CHARTERED INSTITUTE FOR SECURITIES & INVESTMENT

CISI DIPLOMA

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CHIEF EXAMINER'S REPORT- INVESTMENT ANALYSIS

GENERAL COMMENTS:

In general the performance of the candidates sitting the Investment Analysis paper was fair, with a minority of candidates appearing unprepared for the paper. The majority of the candidates attempted all of the questions, though there was some evidence of weaker candidates running out of time. Useful theoretical and applied financial market knowledge was demonstrated by candidates, particularly in the essay questions. Areas in which candidates should direct greater attention include: the evaluation of a stated company strategy; a clearer approach to the analysis of financial position; the provision of credible assumptions when forecasting an income statement; structured and credible investment advice for the case study company; an explanation of geared and ungeared betas; an understanding of the output gap; the impact of inflation on portfolio management; and a critical analysis of the work of Credit Rating Agencies.

SPECIFIC COMMENTS:

SECTION A:

Performance in section A was, in general, satisfactory, with most candidates showing evidence of some advanced preparation in their approach to the analysis of a case study company. Most candidates were able to describe the main activities of the company very well in part a). The vast majority of candidates analysed carefully the operating profit margin of the company by its business segments in part b). In part c), most candidates could recall two further profitability ratios, though the precise computation and interpretation of these at times evidenced errors of understanding. Part d) concerning the analysis of company risks was well attempted. Most candidates could identify the company's strategy in part e), though the quality of evaluation varied across candidates. In answers to part f), it was clear that some candidates did not associate financial position with the balance sheet, leading to commentary which lacked focus. The forecast income statement and related assumptions were reasonably attempted in part g) in most cases, though only a minority of candidates provided adequate investment advice in relation to the company's shares in part h).

SECTION B:

Candidate performance in section B was in general markedly better than performance in section A, though varied somewhat across the questions. Question 2 concerning geared and ungeared betas was not well attempted as some candidates could neither recall the concept or the expression which illustrates how they are related. Performance in Question 3 on the CAPM was in general excellent. In Question 4, most candidates could explain the nature of REITs but few could adequately articulate their distinguishing features. Performance in Question 5 was somewhat disappointing, demonstrating a lack of precision in answers regarding the nature of the output gap. The bond valuation in Question 6 was very well attempted, as was the discussion of the term structure of interest rates in Question 7. In Question 8, most candidates could explain the nature of an interest rate swap and could represent the interest payment flows, though not all candidates explained the net effect of these. Question 9 on the CAPM beta was well answered.

SECTION C:

Performance in section C was in general reasonably good, though candidates did not always demonstrate arguments grounded in core finance concepts or illustrate with real-world examples. A minority of candidates appeared to run out of time. Question 10 on inflation tax was in general well attempted, though some candidates did not discuss the impact of this phenomenon on portfolios adequately. In Question 11, although some candidates demonstrated a detailed understanding of CRAs, a minority evidenced only a superficial knowledge in their answers. Question 12 on mutual funds was in general well attempted. Question 13 on stagflation was not attempted by any of the candidates. Question 14 on industry analysis was very well attempted.

SECTION A **TOTAL 40 marks**

Answer ALL parts of the question in this section. All parts refer to Victrex plc.

Q1.

a) Briefly describe the main activities of Victrex plc in the year ending 30th September 2010.

(2 marks)

Victrex plc is a global manufacturer and retailer of high performance thermoplastic polymers. It operates in the UK, Germany, Japan, China and the US, with customers in 30 countries. It has two divisions: Victrex Polymer Solutions division and the much smaller scale Invibio Biomaterial Solutions division. Victrex Polymer Solutions manufactures for and sells to the transport, industrial and electronics markets whereas Invibio Biomaterial Solutions provides specialist solutions for medical device manufacturers, and in particular focuses on implantable medical devices. The company's primary product is polyarylethertone, sold under the trade market PEEK, which is used by compounders and processors in a number of industrial applications.

b) Calculate and comment upon the operating profit margin of Victrex plc for the years ending 30th September 2009 and 30th September 2010 by each of its major business activities.

(4 marks)

	2009			2010		
	Revenue £'000	Profit £'000	Margin (%)	Revenue £'000	Profit £'000	Margin (%)
Victrex Polymer Solutions	69,626	6,276	*9.01%*	145,265	48,329	*33.27%*
Invibio Biomaterial Solutions	34,196	20,040	*58.60%*	44,208	28,109	*63.58%*
Total	*103,822*	*26,316*	*25.35%*	*189,473*	*76,438*	*40.34%*
Unallocated central costs	-	(1,221)	*(1.18%)*	-	(1,543)	*(0.81%)*
Total	*103,822*	*25,095*	*24.17%*	*189,473*	*74,895*	*39.53%*

The sales of the Victrex Polymer Solutions (VPS) division have increased dramatically due to its key markets recovering, the winning of new business, and effect of exchange rates as sterling weakened. The margin for the VPS division significantly increased due again to favourable exchange rates and lower production costs per tonne.

The sales of the Invibio Biomaterial Solutions (IBS) grew markedly as a result of continued growth and innovation in major products such as spinal fusion and arthoscopy applications. The margin for IBS grew strongly due to strategic development in conjunction with medical device manufacturers, as well as material and device innovation.

The overall impact is a significant increase in both revenue and margin for the company, evidencing a very strong recovery from the disappointing 2009 results.

c) Compute two profitability ratios, other than the operating profit margin, to enable you to comment upon the performance of Victrex plc in 2009 and 2010.

(4 marks)

The most common profitability ratios are probably the operating profit (calculated in part b), the gross and net profit margins, the return on capital employed, and the return on equity. Candidates might select any two meaningful measures from the following.

Gross profit margin (GPM)

$$\text{Gross profit margin} = \frac{\text{Gross profit}}{\text{Revenue}} \times 100$$

2009: GPM = (64,515 / 103,822) x 100 = 62.1%
2010: GPM = (120,552 / 189,473) x 100 = 63.6%

The GPM measures the profitability of purchasing or manufacturing goods and selling them. The gross profit margin is fairly stable for Victrex plc, though this does not reflect the significant increase in scale evidenced by the absolute figures.

Net profit margin (NPM)

$$\text{Net profit margin} = \frac{\text{Net profit}}{\text{Revenue}} \times 100$$

2009: NPM = (17,839 / 103,822) x 100 = 17.2%
2010: NPM = (53,957 / 189,473) x 100 = 28.5%

The NPM measures the profitability of the firm after taking account of its financing income and expenses and its tax expenses. It reflects the profits available to shareholders of the firm. Victrex plc has seen a marked increase in its bottom line, both in terms of margin and the absolute figure. It has achieved this partly by means of a less than proportional increase in sales, marketing and administrative expenses.

Return on capital employed (ROCE)

$$\text{ROCE} = \frac{\text{Net profit before interest and taxation}}{\text{Share capital + Reserves + Long-term loans}} \times 100$$

2009: ROCE = (25,095 / (168,227 + 0)) x 100 = 14.9%
2010: ROCE = (74,895 / (211,304 + 0)) x 100 = 35.4%

The ROCE measures the profit produced by the firm from its capital base (its debt and equity). The company has no long-term debt, though its deferred tax liabilities and

retirement benefit obligations could be treated as debt by some analysts. The company has more than doubled the returns it has generated from its capital base.

Return on Equity (ROE)

$$ROE = \frac{\text{Profit for the year (after tax)}}{\text{Ordinary share capital + reserves}} \times 100$$

2009: ROE = (17,839 / 168,227) x 100 = 10.6%
2010: ROE = (53,957 / 211,304) x 100 = 25.5%

The ROE measures the profits available to shareholders in relation to their total equity claim. In the absence of long-term debt the interpretation is similar to that for ROCE, that is, the company has more than doubled the returns it has generated from its equity base.

d) Referring to the risks, trends, factors and uncertainties discussed in the Annual Report, identify the three which you believe to be most pertinent to Victrex Group plc and explain why.

(4 marks)

Victrex plc identifies seven principal risks and briefly discusses mitigating factors against each of these:
(i) Economic environment – this is a general risk relating to the uncertainties of the global economic environment, particularly those which may give rise to changes in the level of activity in key markets. The company argues that these risks are mitigated by the diversity of its operations and by its contingency planning.
(ii) Technological change – there exists a risk that the company's products become outmoded by virtue of technological changes and the development of new materials which would impact significantly on demand. The company argues that this risk is reduced as it employs specialists in each of its segments who monitor such change, and it tends to pick up on changing technologies due to its strategic development with its end-users.
(iii) Operational disruption – here a significant disruption in operations could have a significant impact on its sales. The company argues that its Safety, Health and Environment department should reduce the change of operational disruption, and in any case the company holds stocks of raw materials and finished goods to ensure continuity of supply.
(iv) Insufficient capacity – this is the risk of insufficient capacity to meet an upsurge in demand, perhaps as the result of capital expenditure programme delays. In mitigation, the company tends to keep capacity well above demand by investing in its supply chain.
(v) Product specifications – the risk here is that products might fail, leading to a loss of business or liability claim. The company addresses this risk by maintaining the highest standards of product specification and process control.
(vi) Competitor activity – the company identify the risk of not competing successfully. They address this risk by investing significantly in their products and carefully addressing their customer needs.

(vii) Currency exposure – as the company exports 98% of its sales from the UK, it is at risk from currency exposure. However, it addresses this issue by engaging in currency hedging.
The candidate need only identify three of these risks as the most pertinent – clearly key risks include (i), (ii), (v) and (vii) above as the company has in recent years suffered from the economic slowdown, has continually to invest significantly in new technology to stay ahead of the competition, and is by virtue of its focus on exporting always subject to forex exposure.

e) Briefly summarise and evaluate Victrex plc's Group strategy. *(2 marks)*

Victrex plc sets out a four point Group Strategy at the beginning of its annual report.

Firstly, it aims to focus, through the Victrex Polymer Solutions and Invibio Biomaterial Solutions divisional strategies, on maintaining the Group's leadership in developing and growing the market for polyketone based products. This involves working closely with customers and focusing on their needs, building infrastructure, developing market and product leadership, offering security of supply, and a rewarding environment for employees.

Secondly, it aims to maintain the highest appropriate quality, efficiency, safety, health and environmental standards throughout the supply chain. This involves a focus on high performance materials through advanced research and development.

Thirdly, it aims to provide a fulfilling and appropriately challenging environment for its employees. This involves a well discussed focus on employing training and health and safety, competitive remuneration, an employee share scheme, and so on.

Finally, it aims to seek out and implement, where appropriate, added value business opportunities. This appears to be predominantly through organic growth rather than acquiring other businesses.

f) With reference to the Group's financial statements, comment upon the changing financial position of Victrex plc and the Board's strategy for shareholder remuneration.

(5 marks)

Victrex plc has seen a slight reduction in non-current assets over the period, largely as a result of a reduction in plant, property and equipment, offset slightly by an increase in deferred tax assets.

In contrast, there has been a significant increase in current assets, driven mainly by the building of cash balances. The reason for this is the payment of an increased final ordinary dividend of 18.6p (2009: 14.0p) and a large special dividend of 50.0p due to the company's strong recovery and completion of its review for the capital requirement for its strategic development. Thus, the remuneration for shareholders is very attractive for the year-ending 2010, comprising a significantly increased dividend and the award of a large special dividend. A reduction in inventories is largely offset in magnitude by an increase in trade and other receivables. The reduction in inventories resulted from the recovery of demand during the period,

whilst the increase in receivables is consistent with the significant increase in the scale of operations.

In terms of non-current liabilities, deferred tax liabilities are fairly stable, whilst retirement benefit obligations have fallen slightly, the latter possibly a result of an increasing proportion of employees paying in to the defined contribution rather than defined benefit scheme through time. Non-current liabilities are small compared with total assets as the company has no long-term debt.

The company's current liabilities balance is also small compared with its current assets, though the balance has increased markedly over the period. This is due mainly to the increase in current income tax liabilities and the increase in payables, both of which are associated with the significant increase in the scale of operations during the period. The derivative financial instruments balance has fallen significantly.

The equity capital account evidences a healthy increase over the period, due in the main to the increase in retained earnings. The company also issued new equity during the year to help support its increased scale of operations, thereby increasing both share capital and share premium.

The overall picture of Victrex plc from the perspective of financial position is that the company has strengthened significantly, in line with the recovery in its sales. It has no debt and therefore has no gearing-related risk. Its current ratio is high due to the hoarding of cash to cover the special dividend (2010: 3.15; 2009: 2.82). It is very fixed assets intensive, consistent with its nature as a manufacturer, with a fixed-assets ratio of 52% (2009: 66%), and will probably need to invest more in PPE to maintain its productive capacity going forward.

The Board's strategy for shareholder remuneration is thus to significantly increase ordinary dividend (and thereafter to maintain its growth path), as well as the payment of a special dividend to reward shareholders for their loyalty in standing by the company until its business recovered.

g) Prepare forecasts of profit before and after tax and earnings per share for Victrex plc for the year ended 30 September 2011. Explain the basis of your computation and of any assumptions that you have made.

(10 marks)

	2009 £'000	2010 £'000	Forecast 2011 £'000
Revenue by activity			
Victrex Polymer Solutions	69,626	145,265	***158,000***
Invibio Biomaterial Solutions	34,196	44,208	***57,000***
Total	*103,822*	*189,473*	***215,000***
Operating profit			
Victrex Polymer Solutions	6,276	48,329	***55,300***
Invibio Biomaterial Solutions	20,040	28,109	***37,050***
Unallocated central costs	(1,221)	(1,543)	***(1,290)***
Total	*25,095*	*74,895*	***91,060***
Margins (%) by activity			
Victrex Polymer Solutions	*9.01%*	*33.27%*	***35.00%***
Invibio Biomaterial Solutions	*58.60%*	*63.58%*	***65.00%***
Unallocated central costs	*(1.18%)*	*(0.81%)*	***(0.6%)***
Total	*24.17%*	*39.53%*	***42.35%***

Justification of forecasts for turnover and profit margins should be carefully presented by candidates and based upon recent trends in these variables and future potential drivers. The figures presented here are for the purposes of illustration only and do not constitute a 'model answer'.

Estimates of charges on operating profits for the year ending 2011 are based on the following:

Unallocated central costs:

These are reduced, though on a less than trend basis, as there will most likely remain some significant unallocated costs.

Finance income:

2010: Finance income = £139,000 from bank interest on cash and equivalents of £77,271,000 = 0.18%

2011: Assume acquisition made and cash balance to return to lower figure, of say, £20m, thus finance income = 0.18% x £20m = £36,000

Finance expense:

2010: Bank interest and charges of £93,000

2011: In absence of further information, assume that the 2011 figure will remain the same

Taxation:

2010: Taxation of £20,984,000 on PBT of £74,941,000 = 28%

2011: £91,003,000 x 28.0% = £25,480,840 (rounded to £25,481,000)

	2010 £'000	2011 £'000
Operating profit	74,895	91,060
Finance income	139	36
Finance expenses	(93)	(93)
Profit before tax	74,941	91,003
Income tax expense	(20,984)	(25,481)
Profit for the year	53,957	65,522

Basic earnings per ordinary share = £65,522,000 / 83,519,854 = 78.5p

This compares favourably with a basic earnings per ordinary share of 65.1p for 2010. The number of shares is computed as the basic number of ordinary shares increased by its underlying trend.

h) Advise on the desirability of investment in the shares of Victrex plc at the price shown on page 1 of the Information Pack. Explain the reasons behind the advice given.

(8 marks)

Discussion here may vary, though should provide: a summary of sales and profit forecasts linked to a discussion of current and potential future performance in key markets; a brief summary analysis of key fundamentals, including free cash flow generation; and finally, a recommendation based upon consideration of selected company and industry current and forecast financial variables such as EPS and P/E.

SECTION B **Total 30 marks**

Answer ALL questions in this section.

2. What is meant by *geared* and *ungeared equity betas* and how are they related?

(4 marks)

The beta of a share is a measure of the volatility of a share's returns relative to those of the market portfolio – it is a measure of the relative systematic risk of a share. A geared (equity) beta is the beta of the shares of a geared firm whereas an ungeared (asset) beta is a beta stripped of the effect of gearing. Gearing here refers to financing at least part of the firm's operations using debt. Employing gearing greatly increases the risk to the shareholder compared to the risk associated with a firm without gearing. The difference between the geared and ungeared betas is a gauge of financial risk.

The expression which relates the two betas is as follows:

$\beta_g = \beta_u + (\beta_u - \beta_d) \times (D/E_g)$

Where:
β_g = geared beta; β_u = ungeared beta; β_d = debt beta; D = market value of debt; E_g = market value of equity

3. (a) Briefly explain the meaning of the beta coefficient in the Capital Asset Pricing Model (CAPM).

(2 marks)

The beta of a security tells us how its returns move with the market – the greater the beta of a given security, the higher are that security's expected returns. If the beta is greater than one then returns will move in the same direction as the market's returns. If beta equals one exactly then the security's returns move perfectly with the market's returns. If beta is between zero and one then the security's returns move in the same direction as the market's returns but to a lesser extent. If a security has a beta of zero then its returns are not correlated with the market's returns. Finally, when beta is negative, the returns of the security move in the opposite direction to the market's returns.

(b) What is the beta of each of the shares shown in the table below?

	Share return if market return is:	
Share	-10%	+10%
A	+20	-20
B	-10	+10
C	0	+10

(2 marks)

	Share return if market return is:		
Share	-10%	+10%	Beta
A	+20	-20	-2.0
B	-10	+10	1.0
C	0	+10	0.0

4. What are *Real Estate Investment Trusts (REITs)* and what are their main distinguishing features?

(3 marks)

A real estate investment trust (REIT) is a corporation or trust which pools the capital of investors to buy and manage income property (residential and commercial). Such an organisation might also manage mortgage loans (known as mortgage REITs). REITs are securitised and can then be traded on stock exchanges. They are closed-ended. They tend to distribute a high percentage of the income generated to investors. This income is typically generated from property rents. Following the Finance Act of 2006, UK REITs were introduced in January 2007, with a requirement by the UKLA that the share forming the company's ordinary share capital be listed on a recognised stock exchange. At that date, a number of prominent UK property companies changed to REIT status.

Key distinguishing features include: (i) they have high liquidity compared to physically owning an investment property; (ii) they enable investors to share in the investment of both residential and commercial property, the latter of which might otherwise be unavailable as an option to them; (iii) whilst they do not necessarily move with the wider market, they do pay dividends, regardless of how the shares perform; (iv) they have special tax considerations which increases the yield (exempt from corporation tax on capital gains and rental income from property rental), though may be subject to income tax on dividend income; and (v) they enable UK investors to invest in high growth foreign markets such as parts of Eastern Europe and Asia.

5. Explain what is meant by the macroeconomic term, the *Output Gap*.

(3 marks)

The Output Gap or GDP Gap measures the difference between the actual output of the economy and its full capacity output (when achieving 'full efficiency' a.k.a. the natural level of output). When the economy has a positive output gap then actual output exceeds full capacity – this is inefficient as the economy is overworking its resources and inflation is likely to occur as a result due to increased production and labour costs. A negative output gap occurs when actual output is lower than full capacity output – this means that the economy is under-employing its resources.

6. a) A bond has an annual coupon rate of 7%, makes coupon payments semi-annually, and has a par value of £1,000. The bond matures in 6 years time. Investors discount its cash flows at 9% per annum. What is the value of the bond?

(3 marks)

$$PV_0 = \frac{(coupon)(1-[1/(1+r)^n])}{r} + \frac{parvalue}{(1+r)^n}$$

7% annual rate = 3.5% semi-annually
9% discount rate = 4.5% semi-annually
Semi-annual bond payment = 7%/2 x £1,000 = £35

$$PV_0 = \frac{(£35)(1-[1/(1.045)^{12}])}{0.045} + \frac{£1{,}000}{(1.045)^{12}}$$

= £35 (9.119) + £589.664 = £319.165 + £589.664 = £908.83

(b) Does this bond currently sell at par, at a discount or at a premium? Explain your answer.

(1 mark)

The bond sells at a discount as the intrinsic value is less than the par value. The reason for this is that the annual coupon rate of 7% is well below the annual required rate of return (discount rate) of 9%. No-one would buy this bond at par and therefore the bondholder must reduce the price until the yield equals the required rate of return.

7. Explain what is meant by the expression 'term structure of interest rates'. Briefly outline two of the theories that attempt to explain this expression.

(4 marks)

The term structure of interest rates is the relationship between yields offered on loans as the term to maturity increases i.e. it refers to the shape of the yield curve. There exist four theories which seek to explain the yield curve:
Expectations theory: the expectations of investors exert the most important influence on future interest rates. When the curve rises, investors expect higher rates in the future and defer buying long-dated loan stocks and buy short-dated ones instead – thus the price on short-dated loan stocks increases and lowers their yield, thereby increasing the yield on longer-dated stocks.
Liquidity preference theory: the longer an investor invests his/her money in loan stock, the higher the risk of illiquidity for the security and thus the higher the return required by the investor. After all, most investors are risk-averse and prefer greater liquidity.
Market segmentation theory: there are different segments of the market with different investment needs – for example, pension funds wish to invest long whereas banks may wish to invest short in order to maintain liquidity.
Preferred habitat theory: related to the segmentation theory, this theory suggests that investor clienteles stick to distinct investment horizons and need a significant premium to coax them away from their desired maturity (in addition to interest rate expectations).
8. a) What is an *interest rate swap*?

(1 mark)

Interest rate swaps occur where two parties agree to swap interest payments over a period agreed at the outset. One party agrees to pay interest on the other party's loan, whilst the second party reciprocates. Usually, interest rate swaps occur where one

party wishes to swap a fixed for a variable rate and the other party wishes to swap a variable for a fixed rate.

b) Company A can borrow at 6% fixed rate or at a variable rate equal to LIBOR, but would prefer a variable rate. Company B can borrow at 7.5% fixed rate or at a variable rate of LIBOR+0.5%, but would prefer a fixed rate. LIBOR is currently 6%. If A borrows at fixed rate and B borrows at variable rate, and A pays B variable rate interest at LIBOR whilst B pays A fixed rate interest at 6.5%, show the net interest cost to both parties.

(2 marks)

Company A		*Company B*	
Loan commitment to bank:			
Pays to bank	(6%)	Pays to bank	(6.5%)
Swap:			
Pays to B	(6%)	Pays to A	(6.5%)
Receives from B	6.5%	Receives from A	6%
Net interest saving	0.5%	Net interest cost	0.5%

Thus, here the gain from the swap is 1% which is split equally between companies A and B. Company A can borrow at variable rate LIBOR-0.5% whilst B can enjoy a fixed rate loan of 7.5%-0.5% = 7%.

9. DEF plc, a purely equity-financed food retailing company, has a firm beta of 0.6. The risk free rate is 4 per cent and the market risk premium is 5 per cent. It is considering adding two new divisions: a clothing retailing division with a beta of 1.2 and a petrol retailing division with a beta of 0.9.

a) Calculate the cost of equity for the food retailing, clothing retailing and petrol retailing divisions using the Capital Asset Pricing Model.

(2 marks)

Food retailing $r_i = r_f + \beta (r_m - r_f) = 4\% + (0.6 \times 5\%) = 7\%$
Clothing retailing $r_i = r_f + \beta (r_m - r_f) = 4\% + (1.2 \times 5\%) = 10\%$
Petrol retailing $r_i = r_f + \beta (r_m - r_f) = 4\% + (0.9 \times 5\%) = 8.5\%$

b) Calculate the new beta of DEF plc if it decides to go ahead with the two new divisions. The new company's value would be 85 per cent in the food retailing, 10 per cent in the clothing retailing, and 5 per cent in the petrol retailing divisions.

(1 mark)

Beta = (0.85 x 0.6) + (0.10 x 1.2) + (0.05 x 0.9) = 0.51 + 0.12 + 0.045 = 0.675

c) DEF plc is considering a fourth division, financial services, which has a beta of 0.7 and offers an expected rate of return of 6 per cent. Should the firm engage in this new line of business?

(2 marks)

$r_i = r_f + \beta (r_m - r_f) = 4\% + (0.7 \times 5\%) = 7.5\%$

The expected rate of return of 6% is lower than the cost of equity capital and therefore the proposed division is placed below the Security Market Line and the investment proposal is rejected.

SECTION C **Total 30 marks**

Answer TWO questions from this section.
All questions carry 15 marks each.

10. "Inflation is the one form of taxation that can be imposed without legislation" *(Milton Friedman, 1912-2006)*. Discuss the implications of this statement, and in particular explain what strategies investors might pursue to protect investment portfolios against the impact of high inflation.

Inflation is an increase in the general level of prices over time in an economy. The rate of inflation is measured as the annual change in consumer prices. A modest rate of inflation alongside growing profitability is probably good for an economy as it encourages investors to invest and provides incentives for firms to grow. However, a high rate of inflation is a problem as it reduces the purchasing power of money and gives rise to distortions in the economy (such as the inflation tax), income distribution effects, and uncertainty.

Milton Friedman argued that "inflation is the one form of taxation that can be imposed without legislation", giving rise to a debate in the US around of the issue of taxation without legislation. Effectively, inflation reduces the spending power of people in the same manner as a tax, but without the ability to vote on this as it is more of a phenomenon than a conscious policy decision. In terms of wages, given that there are tax thresholds which do not always rise in line with inflation, workers may find that in times of higher inflation their tax liabilities increase at the same time that inflation is eroding this purchasing power.

In terms of investors, inflation leads to the erosion of returns:

- Fixed income investors are hit particularly badly as they will find their interest receipts often do not keep up with inflation, thereby reducing real returns or even rendering them effectively negative;
- The returns generated on equities will be worth less in terms of their purchasing power;
- Companies may decide to postpone investment in new projects in times of higher inflation due to uncertainty regarding real returns.

The strategies which investors might pursue to protect investment portfolios against the impact of high inflation might include:

- Investing in commodities such as gold which tend to perform well in times of higher inflation as investors move into less conventional assets;
- An investment in certain industries which perform well in times of higher inflation (due to their ability to pass on costs) such as oil and gas or extractive industries;
- A focus on equities which benefit from the exchange rate depreciation associated with higher inflation such as those companies with a significant focus on exports;
- A move into property-related investments such as direct investment in property or indirect investment through REITs (as property prices tend to rise in an inflationary environment);

- Gearing up the investment portfolio as in times of high inflation lenders tend to lose whilst borrowers gain (the latter are repaying ‘cheaper’ pounds);
- Investment in index-linked investments of various types such as index-linked bonds.

11. Explain the nature of, and critically appraise, the role of *Credit Rating Agencies* and their importance to financial markets.

Credit rating agencies (CRAs), such as Fitch, Moody’s and Standard & Poors, are engaged in developing and communicating an expert opinion about the creditworthiness of companies, governments, and others (and their debt securities). They play an important role in today’s financial markets, acting as quasi-regulators by certifying the creditworthiness of companies and their ratings are used as inputs in the internal credit risk assessment systems of financial institutions. Ratings are based not only on the statistical analysis of numerical financial market and accounting data, but also on softer factors. The rating awarded will affect the interest rate a company’s debt instrument will need to pay in the market.

CRAs have in recent years attracted considerable criticism for a number of reasons:
(i) The rating methodology they use is not disclosed and is therefore described by many as a ‘black box’ approach;
(ii) The market domination of the top three CRAs has led to criticism that they are effectively enjoying an oligopoly;
(iii) Their lack of transparency has brought them criticism from regulators such as the SEC in the US and IOSCO in Europe, with demands that they become more transparent and communicate more effectively with regulators, institutional and private investors;
(iv) The failure to predict a number of high profile corporate disasters such as Enron, and the meltdown of a number of companies associated with the recent financial crisis;
(v) CRAs are criticised as being slow to downgrade companies when they have clearly diminished in creditworthiness (Enron being a classic example);
(vi) As companies themselves pay for a rating then there is an issue of independence as CRAs could be criticised at the margin for ‘not wanting to bite the hand that feeds them’;
(vii) They have at times been accused of getting too close to companies and therefore being less objective and independent;
(viii) They can issue unsolicited ratings – this can be seen as a tool of implicit threat if potential company clients do not seek and pay for a rating;
(ix) CRAs can compound the decline of ailing companies by downgrading their ratings as their debt interest rates increase, they breach debt covenants as a result, and so on.

Credit ratings in a general sense increase market efficiency and reduce the information asymmetry (and agency issues) in financial markets between investors and companies. They are used in financial markets by the following:
(i) Investors who are interested in an independent expert opinion on the relative credit risk of debt securities so that they can determine whether that risk is compensated adequately by returns;

(ii) Regulators who require banks to compute their capital requirements on the basis of CRA ratings;
(iii) Bond issuers who are required by law to have a rating as a precursor to issue in some countries (such as the US), and who want the credibility of an independent rating to increase the marketability of their offering;
(iv) Companies who may wish to have a different rating on the different bonds they issue as those bonds may be secured in different ways;
(v) Companies arranging structured finance who need to have credit ratings for each tranche of a deal and therefore arrange certain types of security against each tranche.

Though from a market efficiency point of view ratings should contain no additional economic information, a downgrade in credit rating sends an important signal about the decreasing creditworthiness of a company or its debt instruments and therefore will generally have a significant negative impact on its bond and share prices, the opposite being the case for an upgrade.

12. Discuss the nature of *mutual funds* (in particular UK-based Open-Ended Investment Companies and Unit Trusts) and identify their relative merits.

Mutual funds, as a generic term, are professionally managed investment vehicles whereby groups of investors can invest collectively in shares, bonds, money market instruments, and other securities. Each fund has a fund manager whose job it is to buy and sell the fund's securities in a manner consistent with the objective of the fund. Individual investors invest in shares which constitute a small portion of the holdings of that fund. Each fund can generate cash flows for the investor in a number of forms: (i) capital gains from the securities, (ii) returns from those securities themselves, such as dividends or interest, and (iii) the shares in the fund itself gaining in value.

Funds can be classed in terms of their objectives, underlying investment strategies and/or the types of securities in which they in turn invest: equity funds invest in shares; fixed-income funds invest in government or corporate bonds; and money-market funds invest in Treasury bills. Equity funds are the most popular type – the objective of these is longer term capital appreciation plus some income over the life of the investment, and they are subject to the fortunes of the stock market. Fixed-income funds aim to provide a stream of income, particularly for those with a low risk appetite such as pensioners, and are subject to falling bond values when interest rates rise. Money market funds are a very low risk investment proposition, and as they invest in Treasury bills, the principal is not at risk.

Open-Ended Investment Companies (OEICs) are a hybrid of unit and investment trusts. Using this vehicle, the company is allowed to continually buy and issue shares at any stage and on demand. The OEIC board has an Authorised Corporate Director who manages the investments, buys and sells shares, and computes the value of shares at Net Asset Value. Investors hold shares and there is a single price rather than a spread, with charges being applied separately to price. Companies can list on the stock exchange and can borrow up to 10% of the fund's value but only on a temporary basis.

Unit Trusts (UTs) are also open-ended vehicles, though are set up as the name implies as a trust rather than a company, with investors holding units rather than shares. There is a bid/offer price rather than a single price, thereby building in charges within the spread. They can borrow up to 10% of the fund's value.

Both OEICs and UTs are restricted in the terms of the type of investments the manager is allowed to make, with for example maximums of 10% in one company, 10% in one investment and 10% in unlisted securities. In contrast, Investment Trusts (ITs) are closed-end funds, they can gear up, their shares are driven by supply and demand, their charges are higher, and tend not to advertise to the public except in the case of a new issue of shares.

13. Explain the phenomenon of *stagflation* in the context of the UK economy and how it might be addressed.

Stagflation is an economic phenomenon whereby relatively high unemployment and slow growth are accompanied by inflation, as currently observed in the UK economy. Effectively, prices are rising even though the economy is fairly stagnant. The UK is currently experiencing a rapid rise in oil and food prices, coupled with historically low interest rates, and a global sovereign debt crisis (and resulting austerity measures).

The conventional view in macroeconomics was that a stable relationship existed between inflation and unemployment – when an economy suffered higher inflation it enjoyed low unemployment as an increase in demand reduces or eliminates excess capacity and drives up prices in the economy due to relative scarcity of the inputs to production. This relationship is known as the Phillips Curve. This was the basis for Keynesian intervention in an economy whereby money supply could be expanded in times of economic slowdown to reduce unemployment or reduced when the economy hits inflationary problems. Keynesians saw stagflation as the result of a supply shock, particularly that related to oil or increasing food prices.

When the world was hit by the oil crises in the 1970s, however, we observed high oil-price-driven inflation as well as unemployment and thus the conventional negative relationship seemed to disappear. There was a rethinking of monetary policy and the ascendency of monetarism whereby Friedman explained that "inflation is always and everywhere a monetary phenomenon". This led economists to think more about inflation expectations whereby we see shifts in the Phillips Curve. Effectively the only treatment for high inflation was through controlling the growth of money supply.

Supply-side economists believe that we can tackle inflation by reducing market distortions such as high taxes, high public expenditure and excessive 'red-tape'.

The modern way of addressing stagflation is to increase interest rates, though in the case of the UK economic austerity makes this an unpopular move and the Bank of England have to date held back from this course of action. In an ideal world there would be a way of tackling oil and energy price rises whilst also not hurting the economic recovery by discouraging spending and investment, but the solution to this is not clear (or perhaps even feasible). The UK government however also clearly

adheres to some of the arguments of the supply-side economists with its desire to reduce taxes, go ahead with large spending cuts and a reduction in business regulation. In terms of industrial policy, increasing productivity and energy efficiency can also help.

14. Discuss frameworks or models appropriate for analysing the *industry* to which a company belongs.

Before discussing the frameworks for industry analysis, it is useful to determine where industry analysis belongs within the wider investment analysis approach. Analysts tend to employ either a *top-down or bottom-up approach*. The top-down approach commences with the portfolio manager determining the objectives and constraints of the fund and then allocating assets accordingly. Securities are then picked to satisfy the allocation made, with a focus on the selection of appropriate markets and currencies, and once these have been chosen then the best assets available are selected. This contrasts with the bottom-up approach which focuses primarily on stock selection first, then building of a portfolio which satisfies best the fund's objectives and constraints. The first approach subordinates share selection to the selection of appropriate industries, whereas the second approach subordinates industry selection to the identification of target shares.

A structured approach to understanding the external drivers of an industry is an essential element in any industry analysis. A useful tool here is the *PEST analysis*, which examines the political future, economic future, socio-cultural environment, and technological future for either a particular country or industry. The analyst uses this framework to identify industry drivers of a political, economic, demographic or technological nature. Depending on the industry being considered, different emphasis may be placed on each of these drivers. For example, the analysis of high-tech industries requires a detailed understanding of the impact of technological developments in an industry whereas defence sector industries require a more detailed analysis of the potential impact of the changing international political landscape.

The relationship between the *business cycle* and the industry often reveals some important industry drivers. Many companies within an economy or sector will perform well during periods of higher economic growth and relatively badly during periods of lower economic growth or contraction. The identification of leading, coincident and lagging indicators may help to identify the dynamics of economic growth during the economic cycle, and certain indicators may give advance warning of downturns or upturns for a particular industry. For example, inflation will impact differently on different industries or even different firms within an industry. An increase in inflation, for example, can impact very differently on different firms. In a positive scenario, inflation, interest rates, and profits will increase as prices increase in line with costs increasing; stock prices will remain stable as the required rate of return increase is offset by the growth rate of earnings and dividends increasing. Conversely, in a negative scenario, inflation and interest rates will increase, but cash flows will decline as earnings fall; stock prices will fall significantly as the required rate of return increase and the growth rate of earnings falls.

The *business cycle* will also impact on *different industries* in different ways. Financial sector shares tend to excel as the economy slows, whilst consumer durables sector shares may perform particularly well as the economy emerges from a slowdown. As the economy picks up pace again, capital goods sector shares will perform well, whilst at an economic peak basic industry sector shares will excel.

Closer examination of industries reveals that they have also move in life cycles. The *industry life cycle* framework helps the analyst to understand where an industry is currently positioned in its life cycle. Industries move through five phases: *pioneering development* (start-up stage, small or negative profits and high development costs); *rapid accelerating growth* (low competition but rapidly growing demand, high margins); *mature growth* (sales growth slows and competition increases); *stabilization and market security* (longest phase, with much lower growth and industry matures); and finally *deceleration of growth and decline* (capital shifting out of industry as margins turn to losses and demand shifts away from industry). Clearly, where an industry is currently situated within its life cycle can impact significantly on its current and future profitability and therefore its potential as an investment prospect.

The analyst must engage some form of analysis which enables a detailed consideration of *industry profitability*. Porter's model analyses average industry profitability in terms of five forces. Here, intensity of competition determines the potential for creating abnormal profits by firms in an industry. Whether such profits are kept by an industry is determined by the relative bargaining power of industry firms and their suppliers. The degree of actual and potential competition is determined by rivalry among existing firms, the threat of entry of new firms, and the threat of substitute products or services. The bargaining power of firms in the industry with respect to their suppliers and customers is then analysed. The potential to earn abnormal profits is determined by the degree of potential competition. However, actual profits are determined by the industry's bargaining power with its suppliers and customers. The outcome of Porter's model is that the analyst can better understand both current and potential profitability for the industry.

Competitive strategy analysis enables the analyst to determine on the basis on which the component firms within the industry compete. For example, many industries are characterised by two distinct groups: *cost leaders* (where firms aim to supply at the lowest possible cost) and *differentiators* (where firms do not compete on price but instead look to differentiate on some other basis such as advertising, quality, and so on). Once the competitive strategies of firms within an industry are better understood, their ability to turn these into competitive advantage should then be considered. Only firms which possess the required core competencies, key resources, and an appropriate value chain can achieve and sustain such an advantage. Here, the various tools of business strategy can be employed to good use.

The analyst could also use economic tools such as *transactions costs economics* to better understand the mix of business activities combined within a firm or commonly observed within an industry. The economic rationale for this mix should be carefully evaluated, particularly in terms of the ability to create value and maintain competitive advantage.

In summary, there is no definitive list of models or frameworks for analysing a given industry, but any combination of models which enables the analyst to consider the following would appear essential: how industries are constituted; how component firms compete for resources and profits; where competitive advantage exists and how it is sustained; and how the industry is driven by macroeconomic, political and other factors; whether the industry is enjoying a growth phase or suffering from decline.