

# INSTITUTE OF ACTUARIES OF INDIA

## EXAMINATIONS

06<sup>th</sup> November 2007

**Subject CA3 – Communications**

**Time allowed: 3 Hours (14.15 - 17.30 Hrs)**

**Total Marks: 100**

### *INSTRUCTIONS TO THE CANDIDATE*

1. Do not write your name anywhere on the answer sheets. You have only to write your Candidate's Number on each answer sheets.
2. In addition to this paper you should have available Actuarial Tables and an electronic calculator.
3. You have 15 minutes at the start of the examination in which to read the questions. You are strongly encouraged to use this time for reading only, but notes may be made. You then have 3 hours to complete the paper.
4. You must not start writing your answers until instructed to do so by the Supervisor.
5. Attempt BOTH the questions.

#### **Professional Conduct:**

*"It is brought to your notice that in accordance with provisions contained in the Professional Conduct Standards, If any candidate is found copying or involved in any other form of malpractice, during or in connection with the examination, Disciplinary action will be taken against the candidate which may include expulsion or suspension from the membership of ASI."*

**Candidates are advised that a reasonable standard of handwriting legibility is expected by the examiners and that candidates may be penalized if undue effort is required by the examiners to interpret scripts.**

**AT THE END OF THE EXAMINATION**

**Please return your answer scripts and this question paper to the supervisor separately.**

- Q.1)** You work as an actuary in a large financial services firm. Your boss, the Chief Financial Officer of the company, has passed the following excerpt from an article.

**“Fair-value and cost-based accounting”**

Fair-value accounting uses the latest available market information to price assets. The bodies that set accountancy standards believe the more accurate disclosures are, the better. Regulators however are concerned that market-based accounting would increase fluctuations in banks' earnings and capital, which might increase risks to financial stability. Commercial banks are reluctant to expose the idiosyncrasies of their loan books to the glare of market scrutiny.

There are some obvious attractions of fair-value accounting. Using recent prices to set values, a process known as marking to market, enables a truer picture of a firm's financial health than historical-cost measures. The cost based measures gauge net worth from the arbitrary dates when assets and liabilities were first booked. In principle, fair-value accounting makes a firm's viability plainer and enables shareholders and regulators to spot financial trouble more quickly.

New research suggests that the increased use of fair-value accounting may itself generate fluctuations in asset values that distort the price that is used to calibrate the value of assets on the books.

Consider a bank that has issued loans to individuals. Since the bank knows its borrower better than anyone else, it has the best idea of what the loan is really worth. Its managers are rewarded according to the accounting profit of the bank.

If loans are valued at historical cost and market values are rising, the loans are likely to be sold if this is the only way of realising accounting profit, even if the market undervalues them. The banks' managers take a profit and get paid accordingly, although shareholders would be better off if the loans were kept.

Fair-value accounting gets around this agency problem. Loans do not have to be sold to cash in on their rising value: marking the assets to their market value has the same beneficial effect on profits and on managers' pay.

However, in the wrong circumstances fair-value accounting could also induce wasteful sales—of long-term, illiquid loans. Left on the books and marked to market, a loan will be valued at the price at which others have managed to sell. But when there are only a few potential buyers, that may be especially low. Since the fair-value accounting method would reflect this low cost it would translate into lower accounting profits. So managers will be tempted to sell in the hope of a better price. Because all banks with similar assets face the same incentives, they will all sell, driving the price down. Their shareholders would have been better off had the loans been kept until they fell due.

In this way, a fair-value regime can itself distort the very prices that are supposed to reflect the true worth of assets. The prospect of lower prices can encourage selling which drives down prices further. The information derived from market prices becomes corrupted, and

the result is a growing divergence between reported net worth and true value.

This theoretical model is a challenge to the ideal of fair-value accounting: that more information is always better.

There is a fair chance that asset markets will stay liquid (in the sense that willing sellers are matched with willing buyers), as long as the actions of market participants are essentially random. But anything that co-ordinates the actions of sellers—in this case, the disclosure required by fair-value accounting—can easily lead to sharp movements in asset prices.

Although more accurate disclosure of balance sheets is desirable, the new research is a reminder that there are always trade-offs to any policy change. The choice between these measurement regimes boils down to a dilemma between ignoring price signals, or relying on their degraded versions.

Your boss has asked you to prepare a memorandum in about 500 to 600 words discussing the contents of the article for the senior management of the company. The senior management members largely constitutes of people without a financial background. Draft a memo covering the following aspects:

1. Brief explanation of fair-value accounting and cost-based accounting.
2. Discuss the main attraction of fair-value accounting over cost-based accounting.
3. The agency problem associated with cost-based accounting.
4. How the adoption of fair-value accounting by all firms may lead to distortions in market price and therefore the accounts themselves.

[60]

**Q. 2)** Your friend has read the following note from a friend who works in the actuarial department of a life insurer and is unable to understand the concepts explained.

**“Unit-linked and with-profits products”**

Under a unit-linked product the policyholder assumes the investment risk receiving typically on maturity the value of the units standing to his credit. The policyholder purchases units with his premiums which then accumulate (net of deductions which are described below) with fund growth depending on how the underlying investments perform. There are typically a wide range of funds depending upon the risk appetite of the customer with equity, bond and balanced funds being common. Therefore customers investing in different funds will experience different investment returns and therefore receive differing maturity values.

Deductions are made by the insurance company to cover their own expenses with commonly deductions being made at the premium allocation stage whereby only a portion of the premium is actually allocated to purchase units. Furthermore, it is common for deductions to be made from the fund to cover administration expenses, fund management expenses and cost of providing life insurance cover which relates to the value of the death benefit over and above the value of the units.

Under this structure there is no guarantee to the customer regarding the maturity value which depends upon the value of the units at the maturity date and therefore the maturity value is heavily dependent upon the investment performance.

Under a with-profits product the policyholder is guaranteed a sum assured at maturity. This is then typically increased every year by bonuses depending on the experience of the company including investment, expenses and mortality. Once a bonus is declared it cannot be withdrawn. Therefore at maturity the policyholder receives the sum assured plus the declared bonuses.

Unit-linked contracts are arguably more transparent as the policyholder can determine the value of his unitholding using unit prices which are often published daily and can also switch between the various funds depending on risk appetite and/or market outlook but there are no guarantees should markets perform very poorly. In contrast, under a with profits contract the sum assured and declared bonuses to date form the minimum under which the maturity value cannot fall. However, the level of future bonuses is highly uncertain thus creating significant uncertainty regarding the total payment at maturity.

Redraft the note in about 400-500 words to make it suitable for sending it to your friend who is not conversant with financial matters.

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