INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

4 May 2020 (am)

Subject SA7 – Investment and Finance
Specialist Advanced

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.

1 The Central Bank of a large economy has decided to implement a Quantitative Tightening (QT) policy to reverse its decade-long policy of Quantitative Easing (QE). The Bank considers the economy to be growing at a moderate rate with close to full employment.

(i) Discuss the likely impact of the QT policy on the following items, assuming a smooth transition to the new policy:

(a) asset prices

(b) wealth and economic inequality

(c) economic growth

(d) price inflation

(e) wage inflation.

[12]

Domestic asset prices increased significantly during the period of QE. The Board of the Central Bank is concerned about whether the QT policy may give rise to a significant correction in these prices.

(ii) Explain why there is a risk of a significant correction in domestic asset prices from the new policy. [11]

A pension fund has a portfolio comprising 50% long-dated domestic bonds and 50% domestic equities. Its Investment Committee is concerned that the QT policy could lead to a significant correction in domestic asset prices and wants to protect the funding level against this.

(iii) Suggest investment strategies that the Investment Committee could adopt. [5]

As interest rates rise, it is suggested that banks are lending insufficient funds to small businesses and that risk-based capital requirements are reinforcing this behaviour. As a solution to this, a country's banking regulator has proposed requiring banks to hold a fixed amount of capital for all loans, irrespective of their risk level.

(iv) Describe some of the positive and negative consequences of such a change. [7]

[Total 35]

2 (i) State the principal aims of regulation in the financial markets. [3]

In a developing country, there has traditionally been little sophistication in the investment industry and limited general financial education among the population. However, in recent years the country has experienced rapid economic growth leading to significant increases in income and wealth among the population. This has encouraged both foreign and new local investment firms to offer financial products to wealthy citizens.

The country's financial regulatory regime is significantly under-developed. Recent disclosures by financial firms operating in the country show that many individuals have opened spread betting and Contracts for Differences (CfD) accounts.

(ii) Explain the merits and potential problems that can arise from spread betting and using CfD accounts. [6]

(iii) State two approaches that can be used by the regulator to manage these problems, giving a reason for each. [2]

Some firms are marketing investment products based on gross investment return assumptions and using specific historical performance to justify their claims.

One company shows that \$1,000 invested 50 years ago in a successful investment firm would have grown into a fund of \$4.3m today.

(iv) Calculate the gross annual return achieved if an investment of \$1,000 accumulates to \$4.3m over a 50-year period. [1]

The investment firm charges annual fees of '2 and 20' (2% management fee and 20% of annual outperformance above 2% per annum).

(v) Calculate the accumulated value of the fund under this charging basis, stating any assumptions that you make. [4]

(vi) Comment on the impact of the charges. [3]

The financial regulator has reviewed a significant proportion of the marketing brochures for investment firms operating in the country. They have found that most are assuming future annual investment returns of 10% or greater.

(vii) Suggest, with reasons, the actions that the financial regulator could take in response. You should consider a wide variety of different types of direct and indirect regulatory responses. [11]

[Total 30]

3 A large insurer intends to sell a new product that converts a policyholder's accumulated funds at retirement into a guaranteed fixed income for life. The funds are converted into a fixed income level that is predetermined when the policy is purchased. The Chief Actuary has explained to the Chief Executive Officer (CEO) that large movements in interest rates would lead to large movements on the liability side of the company's balance sheet as a result of this product.

The CEO has proposed establishing a central balance sheet management team to manage this volatility. He expects swaptions will be used by the team as the main product.

(i) Explain how interest rate movements impact the balance sheet. [4]

(ii) Determine which type of swaption would be most suitable to limit the exposure to interest rate movements for this product. [2]

After discussions between the Chief Actuary and the CEO it has been agreed that the balance sheet management team will be a multi-disciplinary team and include both actuaries and derivatives traders.

(iii) List the different activities that would be performed by the balance sheet management team. [2]

(iv) Outline the key considerations for each of the activities listed above. [8]

(v) Propose additional considerations for ensuring that the team performs effectively. [2]

(vi) Explain how the team would determine which swaptions to purchase in respect of a portfolio of policies. [7]

(vii) List alternative derivatives that could be used as part of the hedge portfolio. [2]

(viii) Outline the difficulties that could be encountered in:

(a) determining the ideal hedging strategy for this product.

(b) implementing the ideal hedging strategy for this product.

[8]
[Total 35]

END OF PAPER