



INSTITUTE OF ACTUARIAL
& QUANTITATIVE STUDIES

Subject: Risk Management
and Investment
Management II

Chapter: Unit 1,2,3 & 4

Category: Assignment
Questions

1.
 - i. Explain why equities are usually analysed in industry groupings.
 - ii.a. Discuss the advantages and disadvantages of this division.
 - b. Suggest, with reasons, two possible alternative groupings.
2. You have been asked to devise an equity index based on quoted shares in Country X. List all of the factors that you would need to consider in specifying the index.
3. For each of the money-weighted rate of return, time-weighted rate of return and linked internal rate of return give one sentence summarising the main use and one sentence summarising the main weakness.
4. How might VaR be used to determine the riskiness of the portfolio chosen?
5. Explain what are meant by the:
 - Shortfall probability
 - Expected shortfall
6. How are multifactor models used in active and passive management?
7. Explain the process of stress testing. What are the types of stress test?
8. You are an investment manager specialising in equities. You want to set up a fund that will track the FTSE All-Share index. The fund will match the index weight in each industry sector, but will not necessarily include every index stock to achieve the sector weight.
 - i. Explain in detail why the fund manager will not include every index stock to achieve the sector weight.

ii. Outline the quantitative investigations that could be made to ensure that the fund effectively tracks the index after the fund has been set up.

9. You are the investment consultant to a £400m pension fund that has a 15% shortfall in assets compared with the national common funding standard introduced by the newly created regulator of pension funds. In addition, the new regulator has insisted that all defined benefit funds have a national common funding level above 105% in seven years' time. One of the trustees has read a newspaper article claiming that more pension funds are investing in hedge funds as a way of meeting their liabilities and the requirements of the new regulator.

(i) (a) Outline the main types of hedge fund that the pension fund could invest in.

(b) Describe the main investment characteristics of a hedge fund.

One of the criticisms of hedge funds is the lack of reliable performance data.

(ii) Explain why there is a lack of credible performance data. [4]

(iii) Explain how the fund could invest in hedge funds alongside other assets and derivatives in order to achieve the national common funding target objectives.

In a three-month down-and-out call option on silver futures the strike price is \$20 per ounce and the barrier is \$18. The current futures price is \$19, the risk-free interest rate is 5%, and the volatility of silver futures is 40% per annum. Explain how the option works and calculate its value. What is the value of a regular call option on silver futures with the same terms? What is the value of a down-and-in call option on silver futures with the same terms?

10.

- (i) Describe the uses of performance measurement for an investment portfolio.
- (ii) Discuss the limitations and disadvantages associated with portfolio performance measurement.
- (iii) Describe the key reasons why hedge fund index returns are likely to overstate actual returns and understate volatility for a typical hedge fund investor.
- (iv) State the formula for the Sharpe ratio, defining any terms you use.
- (v) Explain why hedge funds highlight the Sharpe ratio in their promotional material, rather than the Treynor or Jensen ratios.
- (vi) Describe the key limitations of the Sharpe ratio as a measure of the skill of a hedge fund's managers.