INSTITUTE OF ACTUARIAL & QUANTITATIVE STUDIES

Subject: Risk Management & Investment Management II

Chapter: Unit 2

Category: Practice Questions

1. **IFoA ST5 April 2006 Question 2**
   In relation to portfolio construction:
   (a) Define prospective and retrospective tracking errors.
   (b) Discuss the use of prospective and retrospective tracking errors as measures of risk.
   (c) State why the two measures of risk might differ.

2. **IFoA ST5 April 2011 Question 4**
   A portfolio consists of £0.5m in asset X and £0.3m in asset Y. Assume that the daily volatilities of both assets are 0.6%, that the correlation between their returns is 0.4 and that returns on the assets are normally distributed.
   (i) Calculate the 10-day 98% Value at Risk of the portfolio.
   (ii) Calculate the saving in VaR from holding a diversified portfolio rather than holding two separate assets.
   (iii) Discuss the practical limitations and difficulties associated with diversifying a portfolio.

3. **IFoA ST5 April 2012 Question 3**
   (i) List the key industrial classification features of banks.
   (ii) Describe how domestic bank shares are expected to perform relative to consumer non-durable goods shares during:
   (a) low economic growth
   (b) high economic growth
   A retired professional is deciding whether to invest part of his portfolio in a number of domestic bank shares. His requirement is for capital growth over a short horizon of one to two years. Over the past year bank shares have fallen in value by an average of 60% due to concerns about global economic growth. The current forecast is for an economic recovery in three to four years' time.
   (iii) Explain why the proposed investment might not be suitable for the individual.
   (iv) List other ways in which this investor could gain exposure to banks without investing directly in the underlying shares.

4. **IFoA September 2012 Question 4 Part (i)**
   A government has decided to introduce regulations to strengthen the capital position of domestic companies. The additional capital required by a company will depend on the historic volatility of profits for that company's sector.
   (i) Describe the impact the capital requirements will have on:
   (a) Utility companies
   (b) Consumer goods
   (c) Industrials
   (d) Banks

5. **IFoA September 2014 Question 1**
   (i) Define the term risk budgeting in the context of portfolio construction.
   (ii) Outline how the process of risk budgeting is carried out.

6. **IFoA April 2016 Question 4**
   A large Pension Fund has made a $50m investment in a small boutique hedge fund which runs a long-only multi-asset class fund. The Trustees of the Pension Fund wish to assess performance attribution in respect of the investment and have obtained the following information from the hedge fund:

	2012		*2013*		*2014*
	Start Price	*Holding %*	*Start Price*	*Holding %*	*Start Price*
Global Equities					
Stock A	60	25	66	15	72.6
Stock B	70	0	63	5	75.6
Stock C	50	15	60	15	72
Fixed Income					
Bond D	120	5	126	15	129.78
Bond E	100	8	103	5	108.15
Bond F	90	12	99	10	101.97
Commodities					
Gold	1110	11	1110	5	1443
Oil	150	6	165	5	214.5
Cocoa	50	11	51	20	56.1
Cash					
Money market fund	99	7	99	5	99

The assets listed represent the entire investment universe available.
Assumptions:

- The benchmark assumes equal weighting on all assets in the investment universe.
- Allocation decisions are taken at the start of each year.
- For the purpose of this investigation, all cash flows can be ignored.

(i) Calculate the performance of the portfolio manager relative to the benchmark for each year.
(ii) Calculate the performance generated by stock selection for each year.
(iii) Calculate the performance generated by sector selection for each year.

7. **IFoA April 2017 Question 4**
   (i) List the uses of investment indices.
   (ii) Describe the main components of the FTSE UK Index Series of indices.
   The trustees of a self-administered UK pension fund are considering the choice of an index against which the fund's UK equity performance could be benchmarked.
   (iii) Propose, with reasons, indices that might be adopted for this purpose.

8. IFoA September 2017 Question 6

(i) Describe how risk budgeting can be used when constructing a portfolio.

(ii) Describe how the process of risk budgeting is carried out.

A portfolio consists of £0.7 million in asset X and £0.4 million in asset Y. The correlation between returns is 0.6 and returns are assumed to be normally distributed. Daily volatilities of both assets are assumed to be 0.5%.

(iii) Calculate the 1-day 95% Value at Risk (VaR) of the portfolio.

(iv) Calculate the benefit of diversification of holding both assets in terms of VaR.

(v) Explain the limitations of using VaR as a risk measure.