CapitOx Actuary Division Weekly Newsletter

Hello all,

Welcome to the final edition of the CapitOx Actuarial newsletter of the term. As always, feel free to contact us at capitoxactuaries@gmail.com.

Past issues can be found at: http://www.capitox.com/actuary/.

1. Recent Developments
2. Term of the Week
3. Puzzle

1. Recent Developments

UK's Prudential set to acquire AIG's Asian biggest life insurance subsidiary, AIA for 19.9 billion pounds. It is the largest deal in the insurance industry.
http://www.reuters.com/article/idUSTRE6201AR20100301

In another big deal across the pond, MetLife acquires ALICO for 10 billion pounds. ALICO is AIG's second largest life insurance unit. MetLife, the number one underwriter of life insurance in the U.S., is seeking to expand internationally.
http://online.wsj.com/article/SB10001424052748704706304575107830470736008.html?mod=googlenews_wsj

A Forbes magazine columnist suggests that actuaries be used to value balance sheets. Seems unlikely, but the positive press certainly cannot be a bad thing.
http://www.forbes.com/2010/02/18/mark-to-market-personal-finance-financial-advisor-network-herb-morgan.html?boxes=financechannellatest

2. Term of the Week

Life insurance (permanent): A contractual agreement where the insurer agrees to pay a policyholder a specified death benefit should the policyholder die. If such an event occurs, the policy is said to 'mature.' In return, the policyholder agrees to pay an amount of money at regular intervals, called a premium.

There exist many varieties of life insurance. The two major types are 'whole life insurance' and 'universal life insurance.' While 'whole life insurance' is best suited for preparing for unforeseen circumstances, 'universal life insurance' introduces a savings component that potentially involves a pay-out. In other words, your premiums for 'universal life insurance' involve both purchasing the insurance policy and also in investing in a form of a savings account. 'Universal life insurance' typically also

provides additional benefits to make it more attractive, such as the flexible premium payment amounts (within certain limits).

3. Puzzle

The following was an actual question at an Assessment Centre for a summer actuarial internship.

(a) You are invited to play a game involving one die. You are paid the same amount as you roll (1 pound, 2 pounds,…, 6 pounds). How much would you be willing to pay to play this game?

(b) Now suppose you are given a choice after you roll the die. You can either elect to keep your initial roll (and payout), or you can choose to roll again. If you choose to roll again, you will be paid the same amount you roll on the second roll. How much would you be willing to pay to play this game?

Thank you for reading, and we hope that you enjoyed this edition. We look forward to enlightening you about the actuarial profession in Trinity Term.

Best,

CapitOx Actuaries

Answer to puzzle

(a) Anything less than 3.5 pounds (the 'less than' bit is very important for an interview). Expected value of dice roll is (1 + 2 + 3 + 4 + 5 + 6) / 6 = 3.5

(b) Anything less than 4.25 pounds. Key insight is that you will choose to roll again if your first roll is less than the expected value of your second roll, i.e.: if you roll a 1, 2, or 3. Thus you have a ½ chance of keeping your initial roll, and a ½ chance of rolling again. The expected value of your initial roll is (4 + 5 + 6) / 3 = 5, and the expected value of your second roll is 3.5 (from part (a)). Thus the total probability is ½ * 5 + ½ * 3.5 = 2.5 + 1.75 = 4.25