Institute of Actuaries of India

Subject CA3 – Communications

October 2009 Examination

INDICATIVE SOLUTION

Introduction

The indicative solution has been written by the Examiners with the aim of helping candidates. The solutions given are only indicative. It is realized that there could be other points as valid answers and examiner have given credit for any alternative approach or interpretation which they consider to be reasonable

Question 1

Memorandum

To: [Manager Name]
From: [Actuary]
Date: 1 January 2010

Subject: Profitability and product capital consumption

Introduction
This memorandum covers several aspects of profitability and product capital consumption. In particular it focuses on:

- new profitability methodology;
- rationale for new methodology;
- impact by line of business; and,
- product capital consumption.

Profitability methodology
The new profitability methodology involves the use of a single risk-free rate of return to project the investment returns that our company will earn on all funds backing our suite of products. This includes the investment returns on risky assets including equities, property and others. The new methodology contrasts with our earlier practice of using asset returns varying by asset class. For example if the prevailing risk-free rate of return was 5% and equities were estimated to grow at 4% above the risk-free rate then we would assume a 9% return on equities under the old methodology. The new methodology will result in a 5% return assumption for all assets including equities.

Rationale for change
The new methodology has been implemented due to the uncertainty associated with the future returns on risky assets. Since these assets are risky by nature it is reasonable to expect that they will earn a return higher than the risk-free rate but associated with a higher degree of risk. Assuming risky assets will yield higher return and then using these higher returns to estimate profitability at issue is inappropriate in the absence of allowance for the higher inherent risk of these assets.

Impact by line of business
Since the new methodology uses a risk-free rate of return the profitability of products using risky assets will reduce at inception. Profitability estimated at inception of products with liabilities backed purely by risk-free assets will be unaffected. Thus unit-linked products will show lower profitability, as illustrated by the figures in Table 1 for 2009. Term and health insurance will remain unaffected by the change in methodology. The change in their profit margins for 2009 over 2008 is not related to this methodology change.

Over time the actual profitability will depend on a number of factors such as actual claims, expenses and investment returns. In the absence of appropriate allowance for risk inherent in risky assets under the old

methodology the new methodology is likely to be a better estimation of the emerging profit margins for unit-linked business.

Product capital consumption
Discounted pay back period refers to the number of months it takes our company to recover the initial losses made on the product and to give a return equal to the risk discount rate. The initial losses are required to be funded by the shareholder through capital. It is thus a measure of how quickly the shareholders are able to get back their capital with interest. The longer the discounted pay back period the more time it takes for the product to give back the original capital along with interest.

New business strain is a measure of the extent of initial losses a product makes, expressed as a percentage of the annual premium. It only focuses on the extent of product capital consumption whereas discounted pay back period focuses on the timing of return.

The increase in pay back periods for unit-linked business in 2009 is related to the change in methodology. Since the emerging profits after inception are projected to be lower it takes 51 months instead of 46 months to recover the initial losses along with interest. The new business strain, however, only considers the profit at inception which does not change under the new methodology. Thus the change in methodology increases the pay back period but not the new business strain.

Summary
Various measures on profitability and product capital consumption exist for life insurance products. We use profit margin for profitability. In order to obtain a complete view of the product capital consumption both discounted pay back period and new business strain ought to be considered.

Meeting objectives

Has the script met the overall objective of:

- Explaining the new profitability methodology?
- Explaining the rationale behind the new profitability methodology?
- Contrasting the impact of the change on each product line?
- Explaining discounted pay back period?
- Explaining new business strain?

Will the reader:
- Understand the explanations?
- Be satisfied with the answer?

Presentation

- Clear statement of purpose
- Logical structure
- Appropriate language used
- Suitable sentence length
- Ideas grouped appropriately in paragraphs

- Suitable ending
- Correct grammar
- Correct spelling and punctuation

Contents

- New methodology
- Rationale and contrast with old methodology
- Impact of new methodology on each product line
- Discounted pay back period
- New business strain
- Contrast DPP and new business strain

Penalties

Cut marks for
- Very poor grammar, spelling or punctuation
- Requests for more information
- Speculative statements
- Excessive waffle

[60]

Question 2

Dear Ram,

Charge cap on unit-linked products

I explain below the various charges levied on unit-linked products and the charge cap introduced by the regulator.

Unit-linked charges

Companies levy a variety of charges in respect of unit-linked products to meet their expenses, cover the risks under the contract and also make a profit for their shareholders.

The main charges levied by insurance companies on unit-linked products are as follows which we explain in more detail below:

- Premium allocation charge
- Mortality charge
- Expense charge
- Fund management charge

The premium allocation charge refers to the fact that the entire premium paid by the policyholder is not paid into the unit fund. For example, if the policyholder pays Rs10,000 and the premium allocation charge is 20% then only Rs 8,000 will go into the policyholder's unit account and the balance Rs 2,000 will go to the insurance company.

The company is at a risk if someone dies as the payment on death can be higher than the value of the policyholder's unit account. To cover itself against this risk the insurance company levies a charge equal to the extra amount payable on death multiplied by the chance of the person dying.

An expense charge is also normally taken from the policyholder's account. This is normally a fixed amount per month, for example Rs 60 per month. Also, a fund management charge is very common where a proportion of the fund is deducted by the insurer. For example, there could be a fund management charge of 1.5% per annum.

Charge cap

As a result of all the charges the customer's return gets adversely impacted. For example, if investment performance were 10%pa throughout the term of the contract and there were no charges the policyholder would earn 10%. However, due to the charges say the customer ends up with 9% on maturity then the reduction in his return due to the charges is 1%.

The regulator has recently instructed insurance companies to ensure that for all unit-linked products the reduction in maturity return does not exceed 1.5%. This therefore limits the amount of charges that an insurer can levy as if it charges too much the reduction in return will exceed 1.5%.

When carrying out the calculations the company has to ensure that it is using the 10% investment return assumption set out by the regulator. This is necessary as if you use a different investment return assumption you will generally speaking come up with a different reduction in return for the same customer buying the same product. This also means that the actual reduction in yield suffered by the customer may be more than 1.5% depending on the actual investment performance.

Also companies need to be careful when testing whether a proposed product meets the cap of 1.5% as for any given product the reduction in return will depend upon the age of the buyer, the term of the policy and the premium amount amongst other things. So companies need to test over a wide range of ages, terms and premium levels to make sure they are obeying the regulatory order.

I trust the above has satisfactorily explained the various issues.

Regards/Madhu

Meeting objectives

Has the script met the overall objective of:

- Explaining the various charges under unit-linked contracts?
- Explaining the charge cap

- Explaining the testing of the charge cap

Presentation

- Logical structure
- Appropriate language used
- Ideas grouped appropriately in paragraphs
- Correct grammar, spelling and punctuation

Contents

- Premium allocation charge
- Mortality charge
- Expense charge
- Fund management charge
- Link between charges and reduction in yield reduction in yield varies by assumed investment return
- Robust testing of reduction in yield necessary across various parameters

Penalties

Cut marks for

- Very poor grammar, spelling or punctuation
- Speculative statements
- Excessive waffle

[40]
[Total 100 Marks]

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