COURSE C2B LIFE INSURANCE SEMESTER 1 2016 EXAMINATIONS

QUESTION 2: SOLUTION

a)

The formula for calculating the policy liability is:

PL EOY = Value of supporting assets (VSA), less the cost of the current year best estimate bonuses less the shareholder profit margin on that bonus

(0.5 marks)

Where the VSA is calculated as:

- The policy liability at the end of the previous reporting period
- Plus the cost of declared bonuses at the end of the previous period
- Plus the actual policy related cash flows and investment experience
- Less the expected shareholder profits emerging over the period
- Less the non-investment experience profit.

(0.5 marks)

Explanation of methodology:

- The current year best estimate bonuses are excluded from the policy liability so that they are released into profit, and therefore allocated to the policy owner and shareholder.
- The investment returns are kept within the policy liability to smooth the volatility of profit from one year to the next.
- The supportable bonus is determined such that the present value of outflows less present value of inflows plus present value of bonuses and profits is equal to the value of supporting assets.
- Interim bonuses are deducted from the policy liability because they are a distribution of profit, not an allocation of it.

(up to 0.5 marks per valid point)

It differs from non-participating business:

- The discount rate is based on the expected return of the underlying assets, whereas for non-participating the discount rate is risk free.
- Includes a component for the present value of policy owner bonuses in the policy liability. For non-participating business there are no policy owner bonuses.
- Economic assumption changes are not released through profit, whereas for non-participating business they are.

(up to 0.5 marks per valid point)

Marking Guide

Marks as specified above, including credit for any other valid points (up to 0.5 marks each), to a maximum of 4 marks.

b)

PHRE BOY	$ 50,250,000	
Interest earned on PHRE	$ 2,010,000	
Total profits (after tax)	$ 4,800,000	
Cost of declared bonuses for the year	$ 3,300,000	
Shareholder profit	**$ 960,000**	**(1 mark)**
= 20% x total profits		
SHRE BOY	**$ 12,562,500**	**(0.5 marks)**
= 25% x PHRE BOY		
Interest on SHRE	**$ 502,500**	**(0.5 marks)**
= 25% x interest earned on PHRE		
= SHRE * interest earned on PHRE / PHRE		
Distribution to the shareholder upon bonus declaration	**$ 825,000**	**(0.5 marks)**
= 25% x cost of declared bonuses for the year		
SHRE EOY (after bonus declaration)	**$ 13,200,000**	**(0.5 marks)**
= SHRE BOY + interest + profits - distribution to SH		

Marking Guide
Marks as specified above. Additionally, deduct 0.5 marks for a serious misunderstanding, subject to a minimum of 0 marks being awarded.

c)

To: CFO
From: Ann Actuary

Re. Participating Business Portfolio Management

This note has been prepared to address your ideas to reduce the risk of a tontine occurring for the participating business portfolio. I address each of your ideas in turn below.

Distributing Excess Policy Owners' Retained Earnings to Shareholders
The Life Insurance Act (1995) only allows Australian policy owners' retained earnings to be distributed to Australian participating policy owners, so legally this is not an option.

(1 mark if candidate mentions not allowed due to LIA95, 0.5 marks if candidate mentions not allowed due to another valid reason, 0 marks otherwise including if no reason is given)

One-off Bonus Declaration and increasing Future Bonus Declarations
The impact of this would be as follows:

Policy owner retained earnings – the policy owner retained earnings will decrease by the cost of the declared bonuses.

(0.5 marks)

Policy liability – the policy liability will increase, but probably by less than the cost of the declared bonuses, because the surrender value basis will likely be more conservative than the policy liability basis.

(0.5 marks)

MoS profit – There is no impact on the MoS profit because the bonus declaration is only a distribution of profit from policy owner retained earnings.

(0.5 marks)

Purchasing a Participating Book from another Life Insurer
There are a number of issues to be considered for this option:

- This would be a part 9 transfer hence a number of issues need to be considered with reference to part 9 of the Life Insurance Act.

  (0.5 marks)

- Equity between the two portfolios of policy owners – PS 200 requires that advice on the bonus distributions considers the equity between policy owners. It is unlikely that equity would be achieved in this case, because one group of policy owners has built up the substantially more retained earnings, and it would be unfair to share this with the other group policy owners.

  (1 mark)

- The bonus structure of each portfolio – if they are very different it will be difficult to merge the two portfolios together under one bonus structure because the terms and conditions of the policies are unlikely to allow a significant change to the bonus structure.

  (0.5 marks)

- Whether a new bonus structure can be sufficiently similar to the existing bonus structures, such that policy owners expectations are met regarding the level of bonuses they will receive in the future. This is particularly important if the each portfolio has a different philosophy for distributing bonuses in the past.

  (0.5 marks)

- Any adjustments which are needed to the expense allocation process, to accommodate the merged fund and how this impacts on benefit expectations.

  (0.5 marks)

- How the costs associated with the merger will be allocated, and whether the policy owners are expected to pay.

  (0.5 marks)

- The asset allocation for the existing portfolios and whether a new allocation can be developed that is sufficiently similar to each and within policy owner's reasonable expectations.

(0.5 marks)

- The impact that substantial surrendering of policy owners would have on future profitability if they do not like the merger process or the communications around the process.

(0.5 marks)

- The impact of the merger on the security of the benefits of the policy owners of each life company and therefore the risks which the shareholder is taking on, in terms of how it impacts on the amount of capital required and the level of target surplus after the merger.

(0.5 marks)

- Mortality experience of the two books – how similar is it. Need to consider fair treatment of mortality profits. This will also affect the future bonuses emerging, if there is cross-subsidisation in this regard.

(0.5 marks)

Using Policy Owners' Retained Earnings to Fund Life Insurance Business

This would not be a viable option as the Life Insurance Business is written in a separate Statutory Fund.

(1 mark for stating not possible due to different statutory funds, 0.5 marks for stating not possible with a different sensible reason, 0 marks otherwise)

Other Issues

- If Trigger wasn't open to purchasing a participating book from another life insurer or re-opening the participating book to new business, then making a one-off bonus declaration and increasing future bonus declarations would be the only realistic option to prevent a tontine. However the size of the one-off declaration needs to be careful consideration – too small and the tontine problem may re-emerge in the near future, too large and the profit distribution may turn out to be inequitable in the long term if experience deteriorates (as policyholders who have terminated will have taken more than their fair share).

(1.5 marks)

- System upgrades and staff training would be required when purchasing a participating book of business from another insurer, since the products may have slightly different features. Trigger Life's administration system may not be able to administer all policies and an upgrade may be required.

(0.5 marks)

- The impact of any proposal on the capital requirements needs to be considered. Trigger needs to maintain an appropriate level of capital at all times, with some methods of distributing the policy owners' retained earnings having a greater capital burden than others.

(0.5 marks)

- The retained earnings can distributed via terminal bonus instead. This would be relatively easy to administer, and the terminal bonus amount can be varied depending on investment experience. This can be structured as a percentage of the policyholder's asset share (which is the premiums less expenses and claims accumulated with actual investment returns). There is also lower capital requirements associated with this method as compared to declaring a higher reversionary bonus.

(1 mark)

I hope this makes sense. Please let me know if you would like to discuss these further.

Kind regards,

Ann Actuary

Marking Guide

Marks as specified above including credit for any other valid points (0.5 marks each) plus up to 1 mark for drafting (0.5 marks for memo format, 0.5 marks for suitable language) - to a maximum of 12 marks.