



SECURITIES & INVESTMENT INSTITUTE DIPLOMA

WINTER 2008

CHIEF EXAMINER'S REPORT – INVESTMENT ANALYSIS

GENERAL COMMENTS:

In general the performance of the candidates sitting the Investment Analysis paper was good, and very few candidates appeared unprepared for the paper. The vast majority of the candidates attempted all of the questions. Where tested, useful market knowledge was demonstrated by candidates, particularly in the essay questions. Areas in which candidates should direct greater attention include: a greater understanding of the purpose and component items of the cash flow statement; the main guidelines in the Combined Code and their implementation by companies; the provision of structured investment advice on a case study company; the computation of the WACC for a company; the basic principles of price multiples valuation; the roles of the Bank of England and the FSA; and the nature of Credit Default Swaps.

SPECIFIC COMMENTS:

SECTION A:

Performance in section A was fairly consistent across the questions, with the majority of candidates showing evidence of advanced preparation in their approach to the analysis of a case study company. The majority of candidates were able to describe the main activities of the case study company in part (a) succinctly. Calculation of profit margins in part (b) was generally good, though occasionally candidates selected inappropriate or inconsistent figures for their margin calculations or failed to comment on them in anything more than a superficial fashion. In part (c), performance was a little disappointing as many candidates merely described rather than analysed the important features of the cash flow statement. The analysis in part (d) was often incomplete as many candidates described the company's approach to corporate governance rather than explaining the extent of compliance. In part (e), performance was generally good, particularly where candidates could recall the precise definition of return on equity. Candidates demonstrated a good understanding of the compensation package for directors in part (f). Part (g) was generally well attempted, though not all candidates adequately justified the assumptions made in their forecast figures or their projected income statements. In part (h), the level of investment advice was generally superficial – not all candidates adequately or correctly discussed the valuation financials, or linked their recommendation to underlying financial statement figures/ratios or the company's business model.

SECTION B:

Performance in section B was in general good, though clearly candidates found some questions more challenging than others. Question 2 was generally reasonably well attempted, though some students had very little to say about beta, focussing instead on the wider CAPM. The performance in the second part of this question demonstrated that where students understood the theoretical basis for the question then they performed very well. The vast majority of students could recall and explain the difference between the terms disinflation and deflation in question 3. Performance in question 4 was surprisingly poor, with many candidates entirely unprepared to compute a simple WACC. Question 5 was well attempted, with most candidates demonstrating the ability to compute a bond price using the two alternative approaches. In question 6, most candidates demonstrated significant market knowledge when discussing the difference between unit trusts and investment trusts. The computation in question 7 was well tackled by a minority of candidates, even though it was a relatively straightforward application of the price multiples concept. Most candidates could explain the relationship between a call option price and its determinants in question 8, though a minority expressed their answers assuming that the question was instead focusing on put options. Performance in question 9 was generally good, with most candidates appreciating the economic concept of the savings ratio and understanding its key determinants.

SECTION C:

Performance in section C, the long-form questions, was mixed, though the vast majority of candidates tackled two essay questions well. In the relatively popular question 10, most candidates who tackled the question could recall the various roles of the Bank of England, though not all could recall in detail the scope of the FSA's role. Further, answers could have been improved with greater emphasis on the comparison of those roles, as required by the question. Question 11 was attempted by only a small minority of candidates, and where a Credit Default Swap was not confused with other financial instruments such as Interest Rate Swaps, candidates performed well. Performance in question 12 was reasonably good, though would be improved if candidates could recall the detail of how to conduct a free cash flow valuation. Most candidates could explain the nature and relative merits of Exchange Traded Funds in question 13. Question 14 was perhaps unsurprisingly very popular, and some candidates were able to demonstrate a deep understanding of the "credit crunch" including some relevant facts and statistics to augment their answers, though a minority clearly had only a very superficial understanding of the topic.

SECTION A**TOTAL 40 marks**

Q1.

- (a) Briefly describe the main activities of BSS Group plc in the year ending 31st March 2008.

(2 marks)

BSS Group plc is a distributor to specialist trades, including industrial contractors, domestic plumbers and heating engineers, independent merchants, and industrial end users. The main business activities of BSS Group plc are organised under its three business divisions: the Industrial Division, the Domestic Division and the Specialist Division. The Industrial Division services the industrial, commercial and process industry, construction and maintenance markets, with products including specialist tubing and plastics. The Domestic Division services the domestic heating, plumbing, and sanitaryware markets through PTS Plumbing Trade Supplies and F&P Wholesale. The Specialist Division services the specialist market, including tools, and health and safety equipment, through the Buck & Hickman, Price Tools, and Birchwood Products outlets.

- (b) Calculate and comment upon the operating profit margin of BSS Group plc for the years ending 31st March 2007 and 2008 by each of its major business activities.

(4 marks)

	2007			2008		
	Revenue £m	Profit £m	Margin (%)	Revenue £m	Profit £m	Margin (%)
Industrial	298.6	19.8	6.6%	337.2	25.1	7.4%
Domestic	695.3	34.7	5.0%	840.1	42.1	5.0%
Specialist	18.2	1.0	5.5%	111.7	1.3	1.2%
<i>Total</i>	<i>1,012.1</i>	<i>55.5</i>	<i>5.5%</i>	<i>1,289.0</i>	<i>68.5</i>	<i>5.3%</i>

Overall absolute profit rose significantly from £55.5m to £68.5m on a marked increase in sales. However, the overall operating profit margin, before unallocated charges, fell marginally from 5.5% to 5.3%. The revenue of the Industrial division increased sharply due to increased sales across the product range and across geographical segments, as well as greater use of national distribution capabilities. It has also benefited from Government investment in health, education and infrastructure. Margins have improved here significantly, from 6.6% to 7.4%, due to product range and service improvements and enhanced supply chain management. The revenue of the Domestic division saw significant growth due to 34 new branches, acquisitions such as AHED, and also organic growth (due to improved customer service and product availability, improved staff expertise, and improved terms). Margins have been maintained at 5.0%, underpinned by improvements in the division's computer system and distribution. The revenue of the Specialist division increased dramatically on the previous year due to acquisitions (e.g. Buck and Hickman and Birchwood Products). The margin has fallen dramatically from 5.5% to 1.2%, due to integration and reorganisation costs.

- (c) Analyse and briefly comment upon BSS Group plc's Consolidated Cash Flow Statement, comparing the years ending 31st March 2007 and 2008.

(5 marks)

BSS Group plc has seen a reduction in cash and cash equivalents during the year ending 2008 from £8.3 million to £4.1 million. This reduction is due to the net effect of an increase in net cash from operations, an increase in net cash used in investing activities and an increase in net cash from financing activities. The increase in net cash flows from operating activities is due mainly to a marked increase in cash generated from operations which rose from £52.0 million to £66.4 million. However, there was also an increase in tax paid due to an increase in the scale of operations and a slight increase in net interest paid consistent with increased debt use. The net cash used in investing activities increased markedly from £29.7 million to £62.2 million. This increase is explained mainly by an increase in outflows for acquisition of subsidiaries, though the increase in expenditure on fixed assets and the acquisition-related overdraft also gave rise to an increase outflows. Sales of fixed assets were minimal in both years. The net cash from financing activities rose somewhat from £3.8 million to £14.2 million in the year ending 2008, though masked some significant capital structure changes. There were no debt repayments in the year ending 2008, in sharp contrast to the significant repayments of the previous year. In addition, the cash raised from new debt in the year ending 2008 was much lower than in the year ending 2007. Dividends paid increased broadly in line with an increase in operating scale.

- (d) Briefly comment upon the compliance of BSS Group plc with the Combined Code on Corporate Governance 2006.

(3 marks)

BSS Group plc states that it is committed to the principles of corporate governance as set out in the Combined Code on Corporate Governance 2003/2006, though departs from the Combined Code in relation to its Board composition.

The Board has a separate chief executive and chairman, which is considered to be a requirement for good governance, and the chairman and other non-executives are argued to be independent. There is an equal number of executive and non-executive directors, which should provide for some balance. However, ideally at least half of the Board excluding the Chairman should comprise non-executive directors. The Board has only six directors which may be considered relatively small – the requirement of the Combined Code is that the board should not be too large to be unwieldy, but should also be of sufficient size so that the skills and experience are appropriate with the size of the company. Here, BSS Group plc argues that the Board is indeed of sufficient size to deal with a business of its nature. One issue which might remain is that changes can be potentially disruptive to such a small Board. The operation and membership of the various governance committees, such as the Audit Committee, Remuneration Committee, Nomination Committee and Executive Committee, and the internal control system are explained well in the Annual Report.

- (e) Calculate and comment upon the following ratios for BSS Group plc for the years ending 31st March 2007 and 2008:
- (i) Sales to capital employed;
 - (ii) Return on equity.

(6 marks)

- (i) Sales to capital employed ratio

$$\text{SCE} = \frac{\text{Sales}}{\text{Equity capital} + \text{reserves} + \text{Long-term debt}}$$

This ratio measures how effectively managers employ the long-term capital of the company to produce sales. The higher it is, the more effectively such capital is being employed, though a very high ratio signifies that the company does not have enough capital to support its current level of sales i.e. it is 'over-stretching' itself.

$$2007: \text{SCE} = 1,012.1 / (172.4 + 71.9 + 6.2) = 4.04$$

$$2008: \text{SCE} = 1,289.0 / (211.5 + 96.8 + 8.1) = 4.07$$

SCE for BSS Group plc has remained remarkably stable across the two financial periods. Clearly the group produce a consistent level of sales from their funding (capital structure) base or asset base.

- (ii) Return on equity

$$\text{ROE} = \frac{\text{Net profit after taxation and preference dividend}}{\text{Ordinary share capital} + \text{reserves}} \times 100$$

This ratio measures the profits available to shareholders in relation to the total claim of such investors (i.e. the equity capital base). Note that there are a number of different but correct definitions of this ratio.

$$2007: \text{ROE} = 32.8 / 172.4 = 19.03\%$$

$$2008: \text{ROE} = 40.8 / 211.5 = 19.29\%$$

BSS Group plc's ROE has increased marginally, indicating on a prima-facie basis that it is producing a proportionately higher profit from its increased capital base. However, this has been facilitated by a slight increase in the Group's debt-equity ratio.

- (f) Briefly summarise the main components of the directors' compensation at BSS Group plc.

(2 marks)

Directors' compensation, or more specifically the remuneration of the executive directors and the Chairman, is determined by BSS Group plc's Remuneration Committee. It aims to provide a compensation package which is competitive and

therefore comparable to packages offered by companies of similar size and business scope. Further, the package should be sufficient to attract and retain directors and also incentivise them to maintain profitable growth.

Executive directors are rewarded by means of a basic salary, benefits in kind, an annual bonus scheme, a pension, and a share incentive scheme. The basic salary is determined in relation to market rates of pay and individual performance reviews. Benefits in kind typically relate to the provision of a company car. The annual bonus scheme involves in the setting of annual targets by the Remuneration Committee to encourage profit growth and efficient working capital management, and so on. Executive directors also benefit from the Group's Stakeholder Pension Plan. The Group's share incentive scheme is a long-term share option scheme with the purposes of aligning the interests of the directors with the shareholders.

- (g) Prepare forecasts of profit before and after tax and earnings per share for BSS Group plc for the year ended 31st March 2009. Explain the basis of your computation and of any assumptions that you have made.

(10 marks)

	2007 £m	2008 £m	Forecast 2009 £m
Turnover by activity			
Industrial	298.6	337.2	330.0
Domestic	695.3	840.1	800.0
Specialist	18.2	111.7	80.0
	<i>1,012.1</i>	<i>1,289.0</i>	1,210.0
Segment result (operating profit before unallocated charges)			
Industrial	19.8	25.1	23.1
Domestic	34.7	42.1	38.4
Specialist	1.0	1.3	2.0
	55.5	68.5	63.5
Margins (%) by activity			
Industrial	6.6%	7.4%	7.0%
Domestic	5.0%	5.0%	4.8%
Specialist	5.5%	1.2%	2.5%
<i>Total</i>	5.5%	5.3%	5.2%

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 2009 are based on the following:

Unallocated charges – 7.4% of operating profit in 2008; thus unallocated charges in 2009 = £63.5m x 7.4% = £4.7m

Finance income - £2.5m in 2008, representing a 79% growth on 2007.

Based on trend: $1.79 \times £2.5m = £4.5m$

Finance costs:

2008: Finance costs of £7.6m on total debt of (£96.8m + £11.6m) = 7.0%

2009: Increase total debt balance on trend (£108.4m/£90.2m) x £108.4m = £130.3m
and multiply by 7.0% = £9.1m

Income tax expense

2007: Tax of £17.5m on profit of £58.3m = 30.0%

2008: £54.2m profit x 30.0% = £16.3m

	2008	2009
	£m	£m
Segment result	68.5	63.5
Unallocated charges	(5.1)	(4.7)
Operating profit	63.4	58.8
Finance income	2.5	4.5
Finance costs	(7.6)	(9.1)
Profit before taxation	58.3	54.2
Income tax expense	(17.5)	(16.3)
Profit after tax for the year	40.8	37.9

Basic earnings per ordinary share = $£37.9m / 123.64m = 30.7p$

This does not compare favourably with a basic earnings per ordinary share of 33.3p for 2008. The weighted number of shares is computed on a trend basis.

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

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 firm and industry current and forecast financial variables such as EPS and P/E.

SECTION B**Total 30 marks**

2. (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	Share return if market return is:		Beta
	-10%	+10%	
A	0	+10	0.5
B	-10	+10	1.0
C	+10	+10	0.0
D	+20	-20	-2.0

(2 marks)

3. Briefly explain the distinction between the terms *disinflation* and *deflation* and suggest what forces may give rise to such phenomena.

(3 marks)

The phenomenon of *disinflation* is where an economy enjoys a fall in the rate of inflation. The term is to be distinguished from *deflation*, whereby rather than rates of inflation falling, which is desirable, price levels actually fall. It is argued by some that sustained disinflation can lead to deflation.

Several factors can give rise to disinflation in an economy. Firstly, a country’s central bank attempts to control the rate of inflation by means of interest rate changes. Secondly, economic agents, consumers, businesses and so on, tend to respond rationally to movements in interest rates in moderating levels of economic activity. Thirdly, with supply-side reforms, price transparency for finished goods, raw materials and other inputs, and so on, the competitive environment tends to moderate price increases. Finally, demographic and other changes (such as an economic slowdown) can lead to a more savings-orientated economy, leading in turn to reduced demand for goods and services and thus falling rates of inflation (and possibly even prices).

Disinflation can ultimately lead to deflation, that is, deflation can result from the factors discussed above, particularly in times of economic recession. Due to measurement difficulties in the commonly used inflation measures, inflation is often

overstated. Indeed certain countries may appear at first glance to enjoy low and stable inflation, though are actually suffering from mild deflation.

4. Company XYZ plc is a UK listed food retailer. The market value of its capital structure components is £8 billion for equity and £6 billion for debt. Its beta coefficient computed by a reputable financial data agency is 0.95. The UK 3 month Treasury bill rate is 4.5% and you estimate that the market risk premium over and above this rate is 4.7%. The UK corporation tax rate is 30% and the rate paid by the company on its 10 year bonds is 6.0%. Calculate XYZ plc's weighted average cost of capital (WACC).

(4 marks)

We start by computing XYZ plc's cost of equity capital:

$$ER_i = R_f + \beta (ER_m - R_f)$$

$$ER_i = 4.5\% + 0.95 (4.7\%) = 8.97\%$$

We then compute the proportions of debt and equity in the company's capital structure:

$$D / (D + E) = 42.86\% \text{ and } E / (D + E) = 57.14\%$$

We can then compute its weighted average cost of capital:

$$WACC = (D / D+E) k_d (1 - T_c) + (E / D + E) k_e$$

$$WACC = (0.4286 \times 6.0\% \times (1 - 0.30)) + (0.5714 \times 8.97\%) = 1.80\% + 5.13\% = 6.93\%$$

5. PQR plc issues a bond with a 9% coupon rate and a 5 year maturity. Its debtholders expect an 8% return for bonds of its risk class. If the bond's value at maturity is £1,000, calculate the current value of the bond showing your workings:

- (i) By discounting the individual cash flows;
(ii) By applying the annuity formula.

(4 marks)

Discounting individual cash flows:

$$\begin{aligned} \text{Value} &= (90/1.08) + (90/1.08^2) + (90/1.08^3) + (90/1.08^4) + (1,090/1.08)^5 \\ &= 83.33 + 77.16 + 71.44 + 66.15 + 741.84 \\ &= \text{£}1,039.92 \end{aligned}$$

Applying the annuity formula:

$$\begin{aligned} \text{Value} &= 90 [(1 / 0.08) - (1/(0.08 (1.08^5)))] + (1,000 / (1.08^5)) \\ &= 90 [12.5 - 8.5073] + 680.5832 \\ &= 359.343 + 680.5832 \\ &= \text{£}1,039.93 \text{ (difference due to rounding)} \end{aligned}$$

6. Describe the main distinctions between *unit trusts* and *investment trusts*.

(4 marks)

Candidates could draw from the following to illustrate the difference between the two investment vehicles:

Unit trusts and investment trusts are both types of collective investment schemes, that is, investors pool their investment resources in a fund which is then managed by a professional investment manager.

Unit trusts:

- Legal trusts which are effectively open-ended funds
- Need to maintain reasonable liquidity which can be difficult as they are subject to large inflows and outflows during the course of a particular period
- Investors may purchase a unit from a fund manager, the cash from which is invested on behalf of the investor (investors own units)
- Not listed on the Stock Exchange
- No secondary market
- Regulated by the FSA
- Fund manager acts as a market maker for the units, quoting prices accordingly
- If demand exceeds supply for units, new units are created and the excess funds are invested by the manager
- If supply exceeds demand then units are destroyed and underlying assets are liquidated
- Operate in accordance with strictly defined rules on the investments which may be made
- Borrowings are restricted to 10% of the value of the fund
- Maximum of 10% in one investment
- Maximum of 10% in unlisted securities
- Maximum of stake of 10% to be invested in one company
- Prices reflect the value of the underlying investment

Investment trusts:

- Not trusts in a legal sense, rather they are listed companies (PLCs)
- They raise funds simply through the vehicle of issuing shares (investors own shares)
- Listed on the Stock Exchange
- Stock Exchange is the secondary market
- Regulated by the UK Listing Authority, Stock Exchange, Inland Revenue
- Funds are then invested by the fund manager
- To liquidate their investment, shareholders merely sell their shares, in sharp contrast with unit trusts
- Cash is never repaid to investors directly from the fund
- Investment trusts are closed-ended and they do not face the same kind of liquidity issues
- Few defined rules on the investments which may be made
- There is no limit on the borrowing of investment trusts
- Maximum of 15% in one investment

- No limit of investment in unlisted securities
- No maximum stake in one company
- Prices reflect the value of the underlying investment but are driven by supply and demand for the shares

7. You are charged with the task of valuing an as yet unlisted company, DEF, using the comparable companies approach. You assume that this approach uses industry market multiples in relation to key financial statement figures to arrive at an indicative market value for a company.

Your research reveals that DEF has three key industry competitors: A, B and C. The market/sales multiples for companies A, B and C are 2.0, 2.2 and 1.7, respectively. The market/book equity multiples for companies A, B and C are 2.5, 2.5 and 2.3, respectively. Finally, the market/net profit multiples for companies A, B and C are 20, 18 and 17, respectively. What is the market value of DEF, if its sales are £12 million, its book value of equity is £9 million, and its net profit is £1.5 million?

(3 marks)

	Company A	Company B	Company C	Mean	Financial statement data for DEF £m	Suggested value £m
Market/sales	2.0	2.2	1.7	1.97	12.0	23.64
Market/book equity	2.5	2.5	2.3	2.43	9.0	21.87
Market/net profit	20	18	17	18.33	1.5	27.50
Mean						£24.34m

8. Explain the relationship between a *call option price* and the following, and give a brief reason to support your answer:

- Share price;
- Exercise price;
- Interest rate;
- Time to expiration;
- Volatility of share price.

(5 marks)

Direction of relationship and explanation:

- Stock price → positive, because you are more likely to be in the money;
- Exercise price → negative, as you are less likely to be in the money;
- Interest rate → positive, as the delay in payment is more valuable as interest rates increase;
- Time to expiration → positive, as the delay in payment is more valuable as maturity increases;
- Volatility of stock price → positive, as there is more upside risk.

9. (a) Explain the term the *savings ratio* for a particular country.

(2 marks)

The savings ratio is defined as the proportion of disposable income that is saved rather than spent in a particular economy. It is also known as the average propensity to save. Historically, countries such as Japan and Switzerland had much higher savings ratios than the US and the UK.

Average propensity to save = total savings / total disposable income

(b) Give one reason for a possible change in the savings ratio.

(1 mark)

Determinants of the savings ratio include:

- The level of real incomes – higher real incomes lead to increased saving
- Inflation – high inflation encourages people to save more (or higher expected savings can actually encourage people to spend more)
- Consumer demand – higher consumer demand leads to lower savings
- Interest rates and access to credit – lower interest rates and easier access to credit leads consumers to spend more and save less
- Demographics – older people tend to save more and dissave less as retirement approaches
- House prices – rising house prices can encourage people to borrow more

SECTION C

Total 30 marks

10. Compare and comment upon the roles of the following in the UK financial system:

- (a) The Bank of England;
- (b) The Financial Services Authority.

- (a) The goals of the Bank of England (hereafter referred to as the Bank) are to maintain monetary and financial stability. Monetary stability means stable prices and confidence in the country's currency. The former is achieved by pursuing an inflation target through interest rate decisions of the MPC. The latter is achieved by detecting and reducing threats to the financial system by means of the Bank's surveillance and market intelligence functions, though infrastructure improvements, and by financial and other operations, and in extreme circumstances acting as lender of last resort. The Bank works closely with other central banks and with the FSA, and promotes the UK as an internationally competitive financial centre.

The Bank is organised into four areas of operating - Monetary Analysis and Statistics, Markets, Financial Stability and Banking Services. The Monetary and Financial Statistics Division compiles, publishes and advises on financial statistics, and in particular the monetary aggregates and banking statistics. The Bank's Markets Division conducts operations in sterling and foreign money markets to implement the Monetary Policy Committee's interest rate decisions, while meeting the liquidity needs of the banking system, and manages the Government's foreign exchange reserves for the Treasury. The Bank's Financial Stability Division's remit is to maintain the stability of the financial system, working in conjunction with the FSA and the Treasury. Finally, the Banking Services Division provides banking services to the Government (hence the phrase 'Banker to the Government') and other customers such as central banks and other financial institutions. It also has a foreign exchange support function and issues sterling currency.

The Bank is accountable to Parliament through the House of Commons Treasury Committee – this committee scrutinises the Inflation Report and is involved in vetting appointments to the MPC.

- (b) The Financial Services Authority (hereafter the FSA), established in 2000, is the main statutory regulator for the UK financial services industry. The government is responsible for the overall scope of the FSA's regulatory activities and for its powers.

The FSA regulates firms ranging from global investment banks to smaller financial firms. The objectives of the FSA are to maintain market confidence, to promote public understanding of the financial system, to secure the appropriate degree of protection for consumers, and to fight financial crime. In terms of their daily operations, they seek to promote efficient, orderly and fair markets, to help retail consumers achieve a fair deal, and to improve their own business capability and effectiveness. Essentially they aim to make markets work effectively to deliver benefits to firms and consumers.

The FSA regulates most financial services markets and constituent exchanges and firms. It effectively sets the standards that markets and constituents must meet and takes action against financial services firms if they fail to meet the required

standards, forcing them to compensate customers. The FSA authorizes and regulates deposit-takers, insurance companies and insurance advice, investment business, and mortgage advice and lending, giving it a very wide remit.

11. Explain the nature of *Credit Default Swaps (CDSs)* and explain why the CDS market has grown so rapidly in recent years.

A credit default swap is designed to protect a party investing in fixed income products from credit exposure. Essentially, as the term implies, it is a swap contract whereby the buyer makes a series of payments to the seller of the swap, and if the fixed income product goes into default then the buyer receives the right to a payoff. Further, neither party needs to be involved in the fixed income market itself – after all, it is a type of derivative instrument – in this sense, a CDS is a bit like an insurance policy against fixed income instrument default. The buyer's payments are analogous to insurance premiums. If the fixed income instrument such as a corporate bond defaults, the buyer in certain cases could either deliver it to the CDS seller and demand payment at par value or in other cases could merely request the difference between the par value and market price of the bond.

One issue with CDSs is that they are traded by speculators – here speculators essentially gamble on a fixed income instrument either defaulting (from a CDS buyer's perspective or a fixed income instrument's rating improving (from a CDS seller's perspective). They have been very popular investment vehicles for hedge funds, particularly those which specialise in assessing the creditworthiness of companies and governments. However, the risk of the underlying instrument is often sold on and on until there is a complex set of inter-relationships between financial institutions.

The CDS market has come to dominate the market for credit derivatives. Indeed, in the US the market is so large now that it greatly exceeds the value of the stock market or public debt. Another reason that the market is so popular is that it is largely unregulated and something of a 'black box' to onlookers. Any financial institutions running a portfolio, such as a pension fund, that seeks to reduce its exposure to credit risk may be interested in purchasing a CDS. A feature that makes them even more attractive is the ability of a buyer to sell its outstanding CDS – here, the price of the CDS increases with increasing credit risk and decreases as the credit quality of the underlying fixed income instrument company improves. CDSs can even be used to replicate exposure to a underlying bond or portfolio of bonds which can be useful where those underlying instruments are difficult to acquire for one reason or another.

One problem with CDS contracts is that of counterparty risk – does the seller of the CDS have the resources to pay out if the underlying fixed income instrument defaults? This question is brought into sharp focus in the current financial crisis.

12. "Free cash flow models are always and everywhere superior to dividend models in the valuation of shares."

Discuss this statement with reference to the basis for, and relative merits of, these two competing equity valuation models.

Free cash flow may be used to value shares as follows. Firstly, we start with profit before interest and tax from the profit and loss account. Secondly, we make various balance sheet and profit and loss account adjustments to this figure to arrive ultimately at free cash flow: add back depreciation charged, subtract tax payments, subtract replacement capital expenditure and finally subtract any increase in working capital during the period. Free cash flow thus computed informs us of the amount a company could pay out to its investors after replacing fixed assets and working capital investment, assuming that there is no debt. The definition given here can vary for a number of technical reasons. Thirdly, free cash flows are forecast for an investment horizon of between five and ten years. Fourthly, a terminal value is computed based on horizon-end free cash flows to infinity. Finally, this terminal value and the horizon period free cash flows are all discounted back to present value to arrive at firm value. Where a firm is geared, the valuation above will produce an intrinsic enterprise rather than equity value, and thus to arrive at equity value the intrinsic value of debt must be deducted.

The *dividend stream* of a company may be used as a simple basis by which to value equity shares in that company. The basis for the model is that the market value of the company is equal to the present value of the future expected receipts. The appropriate discount rate is the rate of return required by investors on the share (we could arrive at this using the CAPM expression). Although there are a number of different types of dividend models (constant dividend, constant growth model, multiple growth rate model), they are all based on the same principle – discounting the cash flows to investors from investing in shares (i.e. dividends) into the future. In the simple constant dividend model, the value of a share is the dividend payment divided by the required rate of return. In the constant growth model, we merely inflate the current dividend by the expected growth rate and then divide this figure by the difference between the required rate of return and that growth rate. In the multiple growth rate model, we apply the respective growth rates year on year and compute a terminal value, discounting all of the flows to investors back to their present value.

Whilst both methods are cash flow methods as opposed to some more naïve application of accounting figures, their relative merits are worth considering. Free cash flow valuation is in theory far superior to dividend discount valuation for a number of reasons. Firstly, FCF valuation is based upon the primary driver of fundamental value – cash – rather than a less direct driver of value (dividends) which is subject to management discretion. Secondly, FCF valuation is often derived from value simulations where the entire financial statements are projected into the future, thereby enabling an understanding of the dynamics of value creation as well as enabling a deeper understanding of the strengths and weaknesses of the subject firm. In sharp contrast dividend models focus solely on one variable from hundreds which are available for the firm. Thirdly, dividends may be very difficult to forecast into the future and therefore the valuation method is a fairly blunt tool. Fourthly, the dividend model obviously cannot be used where a firm pays no dividend, whereas the free cash flow model can be used in a far wider variety of circumstances. However, in defence of the dividend model, it is simple and quick to apply, it is useful as a quick benchmark check on value, it has an intuitive appeal and does not require the analyst to be an expert in financial statement analysis.

13. Explain the nature of *Exchange Traded Funds (ETFs)* and their relative merits and demerits.

An Exchange Traded Fund (ETF) is an asset that represents a basket of stocks (or other assets such as bonds, real estate) but, unlike a mutual fund it trades like a share on the stock exchange. How do they work? A market maker puts together a basket of stocks which are then sent to a custodial bank to keep them safe. The custodial bank checks that the basket matches the ETF and then passes the ETF shares on to the market maker. The custodial bank holds the basket of stocks and the fund manager monitors them. The market maker can then sell the ETF on the open market. Redemption may occur when a market maker buys a large block of ETFs in the market and approaches the custodial bank to have them exchanged for the individual stocks (which can then be sold). The stocks which form the ETF are typically loaned by large stock portfolio holders such as pension funds.

Advantages of ETFs:

- They are broadly considered simple, flexible and cost-efficient;
- Can be traded on the stock exchange and bought on the same commission as stocks;
- They enable the investor to diversify in the same manner as an index fund, and there exist a wide variety of ETFs to suite all risk tastes - they can facilitate quite complex asset allocation needs of investors;
- They have certain tax advantages as they have low turnover and enable investors to defer most of the taxes until they are sold - they are tax efficient;
- The price of an ETF changes on an intra-day basis, whereas mutual funds are only priced once a day, and therefore ETFs can be traded intra-day, enabling the investor to take advantage of shorter-term market movements;
- They can be short sold, bought on margin, or used in hedge strategies;
- They enable the investor to instantly diversify into markets of their choice, whether country or industry, enabling exposure to those stocks collectively rather than individually, thus limiting their intrinsic risk;
- They are effectively passively managed and therefore do not attract large management fees as a result – however, the investor can themselves actively manage their holdings of ETFs;
- They are a lot less expensive than index funds, as costs can be less than 1/5 of actively managed mutual funds in the US, but a higher fraction of the cost in Europe;
- There are no minimum holding period penalties with ETFs as there are with mutual funds;
- ETFs can be bought in smaller sizes than futures and are much simpler to trade;
- They are of great potential use to smaller asset management firms.

Disadvantages of ETFs:

- The returns generated by ETFs (or their value) can differ from the returns generated by the underlying stocks (or their value), though arbitrage should bargain away significant differences;
- They trade through a brokerage firm and therefore investors will have to pay a commission charge;

- They are inappropriate for the small investor with regular amounts to invest, due to brokerage costs;
- They are very much more complex than mutual funds in the way that they actually work;
- Intermediaries (investment advisors) in Europe are typically continuing-commission-based rather than fee-based, but because ETFs have no continuing commission fee there is an incentivisation issue in Europe for the wider selling of ETFs.

14. Discuss the series of events which have given rise to the current “global credit crunch” and the implications for the global economy.

The global credit crunch, or put another way a severe shortage of credit in world markets, was caused by the following events:

- Historically low interest rates and a lax lending environment gave rise to increasing mortgage defaults in the US, particularly when interest rates rose dramatically in the period 2004 to 2006
- Sub-prime borrowers in particular were hit badly, resulting in record default levels → prominent sub-prime banks began to falter
- Central banks realised the extent of the problem and pumped money into banking markets in the western world, as well as cutting interest rates dramatically
- Banks begin to admit to the extent of their exposure to sub-prime investments and announce huge losses on these investments
- Bank mistrust of their competitors leads to a sharp divergence between central bank base rates and interbank rates, and interbank lending freezes up
- A series of banks fail e.g. Northern Rock, and governments step in to save them by means of nationalisation
- Central banks and governments increase funding to the markets to unprecedented levels
- The housing market slows to a crawl and house sales and new mortgage applications see record lows, many mortgage products are withdrawn
- The phenomenon gradually widens to draw in banks from across the world
- Global stock markets move into a dramatic bear phase and experience unprecedented volatility
- Those banks more exposed to sub-prime and/or those with poor business models begin to fail, merge or are acquired by competitors e.g. Bear Stearns
- The IMF, the World Bank, and other institutions warn of a volatile period to come with much lower growth expected
- The sub-prime problem spreads to other debt markets which also begin to freeze up
- In the UK and Europe, high street banks realise their need to bolster their balance sheets with large rights issues – new investors take significant positions in traditional western banks
- In the US, Fannie Mae and Freddie Mac are saved from failure by the US government which fears a wider financial meltdown
- Currencies of the worst affected economies e.g. US and UK, depreciate

- There are widespread indications that the financial crisis is leading to significant effects for the real economy e.g. unemployment rises, business failures increase, retail sales fall
- Across Europe, selected banks are nationalised, and deposit guarantees are increased to prevent runs on banks
- Enormous bailout plans are announced across the western world

In addition to the impacts given above, it is likely that the world economy will be characterised, at least in the near term, by:

- A difficult banking environment with poor interbank relations and lending
- A challenging investor environment as investors continue to “retreat to quality” – though what constitutes quality in the new environment?
- Slower world economic growth for some years
- Higher inflation in certain markets e.g. food, gold, but lower inflation in others e.g. raw materials and fuel, as economic growth is reduced or economies contract
- Further debt-market related losses in investment banks
- Continued frozen credit markets, particularly for mortgage and other asset-backed investments
- Continued weakness and equity destruction in housing markets
- Increases in unemployment as economy activity slows
- Changing political landscapes as western governments are replaced by a discontented electorate
- Volatile stock markets, as investors wait for the economic and financial outlook to stabilise
- Economic agents, particularly investment bankers, reassessing their understanding of the relationship between risk and return