

INSTITUTE AND FACULTY OF ACTUARIES



EXAMINATION

29 April 2020 (am)

Subject CP1 – Actuarial Practice

Paper Two

Time allowed: Three hours and fifteen minutes

In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator from the approved list.

[**Note:** your work needs to link to the information provided in the questions and should discuss/outline areas of professionalism/actuarial advice as required. Limited credit will be given to solutions where generic answers have been given that do not refer back to the information provided]

1 Background

Country B is well developed with sophisticated financial markets and financial institutions. A report has been produced by leading experts that concludes that climate change could have a material impact on financial markets and financial institutions in Country B.

The report also highlighted that to successfully manage the financial risks arising from climate change it will be necessary for all businesses in Country B to:

- make changes to governance.
- make changes to risk management.
- use scenario analysis for risk identification and assessment.

A large insurance company in Country B, NEF Insurance, sells term assurance, annuities, property insurance, motor insurance and savings products. NEF Insurance is undertaking a project to assess how climate change could impact its operations, the investments it holds, and the products it sells to help determine any appropriate actions it should take.

NEF Insurance invests in a wide range of investments including equities, property, government and corporate bonds, loans secured on commercial property and loans secured on infrastructure.

The government of Country B has committed to an internationally agreed target of keeping global average temperature rise since pre-industrial times below 2°C. The government has, to date, announced three policy measures directed at reducing greenhouse gas emissions. These measures will affect people and businesses. These policy measures are:

- requirements to improve the energy efficiency of commercial properties starting in 3 years. The minimum standards will be progressively strengthened over the following 10 years. Financial penalties and restrictions on use of properties will apply if the minimum standards are not met.
- requirements for organisations to hold permits at least equal to the quantity of greenhouse gas emissions it actually emitted. To avoid financial penalties an organisation will need to purchase sufficient permits. The government will reduce the number of permits each year and introduce an emission trading system allowing organisations to buy and sell permits.
- the sale of new petrol and diesel cars will be banned in 20 years.

The board of NEF Insurance believe that the government's policy measures will have a wide-ranging impact on all aspects of their business.

Questions

- (i) Outline the factors that would impact the preference of investors for a particular asset class. [5]
- (ii) Discuss ways that the investments of NEF Insurance could be affected by climate change. [6]
- (iii) Describe the changes an insurance company may need to make to each of the following in response to climate change risks:
 - (a) governance
 - (b) risk management. [6]
- (iv) Discuss how climate change might affect NEF Insurance's business including its operations, the investments it holds and the products it sells. [10]
- (v) Discuss how the actuarial control cycle can be used to assist companies preparing for climate change. [6]
- (vi) Assess, for each of the government's policy measures, how that measure is expected to affect NEF Insurance. [10]

NEF Insurance has committed to undertaking the scenario analysis as recommended by the experts' report.

- (vii) Outline the non-financial risks that NEF Insurance should consider in their scenario analysis. [6]

A credit rating agency is making changes to its rating methodology for companies in Country B. It is proposing amending its rating methodology to include allowance for environmental, social and governance risks. A credit rating given by a credit rating agency is an indication of credit worthiness.

- (viii) Explain why a credit rating agency is making changes to its rating methodology. [4]

[Total 53]

2 Background

Country A is a developed country. In recent years there has been steady growth in the number of workers who are self-employed (i.e. people who work for themselves rather than being employed by a company) in Country A. The self-employed now make up 15% of the total workforce in Country A.

Research has shown that only 30% of the self-employed workers in Country A are actively saving for retirement. This compares with 75% of employed workers. The government in Country A has publicly expressed concern about the low levels of self-employed workers who are saving for retirement.

BBB is a large insurance company offering a wide range of products. It has seen sales and profits fall in all product lines over the last few years. BBB is considering a range of options to increase its future sales and profits.

One of the options being considered by BBB is to launch a simple unit-linked investment product. The product will allow individuals to invest in a range of unit-linked funds. BBB will target the product at self-employed workers with the aim of encouraging the self-employed to accumulate a fund during their working lives to save for their retirement. BBB believes that once an individual has bought the simple investment product, it will be able to sell other insurance products to the individual, which could further increase BBB's sales and profits.

Questions

- (i) Explain why the government of Country A is concerned about the number of self-employed workers not saving for retirement. [5]
 - (ii) Discuss why the self-employed may not be saving for their retirement. [7]
 - (iii) Propose possible actions the government could take to encourage self-employed workers to save adequately for their retirement. [5]
 - (iv) Discuss the factors that will need to be considered in determining a suitable design for BBB's investment product. [9]
 - (v) Discuss the types of investments that may be suitable for BBB's investment product. [5]
 - (vi) List other possible insurance products that BBB might be able to sell to self-employed individuals. [5]
 - (vii) Discuss the issues for BBB in pricing the products in part (vi). [7]
 - (viii) Explain why it will be important for BBB to monitor the experience of this new business. [4]
- [Total 47]

END OF PAPER