allowance for IBNR). Actual lapses is annualised amount of lapsed premiums.

Year Ending 31/12	Mortality A/E %	TPD A/E %	Lapse A/E %
2012	93	101	115
2013	90	97	109
2014	82	92	106
2015	85	98	99
2016	72	87	95
2017	75	84	91

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APPENDIX E: YRT Current Pricing Rates

Age Next Birthday	Q(x) per 1,000	
	Death	TPD
<31	0.45	0.23
32	0.48	0.25
33	0.50	0.27
34	0.51	0.31
35	0.53	0.34
36	0.54	0.38
37	0.56	0.41
38	0.57	0.45
39	0.62	0.50
40	0.67	0.54
41	0.72	0.59
42	0.77	0.63
43	0.82	0.68
44	0.91	0.80
45	1.00	0.92
46	1.09	1.03
47	1.18	1.15
48	1.27	1.27
49	1.47	1.61
50	1.79	1.94
51	2.08	2.28
52	2.23	2.61
53	2.27	2.95
54	2.65	3.72
55	3.03	4.49
56	3.41	5.27
57	3.79	6.04
58	4.17	6.81
59	4.70	8.01
60	5.22	9.75
61	5.75	N/A
62	6.27	N/A
63	6.80	N/A
64	7.45	N/A
65	8.20	N/A

Duration (years)	Lapse Rates %
1	8.0
2	10.0
3	11.0
4	9.0
5	8.0
6	7.0
7	7.0
8	6.0
9	6.0
10	5.5
Over 10	5.5

These are ultimate rates. The select rates for mortality are 50% in Year 1 and 80% in Year 2. There is no selection for TPD.

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APPENDIX F: FL's Capital Requirements

FL holds capital equal to 50% of expected claims for YRT business. Its target return is 12.5% p.a. of capital. There is no capital required for non-guaranteed investment business. FL does not write any guaranteed investment business.

These capital requirements satisfy the Capland rules for capital.

Capland profit reporting for risk business is based on the Appointed Actuary's best estimate assumptions.

END OF QUESTION

END OF EXAMINATION

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