Institute of Actuaries of India

Subject CA3 – Communications

Oct/Nov. 2007 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: Senior Management Members
From: Actuary
Date: 1 November 2007

Subject: Fair-value and cost-based accounting

Introduction
This memorandum covers some aspects of cost-based and fair-value accounting. It discusses the attractions as well as drawbacks of fair-value accounting over cost-based accounting. Lastly we present conclusions of a new research into the impact of a widespread adoption of fair-value accounting.

Cost-based accounting
Cost-based accounting refers to the method of using the cost at which assets and liabilities were bought. It does not reflect any subsequent change in the market price of assets and liabilities.

Agency problem
The shareholders of a firm reward the management based on its accounting profits. Cost-based accounting does not reflect any change in the price of assets/ liabilities from the time that these are purchased as long as they are held by the company. Thus the accounting profits do not reflect the market price movements. When the market value of assets is more than the cost, the management would be inclined to sell the assets in order to realize the difference between market price and cost as an accounting profit. The market price may not be reflecting the true value of the assets sold and thus the decision to sell the assets may have been the wrong one. Such an incentive posed by the cost-based accounting framework is known as the agency problem.

Fair-value accounting
Fair-value accounting uses the latest market prices of assets and liabilities in the accounts. The historical costs at which these assets/ liabilities were bought do not impact the accounts. Since the market prices can change significantly, fair-value accounting also increases the variability in accounting profits.

Attraction of fair-value accounting over cost-based accounting
As described above, the cost-based accounting method suffers from the agency problem. Fair-value accounts overcome this problem by reflecting the market price movements in the accounts and therefore the management does not have to sell assets in order to show an accounting profit. By using the latest market information fair-value accounting enables its users, such as shareholders and regulators, to gain a better understanding of a firm's financial position.

Distortions in market prices by fair-value accounting

Conclusions of a new research illustrate the limitations of fair-value accounting. Assets or liabilities that are not frequently traded in the market could give rise to forced sales similar to the agency problem of cost-based accounting. The fair-value accounts of assets not frequently traded will reflect the price at which few trades have occurred in the accounts. Firms may believe that such a price does not reflect the economic value of the assets and may sell them in the hope of obtaining a better price. This may lead to many firms looking to sell the same assets which will drive the prices even further down. These lower market prices will be reflected in the fair-value accounts, even if the assets are not sold by a particular firm.

Rewarding a firm's management on accounting profits may thus lead to forced sales of assets not frequently traded. This will destroy value for shareholders.

Summary

The two accounting methods, cost-based and fair-value, both have some advantages and disadvantages. Cost-based accounting in particular suffers from the agency problem which leads to inappropriate sales of assets detrimental to shareholder value. New research has highlighted that a similar problem exists under fair-value accounting for assets that are not frequently traded.

Meeting objectives

Has the script met the overall objective of:

- Explaining the concept of cost-based accounting?
- Explaining the concept of fair-value accounting and the new research identifying the pitfalls?

Presentation

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

Contents

- Concept of cost-based accounting
- Concept of fair-value accounting
- Main attraction of fair-value accounting over cost-based accounting
- Agency problem of cost-based accounting
- New research on how fair-value accounting distorts market prices

Penalties

Cut marks for

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

[60]

Question 2

Dear Ram,

Unit-linked and with-profits products

I explain below the basic concepts behind unit-linked and with-profits products.

Unit-linked products

Basically the policyholder buys units with his premiums and then receives the value of the units at the end of the policy term. For example, if the policyholder pays an initial premium of 100 and the price of units is 20 he will receive 5 units. Suppose the units have doubled in value over the policy term then he will receive (ignoring further premium payments and charges for simplicity) 200 (=40 *5) at maturity.

Policyholders can choose different funds depending on the amount of risk they want to take. There are a wide range of funds available including equity, bond and balanced funds. The unit value varies according to how the investments of the fund perform. In our example above the policyholder may have chosen an equity fund and equities had doubled over the policy term. If for example the policyholder had chosen a bond fund and bonds had increased by 50% then he would have received 150 (=30*5) at maturity.

However, in order to cover its expenses insurers do not usually allocate the entire premium paid to purchase units. In our example while 100 has been paid only 90 might be allocated to buy units. Furthermore, the insurance companies take money out of the fund to cover various expenses including the cost of administering the policy, managing the investments and covering death payments.

Under these products there are no guarantees as the value of units could sink if the market performs poorly.

With-profits products

The customer is guaranteed an amount known as sum assured at maturity. Then every year bonuses are added to the sum assured by the company. At the end of the policy the policyholder receives the sum assured plus the bonuses.
The bonuses are not guaranteed and depend upon company performance which include factors like investment performance, the level of expenses incurred by the company and the number of deaths that have occurred.

Bonuses once added to the policy cannot be removed and therefore at any given time the policyholder knows that he will receive at maturity at least the sum assured plus bonuses under his policy. However, bonuses are totally up to the company so there is a large amount of uncertainty regarding the bonus component of the payment.

Conclusions

It is easier for the customer to follow the progress of his unit-linked contract as the unit values are published daily in the newspapers. The customer can also switch between the various funds depending on his view of the market and/or the amount of risk he wants to take. However, there are no guarantees and unit-linked contracts can perform poorly if markets dive.

Under a with-profits contract the customer knows he will receive at least the sum assured plus the bonuses under his policy to date. However, future bonuses are unknown to him and so the final return is uncertain.

I trust the above satisfactorily explains the various issues.

Regards/Madhu

Meeting objectives

Has the script met the overall objective of:

- Explaining the workings of unit-linked products ?
- Explaining the workings of with-profits products?

Presentation

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

Contents

- Value of units payable at maturity
- Unit value grows with investment return
- Premium allocation charge
- Deductions made from fund
- Sum assured and bonus build-up in with-profits
- Comparison of unit-linked and with-profits

Penalties

Cut marks for

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

[40]

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