QUESTION 1 (22 Marks)

You are the life insurance valuation actuary of Great Life Insurance Company of Australia (Great Life). The company has a closed book of level premium term insurance. Features of the product when it launched included:

- guaranteed premium rates
- automatic indexation of the sum insured each year at a guaranteed rate of 3%, irrespective of CPI movement
- level premium throughout the policy (i.e. the level premium rate at issue factors in the cost of the automatic future indexation)
- no rider benefits
- no surrender or maturity value
- term expires at age 65.

As at the valuation date, 31 December 2014, the size of the portfolio was:

- 100,000 policies
- $222,750,000 in force premium
- $45bn sum insured.

The policy liability at the valuation date is $(185,695,000).

Subject to a minimum value of 0, the Target Capital requirements of the company are:

120% of Present Value of Claims +
105% of Present Value of Non-premium related Expenses +
100% of Present Value of Premium related Expenses –
100% of Present Value of Premium.

The company has just hired a new CFO. Whilst being an experienced life insurance financial professional, they have never been exposed to a material block of level premium term insurance. As Great Life takes a long term view of its expected financial position, the CFO has submitted to you a series of questions relating to this product.

In order to be able to answer these questions you have asked one of the actuarial analysts to pull together a spreadsheet model of this business. He has pulled together the model and you have reviewed his work and satisfied yourself that it is correct and can be used to perform the additional analysis necessary to answer the CFO's questions. This spreadsheet is provided with the question.

The following assumptions apply (also provided in the spreadsheet).

Expense Assumptions

Renewal Commission	25%	of premium
Premium Expense	1.5%	of premium
Claim Expense	1.5%	of claims
Per Policy Expense	$120	per policy

Economic Assumptions

Guaranteed SI Indexation	3%
Investment Income (pa)	3%
Risk Free Discount Rate	2.75%
Risk Discount Rate	12.5%
Expense Indexation (pa)	2.5%

Discontinuance Rates

2015 Claim Rate (qx)	0.10%
Annual Claim Rate Increase	7.5%
Lapse Rate	5%
Maturity/Expiry Rate	Provided in Spreadsheet

You should assume that:

- all premiums are paid at the start of each year;
- all claims are paid at the end of the year;
- per policy expenses are paid at the start of the year;
- all other expenses are incurred at the same time as their underlying driver.

a) The CFO's first set of questions relate to the reported profit generated by the book.

i) What is the BEL and the present value of profit margins at the valuation date?

(1 mark)

ii) What is the profit margin? What profit carrier was used to determine the margin and why is it an appropriate carrier?

(2 marks)

iii) Great Life takes a long-term view of its expected financial position. Provide a summary table of the premium and profit expected for the next 10 years, including commentary on the respective patterns?

Extend the table to include the following 10 years and comment on the resulting trend in premiums and profit.

(4 marks)

b) The CFO's second set of questions relate to the Target Capital requirement and the value of the book.

i) How much is the Target Capital requirement and the Value of the Inforce portfolio at the valuation date?

(1 mark)

ii) I understand that a component of the value of inforce is the return of the Target Capital held in the business. How much is the target capital contributing to the value of the inforce and please explain the outcome?

(3 marks)

iii) How is this value of inforce expected to change over the next 10 years and what is the major driver of the change in value?

(2 marks)

iv) Based on this, comment upon the appropriateness of the Target Capital model?

(3 marks)

c) The CFO is concerned about the deteriorating lapse rates being experienced across the industry. He has initiated a project to improve retention but does not expect any improvement until 2017 (3 years from now). In this year he expects the lapse rate will drop to 3%. He wants to know the impact on profit in 2018 from such an improvement in lapse rates and the main reason for such an impact.

Calculate and explain the impact on profit from this improvement in lapse rates.

(For years prior to 2017 you may assume the actual experience was identical to that assumed and that future assumptions remain unchanged).

(6 marks)

QUESTION 1

Solutions

(a)

i) The BEL is -$254.8m and the PVPM is $69.1m

(0.5 marks for BEL and 0.5 marks for PVPM)

ii) The carrier has to be claims as this is the service being provided. Premium is not an appropriate carrier as the level premium will not follow the same pattern as claims, which is why premium can be used for stepped premium business. Using premium would release profit too early. If a true earned premium could be calculated then this might be possible to use but it is too complicated to calculate a true earned premium.

(1.5 marks)

The Profit margin is 5.45% (0.5 marks)

Marking Guide

For i), if the answer just includes a definition of BEL and PVPM – give full credit if they go on to calculate the correct BEL and PVPM in the next part of the question.

iii)

Projection Year	Calendar Year	Premium	Planned Profit
1	2015	222,750,000	2,452,446
2	2016	211,400,888	2,577,117
3	2017	200,614,950	2,707,923
4	2018	190,363,959	2,845,139
5	2019	180,621,097	2,989,048
6	2020	171,360,889	3,139,943
7	2021	162,559,134	3,298,126
8	2022	154,192,843	3,463,903
9	2023	146,240,178	3,637,591
10	2024	138,680,394	3,819,513
11	2025	124,919,096	3,809,495
12	2026	112,507,124	3,798,956
13	2027	101,312,712	3,787,860
14	2028	91,216,945	3,776,167
15	2029	82,112,511	3,763,836
16	2030	73,902,567	3,750,823
17	2031	66,499,719	3,737,081
18	2032	59,825,098	3,722,561
19	2033	53,807,532	3,707,210
20	2034	48,382,796	3,690,972

(0.5 marks for premium (0.25 marks for next 10 years, 0.25 marks for beyond 10 years)
1 marks for planned profit (0.5 marks for next 10 years, 0.5 marks for beyond 10 years).

As this is level premium business (and there is no new business), there are no increases to premium for age or indexation increases. Hence, premium is declining each year, by just more than 5%, due to lapses and claims.

(1 mark)

I expect this trend to continue after 10 years, with premium declining at an even greater rate once policies start to expire/mature. (1 mark)

However, as I expected, planned profit is relatively smooth with an expected increase each year. A smooth pattern is a feature of the MoS reporting framework. As claims is the profit carrier, and expected claims is expected to increase each year (as the lapse rate is less than the increasing claim rate each year from the ageing of the portfolio plus the indexation of the sum insured), the expected profit should increase. (1 mark)

However, this trend will not be maintained after 10 years. After 10 years policies will commence to expire/mature such that the total discontinuance rate is greater than the 10% increase in claim costs and 3% indexation. This will result in expected claims declining and consequently, planned profits will start to decline each year. (1 mark)

To a maximum of 4 marks

(b)

i) The Target Capital requirement is $11.4m at the Valuation date. (0.5 marks)
The Value of the Inforce portfolio is $105.2m at the Valuation date. (0.5 marks)

ii) The Value of the Inforce does include a return on the Target Capital held for the business. The value of the inforce business represents the present value of distributable profits (after funding target capital requirements). Hence, it represents the value of the profit within the business and the return of the shareholder capital supporting the product.

(1 mark)

If there were no capital required to support this business the VIF would be $377.4m. This is an unusual result because normally the value of the VIF is higher when capital is included. For this portfolio this is not the case because the current capital requirement is so low but is expected to increase significantly over the next few years as the premiums no longer cover the cost of claims. The lower value represents the increased capital the shareholder has to inject to support this portfolio over the next few years.

(Up to 1 mark for the numerical result and 1 mark for the explanation)

iii) The values stay fairly constant as the unwinding of the cashflows is offset by the increase in the capital required.

Projection Year	Calendar Year	VIF @ end of year	Change in VIF
1	2015	108,124,462	2,947,418
2	2016	110,758,838	2,634,376
3	2017	113,037,254	2,278,416
4	2018	114,910,329	1,873,075
5	2019	116,321,440	1,411,111
6	2020	117,205,844	884,404
7	2021	117,489,697	283,852
8	2022	117,088,944	(400,752)
9	2023	115,908,083	(1,180,861)
10	2024	113,838,764	(2,069,319)

(Up to 1 mark for table and 1 mark for commentary)

iv) It appears that a shortcoming of the existing target surplus policy is that it does not recognise and accumulate the unearned premium from the early years of the level premium business. In these years, an excess of the premium over the claims should be held back and not distributed to the shareholder, to help fund the cashflow deficit in later years when claims exceed premium.

The above point would be particularly relevant if this was the only product in this statutory fund. However, other products may exist which in total may ensure the capital position is appropriate but a different factor would be used for the purpose of calculating the VIF.

One further shortcoming that is easy to identify within the existing policy is that it ignores the impact of adverse deviations in the lapse experience.

(Maximum of 3 marks)

(c)

Planned Profit		2,845,139
Expected Premium	190,363,959	
Actual Premium	194,371,621	
Extra Premium		4,007,662
Extra Commission Expense		(1,001,916)
Extra Premium Expense		(60,115)
Expected Policy Expense	(11,043,834)	
Actual Policy Expense	(11,276,335)	
Extra Policy Expense		(232,502)
Expected Claims	(52,205,540)	
Actual Claims	(53,304,604)	
Extra Claims		(1,099,064)
Extra Claim Expense		(16,486)
Interest on Extra Cashflow		81,394
Expected Closing Policy Liability	178,088,416	
Actual Closing Policy Liability	181,837,646	
Extra Liability		(3,749,230)
Revised Profit		774,883
Reduction in profit		2,070,256

(1/2 mark per analysis item, up to 4 marks for the completion of this table)

The impact on profit is a decrease of $2.1m. At this time the policy liability is positive. Having less actual lapses means there will be more policies with a positive liability thereby increasing the overall policy liability. The increase in liability is approximately $3.7m which is the largest driver of the $2.1m decrease in profit.

Or, in other words, there will be more policies inforce and as the PV of outflows is greater than the PV inflows, the policy liability will increase.

(Up to 2 marks for a sensible explanation)

COURSE 2B LIFE INSURANCE **SEMESTER 1 2015 EXAMINATIONS**

QUESTION 2 **(20 Marks)**

You are the Appointed Actuary for Sunshine Life based in Australia, a subsidiary of a foreign insurer. Sunshine Life is an aggressive player in the Disability Income market with strong sales in the last year. It does not write any other types of business. The profitability of the Disability Income portfolio has declined significantly in the last two years.

The assets backing the Disabled Lives reserves are 60% corporate bonds, 20% cash and 20% indexed linked bonds. The Shareholder Retained profits are invested 20% in equities, 50% in short-term corporate bonds and 30% in cash. The government bond yield curve has reduced in the last year – particularly at the longer end of the curve – most dramatically in the last three months. Equities returns were positive over the last year.

Sunshine Life doesn't use any reinsurance as the parent company takes the view that they could step in if problems arose.

a) The Claims Manager, who is not an Actuary, doesn't understand why, since last quarter, the Disabled lives policy liabilities have increased despite the number of active claimants and total amount of monthly benefits payable reducing. She felt that she has done a good job recently in getting people off claim, and indeed also commented that the average duration of claimants has reduced slightly.

Draft a short email to send to the Claims Manager explaining why the liabilities have increased during the last quarter.

(2 marks)

b) The Claims Manager is under pressure to improve the claims experience of the Disability Income business. She has given each of her claims assessors a target decline rate and target number of claims closures each month.

Explain how the valuation results may be affected by this initiative over the next year.

(4 marks)

c) You have observed a large reduction in the level of excess assets in the last year. You have put together some three-year projections of the Capital position and provided these to the Board. These projections show that the excess assets will fall below the Board's preferred lower limit within the next two years. The Board are clearly concerned.

i) What are the likely reasons for the reduction in excess assets over the last year.

(4 marks)

ii) What actions could the company take to improve the capital position within the next two years, and what are the advantages and disadvantages of each.

(10 marks)

QUESTION 2

Solutions

(a)

To: Claims Manager
From: Appointed Actuary

Subject – Increase in Disabled Lives Reserves in last quarter

While the number of claimants has reduced, the liability of each claimant is impacted by the interest rate used to discount the future expected claims outgo. Given the average long duration of the cashflows, the interest rate used is at the longer end of the yield curve. This has declined sharply in the last quarter, leading to an increase in policy liabilities. This impact has outweighed the decrease due to the reduced number of claimants.

I hope this helps, but please let me know if you have any questions.

Kind regards,

Appointed Actuary

Marking Guide

Up to 1.5 Marks for identifying and explaining the interest rate impact on the reserves
Up to 0.5 Marks for appropriate use of language to the Claims Manager

(b) The likely impacts on the Valuation results over the next year are as follows:

- The Valuation results will be more volatile as Claims Team tries to close/decline more claims.
- Reserves for new claims may be too low as some claims may be declined but should be accepted.
- Reserves for disabled lives may be too low as some claims are closed, but they're not genuine claim closures as more will re-open later. Therefore, the reserves for re-opened claims will need to be increased.
- Reserves for litigated claims need to be increased as the tough claims management may bring on more disputed claims.
- Claim management expenses will be higher due to increased time spent in managing claims.

- Termination rates may have spikes in them as Claims Team is under pressure to meet the closure quota.

- The improvement in claims experience due to the strategy may not be sustainable. For example, after some initial quick wins, further efforts to get people off claim may become increasingly difficult.

- Changing the valuation claim assumptions may not be necessary, but the movements need to be accounted for.

- Impact on RBNA reserves - will reduce the reserve as more reported claims are getting declined

- Impact on IBNR reserves - will reduce the reserves as more incurred claims will go on to be declined once reported

- Increased decline rate will lead to lower Disabled Lives Reserves

- If decline targets are on a counts basis, this could lead assessors to focus on declining smaller sum insured claims. This will lead to higher average sum insured on claim and hence increased DLR.

- If termination targets are on a counts basis, the claims assessors may focus on shorter duration claims hence leading to an increase in the average duration and greater DLR.

- Other valid points.

Marking Guide

0.5 marks for each well explained point to a maximum of 4 Marks.

(c)

i) The likely reasons for the reduction in excess assets are as follows:

- Disability income claim payments have reduced the capital base, including claim payments made for those claims that came in and terminated during the year.

- An increase in the number of active claimants and hence the disabled lives reserve has reduced the capital base.

- The poor claims experience has led to a strengthening of the termination rate assumptions leading to an increase in the disabled lives reserves and reduced the capital base.

- Impact of the insurance risk margins on the larger disabled lives reserve has also increased the PCR.

- In addition, the increasing claims trends from recent years means that the future risk margin may have increased and increased the PCR further.

- There may have been poor investment returns on shareholder retained profits – particularly as it is invested largely in shorter term fixed interest securities or cash where the drop in yields will have reduced returns.

- There may be a mismatch between the disabled lives reserves and the asset backing the reserves. The fall in the yield curve may have led to the increase in liabilities greater than the offsetting increase in the assets.

- Aggressive new business levels lead to capital strains from upfront commission and expenses

- Rapid sales growth also leads to increased operational risk charge

Marking Guide

0.5 marks per well-explained point to a maximum of 4 marks.

ii)

Action	Advantages	Disadvantages
Reduce levels of new business (e.g. through premium rate increases) – so that inforce capital release exceeds new business strain	This would reduce operational risk charge as lower sales will reduce the increase in the size of the Disability Income book	Reduction in market share Likely to lead to higher lapses unless new premium series was introduced
Move out of equities and into fixed interest to reduce the asset risk charge.	Will reduce asset risk charge. May also improve the level of matching to the liabilities (although they may have provided some inflation protection which might now be lost)	Trading costs involved. Lower expected returns
Invest in more equities to increase returns	Higher returns will improve asset position	Transaction costs Increase in asset risk charge
Move out of corporate bonds into government bonds or higher credit rates corporate bonds to reduce asset risk charge	Will reduce asset risk charge	Investment returns may be lower going forward (which may offset over time the reduction in PCR from the lower asset risk charge)
Reduce holdings in single company – reduce asset concentrate risk charge	Will reduce the asset concentration risk charge	Trading costs. Lower investment returns if holding was tactical investment decision.
Improve matching – inflation protection vs market value trade off	Impact on asset risk charge could be up or down depending on different impacts of real return stress vs inflation stress	Trading costs.
Take out reinsurance with a local reinsurer	Will improve capital position in the short term (but only up to the asset concentration risk limit). Reduced volatility of claims experience.	Reduction in profit as some of the profit is given to the reinsurer Possible asset concentration risk charge
Take out reinsurance with the parent.	Will improve capital position in the short term (but only up to the asset concentration risk limit). Reduced volatility of claims experience.	Reduction in profit as some of the profit is given to the parent Possible asset concentration risk charge

	Maintains profit within the Group	
Obtain Capital injection from parent	Will immediately improve the Capital Base (although for sub debt limits will apply)	Parent may not have the appetite to invest in the Australian business if better returns can be achieved elsewhere
Obtain Capital injection by other means - e.g. issue sub-ordinated debt	Will immediately improve the Capital Base (although for sub debt limits will apply)	May not get the amount of funding intended or a higher price than expected
Reduce management expenses	Less of a reduction in the Capital Base	Hard to manage. If reduction in management expenses is achieved by redundancies then these will be costly in the short term (due to redundancy packages), which will reduce excess assets.
Reduce commissions – move to level commission model – but risk of churning.	Reduces new business strain and hence less of a reduction in the Capital Base from selling new business	Reduction in sales (although that will help Capital position)
Reduce claims by working with the claims management team via claims initiatives such as focusing on getting people back to work	Will reduce claims costs and reduce disabled lives reserves hence increased capital base, and also lower PCR due to lower impact of stresses	Should be doing this anyway due to profitability concerns. May increase claims expenses as this will involve working with rehabilitation consultants or hiring more claims staff.
Diversify into different product lines such as lump sum business.	Diversification should improve capital position over time. Additional product lines will help to absorb overheads	Increased sales on new product will lead to short term capital strains.

Marking Guide

Maximum 0.5 marks per well-explained action as per table above or other valid actions

Maximum of 0.25 marks each per valid advantage and disadvantage

To a maximum of 1 mark per point

To an overall maximum of 10 marks

QUESTION 3 (18 Marks)

You are the Appointed Actuary of Parloss, a life insurance company that has both participating and non-participating whole-of-life portfolios in its statutory fund, both of which are open to new business. For a number of years, it has been struggling with its participating portfolio, with low level of profitability and volume of new business.

For the participating portfolio:

- bonus is only distributed through the compound reversionary bonus method
- a single declared bonus rate is applied to the whole portfolio
- Policy owners share 80% of the profit of the portfolio, while shareholders share the remaining 20%

Parloss uses the Australian Margin on Services method to value its policy liabilities.

One of your Actuarial Analysts has given you the following information in respect of the participating business. Assume that nil tax applies to the statutory fund.

All figures are in Thousands ('000)

31 December 2013 Valuation

Policy Liability	283,664
Cost of Declared Bonus	983

2014 Cashflows

Premiums	12,499
Death Claims	(8,744)
Surrender Claims	(30,779)
Maintenance Expenses	(3,037)
Investment earnings	6,336

Non-investment experience profits/losses

Deaths	(1,534)
Surrenders	642
Maintenance Expenses	(391)

Projection Results as at 31 December 2014

Present Value of Sum Insured and Previously Declared Bonus	361,602
Present Value of Expenses	30,248
Present Value of Premiums	137,491

Bonus Rates	Current Year Bonus	Present Value of Future Year Bonuses
1.5%	869	6,952
2.5%	1,467	11,737
3.5%	2,073	16,583

a) Using the information provided by the Actuarial Analyst, calculate the Policy Liability as at 31 December 2014 of the participating business. **(4 marks)**

b) An internal audit has uncovered a systematic error in the way certain cash flows relating to claims are processed in the administration system, which in turn affects the general ledger. In particular, the claims arising from a particular non-participating product (that has its own product code in the administration system) have been misclassified as belonging to the participating product group.

This has resulted in some of the claims costs arising from the non-participating portfolio since the year 2011 being allocated to the participating portfolio instead in the administration system and the general ledger. The resulting overstatement in claims costs for the participating portfolio is displayed below.

($'000)

2011	2012	2013	2014
1,264	1,394	1,650	1,472

Parloss' Board of Directors have been informed of the error and have called for a special Board meeting in a week's time to discuss the issue.

Draft a Board paper that you will present to the special Board meeting, outlining, with reasons, the major issues that would arise from the error to Parloss' business. Also set out your recommendations to the Board, highlighting any shortcomings.

(14 marks)

QUESTION 3

Solutions

(a)

Policy Liability rolled forward = 283,664k + 983k = $284,647k (1) (**0.5 Marks)**

Net cash flows = 12,499k – 8,744k – 30,779k - 3,037k + 6,336k = -$23,725k (2)

Non-Investment Experience Profit/Loss = -1,534k + 642k – 391k = -$1,283k (3)

VSA = (1) + (2) - (3) = $262,205k (4) (**1 Mark)**

BEL = 361,602k + 30,248k – 137,491k = $254,359k (5)

Cost of Current Year & Future Year Bonuses + Current Year & Future Year Shareholder Profit = (4) – (5) = $7,846k (6) **(0.5 Marks)**

Approximate the split of current year and future year bonus/profit
Current year bonus/profit = 869 / (869 + 6,952) * 7,846 = $872k
Future year bonus/profit = 6,952 / (869 + 6,952) * 7,846 = $6,974k **(1 Mark)**

Current Year Bonus = 80% x 872k = $697k (7)
Current Year Shareholder Profit Release = 20% x 872k = $174k (8)

Policy Liability at 31/12/2014 = (4) – (7) – (8) = $261,333k **(1 Mark)**

Marking Guide

As indicated above to a maximum of 4 marks

Candidates should only lose marks once for each mistake

If, due to prior mistakes, the candidate's final answer is clearly not correct (e.g. more than $50m different), but the candidate does not mention this then do not award the final mark

Candidates may have approximated the split of current year and future year bonus/profit using different methods. Marks were awarded for reasonable approximations

(b)

Parloss' Claims Data Error – Implications and Recommendations
From: Appointed Actuary, Parloss

Background
Parloss have recently identified an error in its claims data, where claims arising from a particular non-participating product have been misclassified as belonging to the participating product group. This has resulted in some of the claims costs arising from the non-participating portfolio since the year 2011 being allocated to the participating portfolio instead in the administration system and the general ledger.
The resulting overstatement in the participating portfolio (and conversely, understatement in the non-participating portfolio) is displayed below:

($'000)

2011	2012	2013	2014
1,264	1,394	1,650	1,472

This error has multiple ramifications, particularly due to its relatively high degree of materiality.

This paper sets out the issues that would arise from this error, options for handling the issues and my recommendations.

Revaluation of Policy Liabilities
The claims data error would affect policy liability results since 2011 for both the participating and non-participating portfolios. The participating policy liability would be directly impacted by the assumptions (in line with more favourable mortality experience) but will also be impacted indirectly by the changes to historical cashflows (due to second order impact on investment returns and also potentially due to different number of policies inforce). The non-participating liability would be impacted by the changes to mortality assumptions (in line with the less favourable mortality experience). (**1 Mark)**

If the non-participating portfolio did not fall into loss recognition as a result of the strengthened mortality assumption, then while policy liability would not change, its best estimate liability and present value of profit margins would. (**0.5 Marks)**

The extent of the revaluation would depend on the varying degree of the impact to the policy liabilities across the years. For example, the error would more materially impact the participating policy liability position in 2014 than in 2011. It is acknowledged that the undertaking of historical revaluation of policy liabilities for both the participating and non-participating portfolios would require a significant amount of time and resources. (**1 Mark)**

Recommendation:
Parloss should dedicate resources to revalue the policy liabilities for the participating and non-participating book, taking into account the degree of materiality of the impacts. As such, Parloss should conduct a high level analysis in the earlier years of the error to determine whether a detailed revaluation of policy liabilities in those years is warranted. (**1 Mark)**

Parloss should also engage its auditor throughout this process so as to mitigate the risk of changing the approach of the revaluation either mid-way through or at the end of the process. (**0.5 Marks)**

Restatements in Financial Statements and other Statutory Reports
As a result of the revision to historical policy liability/projection results for both the participating and non-participating portfolios, the policy liability figures in the Financial Statements would need to be restated, depending on the extent of the revision. For similar reasons, the P&L of both portfolios may also need to be restated.

(**1 Mark)**

Apart from the Financial Statements, other statutory reports would also be impacted, such as regulatory reporting forms, the Valuation Report, and the Financial Condition Report.
(**0.5 Marks)**

It is acknowledged here also that such restatements would require significant time and resources.

Recommendation:
Parloss should look to restate its historical financial positions and performances with respect to its policy liabilities and their components (best estimate liability, value of future profits, etc.) in the Financial Statements and other statutory reports, to the extent that they are materially different after correcting the error. (**1 Mark)**

Other departments, such as Accounting, Tax and Corporate Governance, should be engaged throughout this process to account for any other financial, reporting and compliance implications. (**0.5 Marks)**

Bonus Distribution for Existing Participating Policyholders
As the error has effectively understated the profit emerging from the participating portfolio, it would also understate the bonus that have been allocated and declared to existing policyholders in the period from 2011 to 2014. Parloss must redistribute this additional bonus to existing policyholders to be consistent with the equitable principles.

(1 Mark)

Recommendation:
Parloss should calculate the additional bonuses that would have been declared to date without the error and redistribute them to existing policyholders, with allowance for interest income on those. (**1 Mark)**

The method of distributing the additional bonuses could take the form of a one-off cash dividend or additional reversionary bonus to the sum insured. (**0.5 Marks)**

Consideration should be given to the different cohorts of policyholders. For example, those who have only commenced their policies with Parloss in 2014 should not be subject to a significant additional bonus as the additional profit was attributable to claims experience before 2014. (**1 Mark)**

Due to the complexity of this aspect of the allocation (particularly since Parloss has historically only used a single bonus rate), a reasonably broad approach of distributing to the different cohorts should be applied. **(0.5 Marks)**

Bonus distribution for Policyholders No Longer In Force
To uphold the principles of equity, policyholders who are no longer in force (either through surrender or death) would also need to be compensated for the additional bonuses.

(**1 Mark)**

This would likely be a difficult and costly exercise, due to practical reasons such as engaging with the administrators of the estate of deceased policyholders, and former policyholders who have changed their address. (**1 Mark)**

Recommendation:
Parloss should look to compensate former policyholders in an equitable manner, with allowance for interest income.

Due to the complexity of this exercise, it is recommended that a dedicated working group is set up to coordinate and execute it. (**0.5 Marks)**

Again, consideration should be given to the different cohorts of policyholders, where policyholders who either claimed or surrendered in the earlier years should not be awarded profit that arose after their came out of force. (**1 Mark)**

Participating Portfolio Profitability
The error may have had a material impact on both historical and outlook on the profitability of the participating portfolios. (**1 Mark)**

The poor profitability/low bonus rates on the participating book for a number of years may have been attributed to this overstatement in claims (adversely affecting both the yearly profits and mortality assumptions), which in turn made the product unattractive and uncompetitive. Indeed, the profit margin of the participating portfolio is relatively low as at the December 2014 valuation (around 6% by doing the cost of current year + future year bonuses divided by the present value of premium). (**1 Mark)**

Revaluing the participating business would be expected to improve the profitability of the participating portfolio, with higher bonus rates. There may also be opportunities to re-price the product to make it more competitive, given the improved morbidity assumptions. This would make the product more competitive in the market and improving the volume of new business in the future. (**1 Mark)**

Recommendation:
Parloss should, in the process of revaluing its participating business, consider the strategic implications of this portfolio. This is given that its future position in the market may improve after the error is corrected, in light of the lower mortality experience and assumptions. The strategic implications would include its competitive position in the market with respect to the revised bonus rates as well as pricing.

(0.5 Marks)

This benefit should be considered when weighing the costs of the remediation.

Non-Participating Portfolio Profitability
Conversely to the above, the profitability of the non-participating portfolio would suffer after the correction of the error, though it would have less administrative complexities and compliance issues to manage compared to the participating portfolio. (**1 Mark)**

Nevertheless, its profitability and pricing would need to be re-assessed in light of the worse-than-expected claims experience and assumptions. One question is whether this portfolio could go into loss recognition after the revaluation of its policy liability. A loss recognition

could potentially result in Parloss incurring significant losses in a single year.

(**1 Mark)**

Recommendation:
Parloss should consider the strategic implications of this portfolio, in light of the worse-than-expected claims experience and assumptions. These implications would include the need to re-price this portfolio, if any, given Parloss' current position in the non-participating market. The possibility of loss recognition should also be investigated further.

(0.5 Marks)

Risk Management and Controls
The incident has raised questions about how such a material error could have occurred over a number of years. Clearly controls in a number of areas have not been successful in identifying the error earlier, including:

- administration system / claims database
- general ledger reconciliations
- analysis of profit
- past audit

(1 Mark)

While remediation is critical, it is also equally critical to identify the underlying cause of the error and manage the relevant risk so that it does not repeat.

Recommendation:
Parloss should identify the core cause of the error, and correspondingly review and improve all the relevant controls in place to mitigate such an error. (**1 Mark)**

It would also be worthwhile, once the core cause has been identified, to conduct an audit on other transactions to ensure an error of this nature is isolated to claims only and not systemic, affecting other lines of the P&L. (**1 Mark)**

Resourcing
As alluded to above, there will be a need for significant resources to both remediate and resolve all relevant and outstanding issues. Poor allocation of resources would not only result in prolonged costs and management distraction, but also give rise to the risk of more errors (as well as other issues such as low staff morale) during the remediation and revaluation processes (which had further ramifications). (**1 Mark)**

Recommendation:
Parloss should allocate and invest in dedicated resources to carry out the recommendations outlined above.

This may take the form of setting up a special working group or committee, and/or hiring external consultants. Areas that may need to be covered include Actuarial, Accounting, Tax, Corporate Governance, Product Development, and Business Administration/Operations.

(**1 Mark)**

Other issues

Reinsurance – The non-participating business may have reinsurance arrangements

whereas the participating business may not. Need to check whether recoveries can be claims for these claims from the reinsurer. **(1 Mark)**

Capital – Need to consider the Capital implications of the correction to this error – in particular the restatement of the policy liabilities and additional bonuses paid will impact the Capital position. **(1 Mark)**

APRA – May be necessary to advise APRA of the error . **(0.5 Marks)**

Conclusion

The error in claims data has resulted in a number of significant and numerous ramifications, from the statutory to the strategic. As such, it is critical that Parloss remediates the issues as soon as possible and improves the management of risks in these areas. The remediation may also present some strategic opportunities, in particular with respect to the potentially improved competitiveness of the participating portfolio.

Marking Guide

Deduct 1 mark if the answer is not provided in a Board paper format.

Marks specified above for each point (or other valid points) with appropriate explanation to a maximum of 14 marks