CHARTERED INSTITUTE FOR SECURITIES & INVESTMENT

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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 good, with only 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, particularly in the essay questions. Some useful theoretical and applied financial market knowledge was demonstrated by candidates, though a minority need to evidence their understanding with reference to the wider financial press. Areas in which candidates should direct greater attention include: an understanding of the Consolidated Statement of Changes in Equity; the provision of credible assumptions when forecasting an income statement; structured and credible investment advice for the case study company; the computation of the WACC; the nature of the Multiplier Effect in macroeconomics; the correct computation of the multi-period dividend valuation model; and the nature of High Frequency Trading.

SPECIFIC COMMENTS:

SECTION A:

Performance in section A was in general broadly 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). In part (b), most candidates computed the operating profit margin for each of the segments well, though not all employed an appropriate profit figure or interpreted the margins clearly. In part (c), most candidates could compute the net profit margin whilst a minority could not recall the definition of ROCE in order to compute it correctly. Performance in part (d) was very disappointing as only a minority evidenced a clear understanding of the purpose of the Consolidated Statement of Changes in Equity. In part (e), most candidates were able to discuss well the relative merits of the company's diversification strategy. In part (f) most candidates were able to identify the differences between the Chairman's Statement and the CEO's Report, though not could articulate the overall difference in focus clearly. The forecast income statement and related assumptions were reasonably attempted in part (g) in the majority of 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 very good, though varied somewhat across the questions. Question 2 concerning P/E and PEG ratios was very well attempted. Performance in Question 3 on the WACC was somewhat disappointing, with a minority of candidates not recalling the correct formula or failing to account for taxation. Question 4 on the relative merits of debt and equity financing of an acquisition was well attempted, as was Question 5 on quantitative easing. Question 6 on Macaulay duration was in general well attempted in both the definition and calculation components. Candidates did not perform well in Question 7 which asked for an explanation of the Multiplier Effect. Question 8 on determinants of options pricing was well discussed by most candidates once they understood the nature of the option considered. Question 9 was correctly attempted by most candidates, though a minority could not recall an appropriate discounting framework for dealing with the cash flows.

SECTION C:

Performance in section C was in general reasonably good, though few candidates were able to demonstrate deeper knowledge in the essay topics. A minority of candidates appeared to run out of time in this section. Question 10 on behavioural finance was well attempted, with most candidates being able to illustrate their answers with a wide range of behavioural phenomena and market anomalies. Question 11 on the Financial Transaction Tax was tackled well with many candidates able to illustrate the concept with reference to the current real world debate. Performance in Question 12 on high frequency trading was disappointing with only a small minority of candidates prepared to discuss this complex trading strategy. Question 13 concerning the determinants of exchange rates was reasonable well attempted, though not all candidates were able to clearly explain the direction of relationship for all of the variables identified. Question 14 on commodities was also reasonably well attempted, though some candidates could not explain how they might aid in portfolio diversification in anything other than general terms.

SECTION A **TOTAL 40 marks**

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

Q1.

(a) Briefly describe the main activities of Stobart Group plc in the year ending 28 February 2011.

(2 marks)

Stobart Group plc is a FTSE 250 logistics company which operates across Europe. It has five segments for reporting purposes: Eddie Stobart, Stobart Rail, Stobart Ports, Stobart Air, and Stobart Properties. Eddie Stobart, by far the largest segment, is the transport, distribution and warehousing segment, though also includes property and process management services. Stobart Rail focuses on infrastructure engineering and rail freight. Stobart Ports operates in the ports, warehousing and distribution area. Stobart Air specialises in commercial airport operations including air freight. Finally, Stobart Properties is involved in investment property rental.

(b) Calculate and comment upon the operating profit margin of Stobart Group plc for the years ending 28 February 2010 and 28 February 2011 by each of its major business activities.

(5 marks)

	2010			2011		
	Revenue £'000	Profit £'000	Margin (%)	Revenue £'000	Profit £'000	Margin (%)
Eddie Stobart	381,389	43,065	*11.29%*	449,860	51,248	*11.39%*
Stobart Rail	64,751	6,524	*10.08%*	53,048	6,007	*11.32%*
Stobart Ports	13,919	4,782	*34.36%*	13,682	2,704	*19.76%*
Stobart Air	6,567	401	*6.11%*	6,836	548	*8.02%*
Stobart Properties	150	(770)	*(513.33%)*	251	671	*267.33%*
Adjustments and Eliminations	(19,115)	(4,831)	-	(23,282)	(6,046)	-
Total	*447,661*	*49,171*	*10.98%*	*500,395*	*55,132*	*11.02%*

The sales of Eddie Stobart have grown significantly over the period due to new business and contracts within the period (e.g. with Tesco, A.G. Barr and Britvic) and growing business with Unilever. The margin for this segment grew slightly due in small part to the biomass joint venture and despite the disruptions associated with weather conditions during the year.

The sales of Stobart Rail increased significantly mainly due to the rail freight transport business rather than the infrastructure engineering business, the latter suffering from cutbacks by Network Rail and others. The margin for this segment grew well as a result of cost control measures.

Stobart Ports sales have fallen slightly and margins have fallen significantly, the latter due to terminal site rental costs following sale and leaseback. Stobart Air sales have

increase slightly due to the development of London Southend Airport and railway station completions. The margin has increased markedly, the explanation for which is unclear from the annual report. Stobart Properties has experienced a significant increase in sales, though from a very small base, due largely to reclassification following restructuring. The margin has increased dramatically due to the increase in carrying value of a property.

Candidates may wish to aggregate some of the smaller segments in their analysis here. Overall sales revenue has increased markedly whilst maintaining operating profit margin at around 11%.

(c) Compute the following financial ratios for Stobart Group plc in 2010 and 2011 and comment on them:
(i) Return on capital employed;
(ii) Net profit margin.

(4 marks)

(i) Return on capital employed:

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

This ratio measures the profit produced by the firm from its capital base (its debt and equity). It is one of the most commonly quoted profitability measures. For the purposes of simplicity, calculations here use year-end rather than year average figures.

ROCE 2010 = 34,249/ (305,356 + 42,876) x 100 = 9.84%
ROCE 2011 = 37,535/ (331,709 + 91,762) x 100 = 8.86%

On an underlying operating profit basis, Stobart Group plc has experienced a drop in ROCE due to a growth in capital base due in particular to a significant increase in long-term loans.

ROCE 2010 = 39,015 / (305,356 + 42,876) x 100 = 11.20%
ROCE 2011 = 34,096 / (331,709 + 91,762) x 100 = 8.05%

On a final PBIT basis, Stobart Group plc has experienced a marked drop in ROCE due to a number of factors: a fall in PBIT and a growth in capital base.

Alternatively, candidates could have computed ROCE in terms of (EBIT/(Total assets – current liabilities)).

(ii) Net profit margin:

$$\text{Net profit margin} = \frac{\text{Profit for the year}}{\text{Sales revenue}} \times 100$$

This ratio measures the profitability of the firm once all of the expenses including tax and financing costs have been deducted. If a healthy operating profit margin produces only a small net profit margin then the firm has incurred significant financing and tax costs. This profit is available to the shareholders in their capacity as equity risk capital holders i.e. the 'bottom line' margin.

NPM 2010 = (28,222 / 447,661) x 100 = 6.30%
NPM 2011 = (23,238 / 500,395) x 100 = 4.64%

Stobart Group plc, consistent with its drop in ROCE, has experienced a significant fall in bottom line margin due both to the fall in profit for the year and the increased sales revenue for the year.

(d) Explain how Stobart Group plc's equity capital account has changed over the year ending 28th February 2011 with reference to its Consolidated Statement of Changes in Equity.

(4 marks)

The Consolidated Statement of Changes in Equity is required by IAS 1 as a separate statement to show total comprehensive income for the period in question, presenting amounts attributable to the owners of the parent and to non-controlling interests, the impact of retrospective application of each component (where this applies), as well as reconciliations between the opening and closing components of equity (profit or loss, items of comprehensive income, and transactions with owners such as share issues).

The right hand column starts with the balance of total equity at the beginning of the year and ends with total equity at the year end. To the opening figure, we add profit for the year (i.e. the bottom line figure from the income statement) and comprehensive income to get total comprehensive income for the year. Here, there is a small reduction in foreign currency exchange reserve, and a positive adjustment to hedge reserve to arrive at the balancing other comprehensive income figure. Working from the total comprehensive income figure we then observe a significant positive addition to equity capital from the proceeds of shares issued, split between issued share capital and share premium, resulting from 11m shares issued related to the investment in Stobart Biomass Products Ltd and 3m shares issued on conversion of income shares. There is a negative figure in relation to issue costs to support the above share issues. Next, there is a positive figure for EBT shares allocated (in relation to the employee share ownership programme). There is an addition for the share based payment credit, relating to share options granted to the directors and the long term incentive plan. Finally, there is a significant negative adjustment to equity for dividends in relation the interim and final dividends paid for 2010. In sum, the equity capital account has increased in value due largely to retained earnings and share issues, though is reduced due to distributions to shareholders. Shareholders will be pleased to observe an increase in their wealth.

(e) Discuss the potential strengths and weaknesses of Stobart Group plc's diversification strategy.

(4 marks)

Stobart Group plc has traditionally focused on Eddie Stobart, that is, its transport, distribution and warehousing business, and this still accounts for 85% of its revenues. The strategy of the Group has thus in recent years been to diversify by means of acquiring further transport businesses, airports, an interest in biomass, and other investments. They are forming new divisions with their own management teams: Transport & Distribution, Estates, Air, Biomass, and Infrastructure, & Civil Engineering. This may or may not be a good strategy – on one hand diversification can be good for investors as it reduces risks from overreliance on a single line of business. However, investors requiring further diversification in their investments can equally readily invest in a wider range of businesses. The new structure also provides for clarification and the sharpening of focus by, for example, centralising a number of the business functions such as finance and purchasing. The argument is that this enables the management of the new divisions to focus on selling and driving down costs, which appears reasonable. The Group has raised £115m in additional funding to invest in the new divisions, and in particular, in value-enhancing projects in the Air and Biomass divisions. The meaning of this is unclear as investors require all projects at the margin to be value-enhancing rather than value-destroying, though as long as the projects produce positive net present value (over and above the cost of capital) then they should make sense. Perhaps the restructuring could be better explained with reference to the special management skills that the Group can bring to bear on the wider group of divisions, the issue then being the transferability of those skills across new lines of business.

(f) With reference to Stobart Group plc's annual report, compare and contrast the Chairman's Statement and the Chief Executive Officer's Report.

(3 marks)

The annual report of Stobart Group plc commences with the Non-Executive Chairman's Statement and then the Chief Executive Officer's Report. The former's role is to chair meetings of the board, to oversee the board's activities, and to monitor the performance of the Chief Executive and the other board members. Being a non-executive should mean that they are relatively independent of the executive members of the board who are involved in the day to day operations of the company. The latter's role is the 'leader' and main decision-maker of the company who also has responsibility for communicating with stakeholders and in particular with the shareholders.

The Non-Executive Chairman's Statement is brief and fairly broad in nature, focusing on Group performance, the dividend, people, and the outlook. The performance review focuses on new aspects of performance such as new business, as well as capacity utilisation and the public view of the Group. The dividend discussion is a functional description of the distributions policy. The people discussion outlines leavers and joiners of the board and the rationale for these. The outlook outlines the new divisional structure and how it should develop going forward. The Chief Executive Officer's Report is somewhat more expansive, again commencing with revenue expansion and new business. It also discusses the following headings: challenges, successes, outlook, new structure, and delivering value. The challenges discussion explains the cost-reduction strategy and the problems associated with the seasonality of demand. The successes discussion covers key investments and the leveraging of the brand. The outlook builds upon the Chairman's analysis by matching strategic approaches to the challenges faced. The new structure explains the

rationale behind the new divisional structure. Finally, the delivering value section runs through a brief strategic analysis of those divisions.
The main difference between the two sections, then, is that the Chairman's Statement is very broad in its outlook and does not drill down to much detail whereas the CEO's Report allows for more detail, linking the challenges faced with the divisional structure and distinctive competences of the Group as it moves forward.

(g) Prepare forecasts of profit before and after tax and earnings per share for Stobart Group plc for the year 28 February 2012. Explain the basis of your computation and of any assumptions that you have made.

(10 marks)

	2010 £'000	**2011 £'000**	**Forecast 2012 £'000**
Revenue by activity			
Eddie Stobart	381,389	449,860	***530,624***
Stobart Rail	64,751	53,048	***43,460***
Stobart Ports	13,919	13,682	***13,449***
Stobart Air	6,567	6,836	***7,116***
Stobart Properties	150	251	***420***
Adjustments and Eliminations	(19,115)	(23,282)	***(28,357)***
Total	*447,661*	*500,395*	***566,712***
Operating profit			
Eddie Stobart	43,065	51,248	***61,022***
Stobart Rail	6,524	6,007	***4,998***
Stobart Ports	4,782	2,704	***2,421***
Stobart Air	401	548	***712***
Stobart Properties	(770)	671	***210***
Adjustments and Eliminations	(4,831)	(6,046)	***(7,567)***
Total	*49,171*	*55,132*	***61,796***
Margins (%) by activity			
Eddie Stobart	*11.29%*	*11.39%*	***11.50%***
Stobart Rail	*10.08%*	*11.32%*	***11.50%***
Stobart Ports	*34.36%*	*19.76%*	***18.00%***
Stobart Air	*6.11%*	*8.02%*	***10.00%***
Stobart Properties	*(513.33%)*	*267.33%*	***50.00%***
Adjustments and Eliminations	-	-	-
Total	*10.98%*	*11.02%*	***10.90%***

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 (all shown in £'000):

Depreciation:

2011: Depreciation expense to non-current assets = 18,064 / 237,685 = 7.6%

2012: Depreciation expense % x trend non-current assets = 7.6% x 267,865 = 20,358

Share-based payments (adjustment): maintain at 2011 level in absence of further information

Other operating income and expenses:

2011: To simplify, express as % of sales revenue 3,439 / 500,395 = 0.69%

2012: 0.69% x 566,712 = 3,910

Finance costs:

2011: Finance costs = 5,553 after a significant increase in total debt

2012: In the absence of further information we assume this to remain constant

Finance income:

2011: Finance income = 924 expressed as a common size ratio on sales of 500,395 = 0.18%

2012: Finance income = 0.18% x 566,712 = 1,020

Income tax:

2011: Taxation of 6,229 on PBT of 29,467= 21.1%

2012: 33,462 x 21.1% = 7,060

	2011 £'000	2012 £'000
Segment EBITDA	55,132	61,796
Depreciation	(18,064)	(20,358)
Share-based payments (adjustment)*	467	467
	37,535	41,905
Other operating income & exps	(3,439)	(3,910)
Profit before interest & tax	34,096	37,995
Finance costs	(5,553)	(5,553)
Finance income	924	1,020
Profit before tax	29,467	33,462
Income tax	(6,229)	(7,060)
Profit for the year	23,238	26,402

Basic earnings per ordinary share = £26,402,000 / 275,362,357 = 9.6p

This compares favourably with a basic earnings per ordinary share of 9.03p for 2011. The number of shares is computed as the basic number of ordinary shares increased by its underlying trend.

* Share-based payment of £467,000 added back in to avoid double-counting.

(h) Advise on the desirability of investment in the shares of Stobart Group 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. Explain how the analyst should utilise the price/earnings (P/E) and price/earnings growth (PEG) ratios.

(3 marks)

The *P/E ratio* is a closely monitored and useful measure of company performance. It measures, intuitively, the relationship between a company's earnings and the price of its shares. P/E ratios can either be trailing or projected, the latter substituting in estimated earnings over, say, the next 12 months. The expression for P/E is as follows:

P/E ratio = Market price per share / Earnings per share

It tells the analyst about the market's perception of the future prospects of the company, that is, how confident investors are about investment in the shares of that company. More specifically, higher P/E ratio companies are expected to experience more rapid EPS growth whilst lower P/E are expected to experience slower EPS growth. Both a company's EPS and dividend policy will impact strongly on its P/E ratio. We tend to compare a company's P/E ratio with its industry to consider relative valuations by the market.

From the P/E ratio we can derive the *P/E growth ratio*, the expression for which is as follows:

P/E growth ratio = P/E ratio / Prospective growth in EPS

The EPS measure is an estimated figure here, and is subject to the assumptions and forecasts of the analyst. Using this measure, the analyst can consider whether the share is under and over-rated. If the P/E ratio (the numerator) is higher than the prospective growth in EPS (the denominator), then the PEG ratio is greater than one - this tends to indicate that the share price is relatively high.

3. Company GHI plc is a UK listed clothing retailer. The market value of its capital structure components is £6 billion for equity and £4 billion for debt, and its beta coefficient is 0.85. The UK 3 month Treasury bill rate is 3.5% and you estimate that the market risk premium over and above this rate is 4.0%. The UK corporation tax rate is 26% and the rate paid by the company on its 10 year bonds is 5.5%. Calculate GHI plc's weighted average cost of capital (WACC).

(4 marks)

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

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

$ER_i = 3.5\% + 0.85\ (4.0\%) = 6.9\%$

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

D / (D + E) = 40% and E / (D + E) = 60%

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 = (0.40 x 5.5% x (1 – 0.26)) + (0.60 x 6.9%) = 1.628% + 4.14% = 5.768%

4. Give three reasons why debt finance might be considered more attractive than equity finance in the funding of a company acquisition.

(3 marks)

M&A transactions may be financed by equity or debt, though debt is generally considered the more attractive financing option because:

i) For the buyer, there is a tax advantage to debt arising from its interest deductibility whereas there is no such tax advantage to equity;
ii) For the buyer's shareholders, a debt financed acquisition avoids the problem of equity dilution;
iii) The target's shareholders will generally prefer cash to the buyer's shares as they may not find its risk-return profile desirable.

5. Explain the meaning of the term *quantitative easing* along with its rationale.

(4 marks)

Quantitative easing (QE) is the creation of new money within the banking system by the central bank. This increases the value of deposits in banks which can then be lent on. More specifically, the central bank buys up assets such as government bonds and corporate bonds using money it has effectively "created into being". Banks and other financial institutions then have new funds in their accounts which should increase the money supply through the deposit multiplier. Alternatively, the central bank could buy government bonds on the open market or even lend new money directly to banks. The hope is that the yields on debt instruments and in particular inter-bank debt fall and therefore the spread for lending to others increases, thereby encouraging greater lending. In a UK setting, in November 2010, the Bank of England voted to increase total asset purchases to £200bn and a further £75bn in October 2011.

6. (a) Define Macaulay duration.

(1 mark)

The duration of a bond is simply the weighted average length of time to the receipt of coupon and redemption value. The weightings here are the present value of the cash flows to the investor. Duration is a useful relative risk measure for bonds.

Macaulay duration for 4 years = $((1xPV_1)+(2xPV_2)+(3xPV_3)+(4xPV_4))$ / Price

Where:
PV_t = present value of cash flow in year t

(b) A five year 7 per cent annual coupon bond redeemable at £100 trades with a gross redemption yield of 6 per cent. Calculate the *Macaulay duration* of the bond.

(3 marks)

Year	Cash flow to investor £	Discount factor	Present value £	Year x present value
1	7.00	0.943	6.601	6.601
2	7.00	0.890	6.230	12.460
3	7.00	0.840	5.880	17.640
4	7.00	0.792	5.544	22.176
5	107.00	0.747	79.929	399.645
Total			104.184	458.522

Thus duration = 458.522 / 104.184 = 4.40 years (or 4 years and 146 days)

7. Briefly explain the economic term *The Multiplier Effect.*

(3 marks)

The multiplier effect can be observed in terms of a number of economic phenomena, though all have in common measuring the impact of an outside (exogenous) change on an inside (endogenous) change within a given macroeconomic system. Firstly, the *money multiplier* gauges how much a change in the monetary base affects the money supply. Secondly, the *fiscal multiplier* gauges how much a change in various fiscal policy changes affect aggregate output in the economy. The concept of the Keynesian multiplier is rejected by some economists who argue that a government borrowing to increase government spending merely crowds out spending elsewhere in the economy (such as the private sector).

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

(a) Share price;
(b) Exercise price;
(c) Interest rate;
(d) Time to expiration;
(e) Volatility of share price.

(5 marks)

Direction of relationship and explanation:

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

9. Shares in DEF plc have recently paid a dividend of 50p per share. Dividends are expected to grow at 7% a year for 3 years, 5% a year for the following 2 years, and 2% thereafter. Calculate the intrinsic value of the share if the cost of equity is 11%.

(4 marks)

t	Dividend or terminal value (p)	Discount factor	Present value (p)
1	D1 = 50.000p x 1.07 = 53.500p	0.901	48.204
2	D2 = 53.500p x 1.07 = 57.245p	0.812	46.483
3	D3 = 57.245p x 1.07 = 61.252p	0.731	44.775
4	D4 = 61.252p x 1.05 = 64.315p	0.659	42.384
5	D5 = 64.315p x 1.05 = 67.531p	0.593	40.046
5	T5 = 67.531p (1 + 0.02) / (0.11 – 0.02) = 765.351p	0.593	453.853
Value			675.745p

SECTION C **Total 30 marks**

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

10. Explain the meaning of the term '*behavioural finance*' and explain its implications for market efficiency.

Behavioural finance seeks to explain stock market anomalies from a psychological perspective i.e. scientific research on human and social emotional and cognitive biases is employed to help us understand market decisions. The field is interested in the rationality or otherwise of economic agents and the recognition that certain historical phenomena in financial markets cannot be explained in a world in which investors are perfectly rational or markets are efficient.

The key themes in behavioural finance and economics deal with market inefficiencies (market outcomes which are inconsistent with market efficiency), heuristics (the application of 'rules of thumb' rather than rational analysis) and framing (the notion that the way in which a decision is 'framed' will affect the ultimate decision made).

Fama's (1970) efficient market hypothesis (EMH) argues simply that at any time, prices fully reflect all information on a particular share and thus no individual investor can gain an advantage over another by predicting share price returns. Prices are random rather than predictable and do not follow a particular pattern, instead following a random walk. Therefore, any investment strategy which aims to beat the market consistently is doomed to failure and investors should simply put their money into an index fund to minimise transactions costs.

The problem for the EMH is that various anomalies have been demonstrated to exist, such as the weekend effect and the January effect. The weekend effect suggests that prices tend to be higher on the days before and after the weekend than during the remainder of the week, thereby discouraging buying on those days whereas the January effect suggests that in January, higher returns tend to be earned in January than in the rest of the year. Another problem for the EMH is the popularity of value-investing, whereby value investors implement a trading strategy involving buying shares which appear under-priced on the basis of price-to-book or some other fundamental measure.

However, the EMH argues that, although such anomalies may exist, the market still remains efficient, that over- and under-valuation occurs on a random basis, that values mean-revert, and that market out-performance is due to sheer luck rather than skill. Investors tend to associate with one camp or the other – behaviourists or advocates of the EMH.

11. What is meant by a *Financial Transaction Tax* and what would be the impact on the UK economy and financial markets if it were implemented?

A financial transaction tax (FTT) is a tax imposed on certain types of financial transaction with a view to achieving certain outcomes such as equity and the

prevention of future speculative bubbles. The tax is imposed on the transactions identified as taxable rather than on financial institutions themselves. The concept of the financial transaction tax is not a new one as the stamp duty on buying shares on the London Stock Exchange instituted in the seventeenth century UK illustrates. The tax can be imposed on either the buying or selling of financial instruments such as bonds or equities, though other types of asset class such as futures and options could also be included.

The purposes advocated for the tax are varied depending on the source, with commentators interested in the concept ranging from economists, politicians, governments, regulators and NGOs. However, the following purposes for the tax are often articulated in terms of its perceived advantages:

- When applied to currencies (e.g. the Tobin Tax) the FTT should lead to more stable currencies in a world of floating exchange rates;
- The tax could potentially impose some fairness in an world where financial institutions have been 'bailed out' by taxpayers (i.e. a 'pay-back' argument);
- The FTT has been introduced in many countries already over the last few decades and has been broadly successful;
- The FTT would tackle excessive speculation by uninformed investors, thereby in theory reducing market volatility;
- It is arguably less prone to tax evasion and avoidance than other forms of taxation, thereby taxing a sector and its clients at least some of whom are able to avoid the payment of any material taxation in a given period (the so-called untaxed sector);
- The FTT should discourage asset bubbles from occurring (as discussed by economists such as Keynes);
- The FTT could raise revenues estimated to be anywhere between hundreds of billions to trillions of dollars in the US markets alone, though many estimates ignore the negative effects on other forms of tax revenue;
- Realistically, the tax would have to be imposed multilaterally which is unlikely in the current environment with different views across countries regarding how to prevent future market volatility whilst safeguarding national interests.

However, there might also be costs associated with the tax:

- Transactions could either be for the purpose of normal trading or speculative high frequency trading – the FTT cannot readily discriminate between the two and therefore would discourage both;
- The FTT, as any other form of taxation, may lead to economic distortions such as shifting activities away from the country or group of countries where it is implemented;
- The tax might lead to the withdrawal of liquidity in the short-term which could lead to sharp rises in interest rates to stabilise a given currency (when imposed as an currency tax);
- The tax can lead to a reduction in trading volumes and can also have other indirect effects such as reducing the take on other forms of tax such as capital gains tax.

In the UK, we already have stamp duty on equities and therefore a FTT would increase the cost of transactions further at a time when London is perhaps feeling vulnerable in the face of fierce world competition. The UK government is loathed to implement a FTT unilaterally, particularly as it has already imposed a 'bank tax' levied directly on institutions rather than on individual transactions. The IMF has a fairly neutral stance on the tax, having debated it over the last couple of years. The European Commission favours a FTT to be imposed across the EU from 2014, though G20 countries are opposed to such a tax.

12. Explain the nature of *High Frequency Trading* and discuss its relative merits as an investment strategy.

High Frequency Trading (or HFT) is the use of computer tools to trade financial securities potentially many thousands of times a day. The technique used is one form of algorithmic, that is automatic, trading using a sophisticated computer program to make trades. The technique of HFT: can make trades with holding periods of only seconds; can be undertaken at the proprietary trading desks of much larger traditional financial institutions; relies on very high processing speed computers; can involve a strategy where all trades are made within a day and ending the day without a net investment position in the securities concerned. Very short term positions may be held in a variety of securities such as equities, options, futures, and currencies. The institution using this technique is effectively looking to make very small profits on very high numbers of trades. Strategies for HFT include: trading on the basis of news events; arbitraging on the basis of models such as economic parities equations; and market-making on the basis of limit orders.

The advantages of such a technique are argued to be:

- It can be very profitable to the financial institution when compared to longer-term buy and hold strategies;
- It is claimed that it increases liquidity in securities markets, particularly at the short end, thereby lowering the costs of trading by lowering bid ask spreads for all market participants;
- It is argued to make quotes more informative in stable markets;
- It is argued to increase market efficiency;
- Interest in HFT has forced exchanges to increase their speed and improve their supporting technologies;
- It should not impact on longer-term investors in the securities concerned.

The disadvantages of such a technique are argued to be:

- It is beginning to dominate equity markets in the western world, representing a large minority of trades by volume in Europe and the majority of trades in US equities;
- In volatile or down markets it could exacerbate liquidity problems as certain HFT institutions withdraw from the market;
- It has been blamed for the Flash Crash of May 2010 in the US;
- It has gained a poor reputation with the general public and with regulators such as the SEC in the US, and will most likely be more regulated going forward;

- Evidence suggests that during the Flash Crash there were delays in sending price quotes on many stocks;
- It has been linked with increased market volatility in recent years, leading to spiking markets for no other reason than the interaction of the various players' algorithms.

13. Discuss the determinants of a country's *exchange rates*.

The exchange rate is the price at which the currency of one country may be exchanged for the currency of another country within the forex market. Exchange rates may be determined by a number of factors.

(i) Inflation

Inflation rate differences between two countries should be reflected in the exchange rate between their two currencies. Quite simply, higher inflation in a country tends to lead to depreciating exchange rates of that country vis-à-vis the rest of the world.

(ii) Interest rates

There is a strong relationship between the interest rates of a country and its exchange rate. Higher interest rates relative to other countries tend to attract capital flows to take advantage of them, thereby increasing the value of that currency i.e. higher interest rates lead to currency appreciation.

(iii) Exchange rate system

The exchange rates of a country can be fixed or floating with respect to other currencies. With fixed rates the government of the country determines what the rate of exchange should be with respect to other currencies, whereas with a floating rate system the rate is determined by the forces of supply and demand for a currency.

(iv) Balance of payments

There is a direct link between the balance of payments of a country and exchange rates. A current account deficit should lead to a depreciation in a country's currency as more cash is flowing out than in for the purchase of goods and services.

(v) Currency speculation

Speculators can exert an important influence on exchange rates. For example, if a speculator observes a current account deficit and believes it to be only a temporary phenomenon, then she might buy the currency while it is 'cheap' and sell it later when the deficit turns to surplus and it is 'expensive' again. However, such activity also leads to increased exchange rate volatility.

(vi) Macroeconomic activity

Changes in aggregate demand can lead to changes in exchange rates. If economic activity is very strong then there will be greater demand for imported goods and services, leading to currency depreciation. However, inflationary pressures may lead to an increase in interest rates which could lead to currency appreciation again.

(vii) Public borrowing

If governments run large public deficits then this can be inflationary due to the spending stimulus in the economy – increased inflation leads to currency depreciation.

(viii) Political factors

Under a fixed exchange rate system governments can adjust the rate for political reasons, particularly around election times. Governments or monetary bodies will also occasionally engage in open market operations to stabilise a currency. Further, an unstable political landscape will lead to a loss of confidence in a currency.

More confident candidates may wish to discuss the relationship between exchange rates, inflation and interest rates by means of the four-way equivalence model.

14. Discuss the merits of investing in *commodities* as part of a diversified investment portfolio.

A commodity is a good for which demand exists, but for which there is no difference in quality across the market. As a result, the price is universal in that the market sets a global price i.e. the price is determined at the level of the entire market. Commodities can include hard commodities such as metals and soft commodities such as foodstuffs, though there are also extractive commodities such as oil and gas, and commodities which cannot be stored but are still traded such as electricity. Such commodities have an active spot and futures market on commodities exchanges such as Euronext LIFFE or the London Metal Exchange.

The investor can either invest directly or indirectly in commodities. Direct investment in commodities involves buying and selling them directly through a broker or investing in commodities futures. The former can be prohibitive given the significant minimum quantities involved and the investor's ability to handle and manage the commodity itself (for example, paying storage costs). The latter is perhaps more practicable – here, investors can invest in a standardised contract to buy or sell a commodity for a price agreed at the outset with delivery occurring at a specified future date. The benefit is that the investor need never deliver or take delivery of the commodity as long as they close out the futures contract before the delivery date.

Indirect investment in commodities involves either purchasing shares in commodities companies or investing in commodities funds. The former provides exposure to upside or downside in the underlying commodity though will not necessarily provide much diversification unless a portfolio of such shares is held. Further, share performance may not be linked in a clearly discernable way to the underlying commodity price. Commodities funds invest in either spot or futures markets and are able to go short and leverage up, providing the investor in general with a focus more on capital growth than income.

In sum, direct investment in commodities can be expensive in terms of investment in the physical commodity and may not provide much diversification, though can help to avoid counterparty risk, whereas indirect investment can be undertaken at much lower levels, can provide both income and capital growth when the underlying markets thrive, and can provide for a much higher degree of diversification.