

EXAMINATIONS

September 2001

Subject 301 — Investment and Asset Management

EXAMINERS' REPORT

Introduction

The attached subject report has been written by the Principal Examiner with the aim of helping candidates. The examiners are mindful that a number of interpretations may be drawn from the syllabus and Core Reading. The questions and comments are based around Core Reading as the interpretation of the syllabus to which the examiners are working. They have however given credit for any alternative approach or interpretation which they consider to be reasonable.

The report does not attempt to offer a specimen solution for each question - that is, a solution that a well prepared candidate might have produced in the time allowed. For most questions substantially more detail is given than would normally be necessary to obtain a clear pass. There can also be valid alternatives which would gain equal marks.

K Forman
Chairman of the Board of Examiners
20 November 2001

Examiners' Comments

The examiners are becoming increasingly concerned that candidates are relying more and more on straight bookwork to provide them with enough marks to pass this paper. When a question requires application of the bookwork most candidates seem to feel that writing out the bookwork will gain them marks, in general this is not the case. For instance in question 10 part (iii) the question asked "Describe how you would choose the discount rate to be used in evaluating this project". Most candidates stated in their answers that if the project were risky they would add a margin to their discount rate to reflect the risk. From the question it was obvious that the project was riskier than the retailer's normal operations and therefore this should have been stated and the answer framed on that basis.

Overall the examiners were disappointed by the level of understanding shown by candidates.

Question 1

This question was poorly answered with most candidates gaining only a few marks. The question was straightforward. However most candidates had not grasped the underlying principles behind the swaps market and therefore were unable to provide satisfactory solutions.

A large number of candidates suggested opening another position with a third bank. By suggesting this they failed to understand that this strategy not only would cost money, but also would open Bank A up to another set of risks.

Question 2

The answers to this question were marginally better than those seen in question 1. However few candidates provided much in the way of comparisons as required in part (ii).

A number of candidates spent time explaining why the chart looks as it does when the question did not request that information.

Question 3

Part (i) was answered well. However in part (ii) many candidates seemed to regard unregulated markets and voluntary codes of conduct as forms of regulated markets.

Question 4

In part (i) candidates seldom differentiated between real and nominal returns. There was also confusion concerning returns & prices.

Part (ii) was, in general, answered satisfactorily.

Question 5

This was straightforward bookwork and, in general, allowed candidates to score well.

Question 6

Those candidates who read the question generally did well. However many chose to answer a question on the valuation of a portfolio of equity investments. The latter course produced answers in which market value, smoothed market value & utility value were given.

If further clues as what was required were needed, part (iii) should have provided them.

Question 7

This question was not answered well. It required candidates to comment on how the supply and demand of property would be impacted by changes in the economy. It also required a description of the linkage between the economic changes and the property market e.g. a buoyant economy means that tenants will require more space thus driving up rents and hence property values. A surprising number of candidates managed to answer this question without mentioning rents or rental values at all.

Question 8

This was answered very well. It was straightforward bookwork.

Question 9

This was not answered well. Many candidates failed to appreciate that they were the finance director of the motor manufacturer and therefore would have knowledge of the motor industry. In addition few considered the impact of the proposed transaction on the business.

Question 10

The question received a varied response. Part (i) asked candidates to discuss which did not mean list. Part (ii) required candidates to identify risks associated with that project not projects in general. Therefore statements like market risk was not sufficient to gain a mark. Part (iii) has already been discussed in the opening remarks.

1 (i)

Bank A has two credit exposures:

- In the first, Bank B may default on the termination date and thereby not return the cash in exchange for the bonds.
- In the second, the issuer of the bonds might default during the period of the repo agreement.

Bank A faces the risk that the market value of the bonds acquired as security will drop below the amount of cash lent plus the interest thereon.

This risk increases with the duration of the bonds held as security.

(ii)

Under a repurchase agreement the lender of cash (Bank A in this case) acquires full title to the securities handed over as collateral.

The risk is really that the value of the collateral at the time of default is less than the repurchase price.

That risk is greater for bonds with high duration values than for bonds with low duration values.

To mitigate this risk one might:

- (a) Insist on low duration bonds.
- (b) Insist on margining the transaction each day.
- (c) Insist on initial margin to cover, say 99%, of expected daily price changes.

If the issuer of the collateral defaults, the lender of cash (Bank A in this case) still has recourse to the counterparty (Bank B in this case) who must buy the bond back at the agreed repurchase price.

If the margining provisions are in place the lender of cash (Bank A in this case) could call for more collateral if the existing collateral were to fall significantly in price because of a default.

This risk could be further reduced by insisting on AAA-rated or AA-rated (depending on the degree of comfort one is looking for) government bonds.

- 2** (i) The investor can lower the risk level of the portfolio by investing almost any percentage of the portfolio outside the Eurozone.

The risk level falls steeply as the percentage invested outside the Eurozone rises to approximately 50%.

As the percentage invested outside the Eurozone rises above 50% (approximately) the risk level begins to rise again.

- (ii) With the possible exception of 100% invested outside the Eurozone where the foreign currency exposure is not hedged, the unhedged and 100% hedged graphs both show that increasing the percentage of the portfolio invested outside the Eurozone reduces the risk of the portfolio whether the foreign currency exposure is hedged or not.

For small percentages (less than 10%) invested outside the Eurozone, the reduction in risk is similar whether the foreign currency exposure is hedged or not.

However the reduction in risk varies in a U-shaped fashion with the percentage of invested outside the Eurozone when the foreign currency exposure is unhedged.

By contrast, the reduction in risk increases dramatically with the percentage invested outside the Eurozone when the foreign exchange risk of the portfolio is fully hedged.

A massive reduction in risk can be achieved by investing all of the portfolio outside the Eurozone and fully hedging the foreign exchange exposure.

Risk falls from about 19.5% to 13.75%.

Not much additional reduction in risk reduction is achieved where the foreign exchange risk is fully hedged when the percentage invested outside the Eurozone is above 80%.

- 3** (i) The principle aims of regulation in financial services markets are:

- to correct market inefficiencies and promote efficient and orderly markets
- to protect consumers of financial products
- to maintain confidence in the financial system

Wherever possible, regulation should not place an unacceptable burden of cost on either the providers or consumers of financial services.

(ii) Self regulation:

- organised and managed by the providers
- can work because knowledge of markets high and arguably best placed to react to changes in the markets
- threat of government intervention and potentially associated bureaucracy means great incentive to succeed
- can be viewed as too close to the industry and consequently might suffer (perhaps unfairly) from low public confidence

Statutory regulation:

- organised and managed by the government
- lack of direct market knowledge can mean more costly, less effective and less flexible
- distance from industry should control abuse and hence lead to more confidence from consumers (however, high profile failures can destroy confidence just as rapidly as in self regulated markets)

Commonly, both self and statutory regulation operates in different sections of financial services industries. For a successful system of regulation, the professionalism of the providers and intermediaries is also paramount.

4 (i) Nominal yield = risk free yield + expected future inflation + inflation risk premium.

(a) Real returns would rise for both short and long-term bonds.

Nominal returns would rise more for long-term than short-term because capital appreciation would be greater.

(b) Real returns would fall because expected future inflation and risk premium would be constant.

Nominal returns would rise for both because of price appreciation.

- (ii) Change in supply and demand for bonds
- ⇒ drawing up price (down yields)
 - change in taxes on property
 - lower economic growth ⇒ property demand lower
⇒ rental increases lower
 - lower inflation ⇒ lower rental increases
 - change in investment regulations
 - change in planning regulations ⇒ property management more
difficult
 - change in supply of appropriate properties

5

- (i) (a)
- trusts in legal sense
 - not subject to company law
 - stated investment objectives
 - open-ended
 - manager expands / contracts fund by creating / cancelling units
 - no borrowing
 - priced at net asset value
- (b)
- public company
 - closed-end fund
 - capital structure like any company
 - stated investment objective
 - can borrow (subject to limits)
 - normally listed on stock exchange
 - quoted price different (may be) to net asset value
- (ii) OEICS governed by company rather than trust law.
Entry / exit charges are explicit.

6 (i) Discounted Dividend Model

This method values the share as the discounted value of the future dividends. Dividend growth, the required rate of return and timing assumptions are needed.

Price Earnings Ratio

With an estimated value for future earnings per share and an appropriate price earnings ratio, a price can be calculated by multiplying the two together. The price earnings ratio is best estimated using known results for similar companies

Dividend Yield

In a similar way to the method involving the price earnings ratio, estimated dividends can be divided by an appropriate dividend yield to give an estimate of the share price.

Net Asset Value

The net asset value is a measure of the price based essentially on the realisable value of the assets. This method can be useful when a company is not making profits.

Value Added Methods

A share price can be calculated by adding together the accounting value or book value of a share and the “added value” being generated by the assets tied up in the company. The economic added value can be calculated as:

$$\text{net operating profit after tax} - (\text{company's weighted average cost of capital} \times \text{capital retained for shareholders})$$

(ii) Discounted Dividend Model

- assumptions needed for required rate of return and dividend growth
- level and shape over time of assumptions crucial to correct valuation

Price Earnings Ratio

- need reliable estimate of earnings (finding suitable peer group to set price earnings ratio challenging - company may be abnormal for good reasons)
- consistency required between figures for meaningful results

Dividend Yield

- need reliable estimate of dividends
- dividend yield too must be reliable and free from distortions due to recent abnormal distributions

Net Asset Value

- heavy reliance on correct valuation of assets (not necessarily appropriate to use accounting figures)

particularly if using statistic to estimate break-up value of assets

(ii) Value added methods

- need to determine average weighted use of capital
- book value needs to be determined by suitable method

(iii) (a) The group would be best valued as the sum of the value of its parts.

Because assumptions are required to estimate the value, it would be very difficult to get meaningful results without breaking the company up into the different business units.

This is likely to be straightforward as available information will be broken up in a similar way.

(b) Property company assets are dominated by the properties under management and the intellectual capital built up in the employees managing the portfolio.

On wind-up, the property would be expected to have a broadly unchanged value.

A common valuation method used for valuing property company shares would be based on the net asset value of the company.

- 7** Economic influences have an impact on the property market in three inter-related areas: occupation market, supply of property, and investment market.

The interaction between occupational demand and supply of property for rent determines the market level of rents.

The property investment market determines the capital value of rented property.

Occupation market

Any factor which has an effect on economic activity will affect occupational demand for property.

Tenant demand is closely linked to the buoyancy of trading conditions...
...and GDP.

Economic growth increases demand for commercial and industrial premises. However, the impact of economic growth will not necessarily be uniform across the different property sectors...
...or throughout regions of the country.

Levels of employment on the service sector tend to influence occupier demand for offices very significantly.

New patterns of economic activity, domestically and globally, change demand patterns.
If an example given. (no extra marks for more than one example).

Supply of Property

The peak of the property development cycle does not coincide with the peak of the business cycle.

Development may be frequently restricted by local planning authorities.

Property takes time to develop.

Therefore the time lag between gaining consent for a property development and completing construction of it, frequently results in substantial amounts of stock coming on to the market as the economy slows down.

A slow down in the economy, coupled with rising real interest rates, is harmful to the property development industry.

The property investment market

The state of the property investment market relies to a significant extent on the occupancy market, as it is the latter that provides the investment income and the potential for rental growth.

Property investment returns have been a good hedge in the long run against unexpected inflation.

Assuming that there are no other external influences, freeholders should be able to increase rents with inflation so that the real value of the rent is not compromised.

However, for properties which have infrequent rent reviews inflation erodes the real value of the rental stream.

Higher real interest rates should lead to a lower valuation of future rents and therefore lower capital values.

The relationship between interest rates and property yields is unclear in the short term.

In the longer term, high long term yields tend to push up property investment yields, other things being equal.

The sources of investment money, and whether they are positive or negative in cash flow terms, are important in determining the state of the property investment market.

The main sources are: institutional investors, public/private property companies using bank debt, and international investors (all three required for the mark).

When overseas investors are significant purchasers of property the exchange rate will have an effect on demand levels.

- 8 (i) Immunisation is the investment of the assets in such a way that the present value of the assets minus the present value of the liabilities is immune to a general change in the rate of interest.

The conditions are:

- (a) present value of asset-income equals the present-value of the liability outgo
- (b) the mean term of the value of the asset-income must equal the mean term of the value of the liability-outgo
- (c) the spread about the mean term of the value of the asset-income should be greater than the spread of the value of the liability-outgo

These conditions could be expressed as formulae if preferred.

- (ii) Immunisation is generally aimed at meeting fixed monetary liabilities. Many investors need to match real life liabilities.

By immunising, the possibility of mismatching profits as well as losses is removed...

...apart from a very small, second order effect

The theory relies upon small changes in interest rates.

The fund may not be protected against large changes.

The theory assumes a flat yield curve and requires the same change in interest rates at all terms.

In practice the yield curve does change shape from time to time.

In practice the portfolio must be rearranged every day...

...to maintain the correct balance of equal discounted mean term...

...and to maintain the correct balance of greater spread of asset proceeds

Assets of a suitably long discounted mean term may not exist.

The timing of asset proceeds may not be known.

And the timing of liability outgo may not be known.

9 The factors that would need to be considered are:

- (i) What price is being offered, is it reasonable given site's use position etc?
 - What have similar site's fetched in recent sales?
 - What is book value, will there be a disposal gain, how will it be treated in pcl account and are there tax implications?
- (ii) What will leaseback terms be (if applicable) — rental, duration, covenants, refurbishment?
- (iii) What alternative sites are there if not leasing back, cost of these, cost of moving, restrictions?
- (iv) What development probabilities are being foregone, could planning consent be obtained to increase value?
- (v) What will repurchase rights be and what will basis be?
- (vi) What mortgages are outstanding and what will impact be?
- (vii) Is property used to secure loans or treated as such in credit rating? — What impact would sale have?
- (viii) What will impact on workforce be of sale, change of facility?

10 (i)

The main purpose of the initial appraisal is to ascertain whether the project is likely to satisfy the minimum criteria that have been established by the parent company for projects to proceed.

The main criteria are likely to be financial.

Other possible criteria:

Achieving synergy or compatibility with other projects undertaken by the parent company or any other of its subsidiaries.

Satisfying political constraints, both within and without the parent company.

Net present value (NPV)

Internal Rate of Return (IRR)

Payback period.

Another measure which is sometimes used is receipts/costs ratio, this is defined as the ratio of the NPV of gross revenues to the NPV of the capital and running costs.

As IRR can give multiple solutions it is less popular than NPV.

The NPV method would yield a satisfactory result if the answer was positive when an appropriate discount rate was used.

The result of the IRR, the payback period and the receipts/costs ratio would be regarded as satisfactory if they exceeded the pre-set level of the parent company.

Following this analysis a sensitivity analysis should be conducted in order to ascertain how sensitive the result is to varying the parameters around their most likely levels.

If the results proved very unsatisfactory then the subsidiary, as planned, should not be launched.

If the results show a satisfactory outcome then a proper risk analysis should be conducted.

In the initial stages corporation tax should be ignored to reduce the complications, it will need to be included in the later stages of the analysis.

(ii)

Risk	Mitigation
Language	Employ people who are bi-lingual.
Web security i.e. risk that data supplied to the retailer is not secure.	Employ software firm to advise on suitable package.
Credit Card Fraud	Ditto.
Fashion i.e. the subsidiary may be offering the wrong type of clothing for the American market	Make sure thorough market research has been conducted and do not offer "high fashion" unless one is certain that it will sell.

Stock i.e. ensuring there is enough stock to meet demand without meaning there is an excess of stock.	Market research.
Supply i.e. ensuring that the clothes will be delivered to the customer within the promised timescale.	Investigate the companies offering third party delivery services and choose one that can fulfil the company's needs.
Returns i.e. how will unwanted goods be handled.	Set up a suitable internal system to monitor returns.
Competition i.e. what are other e-tailers doing and how will it impact on this subsidiary.	Monitor competition.
Presence i.e. how will customers be attracted to the website and will they recognise the subsidiaries name.	Advertise.
Pricing i.e. is the price charged competitive with other retailers both on the internet and in the shops.	Monitor prices.
Currency i.e. how will moves in currency affect the prices the subsidiary can charge for its goods and how will it affect the profitability of the company when expressed in Euros.	It might be possible to hedge the currency, at least in part.
Market risk i.e. the stock market may regard the subsidiary as very risky and put a lower valuation on the whole group.	Explain to investors what the plans are and what strategies are being put in place to minimise the risk and maximise the return.

- (iii) Assume that a real discount rate is required however a nominal discount rate can be used if inflation is allowed for in the cash flows.

The project might be considered as high risk given it is the first operation for the retailer outside its home market and few, if any, retailers operating via the internet are profitable; therefore the project should be appraised on a higher discount rate than would be considered for projects exhibiting normal degrees of risk for the parent company.

The discount rate used should reflect the discount rates used by other start up dot com businesses however these rates may be hard to

determine and therefore an arbitrary addition to the discount rate the parent company normally uses may be the only solution.

The determinants of the normal discount rate are:

The current cost of raising incremental capital for the parent company in order to finance the subsidiary i.e. what is the rate of return that needs to be earned on the capital if existing shareholders are to be no better off and no worse off.

The cost of debt capital should be taken as the cost in real terms of new borrowing for the parent company, by taking a suitable margin over the current expected total real return on index linked bonds, having regard to the company's credit rating, and multiplying by $(1 - t)$, where t is the assumed rate of corporation tax. The cost of equity capital should be taken as the current expected total real return on index linked bonds plus a suitable margin to allow for the additional return which equity investors seek to compensate them for the risk they run.