Tutorial Letter 202/1/2018

Investments: Equity Asset Valuation

INV3701

Semester 1

Department of Finance, Risk Management and Banking

This tutorial letter contains suggested solutions to Assignment 02 and information about the examination.

BAR CODE

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Dear Student

1. LECTURERS' CONTACT DETAILS

Your lecturers for INV3701 are Ms Josephine Njuguna and Mr Lenny Mamaro. Their contact details are:

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2. SUGGESTED SOLUTIONS TO ASSIGNMENT 02

1. Option 2

Mispricing is the departure of the market price from the estimated intrinsic value.

Refer to pages 2–5.

2. Option 3

For questions 2 to 4, refer to pages 464–467.

Calculation:

EBIT		525 000
Less: Interest expense	(a)	(200 000)
Pre-tax income		325 000
Less: Income tax expense	(b)	(113 750)
Net income		211 250

Calculations

a. $Debt : Equity$

$2 : 1$

$Debt = Total\ assets \times ⅔$

$= 3\,000\,000 \times ⅔$

$= R2\,000\,000$

$Interest\ expense = Debt \times Cost\ of\ debt$

$= 2\,000\,000 \times 10\%$

$= R\ 200\,000$

b. $Income\ tax\ expense = Pre-tax\ income \times Tax\ rate$

$= 325\,000 \times 35\%$

$= R113\,750$

Equity charge	(a)	R130 000
Plus: After-tax debt charge	(b)	R130 000
Total capital charge		R260 000

a) $After-tax\ cost\ of\ debt = Cost\ of\ debt \times (1 - Tax\ rate)$

$= 10\% \times (1 - 0.35)$

$= 6.5\%$

$After-tax\ debt\ charge = Debt \times After-tax\ cost\ of\ debt$

$= 2\,000\,000 \times 6.5\%$

$= R130\,000$

b) $Debt : Equity$

$2 : 1$

$Equity = Total\ assets \times ⅓$

$= 3\,000\,000 \times ⅓$

$= R1\,000\,000$

$Equity\ charge = Equity \times Required\ rate\ of\ return$

$= 1\,000\,000 \times 13\%$

$= R130\,000$

3. Option 1

Approach 1 **Approach 2**

Net income	211 250	NOPAT	341 250
Less: equity charge	(130 000)	Less: total capital charge	(260 000)
Residual income	81 250	Residual income	81 250

4. Option 3

Woodlands Holdings has a positive residual value, and therefore it is creating value.

5. Option 1

$$NOPAT = (Sales - cost\ of\ sales - operating\ expenses - depreciation) \times (1 - tax\ rate)$$
$$= (1600 - 500 - 100 - 103.45)(1 - 0.42)$$
$$= R520\ million$$

$$EVA = NOPAT - (C\% \times TC)$$
$$= 520 - (0.09 \times (310 + 290))$$
$$= 520 - 54$$
$$= 466$$

Refer to page 468.

6. Option 2

The company would have a negative residual income.

Refer to page 408, and pages 478–479.

7. Option 2

$$\frac{P_0}{E_0} = \frac{(1-b)(1+g)}{r-g}$$
$$= \frac{(1-0.60)(1+0.074)}{0.156-0.074}$$
$$= 5.24$$

Refer to pages 379–381.

8. Option 1

$$\frac{P_0}{E_1} = \frac{(1-b)}{r-g}$$
$$= \frac{(1-0.60)}{0.156-0.074}$$
$$= 4.88$$

Refer to pages 379–381.

9. Option 2

An increase in growth rate of earnings will cause P/E to increase.

Refer to page 380.

10. Option 2

$$V_4 = \frac{P}{E} \times E_4$$
$$= 9 \times 4.20$$
$$= R37.80$$

Refer to pages 397–399.

11. Option 1

$$\frac{P_4}{S_4} = \frac{37.80}{7.30}$$
$$= 5.18$$

Refer to pages 416–417.

12. Option 1

No, because the PEG ratio is undefined for zero-growth companies.

Refer to pages 387–389.

13. Option 1

An increase in earnings before interest and tax (EBIT) will have a positive effect on FCFE.

Refer to pages 235–240, and 318–319.

14. Option 3

Price to cash flow is less subject to manipulation by management than earnings.

Refer to pages 366–367, 399–400, and 417–418.

15. Option 2

$$Total\ equity = Total\ assets - Total\ liabilities$$
$$= 720m - 450m$$
$$= 270m$$

$$B_0 = \frac{270}{20}$$
$$= R13.50$$

$$g = b \times ROE$$
$$= (1 - 0.75) \times 21.80$$
$$= 5.45\%$$

$$V_0 = B_0 + \frac{ROE - r}{r - g} B_0$$
$$= 13.50 + \frac{(0.2180 - 0.095)}{(0.095 - 0.0545)} 13.50$$
$$= 13.50 + (3.0370)13.50$$
$$= 13.50 + 40.9995$$
$$= R54.50$$

Refer to pages 276–280, and 478–479.

16. Option 1

The estimated value of Constantia Limited is R54.50, which is lower than the market price of R57.70. The share is overpriced at the market price.

Refer to page 3.

17. Option 3

$$\frac{P}{S} = \frac{E/_S (1 - b)(1 + g)}{r - g}$$
$$= \frac{4.50/_{210} (0.65)(1 + 0.053)}{0.15 - 0.053}$$
$$= \frac{0.0147}{0.097}$$
$$= 0.15$$

Refer to pages 414–416.

18. Option 3

Year	E_t	Ending book value (B_{t-1})	ROE	Equity charge ($r \times B_{t-1}$)	Residual income $[E - (r \times B_{t-1})]$
0		4.40			
1	0.88	5.28	0.20	0.528	0.352
2	1.056	6.336	0.20	0.6336	0.4224
3	1.2672	7.6032	0.20	0.7603	0.5069
4	1.5206	9.1238	0.20	0.9124	0.6082
5	1.8248	10.9486	0.20	1.0949	0.7299

$$Terminal\ value = \frac{0.7299}{1.12}$$
$$= 0.6517$$

Refer to pages 469–483.

19. Option 2

$$V_0 = 4.40 + \left[\frac{0.352}{1.12} + \frac{0.4224}{1.12^2} + \frac{0.5069}{1.12^3} + \frac{0.6082 + 0.6517}{1.12^4}\right]$$
$$= 4.40 + 0.3143 + 0.3367 + 0.3608 + 0.8007$$
$$= R6.21$$

Refer to pages 469–474.

20. Option 1

$$D_0 = EPS \times (1 - \ retention\ ratio)$$
$$= 2.50(1 - 0.40)$$
$$= 1.50$$
$$D_1 = 1.50(1.20) = \ 1.80$$
$$D_2 = 1.80(1.20) = \ 2.16$$
$$D_3 = 2.16(1.10) = \ 2.3760$$
$$D_4 = 2.3760(1.05) = 2.4948$$
$$P_3 = \frac{D_4}{r - g}$$
$$= \frac{2.4948}{0.124 - 0.05}$$
$$= 33.7135$$

$$V_0 = \frac{1.80}{1.124^1} + \frac{2.16}{1.124^2} + \frac{2.3760}{1.124^3} + \frac{33.7135}{1.124^3}$$
$$= 1.6014 + 1.7097 + 1.6732 + 23.7413$$
$$= R28.73$$

Refer to pages 260–272.

EXAMINATION INFORMATION

Examination admission will be granted to all students who submit the compulsory assignments. Students who do not submit the assignments will **not** be allowed to write the examination.
The provisional examination dates have been published on myUnisa at https://my.unisa.ac.za.
The examination paper for INV3701 will consist of two sections:

- Section A
    - 30 multiple-choice questions
- Section B
    - two long questions, each worth 20 marks

The formula sheet will be provided in the exam paper. Please note that the breakdown of the exam paper is approximately 60% calculations and 40% theory. **Do not use past papers as a guide for this exam.** Use past papers only for practice and revision.

In preparing for the exam, read through all the study material in detail and practise by answering the questions provided in the book and previous papers, and revise the assignments.

Your year mark, which is calculated on the basis of the mark you obtained for the compulsory assignments, contributes 20% towards your final mark, while your examination mark contributes 80%. A 40% **subminimum** applies (in other words, in order for your year mark to be taken into account in calculating your final mark, you must obtain a minimum of 40% in the exam). This means that if you achieve a mark of less than 40% in the exam, that will be your final mark. To pass this module, you must obtain a final mark of 50%.

3. IN CLOSING

We suggest that you go through your assignment and compare your answers with the suggested solutions. The most important thing is to look carefully at how you arrived at your answers, and compare your method with the calculations in the suggested solutions. This is a very important component of the learning process, and will help to improve your understanding of the study material. For the examination it would be a good idea to work through the end of chapter questions, the examples within the chapters, and the assignment questions.

The following additional resources are available on myUnisa:

- past exam papers and memos
- past tutorial letters
- additional questions
- formula sheet
- links to YouTube webcasts

There are no discussion classes for this module, but you are welcome to contact us by e-mail or schedule an appointment to come in and see us if you have any problems with the course work.

We wish you well with your examination preparation.

Regards
Your lecturers

DEPARTMENT OF FINANCE, RISK MANAGEMENT AND BANKING