

BEAM038/BEFM016/BEMM614

UNIVERSITY OF EXETER

BUSINESS SCHOOL

May/June 2009

**INVESTMENT ANALYSIS II
EQUITY VALUATION MODELS AND ISSUES
ADVANCED INVESTMENT ANALYSIS**

Module Convenor: Professor Alan Gregory

Duration: 2 HOURS

You are required to answer THREE questions out of SIX

Candidates must answer at least ONE question from Section A and at least ONE question from Section B **AND MUST ANSWER SECTION A & SECTION B IN SEPARATE ANSWER BOOKS**

Marks will be deducted from candidates who fail to comply with this requirement

Approved calculators permitted.

This is a Closed Note exam.

All questions carry a maximum of 25 marks.

SECTION A

1. At the beginning of the last financial year (year 0), which has just ended, Chopra plc had an opening book value of £120m. Profit after tax was £20m, and dividends (just paid) were £8m. Chopra plc has a beta of 1.4, and you estimate the long run expected market return to be 8% (nominal) whilst the long run risk free rate is 3%. Given the recession, the consensus analyst forecast next year is for Chopra plc to have post tax profits of £10m.

You now wish to value Chopra plc using the Ohlson model. Initially, you decide to employ the Dechow, Hutton & Sloan (1999) approach to the estimation of the value of the “other information” parameter and also use their parameter estimates of $\omega=0.62$ and $\gamma=0.32$.

REQUIRED:

- (a) Show this year's abnormal earnings, the abnormal earnings for next year implied by the analysts' consensus forecast, and the value of the “other information” parameter. (20% of marks)
- (b) Show the theoretical value of the firm under the Ohlson model, and show the implied year 1 and year 2 earnings and abnormal earnings for the firm if the dividend payout ratio is 40%. (30% of marks)
- (c) In the light of these calculations, and known information about Chopra's short term growth plans, you decide that the implied abnormal earnings are far too gloomy. You revise your forecast, believing that the firm's abnormal earnings will fall by only 10% per annum (i.e. $\omega=0.9$) and that analysts' forecasts have no information value. What is the value of the firm under this alternative scenario? (20% of marks)
- (d) You know that Chopra plc has plans to expand its sales by 5% p.a. from the end of year 1 for the indefinite future. You also believe that the firm has a fixed ratio of opening assets to sales (i.e. the asset turnover ratio is constant). Show how it is possible to reconcile a declining residual income with a 5% expansion by projecting profits, book values and dividends forward to end year 2. (30% of marks)

2. You are working as a “buy side” analyst for a large pension fund. You have the following information in respect of Ledley plc:

Number of shares in issue: 100m
Initial book value per share £5
Consensus analyst forecasts:
1 year ahead: EPS 50p; DPS 20p
2 years ahead: EPS 60p; DPS 30p
Long term growth in earnings and assets 5%
Cost of equity capital: 8%

Your problem is to value the firm using a variety of approaches.

REQUIRED:

- (a) Clearly set out the implied earnings, opening and closing book values and residual income for years 1-4, together with the abnormal earnings growth for years 2-4 implied by the above forecasts. (40% of marks)
- (b) Value Ledley plc, showing that you get an identical valuation by applying the dividend discount, residual income, and abnormal earnings growth models (60% of marks)

3. You have analysed the financial statements of Parry plc. The company currently has net operating assets of £200m, debt of £50m on which it pays interest at 7%, and no financial assets. Last year, the firm had £500m in sales. You have made the following forecasts of value drivers for the next 3 years:

ITEM	YEAR 1	YEAR2	YEAR 3
Sales growth	0%	2%	4%
Closing operating assets: forecast sales	0.4	0.4	0.4
Sales margin	5%	7%	10%
Tax rate	30%	30%	30%

You estimate the weighted average cost of capital at 8% (after tax) irrespective of any changes in gearing (leverage) at market values, but given the current state of the economy, you understand that the firm's management team intends to keep future debt fixed at the current modest level of 25% of operating assets.

Finally, you believe the year 3 growth and value driver relationships are indicative of the long run position of the firm.

REQUIRED:

- (a) For the period that you need to conduct a valuation, set out the implied net operating profits after tax, the free cash flows to the firm, the residual income at firm level, and the dividends to shareholders, assuming all free cash flow to equity holders is paid as dividends. (45% of marks)
- (b) Value the equity of the firm using both residual income (at firm level) and free cash flow (at firm level) models, and show you obtain the same valuation from both. (35% of marks)
- (c) Explain (but do not calculate) what steps you would need to go through in order to value the firm using equity level models in order to get the same value that you have obtained in (b). What theoretical problem occurs when you try to do so? (20% of marks).

Turn over/...

SECTION B

4. Fama (1991) claims that "...judged on how it has improved our understanding of the behavior of security returns, the past research on market efficiency is among the most successful in empirical economics, with good prospects to remain so in the future".

With particular reference to work that attempts to identify "over valued" or "under valued" stocks, discuss whether or not Fama's claim still looks valid.

(100% of marks)

5. There are a number of different approaches to the problem of valuing firms, including the free cash flow model, the dividend discount model, the residual income model, and the abnormal earnings growth model. Furthermore, models can be applied at firm (or "enterprise") level or at equity level.

REQUIRED:

(a) explain each of the above approaches to valuation, why they must be equivalent to one another, and why they may *appear* to give different answers in practice. (75% of marks)

(b) Given this equivalence, why does Penman (2005) claim "Any number of models yield the same valuation with infinite horizons...but infinite horizon forecasting is not practical. Indeed this is the very reason for developing an alternative to the dividend growth model". (25% of marks)

6. Despite the fact that theory favours valuing firms by reference to discounted future cash flows (however defined), many practicing analysts and investment managers seem either to favour the use of price multiples, or at least to rely fairly heavily on such multiples when evaluating and comparing stocks.

REQUIRED:

(a) explain under what circumstances price earnings multiples, prospective price earnings multiples, price to book multiples and price to sales multiples can be consistent with DCF valuations (50% of marks);

(b) explain when such circumstances are likely to be encountered in practice (20% of marks);

(c) explain why, even when such circumstances may not hold, analysts and investors still appear to rely heavily on multiples (30% of marks).

End of Paper