

# INSTITUTE AND FACULTY OF ACTUARIES

## EXAMINATION

20 April 2022 (am)

### **Subject SA7 – Investment and Finance Specialist Advanced**

Time allowed: Three hours and twenty minutes

<p>In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator.</p>
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If you encounter any issues during the examination please contact the Assessment Team on  
T. 0044 (0) 1865 268 873.

- 1** In a developed economy, the central bank is engaging in a programme of Quantitative Easing (QE). The QE programme involves purchasing government bonds and other fixed-interest securities. The stated intention of the central bank is to lower bond yields to stimulate economic activity.
- (i) Explain how an equity investor could profit from this QE programme. [9]
  - (ii) Outline, with an example, how a QE policy can involve purchasing assets other than bonds and the impact that it will likely have on equity prices. [4]
  - (iii) Explain why a moderate QE programme is likely to lead to minimal changes in the consumer price index in the country. [7]
  - (iv) (a) Explain, in your own words, why conflicts of interest may arise between equity and bond holders in a company.  
(b) Give three examples of such conflicts. [6]
  - (v) Discuss how an extended period of QE could create incentives for a company to change its mix of equity and debt capital. In your answer, you should identify conflicts of interest between different stakeholders. [8]
- [Total 34]

- 2 The International Coffee Growers' Association (the Association) is an organisation that seeks to promote the interests of coffee bean farmers in poorer countries. The Association has received funding from a philanthropist plus additional grant pledges from various countries for a new project. The project will fund agricultural improvements in coffee growing regions with the aim of improving crop yields and quality. The grants will gradually rise over a 10-year period, before steadily falling to zero over the following 20-year period.

The Association is considering accessing the capital markets by issuing a series of bonds to raise funds to enable the project to commence its activities as soon as possible.

- (i) Discuss how the Association needs to take the following factors into account:

- funds backing bond payments
- bond structure
- sales and marketing for the bond.

[12]

The Association decides to issue a series of 20-year bonds that pay annual coupons, with the first coupon payments being 5 years after issue. All bonds have been assigned the highest credit rating of the countries that have pledged funding. Bonds will be issued in multiple currencies.

- (ii) Outline the key considerations for a prospective investor in these bonds, covering the following areas:

- risk
- return
- investment suitability.

[6]

The Association has issued new bonds with the same terms as the previous bonds but with a lower coupon. This reduction to the coupon reflects the following changes to the terms of the new bonds:

- Countries that pledged grant funding have signed contracts that make it legally binding for them to pay the pledged amounts.
- If the project's activities are directly impacted by a natural disaster, bonds can be redeemed immediately at 75% of the nominal amount.
- The Association has purchased a weather derivative that pays 20% of the nominal amount when annually recorded changes in temperature, rainfall or wind speed exceed pre-agreed levels.
- A well-known investment bank will handle all cashflows associated with the deal.

- (iii) Discuss, for each of the changes listed above, their impact on the investment risk of the bonds. [10]

- (iv) Comment on whether the reduction in coupon is justified. [2]

[Total 30]

- 3** Suggest ways in which Environmental, Social and Governance (ESG) considerations could be integrated into the investment process for a new private credit product.

Your answer should consider the following aspects:

- objectives
- security selection
- portfolio construction
- ownership rights and reporting.

[18]

- 4** The Chief Investment Officer (CIO) of a medical research charity (the Charity) is responsible for its endowment fund (the Fund). The Fund's total assets are £15 billion and it distributes £1 billion each year to the Charity to help finance the Charity's research expenditure. The Fund has experienced strong growth in recent years through the adoption of a highly diversified investment strategy that focuses on illiquid investments alongside listed equities and bonds.

The Fund's objectives are described in its governing documentation as follows:

- to increase assets after distribution at a rate higher than inflation
- to avoid sudden changes in the monetary amount of distributions.

- (i) Discuss the factors that the CIO should consider in recommending the level of investment risk to the Fund's Investment Committee. [8]

The Fund has been approached by a major pharmaceutical company with the opportunity to co-invest £3 billion in a joint venture to develop new therapies. The Fund and the pharmaceutical company would each receive a 50% share of the profit stream. The venture has been estimated to have a 60% likelihood of success. If successful, the total profit stream is estimated to be £1 billion p.a. after a 3-year development period. The venture would generate profits for 20 years after this initial period, or until an earlier sale of the venture.

The Investment Committee has agreed to proceed with the co-investment. However, it has not been able to reach agreement on whether to treat the co-investment as part of the Fund's investment portfolio or as a separate asset to the investment portfolio.

- (ii) Comment on the advantages and disadvantages from a governance point of view of treating the co-investment as part of the Fund's investment portfolio.

[10]

[Total 18]

**END OF PAPER**