

# **EXAMINATIONS**

April 2001

**Subject 301 — Investment and Asset Management**

**EXAMINERS' REPORT**

- 1 Country A is likely best suited to a mixed regime involving statutory regulation, self-regulation and codes of practices.

A system is already in place. New system should be a development of the old rather than a step change. This would minimise costs, avoid unnecessary confusion and maintain confidence in the system.

Part self-regulation because the country is a substantial nation with a mature stock market. It therefore has skilled and experienced market participants who can help to ensure good use of market knowledge, relatively rapid response to changing market needs and help to minimise the costs of the system.

Part statutory regulation because it should help to maintain public confidence and minimise abuse of the system.

Country B may also adopt a mixed regime involving statutory regulation, self-regulation and codes of practice. However, statutory regulation is likely to be a far more important component of the regime than for Country A. (A full statutory regime is also acceptable.)

Mainly statutory regulation because market development relies on the confidence of both domestic and foreign investors, the promotion of efficient and orderly markets and the protection of consumers. Market participants are likely to be relatively scarce and inexperienced. Self regulation could therefore lead to mistakes, fraud and consequent inefficient markets and loss of confidence.

Partly self-regulation as regulatory systems should develop over time and eventually the depth and experience of the market participants will grow. The system adopted now should allow for increasing emphasis on self-regulation in the future.

*Bookwork Question - Overall tackled fairly well. Most candidates got the basic marks available but few candidates covered the other relevant points which were specific to this particular question i.e concerning the establishment and development of a regulatory system where none existed and the further development of one where some structure is already in place.*

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- (i) It is where short term liquid instruments are traded. The money market is not a physical market. It relies on screens trading systems. Its participants are government and official dealers/ market makers. Sometimes the unofficial inter-bank market is also considered to be a part of the money market.
  - (ii) Sale and purchase of treasury bills (or other short term government debt usually a note issued at a discount)  
Sale and purchase of other eligible bills (CDs, CP, FRNs)  
Repurchase agreements for the bills  
Lending and borrowing of short term funds in the inter-bank market

- (iii) Liquidity to meet unexpected cash flow  
Matching near term future expected cash outflow needs  
Investment restrictions — Hedging leveraged investment (e.g. futures, partly paid share) to avoid leveraging the fund  
Short term investment pending an anticipated near term future investment  
Defensive position — Expect longer term rates to rise in near future  
Recently received funds awaiting investment  
Investing in an overseas money market in anticipation of a near term relative decline in the local currency

*Straightforward Question - In general done well by candidates.*

- 3** (i) Expected return = Initial income yield  
+ Expected capital growth  
+ Expected appreciation of exchange rate of overseas currency over domestic currency  
– expected inflation

and

Expected return = Initial income yield  
+ Expected income growth  
+ Change in yield  
+ Expected appreciation of exchange rate of overseas currency over domestic currency  
– expected inflation

or

Expected return = Risk free real rate + Risk premium for type of asset + currency risk premium

- (ii) Reasons why the most recent performance may not be a realistic guide to future performance are:
- we have had a long bull run and market valuations are high — price earnings ratios high, dividend yields low
  - returns on capital and equity have improved to high levels
  - demographics have pushed savings into longer term investments — demand greater than supply
  - political climate has been more favourable to business
  - economic factors have been favourable as long term valuation/interest rates have fallen
  - alternative investments have been in shorter supply — gilt sales reduced

- inflation has fallen to lower levels and been more stable than historically
- labour has been more accommodating on wages and flexible working practices
- technology — the new paradigm — has taken valuations to higher levels

*Few candidates scored well on this question. In the first part many candidates failed to write out logical expressions often confusing the risk premium, income and expected growth components. Many left out the expected inflation component completely.*

*The second part was tackled poorly by many candidates where many seemed to miss the thrust of the question. There was very little discussion about the structural reasons which might account for the unusually strong returns seen over recent years.*

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	<i>Nikkei Dow Industrial Average 255</i>	<i>Tokyo Stock Exchange First Section Index (TOPIX)</i>
Measure of short-term market movements	Most used	Yes
Market history	Limited	More representative
Future trend analysis	Yes	Yes
Performance benchmark	Not really	Yes
Valuation of notional portfolio	Yes	Yes
Sub-sector analysis	Limited coverage	Yes
Basis for index funds	Limited coverage	Yes
Basis for derivatives	Limited coverage	Yes

*Very straightforward question which was done surprisingly badly by many candidates. Often there was little or no attempt to link the general uses of indices to the two specific cases in the question. Many candidates only gave a description of the two indices rather than linking their description to these uses ie answering the question which was asked.*

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The average unit size for shops is smaller than for offices.

Whilst the general location of an office is important, the precise position within that location is not critical.

For shops, the exact position has a major influence on the rent that can be charged.

Rent is normally a small proportion of an office tenant's outgoings whereas rent is usually a big proportion of the total cost for a retailer.

For offices, there is a wide range of prospective tenants with no concentration on any particular industry.

The rents on shops are dependent on the profitability of the retail sector.

Offices do depreciate to the extent that old offices can become obsolete.

Usually for shops, the fabric of the building represents a small proportion of the value and the retailer is responsible for fitting the shop out; for these reasons there is little depreciation for the freeholder provided the basic shell of the shop is sound. For the investor, shops usually have lower running costs than offices. Initial yield is generally lower for shops than offices

*Basic bookwork question which was, on the whole, well answered.*

- 6** (i) A discounted cash flow calculation could be used to determine the price to offer. Factors required for this calculation are:

- term of the lease and the ground rent, if leasehold
- current market price for the apartment
- current rental level appropriate for the apartment + expected rental growth in order to calculate the income forgone.
- the expected period until the apartment becomes vacant allowing for the health of Mr and Mrs X
- the expected growth in market price over the period until the apartment becomes vacant
- the transaction costs, both for the current purchase and the resale, other costs e.g. insurance, maintenance etc.
- tax
- the rate of return required from such an investment

The calculation could be carried out on alternative assumptions to test for sensitivity e.g. using different rates of growth in the market price, allowing for different periods until both Mr and Mrs X are dead etc. Consideration should also be given to factors that could dramatically affect the value of the apartment e.g. the risk of development blight, changes in the taxes on property investments, the possibility of redevelopment etc.

- (ii) This investment is real in nature,  
it is expected to be of medium to long term,  
its marketability would be poor,  
there is no income,  
it may entail a significant amount of management and there is a high level of uncertainty about the term and return of the investment.  
Are these characteristics consistent with Mrs Y's objectives for her investments?

Is the size of the investment convenient and is this opportunity competitive relative to alternatives available to her?  
Would Mrs Y like to live in the apartment?

*Many candidates treated this as a pure property question and included everything they could recall regarding residential property investment. Often the main points surrounding the price calculation, ie market price less the present value of expected income foregone became obscured or even missed.*

*In part (ii) the points about the part this particular investment would play in the overall investment portfolio of Mrs Y were often missed.*

- 7** (i) The trustee has calculated the return on the index as:

$$(1,050/1,000 - 1) \times 100 = 5\%.$$

This is a time weighted return which is unaffected by the incidence of the fund's cash flow.

The trustee has calculated the return on the fund as:

$$((1,450 - 250)/1,000 - 1) \times 100 = 20\%.$$

The result of this calculation is affected by the significant amount of new money received mid year when the market was at a relative low. When this result is compared to the return on the index of 5% the difference may be due in large part to the effect of the cash flow and hence it is not possible to draw a conclusion about the value added by the fund manager.

A more appropriate comparison would be either:

- the time weighted return on the index compared to the time weighted return on the fund, or
- the money weighted return on the index allowing for the fund's cash flow compared to the money weighted return on the fund

The time weighted return on the fund is calculated as:

$$((1,150 - 250)/1,000 \times 1,450/1,150 - 1) \times 100 = 13.5\%.$$

This return of 13.5% on the fund compares to the return on the index of 5%.

- (ii) The other factors to be considered are:
- risk; the analysis takes no account of the degree of risk undertaken by the manager
  - what has the manager done; it would be necessary to carry out further analysis to determine how the fund manager has achieved this result and in particular, whether his actions were consistent with what he said he was going to do
  - competition; the result would need to be put in the context of the returns achieved by other managers with similar briefs
  - credibility; the period observed is too short for the result to be given much credibility and a longer period would need to be analysed
  - strategic allocation; the initial allocation between the managers will have been determined to give effect to the long term investment strategy and revisions to the managers' allocations would need to be consistent with the long term strategy
  - appropriateness of the index; is the index appropriate for the portfolio held by the manager

*On the whole this was done well. Most candidates explained the weaknesses of the Trustee's approach and of the money-weighted return methodology in particular.*

- 8 (i) Note: the question is seeking a common sense statement and so many different reasons could be put forward which will score marks. However, the reasons should be short term factors i.e. not fundamental structural changes which might alter the long-term strategy. Possible reasons include:
- belief that the euro was oversold and would outperform the US\$
  - concerns that US interest rates would rise and undermine US securities markets whilst European interest rates had peaked
  - in connection with a thematic move away from high tech sectors to which there may be a greater exposure in the US
  - expecting higher short term inflation in Europe resulting in higher nominal growth
- (ii) Two alternative ways of implementing this switch are:
- (a) by selling actual holdings in the US and buying more European securities and then later reversing the trades, or

- (b) leaving the underlying holdings alone and reducing the US exposure and increasing the European exposure by a derivatives overlay e.g. selling appropriate US futures contracts and buying appropriate European futures contracts and then later reversing the trades

The principal advantages for (a) are that the exposures can be focussed in the desired way and where the exposure is indirect i.e. via unitised funds, the switch may be affected relatively quickly. However, where direct investments are held the switch may involve buying and selling many securities that will be relatively time consuming, administratively complex and expensive.

The principal advantages for (b) are that the switch could be implemented relatively quickly and cheaply without disturbing the underlying holdings. However, there may not be any suitable instruments for altering exposure to specific areas. The derivatives may not perform in line with the underlying investments (although arbitrageurs should avoid significant discrepancies). There is an additional element of credit risk in respect of the counter party to the derivative contracts.

Tax considerations may result in one method producing a higher net return than the other for a given market movement.

*On average this was tackled well. However many candidates seem to assume (wrongly) that the market impact of a large derivatives deal is negligible.*

## 9 (i)

- Net Present Value (NPV) — The NPV is the discounted value of the positive and negative cash flows at a chosen rate of interest. If positive, the project might be viable.
- Investor internal rate of return (IRR) — The IRR is the interest rate that equalises the net present value of the positive cash flows and the negative cash flows of the project. If the IRR is equal to or greater than the chosen hurdle rate then the project could be viable.
- Payback Period (PP) — The length of time before the capital expended on the project is recouped from the net revenues without discounting the cash flows.

## (ii)

- IRR is a rate of return rather than an absolute amount. Hence, IRR may be a better way of comparing several projects of differing sizes.
- IRR assumes that surplus funds earn interest at the same rate as the return on capital. This can lead to multiple IRR solutions although usually only one solution is a reasonable answer. Worse, the assumption that surplus funds earn interest at the IRR cost of capital



can be over optimistic and significant if the project turns significantly cash positive at a given point.

- NPV and IRR do not give any guidance regarding the timing of the cash return on the investment. Payback period does.
- Payback period is only a partial evaluator as it does not consider what happens to the project post the payback point. However, if the project is well behaved then payback period gives a very good guide to the cash needs and long term potential of the project.
- NPV allows surplus cash to be invested at a separate investment rate.
- NPV requires the discount rate to be chosen in advance. Choosing the discount rate can be difficult and relatively arbitrary. The problem is one of presentation. The discount rate is an assumption and the assumptions are sometimes ignored when sponsors are considering the results of the project evaluation. As IRR effectively blends NPV and discount rate together, IRR can sometimes be a better way of presenting results to sponsors.

- (iii) Options are uncertain and can be modelled in the same way as risks are incorporated into the stochastic model.

If the option has significant impact to the project and for example leads the project from one stage to another stage then it is useful to model each stage separately and then together.

[Alternatively an answer which suggests that the options be evaluated using option pricing formulae is acceptable if the answer notes the difficulty of choosing the assumptions for the calculation and the answer describes how the result would be incorporated into the evaluation model.

*Many candidates scored well here. Those who have grasped the overall concept of capital projects coped well with both the straight book-work parts and the later parts on the application of the theory. In particular most candidates who progressed to the third part described well a method of coping with options.*

- 10** (i) The valuation method used for the assets should be consistent with the valuation method used for the liabilities. If the market value of assets is used then that would generally imply that the liabilities should be valued using a consistent rate of discount as no market value of liabilities will exist.

The valuation method of the assets should also take into account the purpose of the valuation. If the valuation is concerned with the break up of the fund then clearly the market value and even less than the market value may be the most appropriate value.

When valuing the fund on a going concern basis one might prefer to value assets in a different way to avoid a misleading result and to ensure that assets and liabilities are valued in a consistent way.

One possible method is to adopt a rolling average or smoothed value of assets and to correspondingly value the liabilities using relatively stable assumptions. The choice of the smoothing technique is of course subjective.

Alternatively, the assets might be individually valued using a discounted cash flow approach and the liabilities would be valued using the same rate of discount. This approach involves a great deal of calculation. Also it is very difficult to estimate the future cash flows of some investments.

Further this approach would not smooth away short term departure from the long term asset allocation benchmark.

A third approach would be for the actuary to manufacture a notional portfolio of assets and value these assets on a discounted cash flow basis at a long term stable rate of discount. The liabilities would be valued at the same rate of discount. The notional portfolio could be based on the long term investment allocation benchmark and perhaps with some recognition for the current asset allocation. This approach would be consistent with liabilities, not calculation intensive and would be consistent with valuing the fund on a long term and going concern basis.

- (ii) The liabilities are extremely long term. The actual timing of the payments are unknown.

Further the in-service liabilities increase as pensionable salaries increase and the pensions in payment are likely to also be increasing to some degree in line with inflation. The amounts of the future liabilities are therefore unknown.

Full matching of investment receipts and payment outgo is therefore not possible.

Even immunisation is not a practical approach as the liabilities are real, unknown and very long term in nature.

The principles of immunisation might be employed and particularly so if the company's contribution rate objective is a long term one. Over the long term shares are generally considered to be the most appropriate asset to meet long term real liabilities.

- (iii) The relatively small surplus has been caused by a recent and major decline in the market value of the assets. Hence, the fund is likely to have a healthy surplus if a notional portfolio method is employed. Hence if the valuation assumptions prove to be broadly correct in aggregate in the future then the current contribution rate and the current investment strategy are both appropriate.

Nevertheless the current investment objective does not take any regard of the company's desire to limit its contribution rate to the fund. In effect

the company is seeking to reduce the relative risk of the investment strategy probably at the expense of some future returns performance.

The trustees should require the investment managers to adopt an asset allocation benchmark with a majority of shares and some property reflecting the large size of the fund and its real liabilities.

The trustees should require that the market value of the assets remain within a pre-agreed range around the benchmark. As market values change and these ranges are exceeded steps would be taken to rebalance the portfolio within a reasonable time frame given costs and market opportunities.

The trustees could consider constraining the investments to domestic assets only although the diversification and additional expected return is likely to more than outweigh the associated risks of future return.

Further, if the company's liabilities are solely domestic then it may be reasonable to constrain the fund to avoid investment in foreign shares and fixed interest investments. The benefits of further diversification may not outweigh the currency risks. This constraint would be expected to reduce both the risk and returns from the fund.

*Overall not done particularly well. Many candidates coped with the first part, the second was less well tackled and the third was, in general, badly done. In covering the second part many candidates confined themselves to simply stating the mathematical conditions for immunisation. In the third there was a wide variety of attempts but few candidates successfully tied together the ideas sought in the first two parts with the practical situation outlined in the question i.e. practical constraints leading to better matching of assets and liabilities and a more stable contribution rate going forward.*

- 11** Principal features of general industrial companies as per Unit 4 (3.2.3) plus comment on it being one of FTSE economic groups.

Factors that will affect the investment performance of all the companies in the sector as per Unit 4 (3.1.2) i.e. resources, markets and structure with particular reference to general industrial companies

Comment on the broker's recommendation, including any further information required will include:

Company broker so bias/vested interest and so need to also consider other independent sources for recommendations, industry outlook, company announcements, views of suppliers and competitors

Fundamental analyses of company covering management, product, market growth, competitive position, and accounting data. May need company visit

Earnings not the same as profits — are other parts of business in decline, not receiving investment or are earnings cyclical and temporarily depressed

What is point in economic cycle

Investor demand for IT sector high but volatile with limited profitability or dividend records. Assets generally intangible. Share price could (already) reflect possibility of rerating or break-up.

Other companies in sector may have similar plans

What is purpose of share issue — is this the latest of many, perhaps against the market trend? What are other investors perceptions of future capital and dividend growth and risk

What is existing house exposure to company and policy regarding stock weights in portfolios? Does the recommendation come as part of an underwriting commitment on preferential terms?

*Few candidates scored highly here. Parts (i) and (ii) were done OK but full marks were rare. Part (iii) was not well done with most candidates being far too narrow in their perspective and few covering all the relevant areas i.e. gather general information, do your own analysis looking at all divisions of the company (not just the new IT area), look at general market factors and take account of your own portfolio circumstances.*