

Tutorial Letter 201/1/2018

Investments: Equity Asset Valuation

INV3701

Semester 1

**Department of Finance, Risk Management and
Banking**

This tutorial letter contains suggested solutions to
Assignment 01 and information about the
examination.

BAR CODE

CONTENTS

- | |
|---|
| <ol style="list-style-type: none"> 1. LECTURERS' CONTACT DETAILS 2. SUGGESTED SOLUTIONS TO ASSIGNMENT 01 3. EXAMINATION INFORMATION 4. IN CLOSING |
|---|

Dear Student

1. LECTURERS' CONTACT DETAILS

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

Primary lecturer	Ms Josephine Njuguna Tel: 012 429 3645 INV3701-18-S1@unisa.ac.za
Secondary lecturer	Mr Lenny Mamaro Tel: 012 429 2475 INV3701-18-S1@unisa.ac.za

2. SUGGESTED SOLUTIONS TO ASSIGNMENT 01

1. Option 2

Residual income model

Refer to pages 235–241.

2. Option 3

Dividend discount model

Refer to pages 235–241.

3. Option 2

$$\begin{aligned}
 r_{NOVA} &= r_f + \beta_{mkt}(R_{mkt} - r_f) + \beta_{SMB}(R_{small} - R_{big}) + \beta_{HML}(R_{HBM} - R_{LBM}) \\
 &= 3.5 + 1.25(2.6) - 1.15(3.7) + 0.85(4.2) \\
 &= 3.5 + 3.25 - 4.255 + 3.57 \\
 &= 6.07\%
 \end{aligned}$$

Refer to pages 68–72.

4. Option 2

$$\begin{aligned}
 E(R_i) &= R_F + \beta_i[E(R_M) - R_F] \\
 &= 4 + 0.90(10.20) \\
 &= 13.18\%
 \end{aligned}$$

$$V_0 = \frac{D_0(1 + g)}{r - g}$$

$$88 = \frac{1.50(1 + g)}{0.1318 - g}$$

$$88(0.1318 - g) = 1.50(1 + g)$$

$$11.5984 - 88g = 1.50 + 1.50g$$

$$11.5984 - 1.50 = 88g + 1.50g$$

$$10.0984 = 89.50g$$

$$g = \frac{10.0984}{89.50}$$

$$= 11.28\%$$

Refer to pages 60–61, and 253–254.

5. Option 3

$$\begin{aligned}
 V_p &= \frac{D_p}{r} \\
 &= \frac{5.24}{0.071} \\
 &= R73.80
 \end{aligned}$$

Refer to pages 250–251.

6. Option 1

$$E_3 = 4.50 \times (1.12)^3 = 6.3222$$

$$E_4 = 6.3222 \times 1.06 = 6.7015$$

$$\begin{aligned}
 D_4 &= E_4 \times D/E \\
 &= 6.7015 \times 0.15 \\
 &= 1.0052
 \end{aligned}$$

$$\begin{aligned}
 V_3 &= \frac{D_4}{r - g} \\
 &= \frac{1.0052}{0.10 - 0.06} \\
 &= R25.13
 \end{aligned}$$

$$\begin{aligned}
 V_0 &= \frac{V_3}{(1 + r)^3} \\
 &= \frac{25.13}{1.10^3} \\
 &= R18.88
 \end{aligned}$$

Refer to pages 244-250.

7. Option 1

Understand the business.

Refer to pages 7–28.

8. Option 2

$$\begin{aligned}
 E(R_i) &= rfr + \beta_i[R_m - rfr] \\
 &= 3 + 0.62(8.40) \\
 &= 8.21\%
 \end{aligned}$$

$$\begin{aligned}
 V_0 &= \frac{D_0(1 + g_L) + D_0H(g_S - g_L)}{r - g_L} \\
 &= \frac{7.45(1 + 0.04) + 7.45\left(\frac{12}{2}\right)(0.22 - 0.04)}{0.0821 - 0.04} \\
 &= \frac{7.748 + 8.046}{0.0421} \\
 &= R375.15
 \end{aligned}$$

Refer to pages 60–61, and 265–267.

9. Option 2

Underpriced

Jules Limited is currently priced at R330. The intrinsic value of the share is R377.15. Therefore, the share is underpriced.

Refer to pages 20–21.

10. Option 3

The value of the firm is equal to the value of the operating assets and the non-operating assets.

Refer to pages 345–346.

11. Option 3

Amortisation of long-term bond premiums

Refer to pages 307–312.

12. Option 1

Net income + net noncash charges + interest expense (1 – tax rate) – investment in fixed capital – investment in working capital

Refer to pages 301–304.

13. Option 1

$$D_1 = E_1 \times \frac{D_0}{E_0} = 15 \times 0.25 = R3.75$$

$$D_t = D_{t-1}(1 + g)$$

$$D_1 = 3.75$$

$$D_2 = 3.75(1.065) = 3.9938$$

$$D_3 = 3.9938(1.075) = 4.2933$$

$$D_4 = 4.2933(1.081) = 4.6410$$

$$D_5 = 4.6410(1.08) = 5.0123$$

$$D_6 = 5.0123(1.03) = 5.1627$$

$$\begin{aligned} P_5 &= \frac{D_6}{r - g} \\ &= \frac{5.1627}{0.12 - 0.03} \\ &= 57.3632 \end{aligned}$$

$$\begin{aligned} V_0 &= \sum_{t=1}^4 \frac{D_t}{(1+r)^t} + P_t \\ &= \frac{3.75}{1.12^1} + \frac{3.9938}{1.12^2} + \frac{4.2933}{1.12^3} + \frac{4.6410}{1.12^4} + \frac{(5.0123 + 57.3632)}{1.12^5} \\ &= 3.3482 + 3.1838 + 3.0559 + 2.9494 + 35.3935 \\ &= R47.93 \end{aligned}$$

Refer to pages 260–272.

14. Option 2

$$\begin{aligned} V_0 &= \frac{D_1}{1+r^1} + \frac{D_2}{1+r^2} + \frac{(D_3 + P_3)}{1+r^3} \\ &= \frac{1.48}{1.0911^1} + \frac{2.06}{1.0911^2} + \frac{(0.99 + 156)}{1.0911^3} \\ &= 1.3564 + 1.7304 + 120.8588 \\ &= R123.95 \end{aligned}$$

Refer to pages 242–244.

15. Option 2

FCFF = Net income

- + Non-cash charges (depreciation + loss on sale of asset)
- + Interest expense (1 – Tax rate)
- Investment in fixed capital
- Investment in working capital

$$\begin{aligned}
 FCFF &= NI + NCC + Int(1 - Tax\ rate) - FCInv - WCInv \\
 &= 1\ 030 + (450 + 52) + 270(1 - 0.30) - 106 - 345 \\
 &= R1\ 270\ million
 \end{aligned}$$

Refer to pages 301–304 and 307–312.

16. Option 3

$$\begin{aligned}
 Firm\ value &= \frac{FCFF_0(1 + g)}{WACC - g} \\
 &= \frac{1\ 270(1.0405)}{0.116 - 0.0405} \\
 &= \frac{1\ 321.435}{0.0755} \\
 &= R17\ 502.45\ million
 \end{aligned}$$

Refer to pages 299–300.

17. Option 3

$$\begin{aligned}
 Equity\ value &= Firm\ value - Market\ value\ of\ debt \\
 &= 17\ 502.45 - 4\ 410 \\
 &= 13\ 092.45\ million
 \end{aligned}$$

Refer to page 298.

18. Option 2

$$\begin{aligned}
 Value\ per\ share &= \frac{Value\ of\ equity}{No.\ of\ shares} \\
 &= \frac{13\ 092.45}{2\ 600} \\
 &= R5.04
 \end{aligned}$$

Refer to page 300.

19. Option 3

$$\begin{aligned}
 ROE &= \frac{Net\ income}{Sales} \times Total\ asset\ turnover \times Financial\ leverage \\
 &= \frac{903\ 150}{4\ 001\ 852} \times 0.86 \times 1.63 \\
 &= 31.64\%
 \end{aligned}$$

$$\begin{aligned}
 g &= b \times ROE \\
 &= \left(1 - \frac{D}{E}\right) \times ROE \\
 &= (1 - 0.25) \times 31.64 \\
 &= 23.73\%
 \end{aligned}$$

Refer to pages 276–281.

20. Option 1

$$\begin{aligned}
 WACC &= w_d r_d (1 - t) + w_e r_e + w_p r_p \\
 &= \frac{500}{1\,500} [6.50(1 - 0.30)] + \frac{700}{1\,500} [13.40] + \frac{300}{1\,500} [8.20] \\
 &= 1.5167 + 6.2533 + 1.64 \\
 &= 9.41\%
 \end{aligned}$$

$$\begin{aligned}
 FCFF_0 &= NI + NCC + Int(1 - t) + Preferred\ dividends - FCInv - WCInv \\
 &= 140 + [43 + 5] + 32.50(1 - 0.30) + 22 - 58 - 36 \\
 &= R138.75
 \end{aligned}$$

$$\begin{aligned}
 V_0 &= \frac{FCFF_0(1 + g)}{WACC - g} = \frac{FCFF_1}{WACC - g} \\
 &= \frac{138.75(1.035)}{0.0941 - 0.035} \\
 &= R2\,429.89
 \end{aligned}$$

$$\begin{aligned}
 \text{Total value of equity} &= \text{Total value of the company} - \text{Value of debt} - \text{Value of preferred stock} \\
 &= 2\,429.89 - 500 - 300 \\
 &= R1\,629.89
 \end{aligned}$$

Refer to pages 298–300, and 330–332.

3. 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%.

4. 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

©

UNISA 2018