The Actuarial Profession
making financial sense of the future

Project SB01

Instructions to CA2 candidate

(i) Read the attached document which describes the background to this project. You will also be given an additional piece of information later on in the day.

(ii) Project the cashflows expected over the next licence period and determine the Base Price for AccountMobile. Illustrate the cashflows using a suitable chart.

(iii) Calculate the revised cashflows allowing for the CEO's first proposal. Use these to calculate the revised Net Present Value and Internal Rate of Return as described in the background. Illustrate the revised cashflows using a suitable chart.

(iv) Repeat step (iii) allowing for the CEO's second proposal.

(v) Project the cashflows as required using the additional information and calculate the financial measures requested.

(vi) Prepare a summary of five or six pages capturing the main features and results. You can assume that the summary is being prepared for your boss, a qualified actuary, who will tomorrow discuss the findings with the CEO of ActuariaMobile. You should cover the following:

- Data, approach and assumptions used
- Calculation of Base Price
- Impact of proposed changes on the financial measures requested
- Results using the new information
- Conclusions, including suggested next steps

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Background for CA2 candidate

In the country of Actuaria, the ruling council gives a limited number of mobile phone licences to companies to provide phone services. The licences are auctioned to the highest bidders and last for 10 years. The last auction has just been completed and the new licences will apply from the start of the next calendar year, 2010.

Two of the successful bidders for licences were ActuariaMobile and AccountMobile, both of whom already hold licences and currently provide phone services. However, competition for the licences is fierce and AccountMobile over-stretched its financial resources in making its bid. The company has tried to raise further capital from its current backers but its owners are short of funds due to heavy investment in sub-prime mortgages. As a result it has put itself up for sale with a view to completing the sale just before the end of this year when the licence fee has to be paid to the council.

You are an actuarial student working at Titans Investment Bank in Actuaria. One of the bank's clients is ActuariaMobile and they have asked for the bank's advice on how much it may be worth paying for AccountMobile. Your boss, who is an actuary, has asked you to build a rough model to determine an indicative price so that your clients may decide if they wish to make a firm offer for AccountMobile.

Your boss has given you the following details gathered from the information memorandum issued by the sellers.

Current phone contracts (at 30 June 2009):

Call Package	Monthly Tariff	Monthly Margin	Number of Contracts	Annual Cancellation Rate	Annual Growth in number of contracts
A	Act$ 10	Act$ 0.40	200,000	2%	0%
B	Act$ 15	Act$ 0.90	120,000	5%	3%
C	Act$ 20	Act$ 1.80	150,000	8%	5%
D	Act$ 25	Act$ 2.40	100,000	10%	15%
E	Act$ 30	Act$ 3.20	80,000	15%	25%

The monthly margin is the difference between the tariff income received and the cost of providing the call services.

In addition, AccountMobile has fixed expenses of Act$ 500,000 each month to administer the accounts and deal with its customers.

AccountMobile has significant tax losses which, combined with tax assets that ActuariaMobile already has, means that it is very unlikely that there will be a need to pay tax on the profits within AccountMobile during the next licence fee period.

Inflation for the past 20 years in Actuaria has been very close to zero.

As a first step to valuing AccountMobile your boss has asked you to build a simple model of the cashflows over the licence period for AccountMobile and use these to determine a “Base Price” as at 1 January 2010 based on these cashflows using ActuariaMobile’s cost of capital of 10% per annum.

Your boss has already had some discussions with the CEO of ActuariaMobile who has some ideas on combining the two companies and you are asked to model the effect of these:

CEO’s First Proposal – Streamlining the Administration

The CEO believes costs could be reduced by combining the administration systems of both companies. ActuariaMobile has built up spare capacity in anticipation of winning more than one licence at the last auction. As a result she believes that the AccountMobile contracts could be administered within ActuariaMobile’s current systems at 50% of the current fixed expenses. The new system could be implemented by the end of the first year of the new licence but at a cost of Act$15 million.

She is interested in how the value of AccountMobile might change as a result of streamlining the administration system and you have been asked to model the revised cashflows and calculate the net present value of AccountMobile. You have also been asked to determine the Internal Rate of Return to ActuariaMobile should they purchase AccountMobile for the “Base Price” then combine the administration systems over the first year of the new licence.

CEO’s Second Proposal – Switching exercise

Two of the call packages, A and B, are old tariffs providing only basic services and are less profitable than the other tariffs. The CEO proposes to close these two packages to new customers, offering existing customers on A & B incentives to switch to other packages. Based on experience some years ago with a similar exercise within ActuariaMobile, she anticipates the following:

Proportion of customers who cancel completely	40%
Proportion of customers who switch to the cheapest package now available	30%
Proportion of customers who upgrade to the most expensive package	30%

As an incentive to switch, customers would receive the first 6 months on the new tariff at half price with the higher call costs incurred being met by the company. The tariff switch campaign would only be possible after the administration systems have been merged and the CEO expects the exercise to happen over the second year of the licence period.

You have been asked to model the revised cashflows, and calculate the net present value under the combined administration systems allowing for the tariff switching campaign. You have also been asked to determine the Internal Rate of Return on the basis that ActuariaMobile purchases AccountMobile for the “Base Price” and the tariff switching campaign is carried out.

An additional piece of information will be provided later on in the day.

END

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Additional information for CA2 candidate

To be provided later on in the day

A managing director within Titans Investment Bank has suggested that the bank could lend ActuariaMobile some of the money needed to complete the purchase of AccountMobile.

The loan plus interest would be repaid out of positive cashflows to ActuariaMobile during the 10 years of the next licence fee period. If there is a negative cashflow then the outstanding loan would be rolled forward with interest until there is a positive cashflow. Given ActuariaMobile's credit rating the managing director is willing to propose an interest rate of 6% per annum to be charged on the outstanding balance throughout the period of the loan.

In order to indicate the financial benefit to your client, you are asked to assume the loan would be 50% of the Base Price and to determine the Internal Rate of Return for ActuariaMobile if it were to take this financing. You should do this calculation for the base case and for the scenario in which both the CEO's proposals are implemented.

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