

# EXAMINATION

1 October 2009 (pm)

## Subject ST5 — Finance and Investment Specialist Technical A

*Time allowed: Three hours*

### INSTRUCTIONS TO THE CANDIDATE

1. *Enter all the candidate and examination details as requested on the front of your answer booklet.*
2. *You have 15 minutes before the start of the examination in which to read the questions. You are strongly encouraged to use this time for reading only, but notes may be made. You then have three hours to complete the paper.*
3. *You must not start writing your answers in the booklet until instructed to do so by the supervisor.*
4. *Mark allocations are shown in brackets.*
5. *Attempt all seven questions, beginning your answer to each question on a separate sheet.*
6. *Candidates should show calculations where this is appropriate.*

### AT THE END OF THE EXAMINATION

*Hand in BOTH your answer booklet, with any additional sheets firmly attached, and this question paper.*

<p><i>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.</i></p>
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**1** Describe the following terms:

- (a) split capital investment trust.
- (b) rights issue.
- (c) scrip issue.
- (d) share split.

[6]

**2** (i) Explain the relationship between forward and futures prices. [5]

- (ii) (a) Define the term basis risk.

- (b) Explain the reasons why basis risk may arise when a futures contract is used to hedge a position in the cash market.

[3]

- (iii) State the formula for the optimal hedge ratio, defining the terms used. [2]

- (iv) Outline why fixed income derivatives are more difficult to value than equity derivatives. [4]

- (v) Determine the price of a 10-month European call option on a 9.75 year bond with a face value of £1,000. Assume that:

- the current cash bond price is £1269
- the strike price is £1300
- the 10-month risk free interest rate is 2.6% p.a., and
- the volatility of the forward bond price in 10 months is 9% p.a.

The bond pays a semi-annual coupon of 6% and coupon payments of £30 are expected in 3 months and 9 months. Assume that the 3-month and 9-month risk-free interest rates are 2% and 2.5% p.a. respectively.

[8]

[Total 22]

- 3** An investment consultant advises two pension funds that are both long-term investors in separate global equity portfolios managed by Makeoff Global Investment Company. Over the 12 months to 31 December 2008 the returns for the two clients have been materially different. On further investigation, the investment consultant obtains the following information:

	<i>Pension Fund A</i>	<i>Pension Fund B</i>
Beta of portfolio	0.8	1.2
Holding in Banks	4% underweight to benchmark	10% overweight to benchmark
Investment Style	Value	Growth

- (i) (a) Define the term Beta. [3]
- (b) Describe how the Betas quoted above will have impacted performance over the period under review. [3]
- (ii) (a) Explain what is meant by the terms Value and Growth. [4]
- (b) Give an example of the type of shares that Value and Growth style investors would invest in. [4]
- (iii) Explain, using the information in the table above, which pension fund would have been expected to have performed better during the period under review. [3]

Another long-term investor follows the same investment strategy as Pension Fund B. However, during the 12 months to 31 December 2008 they have experienced different performance to Pension Fund B.

- (iv) State two reasons why the performances might be different. [2]
- [Total 12]

- 4** (i) Discuss the key factors to be considered in monitoring and controlling credit risk. [4]
- (ii) List the principal questions that a credit rating agency will ask in assessing and ascribing an issuer rating for a company that issues debt. [4]
- (iii) Explain why a bond issued by a company might have a higher or lower credit rating than the company itself. [2]
- [Total 10]

- 5** (i) Describe the problems with, and the possible solutions to, the investment technique known as “liability hedging”. [8]

The trustees of a pension scheme with two sections (Section A and Section B) wish to reduce the impact of interest rate changes on the amount of the difference between the present value of the assets and the present value of the liabilities.

The table below shows the payments that are due to be paid out from each scheme section and also those from a bond the trustees are thinking of purchasing to achieve their investment objective.

<i>Year (t)</i>	<i>Bond Cashflows</i>	<i>Section A Liabilities</i>	<i>Section B Liabilities</i>
1	10	11	5
2	10	0	10
3	10	5	13
4	10	32	27
5	100	93	85

### Assumptions

- All payments are made annually in arrears.
- Interest rate is 4.75% per annum.
- All final calculations are rounded to nearest whole number.

- (ii) Assuming no other investments, state with reasons for which Section the bond is better suited to achieve the trustees’ objectives. Show all your calculations.

[5]

[Total 13]

- 6 (i) Describe the key features of a Real Estate Investment Trust (REIT). [3]

REITs are relatively high-yield investments and a REIT must pay out at least 90% of its taxable profit as a dividend to shareholders.

- (ii) Explain how you would expect the share price of a REIT to change with a rise in interest rates. [3]

You have been asked to assess the value of a possible REIT investment, Equity in Property, which has a current market capitalisation of \$8bn. You have been given the following accounting information:

	2008	2007
Rental income	1,808,925	1,799,581
Fee and asset management	14,373	9,582
<b>Total Revenues</b>	<b>1,823,298</b>	<b>1,809,163</b>
Property maintenance	498,608	464,981
Taxes and insurance	196,987	181,890
Property management	68,058	72,416
Fee and asset management	7,819	7,885
Depreciation	444,339	419,039
General and administration	38,810	46,492
Other costs	1,162	18,284
<b>Total Expenses</b>	<b>1,255,783</b>	<b>1,210,987</b>
<b>Operating Income</b>	<b>567,515</b>	<b>598,176</b>
<b>Net earnings</b>	<b>543,847</b>	<b>421,313</b>
Capital Expenditures	181,948	156,776

- (iii) Explain why traditional equity valuation metrics like the earnings-per-share (EPS) ratio, earnings growth, and the price-to-earnings (P/E) multiple do not apply. [2]

You have proposed basing your valuation on a measure of Funds from Operations (“FFO”), which excludes depreciation and the gains on sales of depreciable property.

- (iv) Calculate and reconcile FFO for each of the two years with net earnings. [2]

Shareholders’ real estate holdings must be maintained (apartments must be regularly redecorated, for example), so FFO is not quite the true residual cash flow remaining after all expenses and expenditures.

- (v) Calculate an Adjusted FFO (“AFFO”) for each year as a better measure of distributable income. [1]

- (vi) Explain how you would use FFO and AFFO to value the proposed investment in Equity in Property in order to recommend a purchase or not. [6]

[Total 17]

**7** Two investors have the same time horizon to complete the following trades.

- Investor A trading £100m of equities.
- Investor B trading £1bn of equities.

(i) (a) List four types of transaction costs.

(b) Explain how these will differ between the two investors.

[4]

Another investor with £500m invested in equities believes equity markets will fall by 35% over the next 12 months. The general market consensus is markets will rise by 5% over the next 12 months.

(ii) Set out three strategies that the investor could adopt to protect themselves from a fall in equity markets.

[6]

(iii) Explain the residual risks that remain with each strategy.

[4]

(iv) Describe the effect adopting each strategy would have on the investor's investment performance if the equity markets increased by 5% over the next 12 months.

[6]

[Total 20]

**END OF PAPER**