

**NANYANG TECHNOLOGICAL UNIVERSITY**

**SEMESTER 1 EXAMINATION 2020-2021**

**AC3103 – Accounting Analysis and Equity Valuation**

November 2020

Time Allowed: 2½ hours

**INSTRUCTIONS**

- 1 This paper contains **FOUR (4)** questions and comprises **SIX (6)** pages.
  - 2 Answer **ALL** questions.
  - 3 This is an **open-book** examination.
  - 4 The number of marks allocated is shown at the end of each question.
  - 5 Begin your answer to each question on a separate page of the answer book.
  - 6 Answers will be graded for content and appropriate presentation.
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**QUESTION NO. 1 BEGINS ON PAGE 2**

### Question 1

Logix Corporation (LC) has been expanding and is fast becoming one of the world's largest integrated logistics providers. One of its strategies is to acquire start-ups who are championing technologies to help build faster, more secure, and more sustainable supply chains.

LC has 1.5 million ordinary shares outstanding on 31 December 20x0.

As at 31 December 20x0, LC has one batch of convertible bonds outstanding. It was issued at the start of the year on 1 January 20x0. The convertible bonds have a face value of \$500,000 with a coupon rate of 4% payable annually. Similar bonds without conversion feature could have been issued at par value at the same date. As at 31 December 20x0, the conversion feature was that every \$25 dollar of bond could be exchanged for two ordinary shares with the agreement that the conversion terms are to be adjusted for any bonus or rights issue.

Additional information:

- (i) In mid-May of 20x1, LC offered its existing shareholders the right to subscribe for one new share at \$5.00 per share for every five existing shares held. The market price of LC's shares just before the exercise on 1 June 20x1 was \$11.00 per share. The shareholders exercised their rights in full on 1 June 20x1.
- (ii) On 1 July 20x1, LC declared and issued bonus shares based on one bonus share for every five existing ordinary shares.
- (iii) On 1 September 20x1, LC issued \$4 million of 4% bond (payable annually) with detachable stock warrants, with a maturity date of 5 years. Each \$1,000 bond has 5 warrants attached. As at 31 December 20x1, each warrant entitles the holder to purchase one share of common stock for \$8.00. Similar bonds without the detachable warrants would have earned an annual interest rate of 5%. The average market price of LC's common share for the period the warrants were outstanding in 20x1 was \$11.00. None of the warrants was exercised in 20x1.
- (iv) On 1 October 20x1, LC issued 50,000 3.5% cumulative preference shares (\$100 per share).
- (v) On 1 October 20x2, 25% of the convertible bonds were exchanged for ordinary shares.
- (vi) On 1 November 20x2, 50% of the warrants were exercised. The market price of LC's common share was fairly stable throughout the year, with an average market price of \$14.00 for 20x2.
- (vii) For the years ended 31 December, the profit before tax of LC for 20x1 and 20x2 were \$4.90 million and \$5.54 million respectively. The corporate tax rate is 20%.

Note: Question No. 1 continues on page 3

Question 1 (continued)Required

- (a) Calculate the basic and diluted earnings per share for the year ended 31 December 20x1. Your answers are to be rounded off to 3 decimal places. (9 marks)
- (b) Calculate the basic and diluted earnings per share for the year ended 31 December 20x2. Your answers are to be rounded off to 3 decimal places. (9 marks)
- (TOTAL: 18 marks)

Question 2

The following table shows Tevid's *selected* financial data after all the necessary accounting adjustments. Balance sheet numbers are year-end balances.

(\$ million)	<u>20x8</u>	<u>20x9</u>
Revenue	640	690
Profit after tax	109	118
Net investment profit after tax (NIPAT)	8	9
Operating working capital	385	445
Net non-current operating assets	360	468
Total business assets	865	1053
Debt*	120	240

\* The loan of \$120 mil was taken up in January 20x7. Additional loan of \$120 mil was taken up on 2 January 20x9. The effective after-tax interest rate is estimated to be 4% for 20x8 to 20x9.

Required

- a) The alternative approach of profitability analysis decomposes a firm's return on equity (ROE) into net operating profit after tax (NOPAT) margin, return on non-operating investments (RNOI), asset turnover, spread, and net financial leverage. Decompose Tevid's ROE for the years ended 31 December 20x8 and 20x9 using the alternative approach. Identify the key areas that drive the company's change in performance.

(Note: Base your computation on the year-end balance sheet items. Your answers are to be rounded off to two decimal places if in percentage and four decimal places otherwise.)

(16 marks)

- b) Identify two other pieces of information you may collect to enable you to better analyze Tevid's performance.

(4 marks)

(TOTAL: 20 marks)

Question 3

MacTec Limited (MTL) operates in a capital-intensive industry with a significant portion of its total assets invested in heavy machinery. As a result, its annual depreciation expenses affect its net income significantly. The corporate tax rate is 20%.

The table below is an extract from its financial statements for the year ended 31 December 20x7.

<b>(\$ million)</b>	<b>20x7</b>
Machinery, at cost (beginning balance)	50
Machinery, net book value (beginning balance)	40
Cost of machinery acquired during the year	1

In its notes to accounts, MTL stated that the company depreciated its machinery using the straight-line method over 15 years of useful life, with an estimated residual value of 15% of the machinery's cost. MTL recognizes half a year of depreciation on assets acquired during the year.

The following table shows MTL's selected financial data:

<b>Items</b>	<b>20x7 (\$ millions)</b>
<b><u>As at 31 December 20x7</u></b>	
Current Assets	50
Non-Current Assets <sup>1</sup>	120
Current Liabilities <sup>2</sup>	40
Non-Current Liabilities <sup>3</sup>	70
<b><u>For the year ended 31 December 20x7</u></b>	
Net operating profit after tax (NOPAT)	5.3

<sup>1</sup> MTL does not have any non-operating investment assets.

<sup>2</sup> Included in Current Liabilities is the current portion of long-term debt due of \$10 million. MTL does not have any short-term debt.

<sup>3</sup> All non-current liabilities are interest-bearing liabilities.

Note: Question No. 3 continues on page 5

Question 3 (continued)

You have been assigned to analyze and evaluate MTL. You noted that its return-on-equity (ROE) is comparable to its main competitor – Ace Tec Limited (ATL). The following table shows the ROE decomposition (using year-end equity) under the alternative ROE decomposition approach for both companies.

	<b>Return on Net Operating Assets (RNOA)</b>	<b>Spread</b>	<b>Net Financial Leverage</b>	<b>ROE</b>
MTL	3.79%	0.59%	1.33	4.57%
ATL	3.38%	0.21%	5.33	4.50%

Required

- (a) You noted that the average estimates of useful life and residual value of similar machinery in the industry are 10 years and 10% of cost, respectively, and these estimates were used by ATL. You decided to adjust MTL's financial statements by computing the company's depreciation expense using the industry's average for both useful life and residual value. Determine the adjustments required for MTL's financial statements for the year ended 31 December 20x7. Use the selected financial data above and recompute the adjusted balances. (12 marks)
- (b) Taking into consideration the adjustments in part (a) above, reassess MTL's ROE and discuss its performance relative to ATL. (10 marks)
- (TOTAL: 22 marks)

Question 4Part I

The following are the financial information of Jaegeon Ltd at the **beginning** of its financial year 2020, 2021 and 2022 (in \$'million):

	<b>2020 (Actual)</b>	<b>2021 (Forecasted)</b>	<b>2022 (Forecasted)</b>
Operating working capital	30	36	42
Net non-current assets	100	120	145
Non-operating investments	20	20	20
Debt	50	50	50

You have forecasted Jaegeon's Return on Net Operating Assets (RNOA) to be 12%, 10%, and 8% for its financial year ended 2020, 2021, and 2022 respectively. You expected Jaegeon's Return on Non-Operating Investments (RNOI) and effective after-tax interest rate to remain constant at 8% and 6% respectively in all its financial years. The RNOA, RNOI and effective interest rates are all computed based on balance sheet figures at the beginning of the year.

Jaegeon's beta is 0.6, the risk-free rate is 2% and the equity market risk premium is 10%.

Note: Question No. 4 continues on page 6

Question 4 (continued)Required

- (a) Calculate Jaegeon's residual income for each of the years from 2020 to 2022. (12 marks)
- (b) For 2023 and beyond, you forecasted Jaegeon's residual income to approximate year 2022 level forever. Use the residual income model to estimate Jaegeon's market value of equity as at beginning of financial year 2020. (6 marks)
- (c) How much dividend is implied by your forecast for the financial year 2020? Interpret the implied dividend that you have calculated. (4 marks)

Part II

Jaegeon Ltd released the following information at the beginning of financial year 2020:

- (i) Jaegeon decided to invest heavily on research and development (R&D) in the next 3 years in order to boost its product innovation and sales growth. The company expected to start to reap the benefits of its R&D efforts only from the 4<sup>th</sup> year onwards, but strongly believe that its future benefits will outweigh the initial increase in R&D expenditure.
- (ii) Jaegeon decided to sell off one of its division at the beginning of 2020. The following are the net profit and net assets of the division in the last 3 years (in \$'million):

	<b>2017</b>	<b>2018</b>	<b>2019</b>
Net profit	2.5	3.0	3.5
Net assets	80	100	120

- (iii) Jaegeon announced that it would have to restate its financial statements for its financial year ended 2018 and 2019 as a result of channel stuffing that took place during those 2 years.

Required

- (d) For each of the new information (i) to (iii) above, discuss how you will revise your forecast of Jaegeon's future net profits. (6 marks)
- (e) For each of the new information (i) to (iii) above, discuss how Jaegeon's share price will be affected. (12 marks)

(TOTAL 40 marks)

**- END OF PAPER -**



## **AC3103 ACCOUNTING ANALYSIS & EQUITY VALUATION**

Please read the following instructions carefully:

- 1. Please do not turn over the question paper until you are told to do so. Disciplinary action may be taken against you if you do so.**
2. You are not allowed to leave the examination hall unless accompanied by an invigilator. You may raise your hand if you need to communicate with the invigilator.
3. Please write your Matriculation Number on the front of the answer book.
4. Please indicate clearly in the answer book (at the appropriate place) if you are continuing the answer to a question elsewhere in the book.