

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

22 April 2024 (am)

Subject SP5 – Investment and Finance Specialist Principles

Time allowed: Three hours and twenty minutes

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

If you encounter any issues during the examination please contact the Assessment Team on T. 0044 (0) 1865 268 873.

1 An investment manager is presenting at a quarterly review to the investment committee of a large life insurance company's unit-linked savings fund. The premium income for the fund currently exceeds maturity payments. The fund is currently invested in domestic equities, domestic bonds and direct domestic property. The investment manager is the only manager of the fund and was appointed to actively manage the fund. The investment manager has presented investment performance data that demonstrates that the fund has outperformed its benchmark in the last quarter.

- (i) Outline the questions relating to the investment performance that the trustees may be expected to raise during the manager's presentation. [6]

The investment manager has presented a proposal to the investment committee to enhance the return on the portfolio through a combination of:

- stock lending.
- shorting.
- overseas investment.

- (ii) Suggest possible issues that the investment committee should consider before agreeing to the proposal. [9]

[Total 15]

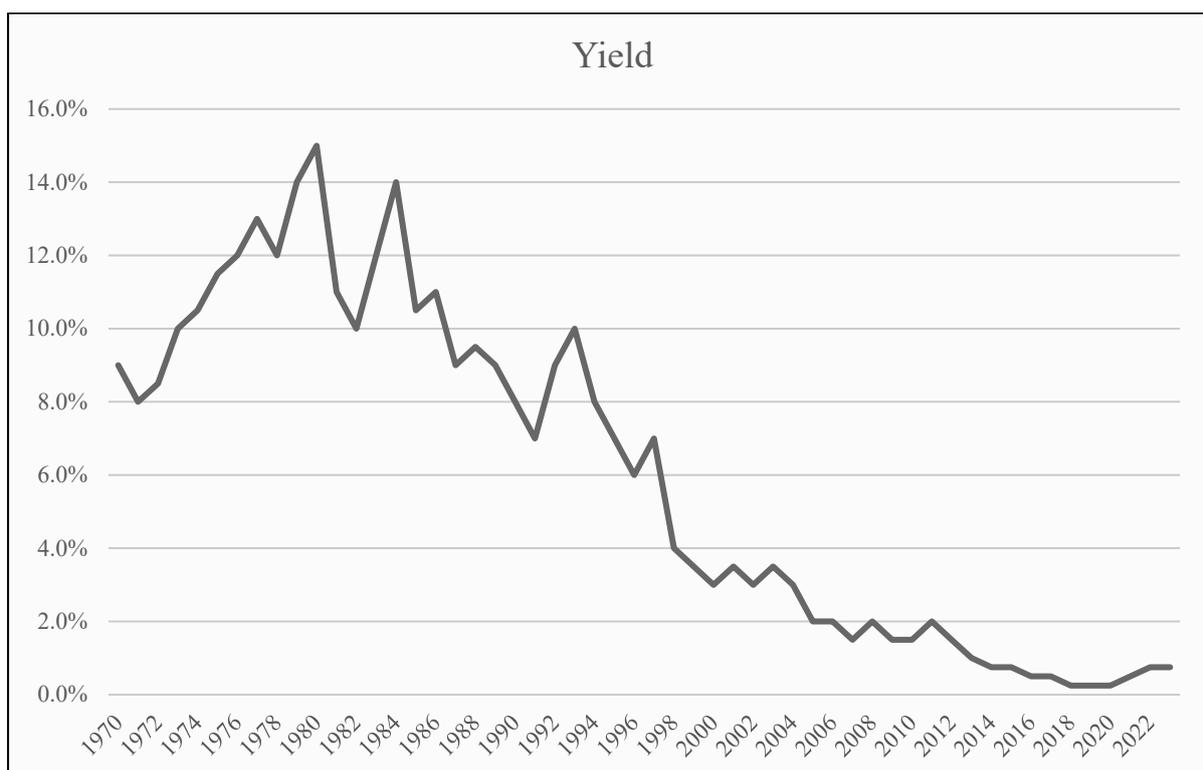
2 Financial information relating to a defined benefit pension scheme is set out below. The scheme is closed to new accrual.

<i>Liabilities</i>	
Value of liabilities	\$1,000 million
Proportion of pensioners (by value)	75%
Duration of pensioners' liabilities	15 years
Duration of deferred members' liabilities	30 years
Proportion of liabilities sensitive to inflation (uncapped)	40%
<i>Assets</i>	
Value invested in pooled Liability Driven Investment (LDI) funds (nominal)	\$100 million
Value invested in pooled LDI (inflation-linked)	\$50 million
Value invested in growth assets	\$300 million
Value invested in liquid assets	\$250 million
Duration of nominal LDI pooled fund	55 years
Duration of inflation-linked LDI pooled fund	60 years
Prevailing yield on 20-year government bond	2.0% p.a.

It is assumed that the growth assets and liquid assets have zero duration and that the same inflation measure used to calculate the liabilities is also used to measure inflation in the inflation-linked LDI fund. You may also ignore curve risk.

- (i) Calculate, showing all workings, the following ratios:
- (a) Interest rate hedge ratio (i.e. the proportion of the liabilities by value that is protected by the assets) [5]
 - (b) Inflation hedge ratio (i.e. the proportion of the inflation exposure of the liabilities by value that is protected by the assets). [5]
- (ii) Outline the advantages of using LDI pooled funds rather than a portfolio of conventional bonds in this portfolio. [3]
- (iii) Discuss how the funding level of the scheme may develop during a period of 'stagflation' (i.e. high inflation and low economic growth). [4]

The chart below shows the yield on a 20-year government bond over the previous 30-year period:



The scheme's investment adviser proposed that the trustees increase both the hedge ratios, but the trustees suggest this is not a good time to do so because interest rates have fallen so far.

(iv) Describe how the following behavioural biases may be affecting the trustees' response:

- (a) anchoring
- (b) overconfidence.

[3]

(v) Suggest possible actions to increase the level of both interest rate and inflation hedging that the investment adviser could propose that would address these biases.

[2]

[Total 17]

3 A hedge fund management group, HedgeCo, offers investors a market-neutral global equity fund. The product generates 75% of HedgeCo's revenue.

(i) Discuss how the fund may be exposed to the following risks:

- (a) market risk
- (b) credit risk
- (c) operational risk
- (d) liquidity risk
- (e) relative performance risk.

[6]

(ii) Explain how these risks may affect the following parties:

- (a) Investors in the fund
- (b) The hedge fund management group.

[6]

[Total 12]

4 The trustees of a large mature pension fund, which is closed to new entrants and future accrual, are considering changing its investment strategy. The investment advisor has proposed a de-risking strategy that invests solely in a fixed income portfolio of domestic government bonds.

- (i) Describe the advantages and disadvantages to the trustees of investing only in domestic government bonds relative to other possible strategies. [5]

The current investment strategy is managed by a single fund manager. The pension fund currently invests in a segregated portfolio of domestic and foreign equities and a well diversified portfolio of domestic corporate and government bonds.

- (ii) Outline the issues the fund manager will face in the transition from the current strategy to the new strategy. [3]

- (iii) Suggest possible actions the fund manager could take to address the issues raised in part (ii) above. [5]

The future performance of the fund manager will be measured against a domestic index.

- (iv) Outline the typical features of a sovereign bond index. [3]

[Total 16]

5 (i) State the principal aims of financial regulation. [2]

Country A currently has very limited regulation for financial services companies. Following a number of financial industry scandals, the government of Country A is considering introducing a new regulatory regime for financial services companies.

- (ii) Describe the different types of regulatory regime that the government could introduce. [4]

- (iii) Discuss the advantages and disadvantages of the options given in part (ii). [5]

[Total 11]

- 6 A retailer has a mature pension scheme that was closed to new accrual and new entrants several years ago. The main features of the assets and liabilities of the pension scheme are outlined below:

Liabilities (based on 15-year government bond yield)	£1 billion
Assets	£960 million
Duration	15 years
Proportion deferred/pensioner members	10%/90%
Retailer's annual deficit reduction payments	£10 million

The retailer's profits in the last 3 years were:

- Year 1: –£40 million
- Year 2: £10 million
- Year 3: £20 million.

- (i) Discuss the trustee's likely attitude to investment risk, taking account of the funding position of the scheme and the apparent strength of the employer's covenant. [5]

The finance director of the retailer is a trustee of the pension scheme and is closely involved with managing the portfolio of stores owned by the company. The finance director considers that real estate in the retail sector is attractively valued and suggests to the trustees that the pension fund invests 20% of its assets in real estate via a segregated mandate.

- (ii) Discuss the factors the trustees should take into account when deciding whether or not to follow the finance director's suggestion. [6]

The trustees conclude that an investment of £100 million in property would be appropriate in order to provide some inflation protection and generate liquidity that would help in the payment of benefits.

- (iii) Describe the features of an investment mandate that would be suitable for the real estate portfolio for this scheme. [6]

[Total 17]

- 7 (i) Describe the main features of Contracts For Difference (CFDs). [3]

A large investment fund that has a diversified portfolio of assets is planning to make significant changes to its asset allocation. The owners of the fund are concerned that the changes they propose will move market prices and could lead to crystallising large taxable profits.

It has been proposed that CFDs are used to realign the assets in the portfolio.

- (ii) Discuss the advantages and disadvantages of using CFDs to achieve the realignment. [5]

- (iii) Describe two other approaches that could be used to achieve the objectives of the fund. [4]

[Total 12]

END OF PAPER