

1)

The following steps will be taking place in development of the model.

- a) The objective i.e., Sufficient capital must now be held such that there is less than a 0.5% chance of liabilities exceeding assets after one year will be need to be met by the modelling process.
- b) Plan the modelling process and how the model can be validated.
- c) The regulatory guidelines along with the internal data of the company regarding asset and liabilities, if possible, the data publicly available of asset and liabilities of companies in other countries subjected to similar regulatory capital requirement and the estimates made by the company in worst case scenarios.
- d) The parameters include interest rates, claim/loss ratio, lapsation rate, etc.
- e) Involve the experts in insurance industry in discussion to get feedback on the validity of the conceptual model.
- f) Write the computer program of the model
- g) Debug the program so that it is in line with the model objectives
- h) Check the reasonableness of the model
- i) Perform sensitivity testing for small changes in parameter values
- j) Analyze the output i.e., Capital Requirement, from the model
- k) Communicate the findings to the insurer

2)

- a) Unreliable or inaccurate data
- b) The assumptions made on the policyholder's are wrong
- c) Wrong parameters were chosen or important parameters were missed
- d) Outlier events such as pandemic

3)

The steps include:

- a) The following steps in this future mortality model should be in line with the objectives of the government of the small country
- b) .
- c) Collect the past mortality records from the government that help in building the model
- d) Write a suitable computer program or identify a suitable computer program
- e) Debug the program
- f) Check the reasonableness of the model i.e., as age increases the probability decreases
- g) Perform sensitivity testing for small changes in parameter values
- h) Analyze the output from the model
- i) Communicate the results to the government of the small country

4)

The following are the key items to be included in the documentation of the model:

- a) Overview of the model prepared.
- b) Brief explanation regarding sources of data, any corrections, and comments.
- c) Outlining assumptions if any
- d) Results including the findings, observations and conclusions
- e) Any disclaimers that the client should need to know while using the model

5)

Advantages of the strategy:

- a) The project is very inexpensive
- b) It is very simple in nature
- c) It includes the method to forecast future population

Disadvantages of the strategy:

- a) Age is not the only factor that influences the consumption
- b) It does not consider the decisions likely to be made by the competitors in the future such as launching new product, changes in prices etc.
- c) It does not consider the change in tastes and trends of the consumers

6)

The possible reasons are as follows:

- a) It's possible that the student is not that experienced in performing simulation tests and might have made a mistake
- b) It's possible that the model was originally wrong and the first test was a coincidence
- c) It's possible that there has been breach in data security that made the model unreasonable.
- d) It's possible that the assumption of the parameter is wrong

7)

- a) Reliable data is used
- b) Did not consider the possibility of migration
- c) National fertility and mortality rates may be different than local rates
- d) It's assumed that there will be no such events that causes drastic change in mortality rates such as pandemic, natural disasters
- e) Did not consider whether the family can afford to send their children to school or the willingness of the child to go to school. It's also possible that a child need not be enrolled in the school of the town.

8)

- a) The capacity of the company i.e., budget
- b) Requirements of the staff
- c) Policies of Competitors
- d) Regulatory Requirements if any
- e) Willingness of the shareholders
- f) Complexity of the model