

# **Institute of Actuaries of India**

## **Subject CA3 – Communications**

### **May 2010 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**

### **Indicative solution**

#### *Introduction*

This article covers the operating models of banks and insurers and highlights the differences. It then discusses aspects of the banking industry which make it more vulnerable to financial contagion compared to the insurance industry. Whilst the insurance industry is typically not prone to financial contagion we identify some aspects which may lead to similar problems in the insurance industry.

#### *Contrasting industries*

The banking and insurance industries both deal with the transfer of risk. However there are several important differences in the type of risks they transfer and how they manage the risks.

The banking industry is characterised by a business model based around accepting money from customers which can be withdrawn by them at short notice. These deposits create a liability for the banks which are thus short term in nature. Along side this, banks use these deposits to offer loans to business and people with terms that typically extend to several years.

Insurance companies provide financial protection against certain defined events. In return for this protection they receive a regular stream of income. It is common in the insurance industry for such income to be received in advance of the payments made to their customers.

Another important distinction between the two industries is their approach to manage their assets and liabilities. Banks have short term liabilities and long term assets together with a reliance on short term borrowing to meet their cash requirements. Insurers on the other hand hold assets having regard to the nature and duration of liabilities.

#### *Aspects leading to financial contagion*

There are several aspects of the banking industry's operating model that make it vulnerable to financial contagion. By offering long term loans they take credit risk which can lead to coordinated losses at times of economic downturn.

Banks liabilities are liquid and short term whereas the assets are long term and in some instances may not be as liquid as the liabilities. This aspect of the bank model makes them vulnerable to shifts in the relative costs of funding the liabilities and the investment return on assets. Customers may withdraw money from banks if they suspect any sign of trouble and given the inter-relationship between banks this can quickly spread across the entire banking industry. Thus the failure of one bank can lead to a domino effect and spread to other banks.

Insurers are less susceptible to risks arising from financial contagion. Asset liability management is one important aspect of insurance company's risk management and the

investment strategy is decided keeping in mind the timing and nature of liabilities. Insurers do not have the kind of interrelationship amongst themselves as banks do. Apart from extreme catastrophes the failure of one insurer is typically not related to the failure of another insurer.

Life insurers are exposed to the risk of customers cancelling their insurance policy and withdrawing money at times of economic hardship. Such action may be coordinated across a large section of customers at a time when the value of the assets have fallen. This can lead to a potential contagion amongst insurers requiring careful risk management.

### *Conclusion*

Whilst the banking and insurance industries are both involved in the transfer and management of risk the nature of their operating model is distinct. These distinctions make banks more exposed to risks spreading across the entire industry leading to a possibility of collective failure. Although there are some potential risks the insurance industry is much less exposed to such large scale failure of the entire system.

### **Meeting objectives**

Has the script met the overall objective of:

- Explaining the operating model of banks?
- Explaining the operating model of insurers?
- Explaining the aspects of banking that make it more vulnerable to financial contagion compared to insurance?

### **Presentation**

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

### **Contents**

- Risk transfer and management
- Bank liabilities and assets
- Credit risk in banking
- Liquidity risk
- Reliance on short term market funding
- Banks interrelationship
- Insurance liabilities and assets
- Insurance ALM
- Insurer risk due to mass surrender
- Insurer interrelationship relative to banks

**Penalties**

Cut marks for

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

[60]

**Question 2****Indicative solution**

Dear Ram,

**“Unit-linked products with highest unit price guarantee”**

I first explain the basic unit-linked product and then explain how insurers have built guarantees into unit-linked products to make them more attractive to customers.

*Unit-linked products*

Under a unit-linked product the customer purchases units with his premiums. However, the entire premium is not allocated to units. A premium allocation charge is levied and the remaining amount is invested in units. For example if the policyholder pays 100 as premium and there is a 20% premium allocation charge 80 will be allocated to units.

Units are invested in financial instruments like shares and government bonds. The price of the units fluctuate as the market value of the financial instruments in which the units are invested move. So if in the above example the unit price was 5 the policyholder would receive 16 units (i.e. 80 divided by 5). If the units were invested in shares and the price of shares doubled the unit price would double so that the value of the policyholder’s account would become the number of units (16) multiplied by the new unit price (10) giving a figure of 160.

The unit-linked contract is easy for customers to understand as they can know the value of their investments at any time by multiplying the number of units they have by the published unit price in the newspaper.

In the above type of contract there is no minimum amount that the investor will get at the end of the contract – it all depends on the unit price. In an extreme situation if all the investments become worthless the unit price would become 0 and the policyholder’s investments would be worth nothing.

Customers are currently very worried about this given the recent equity market falls that have taken place.

*Highest unit price guarantee*

To address this issue of no guarantee under unit-linked products insurers have introduced the highest unit price feature. Under this feature at the end of the contract the policyholder gets the higher of the following :

- The number of units multiplied by the unit price (the normal amount one would get under a unit-linked policy) and
- The number of units multiplied by the highest unit price on certain dates which are mentioned to the customer in advance

So even if the market falls drastically at the end of the policy contract there is a minimum amount guaranteed to the policyholder.

These guarantees are not straightforward for insurance companies to manage. Companies manage these guarantees by choosing the amount they invest in shares based on the amount of the guarantee. The lower the gap between the value of the investments and the value of the guarantee the lower the amount that can be put into shares since if the stock market were to rapidly fall the value of the investments would fall below the guaranteed amount. This type of guarantee means that the company has to continuously watch the market and start switching from shares into bonds if the markets start falling materially.

I trust the above satisfactorily explains the unit-linked products with highest unit price guarantee.

Regards/Shyam

### **Meeting objectives**

Has the script met the overall objective of:

- Explaining the workings of unit-linked products ?
- Explaining the workings of guaranteed products?

### **Presentation**

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

### **Contents**

- Premium allocation charge
- Unit value grows with investment return
- No guarantee
- Easy to understand
- Highest unit price guarantee
- Asset allocation dependent on investment performance

- Need to monitor the market and switch as necessary

**Penalties**

Cut marks for

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

**[40]****[Total Mark 100]**

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