

# CHAPTER 17

## EARNINGS PER SHARE

### ASSIGNMENT CLASSIFICATION TABLE

Topics	Brief Exercises	Exercises	Problems	Writing Assignments
1. General objectives and basic calculations	1	3		1, 2, 3, 4
2. Reporting EPS.	1	3, 4	1, 2, 3, 4, 5	
3. EPS—simple capital structure.	2, 3, 4, 5, 6, 7, 8, 9, 10	1, 2, 3, 4, 5, 6, 7, 8	1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14	
4. EPS—complex capital structure.	10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22	9, 10, 11, 12, 13, 14, 15, 16, 17, 18	1, 3, 4, 7, 8, 9, 10, 11, 12, 13, 14	
5. Differences between IFRS and ASPE.				

**ASSIGNMENT CHARACTERISTICS TABLE**

<b>Item</b>	<b>Description</b>	<b>Level of Difficulty</b>	<b>Time (minutes)</b>
E17-1	Weighted average calc. with reverse split	Moderate	15-20
E17-2	Weighted average number of shares.	Moderate	15-25
E17-3	EPS: Simple capital structure.	Simple	15-20
E17-4	EPS: Simple capital structure.	Simple	20-25
E17-5	EPS: Simple capital structure.	Simple	15-20
E17-6	EPS: Simple capital structure.	Simple	10-15
E17-7	EPS: Simple capital structure.	Simple	20-25
E17-8	EPS: Simple capital structure.	Simple	10-15
E17-9	EPS with convertible bonds, various situations.	Complex	20-25
E17-10	EPS with convertible bonds.	Moderate	20-25
E17-11	EPS with convertible bonds and preferred shares.	Moderate	20-25
E17-12	EPS with convertible bonds and preferred shares.	Moderate	10-15
E17-13	EPS with convertible bonds and preferred shares.	Complex	30-35
E17-14	EPS with convertible bonds and preferred shares.	Complex	30-35
E17-15	EPS with convertible bonds and preferred shares.	Moderate	15-20
E17-16	EPS with options, various situations.	Moderate	20-25
E17-17	EPS with warrants.	Moderate	15-20
E17-18	EPS with contingent issuance agreement.	Simple	10-15
P17-1	EPS concepts and effect of transactions on EPS.	Moderate	25-35
P17-2	EPS: simple capital structure	Moderate	20-30
P17-3	EPS calculation involving put and call options.	Moderate	20-25
P17-4	Comprehensive EPS.	Moderate	20-25
P17-5	Comprehensive EPS.	Complex	30-40
P17-6	Basic EPS: Two-year presentation.	Moderate	30-35
P17-7	Calculation of number of shares for basic and diluted EPS.	Moderate	35-45
P17-8	EPS with complex capital structure.	Moderate	30-35
P17-9	Comprehensive EPS.	Moderate	25-35
P17-10	Comprehensive EPS.	Moderate	25-35
P17-11	Simple EPS and EPS with stock options.	Moderate	30-40
P17-12	EPS with complex capital structure.	Moderate	25-35
P17-13	Comprehensive EPS.	Complex	30-35
P17-14	Comprehensive EPS.	Moderate	25-35

## SOLUTIONS TO BRIEF EXERCISES

### BRIEF EXERCISE 17-1

(a)

#### Earnings per share

Income from continuing operations (\$1,335,000/40,000)	\$33.38
Loss from discontinued operations, net of tax (\$105,000/40,000)	<u>(2.63)</u>
Net income (\$1,230,000/40,000)	<u>\$30.75</u>

(b)

Common shareholders need to know how much of a company's available income can be attributed to the shares they own. This helps them assess future dividend payouts and the value of each share. When the income statement presents discontinued operations, earnings per share should be disclosed for income from continuing operations, discontinued operations, and net income. These disclosures make it possible for users of the financial statements to know the specific impact of income from continuing operations on earnings per share, as opposed to a single earnings per share number, which also includes the impact of income or loss from operations not expected to continue.

### BRIEF EXERCISE 17-2

$$\frac{\$1,400,000 - (100,000 \times \$5)}{220,000 \text{ shares}} = \$4.09 \text{ per share}$$

### BRIEF EXERCISE 17-3

$$\frac{\$1,400,000}{220,000 \text{ shares}} = \$6.36 \text{ per share}$$

**BRIEF EXERCISE 17-4**

**Basic earnings per share would be \$4.09 as in BE17-2 because the dividends are deducted, whether declared or not, when the preferred shares are cumulative. This claim of the preferred shareholders must be satisfied prior to any payment of dividends to common shareholders, so these earnings are permanently unavailable to common shareholders.**

**BRIEF EXERCISE 17-5**

<u>Dates Outstanding</u>	<u>Shares Outstanding</u>	<u>Fraction of Year</u>	<u>Weighted Shares</u>
1/1–5/1	120,000	4/12	40,000
5/1–7/1	185,000	2/12	30,833
7/1–12/31	163,000	6/12	<u>81,500</u>
			<u><u>152,333</u></u>

**BRIEF EXERCISE 17-6**

<u>Event</u>	<u>Dates Outstanding</u>	<u>Shares Outstanding</u>	<u>Restate-ment</u>	<u>Fraction of Year</u>	<u>Weighted Shares</u>
Beginning balance	Jan. 1–March 1	42,000	1.1	2/12	7,700
Issued shares	March 1–July 1	62,000	1.1	4/12	22,733
Reacquired shares	July 1–Dec. 31	52,000	1.1	6/12	<u>28,600</u>
Weighted average number of shares outstanding					<u>59,033</u>

**BRIEF EXERCISE 17-7**

<u>Event</u>	<u>Dates Outstanding</u>	<u>Shares Outstanding</u>	<u>Restate-ment</u>	<u>Fraction of Year</u>	<u>Weighted Shares</u>
Beginning balance	Jan. 1–March 1	42,000	3	2/12	21,000
Issued shares	March 1–July 1	62,000	3	4/12	62,000
Reacquired shares	July 1–Dec. 31	52,000	3	6/12	<u>78,000</u>
Weighted average number of shares outstanding					<u>161,000</u>

**BRIEF EXERCISE 17-8**

<u>Event</u>	<u>Dates Outstanding</u>	<u>Shares Outstanding</u>	<u>Restatement</u>	<u>Fraction of Year</u>	<u>Weighted Shares</u>
Beginning balance	Jan. 1–March 1	42,000	.5	2/12	3,500
Issued shares	March 1–July 1	62,000	.5	4/12	10,333
Reacquired shares	July 1–Dec. 31	52,000	.5	6/12	<u>13,000</u>
<b>Weighted average number of shares outstanding</b>					<b><u>26,833</u></b>

**BRIEF EXERCISE 17-9**

1.  $(300,000 \times 4/12) + (330,000 \times 8/12) = \underline{\underline{320,000}}$

2. 330,000

(The 30,000 shares issued as the stock dividend are assumed outstanding from the beginning of the year.)

**BRIEF EXERCISE 17-10**

<b>Event</b>	<b>Dates Outstanding</b>	<b>Shares Outstanding</b>	<b>Restatement</b>	<b>Fraction of Year</b>	<b>Weighted Shares</b>
Beginning balance	Jan. 1–Mar. 1	100,000	1.2	2/12	20,000
Issued shares	Mar. 1–Jul. 1	112,000	1.2	4/12	44,800
Reacquired shares	Jul. 1–Oct. 1	107,000	1.2	3/12	32,100
Stock dividend	Oct. 1–Dec. 1	128,400		2/12	21,400
Issued shares	Dec. 1–Dec. 31	146,400		1/12	<u>12,200</u>
<b>Weighted average number of shares outstanding—unadjusted</b>					<b>130,500</b>
<b>Stock split, 2/1/15</b>					<b><u>2</u></b>
<b>Weighted average number of shares outstanding—adjusted</b>					<b><u><u>261,000</u></u></b>

<b>Income per share before discontinued operations</b> (\$400,000 + \$50,000 = \$450,000; \$450,000 ÷ 261,000 shares)	<b>\$1.72</b>
<b>Discontinued operations loss per share, net of tax</b> (\$50,000 ÷ 261,000)	<b><u>(.19)</u></b>
<b>Net income per share (\$400,000 ÷ 261,000)</b>	<b><u><u>\$1.53</u></u></b>

**BRIEF EXERCISE 17-11**

$$\frac{\$140,000}{120,000 \text{ shares}} = \$1.17 \text{ per share}$$

When common shares will be issued due to mandatory conversion of a financial instrument that is already outstanding, it is assumed that the conversion has already taken place for EPS calculation purposes. (IAS 33.23) The numerator is not adjusted for the preferred dividend since it is assumed that they are converted to common shares (thus the preferred dividend is not paid out), and the denominator is presented as if the conversion took place at the beginning of the year, since the mandatorily convertible instrument was outstanding at that time.

**BRIEF EXERCISE 17-12**

Net income	<b>\$700,000</b>
Weighted average number of shares adjusted for dilutive securities (115,000 + 19,000*)	<b>÷ 134,000</b>
Diluted EPS	<b><u>\$5.22</u></b>

\* 9,500 preferred shares X 2 upon conversion

**BRIEF EXERCISE 17-13**

Net income	<b>\$300,000</b>
Adjustment for interest, net of tax [ $\$80,000 \times (1 - .25)$ ]	<u>60,000</u>
Adjusted net income	<b>\$360,000</b>
Weighted average number of shares adjusted for dilutive securities (100,000 + 26,000)	<u>÷ 126,000</u>
Diluted EPS	<u><b>\$2.86</b></u>

**Note:** Basic earnings per share is \$3.00 ( $\$300,000/100,000$ ).

**Disclaimer:** For simplicity, ignore the IFRS requirement to record the debt and equity components of the bonds separately.

**BRIEF EXERCISE 17-14**

**Basic earnings per share is \$3.00 ( $\$300,000/100,000$ ).**

**Increase in diluted earnings per share numerator:**

**Adjustment for interest, net of tax [ $\$80,000 \times (1 - .25)$ ] = \$60,000**

**Increase in diluted earnings per share denominator:**

**Adjustment for dilutive securities = 10,000**

**Individual EPS calculation:  $\$60,000 / 10,000 = \$6.00 > \$3.00$**

**Antidilutive and therefore excluded from the diluted earnings per share calculation.**

**Note:** Only one earnings per share number would be presented (\$3.00) and it would be labelled as basic and diluted earnings per share.

**BRIEF EXERCISE 17-15**

<b>Net income</b>	<b>\$550,000</b>
<b>Adjustment for interest, net of tax</b> [ $\$922,685 \times 8\% \times (1 - .30) \times 8/12$ ]	<u>34,447</u>
<b>Adjusted net income</b>	<b>\$584,447</b>
<b>Weighted average number of shares adjusted for dilutive securities</b> [ $900,000 + (\$1,000,000 \div \$1,000 \times 120 \times 8/12)$ ]	<u><math>\div 980,000</math></u>
<b>Diluted EPS</b>	<u><b>\$0.60</b></u>

**Note: Basic earnings per share is \$0.61 (\$550,000/900,000).**

**BRIEF EXERCISE 17-16**

**Basic earnings per share is \$0.39 (\$350,000/900,000).**

**Increase in diluted earnings per share numerator:**

**Adjustment for interest, net of tax**  
     $\$922,685 \times 8\% \times (1 - .30) \times 8/12 = \$34,447$

**Increase in diluted earnings per share denominator:**

**Adjustment for dilutive securities**  
     $\$1,000,000 \div \$1,000 \times 120 \times 8/12 = 80,000$

**Individual EPS calculation:  $\$34,447 / 80,000 = \$0.43 > \$0.39$**

**Antidilutive and therefore excluded from the diluted earnings per share calculation.**

**Note: Only one earnings per share number would be presented (\$0.39) and it would be labelled as basic and diluted earnings per share.**

**BRIEF EXERCISE 17-17**

<b>Number of common shares outstanding – basic</b>	<b>150,000</b>
<b>Additional shares – conversion of preferred shares (28,000 X 6/12)</b>	<b><u>14,000</u></b>
<b>Weighted average number of shares – diluted EPS</b>	<b><u>164,000</u></b>

**BRIEF EXERCISE 17-18**

<b>Proceeds from assumed exercise of 45,000 options (45,000 X \$10)</b>	<b><u>\$450,000</u></b>
<b>Shares issued upon exercise</b>	<b>45,000</b>
<b>Treasury shares purchasable (\$450,000 ÷ \$15)</b>	<b><u>30,000</u></b>
<b>Incremental shares outstanding (additional potential common shares)</b>	<b><u>15,000</u></b>
<b>Diluted EPS = <math>\frac{\\$300,000}{200,000 + 15,000}</math> =</b>	<b><u>\$1.40</u></b>

**BRIEF EXERCISE 17-19**

**Purchased options will always be antidilutive since they will only be exercised when they are in the money and this will always be favourable to the company. Hence there are no incremental shares outstanding. They are therefore not considered in the calculation of diluted EPS (IAS 33.62).**

**BRIEF EXERCISE 17-20**

<b>Amount needed to buy 40,000 shares under put options (40,000 X \$13)</b>	<b><u>\$520,000</u></b>
<b>Shares issued in market to obtain \$520,000 (\$520,000 ÷ \$12)</b>	<b>43,333</b>
<b>Number of shares purchased under the put options</b>	<b><u>40,000</u></b>
<b>Incremental shares outstanding (additional potential common shares)</b>	<b><u>3,333</u></b>

**BRIEF EXERCISE 17-21**

**Purchased options will always be antidilutive since they will only be exercised when they are in the money. In this case, they would exercise the option only if the option price were above the market price. They are therefore not included in the calculation of diluted earnings per share (IAS 33.62).**

**BRIEF EXERCISE 17-22**

**The put options are not in the money (exercise price < market price) in this case since the exercise price is \$11 and the market price is \$12. Therefore, these put options would be excluded from the calculation of diluted earnings per share.**

## SOLUTIONS TO EXERCISES

### EXERCISE 17-1 (15-20 minutes)

(a)

<u>Event</u>	<u>Dates Outstanding</u>	<u>Shares Outstanding</u>	<u>Restatement</u>	<u>Fraction of Year</u>	<u>Weighted Shares</u>
Beginning balance	Jan. 1–April 1	475,000	1.2	3/12	142,500
Issued shares	April 1–July 1	522,500	1.2	3/12	156,750
Stock dividend	July 1–Nov. 1	627,000		4/12	209,000
Acquired shares	Nov. 1–Dec. 31	582,000		2/12	<u>97,000</u>
Weighted average number of shares outstanding					<u><u>605,250</u></u>

(b)

<u>Event</u>	<u>Dates Outstanding</u>	<u>Shares Outstanding</u>	<u>Restatement</u>	<u>Fraction of Year</u>	<u>Weighted Shares</u>
Beginning balance	Jan. 1–April 1	475,000	.2	3/12	23,750
Issued shares	April 1–July 1	522,500	.2	3/12	26,125
Reverse stock split	July 1–Nov. 1	104,500		4/12	34,833
Acquired shares	Nov. 1–Dec. 31	59,500		2/12	<u>9,917</u>
Weighted average number of shares outstanding					<u><u>94,625</u></u>

**EXERCISE 17-2 (15-25 minutes)****(a) 7,150,000 shares**

Jan. 1, 2013–Sept. 30, 2013 (6,500,000 X 9/12)	4,875,000
Retroactive adjustment for stock dividend	X <u>1.10</u>
Jan. 1, 2013–Sept. 30, 2013, as adjusted	5,362,500
Oct. 1, 2013–Dec. 31, 2013 (6,500,000 X 1.1 X 3/12)	<u>1,787,500</u>
	<u><u>7,150,000</u></u>

Another way to view this transaction is that the 6,500,000 shares at the beginning of 2013 must be restated for the stock dividend regardless of when during the year the stock dividend occurs.

**(b) 7,150,000 shares**

Jan. 1, 2013–Sept. 30, 2013 (6,500,000 X 9/12)	4,875,000
Retroactive adjustment for stock dividend	X <u>1.10</u>
Jan. 1, 2013–Sept. 30, 2013, as adjusted	5,362,500
Oct. 1, 2013–Dec. 31, 2013 ( 6,500,000X1.1 X 3/12)	<u>1,787,500</u>
	<u><u>7,150,000</u></u>

The weighted average number of common shares to use in calculating earnings per common share for 2013 is the same for the 2013 and 2014 comparative income statements, because the 3-for-1 stock split occurred after the 2014 financial statements were issued.

**(c) 9,025,000 shares**

Jan. 1, 2014–Mar. 31, 2014 (7,150,000 X 3/12)	1,787,500
Apr. 1, 2014–Dec. 31, 2014 (9,650,000 X 9/12)	<u>7,237,500</u>
	<u><u>9,025,000</u></u>

**(d) 27,075,000 shares**

2014 weighted average number of shares previously calculated	9,025,000
Retroactive adjustment for stock split	X <u>3</u>
	<u><u>27,075,000</u></u>

**EXERCISE 17-2 (Continued)****(e) 28,950,000 shares**

Jan. 1, 2015–Mar. 31, 2015 (9,650,000 X 3/12)	2,412,500
Retroactive adjustment for stock split	<u>X        3</u>
Jan. 1, 2015–Mar. 31, 2015, as adjusted	7,237,500
Apr. 1, 2015–Dec. 31, 2015(9,650,000 X 3 X 9/12)	<u>21,712,500</u>
	<u>28,950,000</u>

Another way to view this transaction is that the 9,650,000 shares at the beginning of the year must be restated for the stock split regardless of when during the year the stock split occurs.

- (f) Earnings per common share disclosures help both existing and potential investors determine the amount of income earned by each common share. In calculations of EPS, the weighted average number of shares outstanding provides the basis for the per-share amounts that are reported. When stock dividends or stock splits occur, calculation of the weighted average number of shares requires a restatement of the shares outstanding before the stock dividend or stock split, so that valid comparisons of EPS can be made between periods before and after the stock dividend or stock split. EPS is also used in the calculation of Price Earnings ratio (market price of shares / EPS), which compares the market price of the company's shares with income generated on a per-share basis. Market price of the company's shares will generally adjust after issuance of a stock dividend or stock split. For calculation of Price Earnings ratio to remain valid after a stock dividend or stock split, EPS should also be adjusted in the company's financial statements, to assume that the additional shares have been outstanding since the beginning of the year in which the stock dividend or stock split occurred.

**EXERCISE 17-3 (15-20 minutes)****(a)**

<b>Event</b>	<b>Dates Outstanding</b>	<b>Shares Outstanding</b>	<b>Fraction of Year</b>	<b>Weighted Shares</b>
Jan. 1 Issued shares	Jan. 1–May 1	210,000	4/12	70,000
Reacquired shares	May 1–Oct. 31	218,000	6/12	109,000
	Oct. 31–Dec. 31	204,000	2/12	<u>34,000</u>
				<b>213,000</b>

**Income per share before discontinued operations**

$$(\$229,690 + \$40,600 = \$270,290;$$

$$\$270,290 \div 213,000 \text{ shares})$$
**\$1.27****Discontinued operations loss per share, net of tax**

$$(\$40,600 \div 213,000)$$
**(.19)****Net income per share ( $\$229,290 \div 213,000$ )****\$1.08****(b)****Weighted average number of shares outstanding—unadjusted****213,000****Stock split, 1/31/15****3****Weighted average number of shares outstanding—adjusted****639,000****Income per share before discontinued operations**

$$(\$229,690 + \$40,600 = \$270,290;$$

$$\$270,290 \div 639,000 \text{ shares})$$
**\$0.42****Discontinued operations loss per share, net of tax**

$$(\$40,600 \div 639,000)$$
**(.06)****Net income per share ( $\$229,290 \div 639,000$ )****\$0.36**

**EXERCISE 17-3 (Continued)****(c)**

**Common shareholders need to know how much of a company's available income can be attributed to the shares they own. This helps them assess future dividend payouts and the value of each share. When the income statement presents discontinued operations, earnings per share should be disclosed for income from continuing operations, discontinued operations, and net income. These disclosures make it possible for users of the financial statements to know the specific impact of income from continuing operations on earnings per share, as opposed to a single earnings per share number, which also includes the impact of a gain or loss from irregular items.**

**(d)**

**It is possible to have simple and complex capital structures over different fiscal years of a corporation. For each accounting period a corporation would need to determine whether options, warrants, convertible debt or convertible preferred shares were outstanding during the fiscal year. Issuance or redemption of such securities would lead to a change in the capital structure from simple to complex or vice versa and this would be reflected in the EPS disclosure.**

**EXERCISE 17-4 (20-25 minutes)****(a)**

Income before income tax and discontinued operations	<b>\$680,000</b>
Income tax (30%)	<u>204,000</u>
Income before discontinued operations	<b>476,000</b>
Discontinued operations gain of \$97,000, net of applicable income tax of \$29,100	<u>67,900</u>
Net income	<u><b>\$543,900</b></u>

**Earnings per common share:**

Income before discontinued operations*	<b>\$1.03</b>
Discontinued operations gain net of tax**	<u>.17</u>
Net income***	<u><b>\$1.20</b></u>

<u>Dates</u> <u>Outstanding</u>	<u>Shares</u> <u>Outstanding</u>	<u>Fraction</u> <u>of Year</u>	<u>Weighted</u> <u>Shares</u>
Jan. 1–April 1	200,000	3/12	50,000
April 1–July 1	390,000	3/12	97,500
July 1–Oct. 1	490,000	3/12	122,500
Oct. 1–Dec. 31	530,000	3/12	<u>132,500</u>
Weighted average number of shares outstanding			<u><b>402,500</b></u>

**\$680,000 – income tax of \$204,000 – preferred dividends of \$60,000 (6% of \$1,000,000) = \$416,000 (income available to common shareholders)**

**\*\$416,000 ÷ 402,500 shares = \$1.03 per share  
(income before discontinued operations gain)**

**\*\*\$67,900 ÷ 402,500 shares = \$.17 per share  
(discontinued operations gain, net of tax)**

**\*\*\*(\$543,900 – \$60,000 Pref. Div) ÷ 402,500 shares = \$1.20 per share  
(net income)**

**EXERCISE 17-4 (Continued)****(b)**

<b>Weighted average number of shares outstanding— unadjusted</b>	<b>402,500</b>
<b>Reverse stock split, 2/10/15</b>	<u><b>X 1/2</b></u>
<b>Weighted average number of shares outstanding— adjusted</b>	<u><u><b>201,250</b></u></u>

**Earnings per common share:**

<b>Income before discontinued operations*</b>	<b>\$2.07</b>
<b>Discontinued operations gain net of tax**</b>	<u><b>.34</b></u>
<b>Net income***</b>	<u><u><b>\$2.41</b></u></u>

**\$680,000 – income tax of \$204,000 – preferred dividends of \$60,000 (6% of \$1,000,000) = \$416,000 (income available to common shareholders)**

**\*\$416,000 ÷ 201,250 shares = \$2.07 per share  
(income before discontinued operations gain)**

**\*\*\$67,900 ÷ 201,250 shares = \$.34 per share  
(discontinued operations gain, net of tax)**

**\*\*\*(\$543,900 – \$60,000 Pref. Div) ÷ 201,250 shares = \$2.41 per share  
(net income)**

**(c) Logan is considered to have a simple capital structure because its capital structure does not include securities that could have a dilutive effect by lowering earnings per share. Logan does not have any potential common shares.**

**EXERCISE 17-5 (15-20 minutes)**

(a)

<u>Event</u>	<u>Dates Outstanding</u>	<u>Shares Outstanding</u>	<u>Restatement</u>	<u>Fraction of Year</u>	<u>Weighted Shares</u>
Beginning balance	Jan. 1–Feb. 1	580,000	1.1 X 3.0	1/12	159,500
Issued shares	Feb. 1–Mar. 1	760,000	1.1 X 3.0	1/12	209,000
Stock dividend	Mar. 1–May 1	836,000	3.0	2/12	418,000
Acquired shares	May 1–June 1	636,000	3.0	1/12	159,000
Stock split	June 1–Oct. 1	1,908,000		4/12	636,000
Issued shares	Oct. 1–Dec. 31	1,968,000		3/12	492,000
<b>Weighted average number of shares outstanding</b>					<b><u>2,073,500</u></b>

(b) **Earnings Per Share** =  $\frac{\$3,456,000 \text{ (Net income)}}{2,073,500 \text{ (Weighted Average Shares)}} = \mathbf{\$1.67}$

(c) **Earnings Per Share** =  $\frac{\$3,456,000 - \$900,000}{2,073,500} = \mathbf{\$1.23}$

**EXERCISE 17-5 (Continued)**

<b>(d) Income from continuing operations<sup>a</sup></b>	<b>\$1.88</b>
<b>Loss from discontinued operations<sup>b</sup></b>	<b><u>(.21)</u></b>
<b>Net income</b>	<b><u>\$1.67</u></b>
<b>Net income</b>	<b>\$3,456,000</b>
<b>Add loss from discontinued operations</b>	<b><u>432,000</u></b>
<b>Income from continuing operations</b>	<b><u>\$3,888,000</u></b>

$$^a \frac{\$3,888,000}{2,073,500} = \$1.88$$

$$^b \frac{\$(432,000)}{2,073,500} = \$(-.21)$$

- (e) The earnings process occurs continuously throughout the fiscal year. We must therefore recognize that the income for the year was generated from the capital available throughout the year, rather than the amount of capital from the common shares at any particular point in time. It is necessary to adjust the denominator of the EPS ratio to reflect the lengths of time during the year that the different amounts of capital from the different number of shares outstanding were available to finance the generation of earnings during the year.**

**EXERCISE 17-6 (10-15 minutes)**

(a)

<u>Event</u>	<u>Dates Outstanding</u>	<u>Shares Outstanding</u>	<u>Restatement</u>	<u>Fraction of Year</u>	<u>Weighted Shares</u>
Beginning balance	Jan. 1–May 1	650,000	2	4/12	433,333
Issued shares	May 1–Sept. 1	750,000	2	4/12	500,000
Reacquired shares	Sept. 1–Dec. 31	600,000	2	4/12	<u>400,000</u>
Weighted average number of shares outstanding					<u><u>1,333,333</u></u>

Net income	\$5,500,000
Preferred dividend (50,000 X \$100 X 8%)	<u>(400,000)</u>
	<u>\$5,100,000</u>

$$\frac{\text{Net income applicable to common shares}}{\text{Weighted average number of shares outstanding}} = \frac{\$5,100,000}{1,333,333} = \underline{\underline{\$3.83}}$$

(b) Had the stock split occurred on January 30, 2015, before the financial statements for the year ending December 31, 2014 were issued, the results of the calculation for the earnings per share would remain unchanged as the effect of the stock split would be applied retroactively to the earliest comparative date for the periods disclosed in the financial statements.

**EXERCISE 17-6 (Continued)**

- (c) If Esau did not declare or pay a preferred dividend in 2014, earnings per share for the year ended December 31, 2014 would remain unchanged at \$3.83 (same as calculated in part (a)). This is because the preferred shares are cumulative, and if the dividend is not declared in the current year, an amount equal to the dividend that should have been declared for the current year only should be subtracted from net income.
- (d) If Esau declared and paid two years of dividends in arrears, along with the current year preferred dividend in 2014, earnings per share for the year ended December 31, 2014 would remain unchanged at \$3.83 (same as calculated in part (a)). This is because dividends in arrears for previous years would have been included in the previous years' calculations.
- (e) If the preferred shares are non-cumulative, and the current year preferred dividend was paid in 2014, earnings per share for the year ended December 31, 2014 would still be \$3.83 (same as calculated in part (a)).
- (f) If the preferred shares are non-cumulative, and no preferred dividend was declared or paid in 2014, earnings per share for the year ended December 31, 2014 would be \$4.13 ( $\$5,500,000 / 1,333,333$ ).
- (g) A stock split (which only increases the number of shares outstanding) will result in decreased market price per share, making the shares more affordable to the majority of potential investors. A current shareholder will likely favour the company's declaration of a stock split, because if the company's shares are made more affordable to the majority of investors, the shareholder's shares will also be more marketable, and will likely increase in value as a result of the stock split.

**EXERCISE 17-7 (20-25 minutes)****(a)****Earnings per common share:**

<b>Income before loss from discontinued operations*</b>	<b>\$2.40</b>
<b>Loss from discontinued operations, net of tax**</b>	<b><u>(.18)</u></b>
<b>Net income***</b>	<b><u><u>\$2.22</u></u></b>

**Income data:**

<b>Income before discontinued operations</b>	<b>\$30,000,000</b>
<b>Deduct \$6 per share dividend on preferred shares</b>	<b><u>540,000</u></b>
<b>Income to common before discontin. operations</b>	<b>29,460,000</b>
<b>Deduct discontinued operations loss, net of tax</b>	<b><u>2,205,000</u></b>
<b>Net income available for common shareholders</b>	<b><u><u>\$27,255,000</u></u></b>

<u>Dates Outstanding</u>	<u>Shares Outstanding</u>	<u>Fraction of Year</u>	<u>Weighted Shares</u>
January 1–April 1	11,500,000	3/12	2,875,000
April 1–December 31	12,500,000	9/12	<u>9,375,000</u>
<b>Weighted average number of shares outstanding</b>			<b><u><u>12,250,000</u></u></b>

\*\$29,460,000 ÷ 12,250,000 shares = \$2.40 per share  
(income before discontinued operations loss)

\*\*\$2,205,000 ÷ 12,250,000 shares = \$.18 per share  
(discontinued operations loss net of tax)

\*\*\*\$27,255,000 ÷ 12,250,000 shares = \$2.22 per share  
(net income)

**EXERCISE 17-7 (Continued)****(b)****Earnings per common share:**

<b>Income before loss from discontinued operations*</b>	<b>\$2.00</b>
<b>Loss from discontinued operations, net of tax**</b>	<b><u>(.15)</u></b>
<b>Net income***</b>	<b><u>\$1.85</u></b>

<u>Dates Outstanding</u>	<u>Shares Outstanding</u>	<u>Resta- tement</u>	<u>Fraction of Year</u>	<u>Weighted Shares</u>
Jan. 1–Apr. 1	11,500,000	1.2	3/12	3,450,000
Apr. 1–Sep. 1	12,500,000	1.2	5/12	6,250,000
Sep. 1–Dec. 31	15,000,000		4/12	<u>5,000,000</u>
<b>Weighted average number of shares outstanding</b>				<b><u>14,700,000</u></b>

**\*\$29,460,000 ÷ 14,700,000 shares = \$2.00 per share  
(income before discontinued operations loss)**

**\*\*\$2,205,000 ÷ 14,700,000 shares = \$.15 per share  
(discontinued operations loss net of tax)**

**\*\*\*\$27,255,000 ÷ 14,700,000 shares = \$1.85 per share  
(net income)**

**EXERCISE 17-8 (20-25 minutes)**

(a)

<u>Event</u>	<u>Dates Outstanding</u>	<u>Shares Outstanding</u>	<u>Fraction of Year</u>	<u>Weighted Shares</u>
Beginning balance	Jan. 1–April 1	900,000	3/12	225,000
Issued shares	April 1–Oct. 1	1,450,000	6/12	725,000
Reacquired shares	Oct. 1–Dec. 31	1,140,000	3/12	<u>285,000</u>
Weighted average number of shares outstanding—unadjusted				1,235,000
Stock dividend, 2/15/15				<u>1.05</u>
Weighted average number of shares outstanding—adjusted				<u><u>1,296,750</u></u>

Net income	\$2,130,000
Preferred dividend (280,000 X \$50 X 7%)	<u>(980,000)</u>
	<u><u>\$1,150,000</u></u>

**Earnings per share for 2014:**

$$\frac{\text{Net income applicable to common shares}}{\text{Weighted average number of shares outstanding}} = \frac{\$1,150,000}{1,296,750} = \mathbf{\$0.89}$$

**EXERCISE 17-8 (Continued)**

- (b) Dividend arrears on preferred shares of prior years that are paid in the current year do not affect the calculation of earnings per share. The arrears are outstanding as of December 31, 2014, but the earnings per share calculation of the prior year has taken into account the reduction from income of one year's entitlement for the preferred dividends, whether paid or not. This is the case because the preferred shares are cumulative.**

**The December 31, 2014 notes to financial statements would reveal, as a matter of subsequent event disclosure, the details of the payment of the dividend arrears along with the declaration of the 5% stock dividend. The note would also mention why the effect of the stock dividend was included retroactively in the calculation of the weighted average number of shares outstanding for 2014.**

- (c) As stated in (b) the annual dividend entitlement for dividends is taken as a deduction from income in the numerator of the EPS ratio each year (for that year only) whether the dividend is declared or not. The calculation approach for earnings per share will remain unchanged in spite of the fact that there are several years of dividend arrears.**

**EXERCISE 17-9 (20-25 minutes)**

<b>(a) Revenues</b>		<b>\$17,500</b>
<b>Expenses:</b>		
Other than interest	<b>\$8,400</b>	
Bond interest (75 X \$1,000 X .08)	<b><u>6,000</u></b>	<b><u>14,400</u></b>
Income before income tax		<b>3,100</b>
Income tax (30%)		<b><u>930</u></b>
Net income		<b><u>\$ 2,170</u></b>

Diluted earnings per share (see note):

$$\frac{\$2,170 + [(1 - .30) X (\$6,000)]}{2,000 + (75 X 100)} = \frac{\$6,370}{9,500} = \underline{\underline{\$0.67}}$$

<b>(b) Revenues</b>		<b>\$17,500</b>
<b>Expenses:</b>		
Other than interest	<b>\$8,400</b>	
Bond interest (75 X \$1,000 X .08 X 4/12)	<b><u>2,000</u></b>	<b><u>10,400</u></b>
Income before income tax		<b>7,100</b>
Income tax (30%)		<b><u>2,130</u></b>
Net income		<b><u>\$ 4,970</u></b>

Diluted earnings per share:

$$\frac{\$4,970 + [(1 - .30) X (\$2,000)]}{2,000 + (75 X 100 X 4/12)} = \frac{\$6,370}{4,500} = \underline{\underline{\$1.42}}$$

**EXERCISE 17-9 (Continued)**

<b>(c) Revenues</b>		<b>\$17,500</b>
<b>Expenses:</b>		
Other than interest	<b>\$8,400</b>	
Bond interest (75 X \$1,000 X .08 X 1/2)	<b>3,000</b>	
(50 X \$1,000 X .08 X 1/2)	<b><u>2,000</u></b>	<b><u>13,400</u></b>
<b>Income before income tax</b>		<b>4,100</b>
Income tax (30%)		<b><u>1,230</u></b>
<b>Net income</b>		<b><u><u>\$ 2,870</u></u></b>

**Diluted earnings per share (see note):**

$$\frac{\$2,870 + [(1 - .30) \times (\$5,000)]}{[2,000 + (2,500 \times 1/2)] + [5,000 + (2,500 \times 1/2)]} = \frac{\$6,370}{9,500} = \underline{\underline{\$0.67}}$$

**Note:** The answer is the same as (a). In both (a) and (c), the bonds are assumed converted for the entire year.

**Disclaimer:** For simplicity, ignore the IFRS requirement to record the debt and equity components of the bonds separately.

**EXERCISE 17-10 (20-25 minutes)****(a) (1) Number of shares for basic earnings per share.**

<u>Dates</u> <u>Outstanding</u>	<u>Shares</u> <u>Outstanding</u>	<u>Fraction</u> <u>of Year</u>	<u>Weighted</u> <u>Shares</u>
Jan.1–April 1	800,000	3/12	200,000
Apr.1–Dec. 31	1,200,000	9/12	<u>900,000</u>
Weighted average number of shares outstanding			<u><u>1,100,000</u></u>

OR

Number of shares for basic earnings per share:

Initial issue of shares	800,000 shares
April 1, 2014 issue (9/12 X 400,000)	<u>300,000 shares</u>
Total	<u><u>1,100,000 shares</u></u>

**(2) Number of shares for diluted earnings per share.**

<u>Dates</u> <u>Outstanding</u>	<u>Shares</u> <u>Outstanding</u>	<u>Fraction</u> <u>of Year</u>	<u>Weighted</u> <u>Shares</u>
Jan. 1–April 1	800,000	3/12	200,000
April 1–July 1	1,200,000	3/12	300,000
July 1–Dec. 31	1,224,000*	6/12	<u>612,000</u>
Weighted average number of shares outstanding			<u><u>1,112,000</u></u>
*1,200,000 + [(\$600,000 ÷ \$1,000) X 40]			

**(b) (1) Earnings for basic earnings per share:**

After tax net income	<u>\$1,540,000</u>
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**(2) Earnings for diluted earnings per share:**

After tax net income	\$1,540,000
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Add back interest on convertible bonds (net of tax):	
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Interest (Schedule 1)	\$24,892
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Less income tax (30%)	<u>7,468</u>	<u>17,424</u>
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Total		<u><u>\$1,557,424</u></u>
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**EXERCISE 17-10 (Continued)****Schedule 1 – Interest expense calculation:**

Given that the convertible bonds are compound instruments, the amount of the debt and equity elements must be separated in order to calculate the interest expense to be added back, after tax, to the net income.

The present value of the future cash flows of the bonds at an effective rate of 10% is \$497,837, leaving \$102,163 allocated to the conversion right from the total amount of cash received of \$600,000.

Excel formula: =PV(rate,nper,pmt,fv,type)

Using a financial calculator:

<b>PV</b>	<b>\$ ?</b>	<b>Yields \$497,837</b>
<b>I</b>	<b>10%</b>	
<b>N</b>	<b>20</b>	
<b>PMT</b>	<b>\$ (48,000)</b>	
<b>FV</b>	<b>\$ (600,000)</b>	
<b>Type</b>	<b>0</b>	

The interest expense is therefore  $\$497,837 \times 10\% \times 6/12 = \$24,892$

**[Note to instructor:** In this problem, the earnings per share calculated for basic earnings per share is \$1.40 ( $\$1,540,000 \div 1,100,000$ ) and the diluted earnings per share is \$1.40 (technically \$1.40056). As a result, only one earnings per share number would be presented and it would be labelled as basic and diluted earnings per share.]

**EXERCISE 17-11 (20-25 minutes)****(a)****Basic EPS:  $\$7,500,000 \div 2,000,000 \text{ shares} = \$3.75$** **Potential dilution – if the convertible debentures had been converted on January 2, 2014:****Additional income to common:**

<b>*Carrying amount of debentures:</b>	<b><math>\\$4\text{M} \times .98 =</math></b>	<b><math>\\$3,920,000</math></b>
<b>Interest expense, 2014:</b>		
<b><math>\\$3,920,000 \times 7.2886\% =</math></b>		<b><math>\\$285,713</math></b>
<b><math>1 - \text{tax rate (25\%)} =</math></b>		<b><math>\underline{\quad \times .75}</math></b>
<b>After-tax interest</b>		<b><u><u><math>\\$ 214,285</math></u></u></b>

**Additional common shares:** **$\$4,000,000/\$1,000 = 4,000$  debentures****Increase in diluted earnings per share denominator:**

<b>4,000</b>
<b><u>    X 18</u></b>
<b><u>    72,000</u></b>

**$\frac{\$214,285}{72,000} = \$2.98$ ;  $\$2.98 < \$3.75$  therefore is dilutive**

**Diluted Earnings per Share:**

**$\frac{\$7,500,000 + \$214,285}{2,000,000 + 72,000} = \frac{\$7,714,285}{2,072,000} = \$3.72$**

**EXERCISE 17-11 (Continued)**

- (b) If the convertible security were preferred shares, basic EPS would be calculated after deducting preferred share dividend entitlement (for cumulative shares) and preferred dividends declared (for non-cumulative shares). This would reduce the basic EPS below the amount in part (a) if there were any amount attributed to preferred shareholders. Note that there would be no tax implications on the payment of dividends.**

Next, the test would be done to see if the conversion of the preferred shares was, in fact, dilutive. If the relationship between the preferred entitlement divided by the increased number of common shares is greater than basic EPS, basic and diluted EPS would be the same number. If the relationship is less than basic EPS, then the numerator for basic would be increased by the preferred entitlement previously deducted. The denominator would be increased above the basic EPS denominator by the additional number of common shares that would be issued on conversion of the preferred.

- (c) Although the amount of interest is not actually saved immediately, the reduction of the expense decreases the amount of the net loss used in the EPS calculation. The corresponding amount of tax applicable to this savings will also reduce any income tax that is recovered from applying the current year's loss back to any of the three previous taxable fiscal years or accrued as a future tax from carrying a smaller amount of loss forward. The accounting and tax consequences will be accrued and so the effect on EPS should also be included in the current year.**

**Disclaimer: For simplicity, ignore the IFRS requirement to record the debt and equity components of the bonds separately.**



**EXERCISE 17-12 (Continued)**

**Effect of conversion of preferred shares:**  
**Additional income to common = \$105,000**  
**Additional common shares outstanding**  
**Shares assumed to be issued (15,000\* X 4)                      60,000**  
**\*\$1,500,000 ÷ \$100**

**Effect of conversion: \$105,000 ÷ 60,000 = \$1.75 per**  
**additional share (\$1.75 > \$1.45)**

**Therefore, the preferred shares would be anti-dilutive.**

**Proof:**

<b>Income to common for basic EPS</b>	<b>\$145,000</b>
<b>Add: dividend savings, if converted</b>	<b><u>105,000</u></b>
<b>Adjusted net income for common</b>	<b><u>\$250,000</u></b>

**Diluted EPS: \$250,000 ÷ (100,000 + 60,000) = \$1.56**

**Therefore, both basic and diluted EPS = \$1.45**

**Disclaimer: For simplicity, ignore the IFRS requirement to record the debt and equity components of the bonds separately.**

**EXERCISE 17-13 (30-35 minutes)****(a)**

<u>Basic Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Income	\$400,000		
Dividends on Preferred shares (\$50,000 X 5%)	<u>(2,500)</u>		
Basic EPS	<u>\$397,500</u>	<u>60,000</u>	<u>\$6.63</u>

- (b)** Individual earnings per share calculations are done for each potentially dilutive security to determine if the securities are in fact dilutive, when compared to basic earnings per share of \$6.63. This is often known as an anti-dilutive test. Only dilutive securities will be used in the calculation of diluted earnings per share. The effect of conversion/exercise of each security will be applied to the calculation in the sequence of most dilutive to least dilutive, in order to arrive at the most diluted earnings per share result.

**For convertible preferred shares:**

Dividends avoided from conversion 5% X \$50,000 shares = \$2,500  
divided by 1,000 additional common shares (\$50,000 divided by par  
value \$100 X two shares) = \$2.50 < \$6.63 — Ranked most dilutive.

**For 10% convertible bonds:**

Maturity value	\$100,000
Stated rate	<u>X 10%</u>
Interest expense	10,000
1 – tax rate (24%)	<u>X .76</u>
After-tax interest	<u>\$ 7,600</u>

\$100,000/\$1,000 = 100 bonds

Increase in diluted earnings per share denominator:

100
<u>X 25</u>
<u>2,500</u>

Individual EPS calculation: \$7,600 / 2,500 = \$3.04 < \$6.63 —  
Ranked less dilutive than the convertible preferred shares.

**EXERCISE 17-13 (Continued)**

<u>Diluted Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Basic	\$397,500	60,000	\$6.63
Preferred shares	2,500	1,000	
	<u>\$400,000</u>	<u>61,000</u>	<u>\$6.56</u>
Bonds	7,600	2,500	
Diluted Earnings Per Share	<u>\$407,600</u>	<u>63,500</u>	<u>\$6.42</u>

(c)

<u>Basic Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Income	\$400,000		
Dividends on Preferred shares (\$50,000 X 14%)	(7,000)		
Basic EPS	<u>\$393,000</u>	<u>60,000</u>	<u>\$6.55</u>

Individual earnings per share calculations are done for each potentially dilutive security to determine if the securities are in fact dilutive, when compared to basic earnings per share of \$6.55. Only dilutive securities will be used in the calculation of diluted earnings per share. The effect of conversion/exercise of each security will be applied to the calculation in the sequence of most dilutive to least dilutive, in order to arrive at the most diluted earnings per share result.

**For convertible preferred shares:**

Dividends avoided from conversion  $14\% \times \$50,000 \text{ shares} = \$7,000$  divided by 1,000 additional common shares ( $\$50,000$  divided by par value  $\$100 \times \text{two shares}$ ) =  $\$7.00$  which is  $> \$6.55$ . Any conversion of preferred shares is anti-dilutive and therefore excluded from the calculation of diluted earnings per share.

**EXERCISE 17-13 (Continued)**

<b><u>Diluted Earnings Per Share</u></b>	<b><u>Income</u></b>	<b><u>Shares</u></b>	<b><u>EPS</u></b>
<b>Basic</b>	<b>\$393,000</b>	<b>60,000</b>	<b>\$6.55</b>
<b>Bonds</b>	<b>7,600</b>	<b>2,500</b>	
<b>Diluted Earnings Per Share</b>	<b><u>\$400,600</u></b>	<b><u>62,500</u></b>	<b><u>\$6.41</u></b>

**Disclaimer: For simplicity, ignore the IFRS requirement to record the debt and equity components of the bonds separately.**

**EXERCISE 17-14 (30-35 minutes)****(a) Number of shares for basic earnings per share.**

<u>Dates Outstanding</u>	<u>Shares Outstanding</u>	<u>Fraction of Year</u>	<u>Weighted Shares</u>
Jan. 1–April 1	60,000	3/12	15,000
April 1–Dec. 1	61,000*	9/12	<u>45,750</u>
Weighted average number of shares outstanding			<u>60,750</u>

- \* Number of additional common shares issued from the conversion of 40% of the convertible bonds =  $\$100,000 / \$1,000 \text{ par value} \times 40\% = 40 \text{ bonds} \times 25 \text{ common shares based on the conversion ratio} = 1,000 \text{ common shares}$

**(b)**

<u>Basic Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Income	\$402,280*		
Dividends on Preferred shares (\$50,000 X 5%)	<u>(2,500)</u>		
Basic EPS	<u>\$399,780</u>	<u>60,750</u>	<u>\$6.58</u>

- \* Net income is increased by after tax cost of interest saved on the 40% conversion of the bonds:  
 $\$100,000 \times 10\% \times 40\% \times 9/12 \times (1 - 24\%) = \$2,280$

**(c)**

Individual earnings per share calculations are done for each potentially dilutive security to determine if the securities are in fact dilutive, when compared to basic earnings per share of \$6.58. Only dilutive securities will be used in the calculation of diluted earnings per share. The effect of conversion/exercise of each security will be applied to the calculation in the sequence of most dilutive to least dilutive, in order to arrive at the most diluted earnings per share result.

**EXERCISE 17-14 (Continued)****For convertible preferred shares:**

Dividends avoided from conversion  $5\% \times \$50,000 \text{ shares} = \$2,500$   
 divided by 1,000 additional common shares ( $\$50,000$  divided by par  
 value  $\$100 \times$  two shares) =  $\$2.50 < \$6.58$  — Ranked most dilutive.

**For 10% convertible bonds:**

Maturity value remaining bonds	\$100,000
Stated rate	<u>X 10%</u>
Interest expense	10,000
1 – tax rate (24%)	<u>X .76</u>
After-tax interest	7,600
Less amount saved from 40% conversion	<u>2,280</u>
Numerator effect	<u>\$5,320</u>

$\$100,000 / \$1,000 = 100$  bonds

Increase in diluted earnings per share denominator:

100  
X 25  
2,500 less number on conversion 750 (1,000 shares X  
 9/12) = 1,750

Individual EPS calculation:  $\$5,320 / 1,750 = \$3.04 < \$6.63$  Ranked  
 least dilutive.

<u>Diluted Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Basic	\$399,780	60,750	\$6.58
Preferred shares	<u>2,500</u>	<u>1,000</u>	
	\$402,280	61,750	\$6.51
Bonds	<u>5,320</u>	<u>1,750</u>	
Diluted Earnings Per Share	<u>\$407,600</u>	<u>63,500</u>	<u>\$6.42</u>

(d) It is not a coincidence that the diluted earnings per share results remain the same, as the calculation of diluted earnings per share is meant to simulate the effect of conversion, answering the question: “What is the worst possible earnings per share?” It should therefore

**be the same as the actual EPS if all convertible securities are actually converted.**

**EXERCISE 17-15 (15-20 minutes)****(a)**

<u>Basic Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Net Income	\$50,000		
Dividends on Preferred shares (\$100,000 X 4%)	<u>(4,000)</u>		
<b>Basic EPS</b>	<u>\$46,000</u>	<u>10,000</u>	<u>\$4.60</u>

**(b)**

To determine the dilutive effect of the convertible instruments, an assumption (generally referred to as the if-converted method) is made that all of the convertible instruments (both the bonds and the preferred shares in this case) are converted at the earliest date that they could have been during the year. The effects of this assumption are twofold: (1) if the bonds are converted then there will be no interest expense (thus resulting in more income tax expense), and similarly if the preferred shares are converted there will be no preferred dividends paid, and (2) there will be additional common shares outstanding during the year.

**(c)**

Individual earnings per share calculations are done for each potentially dilutive security to determine if the securities are in fact dilutive, when compared to basic earnings per share of \$4.60. Only dilutive securities will be used in the calculation of diluted earnings per share. The effect of conversion/exercise of each security will be applied to the calculation in the sequence of most dilutive to least dilutive, in order to arrive at the most diluted earnings per share result.

**EXERCISE 17-15 (Continued)****For 7% convertible bonds:**

Maturity value of bonds	\$200,000
Stated rate	X 7%
Interest expense	<u>14,000</u>
1 – tax rate (25%)	X .75
After-tax interest that would have been saved	<u>10,500</u>

Increase in diluted earnings per share denominator:  
 $200 \times 40 = 8,000$  additional shares

Individual EPS calculation:  $\$10,500 / 8,000 = \$1.31 < \$4.60$  Ranked most dilutive.

**For convertible preferred shares:**

Dividends avoided from conversion  $4\% \times \$100,000$  shares = \$4,000  
 divided by 2,000 additional common shares (1,000 preferred shares  
 $\times$  two shares) = \$2.00 < \$4.60 — Ranked least dilutive.

<u>Diluted Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Basic	\$46,000	10,000	\$4.60
Bonds	<u>10,500</u>	<u>8,000</u>	
	\$56,500	18,000	\$3.14
Preferred shares	<u>4,000</u>	<u>2,000</u>	
Diluted Earnings Per Share	<u><u>\$60,500</u></u>	<u><u>20,000</u></u>	<u><u>\$3.03</u></u>

**Disclaimer:** For simplicity, ignore the IFRS requirement to record the debt and equity components of the bonds separately.

**EXERCISE 17-15 (Continued)****(d)**

**When Hayward Corporation issued the 7% convertible bonds, the company's interest rate on straight debt was higher than 7%. The convertible bonds were issued at par, meaning that the market rate of interest on the convertible bonds was equal to the stated rate of interest (7%). The conversion privilege entices the investor to accept a lower interest rate than would normally be the case on a straight debt issue, therefore the market rate of interest on the convertible bonds (7%) would be lower than the company's interest rate on straight debt at the time of issuance.**

**EXERCISE 17-16 (20-25 minutes)**

- (a) Since the options are “in the money” (ie. The exercise price is below the average market price), they will be dilutive and, therefore, are included in the calculation of diluted EPS.

	<b>Diluted</b>
Shares assumed issued on exercise	1,000
Proceeds (1,000 X \$14 = \$14,000)	
Treasury shares (\$14,000/\$20)	700
Incremental shares	300
<b>Diluted EPS = <math>\frac{\\$90,000}{50,000 + 300} = \\$1.79</math> (rounded)</b>	

(b)

	<b>Diluted</b>
Shares assumed issued on exercise	1,000
Proceeds = \$14,000	
Treasury shares (\$14,000 / \$20)	700
	300
	<b>X 3/12</b>
Incremental shares	75
<b>Diluted EPS = <math>\frac{\\$90,000}{50,000 + 75} = \\$1.80</math></b>	

- (c) The put options are not in the money (exercise price < market price) in this case since the exercise price is \$10 and the market price is \$20. Therefore, these put options would be excluded from the calculation of diluted earnings per share.

**EXERCISE 17-17 (15-20 minutes)**

- (a) The warrants are dilutive because the option price (\$10) is less than the average market price (\$23).
- (b) Basic EPS = \$4.80  
( $\$480,000 \div 100,000$  shares)
- (c) Diluted EPS = \$4.36  
( $\$480,000 \div 110,174$  shares)

Proceeds from assumed exercise: (18,000 warrants X \$10 exercise price)	\$180,000
Treasury shares purchasable with proceeds: ( $\$180,000 \div \$23$ average market price)	7,826
Incremental shares issued: (18,000 shares issued less 7,826 purchased)	<u>10,174</u>

**EXERCISE 17-18 (10-15 minutes)**

- (a) The contingent shares would have to be reflected in diluted earnings per share because the earnings level is currently being attained. Full disclosure of this contingent share issue would be provided in the notes to the financial statements. (IAS33.53)
- (b) Because the earnings level is not being currently attained, contingent shares are not included in the calculation of diluted earnings per share. Full disclosure of this contingent share issue would be provided in the notes to the financial statements. (IAS33.53)
- (c) If contingently issuable shares are issuable based on predetermined conditions (e.g. profit levels or performance targets), they are included in the calculation of basic EPS when the conditions are satisfied. In part (a), the conditions for issuance of additional shares specifically require that Target achieve a certain level of net income in 2015; however, the level of net income is achieved in 2014, therefore the contingent shares must be included in the 2014 earnings per share calculations. Ultimately, Target may not achieve the required level of net income in 2015 (in which case, the additional shares would not be issued to Target's shareholders in 2016). However, based on 2014 net income, it is probable that Target will achieve the required level of net income in 2015. Probable issuance of the additional shares is reflected in the 2014 earnings per share calculations, to maintain relevance (predictive value), and representational faithfulness (neutrality) of the financial statements.

## TIME AND PURPOSE OF PROBLEMS

### Problem 17-1 (Time 25-35 minutes)

Purpose—to provide the student with some familiarity with the applications of GAAP when dealing with earnings per share. The student is required to explain the general concepts of EPS in regard to a specific capitalization structure, and to discuss the proper treatment, if any, that should be given to a list of items in computing earnings per common share for financial statement reporting.

### Problem 17-2 (Time 20-30 minutes)

Purpose—the student calculates the weighted average number of common shares for computing earnings per share and prepares a comparative income statement including earnings per share data. In addition, the student explains a simple capital structure and the earnings per share presentation for a complex capital structure.

### Problem 17-3 (Time 20-25 minutes)

Purpose—to provide the student with some familiarity with the effect of put and call options on the diluted earnings per share calculation. A simple weighted average number of common shares outstanding is also included.

### Problem 17-4 (Time 20-25 minutes)

Purpose—building on the calculations of Problem 17-13, involving put and call options, the student continues with the same data and must arrive at basic and diluted earnings per share amounts, taking into account additional potentially dilutive securities.

### Problem 17-5 (Time 30-40 minutes)

Purpose—to provide the student with a comprehensive problem with the calculation of the weighted average number of shares outstanding, disclosure of EPS for a discontinued operation and the calculation of basic and diluted EPS. The student must also prepare in the proper format the bottom portion of the statement of income, starting with the caption Income before discontinued operations.

### Problem 17-6 (Time 30-35 minutes)

Purpose—to provide the student with an understanding of the proper calculation of the weighted average number of shares outstanding for two consecutive years. The student is also asked to determine whether the capital structure presented is simple or complex. A two-year comparative income statement with appropriate EPS presentation is also required.

## TIME AND PURPOSE OF PROBLEMS (CONTINUED)

### Problem 17-7 (Time 35-45 minutes)

Purpose—the calculation of the number of shares used to calculate basic and diluted earnings per share is complicated by a stock dividend, a stock split, and several issues of common shares during the year. The student must calculate the numerator for computing basic EPS.

### Problem 17-8 (Time 30-35 minutes)

Purpose—to provide the student with an understanding of the effect options and convertible bonds have on the calculation of weighted average number of shares outstanding with regard to basic EPS and diluted EPS. Preferred share dividends must also be calculated. Each potentially dilutive security must first be tested for potential dilution and if found to be potentially dilutive, is used in most to least descending order in the calculation of diluted earnings per share.

### Problem 17-9 (Time 25-35 minutes)

Purpose—to provide the student a problem with multiple dilutive securities, which must be analyzed to calculate basic and diluted EPS. Student must rank the potentially dilutive securities in the most to least dilutive order in order to arrive at the appropriate diluted earnings per shares.

### Problem 17-10 (Time 25-35 minutes)

Purpose—to provide the student with a comprehensive problem with multiple dilutive securities, which must be analyzed to calculate basic and diluted EPS. In this problem, a security initially appears to be dilutive but once ranked in the calculation of diluted earnings per share, the security ends up becoming antidilutive and must be excluded in the calculation of diluted earnings per shares.

### Problem 17-11 (Time 30-40 minutes)

Purpose—to provide the student with an understanding of the proper calculation of the weighted average number of shares outstanding during a period plus the procedures utilized in the “treasury stock method” for the calculation of EPS. The student is required to prepare a schedule illustrating the number of common shares outstanding and to calculate the EPS for a situation involving options outstanding since the beginning of the year.

## TIME AND PURPOSE OF PROBLEMS (CONTINUED)

### Problem 17-12 (Time 25-35 minutes)

Purpose—to provide the student a problem with multiple dilutive securities, which must be analyzed to calculate basic and diluted EPS. Each potentially dilutive security must first be tested for potential dilution and if found to be potentially dilutive, is used in most to least descending order in the calculation of diluted earnings per share.

### Problem 17-13 (Time 30-35 minutes)

Purpose—to provide the student with a comprehensive problem with multiple dilutive securities, which must be analyzed to calculate basic and diluted EPS. The student must first calculate the amount of interest expense taking into account a discount on some bonds available for conversion. The student must rank the potentially dilutive securities in the most to least dilutive order in order to arrive at the appropriate diluted earnings per share. Additional questions in this problem deal with the frequency of dividend payments.

### Problem 17-14 (Time 25-30 minutes)

Purpose—to provide the student with a comprehensive problem with multiple dilutive securities, which must be analyzed to calculate basic and diluted EPS. The student must first calculate the weighted average number of shares outstanding. The student must rank the potentially dilutive securities in the most to least dilutive order in order to arrive at the appropriate diluted earnings per shares.

## SOLUTIONS TO PROBLEMS

<b>PROBLEM 17-1</b>
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- (a) **Earnings per share, as it applies to a corporation with a capitalization structure composed of only one class of common shares, is the amount of earnings applicable to each common share outstanding during the period for which the earnings are reported. The calculation of earnings per share should be based on a weighted average of the number of shares outstanding during the period with retroactive recognition given to stock splits or reverse splits and to stock dividends. The calculation should be made for income from continuing operations, income (loss) from discontinued operations, and net income. Companies that report a discontinued operation must present per share amounts for this line item either on the face of the income statement or in the notes to the financial statements.**
- (b) **Treatments to be given to the listed items in calculating earnings per share are:**
- 1. Outstanding preferred shares with a par value liquidation right issued at a premium, although affecting the determination of book value per share, will not affect the calculation of earnings per common share except with respect to the dividends as discussed in (b) 4. below.**
  - 2. The exercise of a common stock option results in an increase in the number of shares outstanding, and the calculation of earnings per share should be based on the weighted average number of shares outstanding during the period. The exercise of a stock option by the grantee does not affect earnings, but any compensation expense recorded relating to the granting of the options to the officers would reduce net income and earnings per share.**

**PROBLEM 17-1 (Continued)**

- 3. The replacement of a machine immediately prior to the close of the current fiscal year will not affect the calculation of earnings per share for the year in which the machine is replaced. The number of shares remains unchanged and since the old machine was sold for its carrying amount, earnings are unaffected.**
- 4. Dividends declared on preferred shares should be deducted from income from continuing operations and net income before computing earnings per share applicable to the common shares and other residual securities. If the preferred shares are cumulative, this adjustment is appropriate whether or not the amounts of the dividends are declared.**
- 5. Purchased call options will always be antidilutive for purposes of calculating diluted earnings per share. These options will only be exercised when they are in the money and this will always be favourable to the company. They will therefore be excluded for purpose of the dilution calculation.**
- 6. Acquiring treasury shares will reduce the weighted average number of shares outstanding used in the EPS denominator.**
- 7. When the number of common shares outstanding increases as a result of a 2-for-1 stock split during the year, the calculation should be based on twice the number of weighted average shares outstanding prior to the stock split. Retroactive recognition should be given for all prior years presented.**

**PROBLEM 17-2**

<b>(a)</b>	<b>Weighted Average Shares</b>	
	<b>Before Stock Dividend</b>	<b>After Stock Dividend*</b>
<b>Total as of June 1, 2013</b>	<b>1,500,000</b>	<b>1,725,000</b>
<b>Issue of September 1, 2013</b>	<u><b>300,000</b></u>	<u><b>345,000</b></u>
<b>Total as of May 31, 2014</b>	<u><b>1,800,000</b></u>	<u><b>2,070,000</b></u>
<b>1. May 31, 2015</b>		
<b>2,070,000 X 12/12 =</b>		<u><b>2,070,000</b></u>
<b>2. 1,725,000 X 3/12 =</b>		<b>431,250</b>
<b>2,070,000 X 9/12 =</b>		<u><b>1,552,500</b></u>
<b>Total, May 31, 2014</b>		<u><b>1,983,750</b></u>

- \* **Effect of the stock dividend is reflected on May 31, 2014 weighted average number of shares for comparative purposes on the 2015 financial statements.**

**PROBLEM 17-2 (Continued)**

**(b) LORETTA CORPORATION**  
**Comparative Income Statement**  
**For the Years Ended May 31, 2015 and 2014**

	<u>2015</u>	<u>2014</u>
<b>Income from continuing operations before income tax</b>	<b>\$1,400,000</b>	<b>\$660,000</b>
<b>Income tax</b>	<u><b>350,000</b></u>	<u><b>165,000</b></u>
<b>Income from continuing operations</b>	<b>1,050,000</b>	<b>495,000</b>
<b>Loss from discontinued operations, less applicable income tax of \$125,000</b>	<u><b>375,000</b></u>	
<b>Net income</b>	<u><b>\$ 675,000</b></u>	<u><b>\$495,000</b></u>
<b>Earnings per common share</b>		
<b>Income from continuing operations</b>	<b>\$0.07</b>	<b>\$(0.20)</b>
<b>Loss from discontinued operations, net of tax</b>	<u><b>(0.18)</b></u>	
<b>Net income</b>	<u><b>\$(0.11)</b></u>	<u><b>\$(0.20)</b></u>
	<u><b>2015</b></u>	<u><b>2014</b></u>
<b>Income from continuing operations</b>	<b>\$1,050,000</b>	<b>\$495,000</b>
<b>Preferred dividend (1)</b>	<u><b>(900,000)</b></u>	<u><b>(900,000)</b></u>
	<u><b>150,000</b></u>	<u><b>(405,000)</b></u>
<b>Weighted average number of shares</b>	<b>2,070,000</b>	<b>1,983,750</b>
<b>Income from continuing operations—loss per share</b>	<u><b>\$ 0.07</b></u>	<u><b>\$ (0.20)</b></u>
<b>Loss from discontinued operations</b>	<u><b>\$(375,000)</b></u>	
<b>Weighted average number of shares</b>	<b>2,070,000</b>	
<b>Discontinued operations loss per share</b>	<u><b>\$ (0.18)</b></u>	

**(1) Preferred dividends = 150,000 X \$100 X .06 = \$900,000**

**PROBLEM 17-2 (Continued)**

- (c) 1. A corporation's capital structure is regarded as simple if it consists only of common shares or includes no potentially dilutive securities. Loretta Corporation has a simple capital structure because it has not issued any convertible securities, warrants, or stock options, and there are no existing rights or securities that have a potentially dilutive effect on its earnings per common share.**
- 2. A corporation having a complex capital structure would be required to make a dual presentation of earnings per share; i.e., both basic earnings per share and diluted earnings per share. This assumes that the potentially dilutive securities are actually dilutive.**

**The basic earnings per share calculation uses only the weighted average of the common shares outstanding. The diluted earnings per share calculation assumes the conversion or exercise of all potentially dilutive securities.**

**PROBLEM 17-3**

(a)

Dates Outstanding	Shares Outstanding	Fraction of Year	Weighted Shares
1/1–6/30	1,000,000	6/12	500,000
7/1–12/31	1,100,000	6/12	<u>550,000</u>
			<u><u>1,050,000</u></u>

$$\text{Basic EPS} = \frac{\$1,298,678}{1,050,000} = \underline{\underline{\$1.24}}$$

Proceeds from assumed exercise of 10,000  
call options (10,000 X \$30) \$300,000

Shares issued upon exercise 10,000  
 Treasury shares purchasable (\$300,000 ÷ \$35) 8,571  
 Incremental shares 1,429  
 Incremental shares pro-rated to 6/12 714

$$\text{Diluted EPS} = \frac{\$1,298,678}{1,050,000 + 714} = \underline{\underline{\$1.24}}$$

The put options are not in the money since the company would be able to buy the shares at \$25, which is lower than the market price of \$35. The put options are not included in the calculation of diluted earnings per share.

The purchased call options are antidilutive since they will only be exercised when they are in the money and this will always be favourable to the company. They are therefore not included in the calculation of diluted earnings per share.

**PROBLEM 17-3 (Continued)**

For purposes of the calculating the individual earnings per share for the convertible bonds, to decide if there may be further dilution, the bonds are assumed to have been converted January 1, 2014. The income effect would be to add back the after tax cost of the interest saved of \$250,000 and the denominator effect is to increase the number of shares by 50,000 (100,000 shares X 6/12). This yields an EPS of \$5.00 ( $\$250,000 / 50,000$ ) which is antidilutive and therefore excluded.

(b) Earnings per common share:	
Basic earnings per share	<u>\$1.24</u>
Diluted earnings per share	<u>\$1.24</u>

**Disclaimer:** For simplicity, ignore the IFRS requirement to record the debt and equity components of the bonds separately.

**PROBLEM 17-4**

(a)

<u>Basic Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Net Income	\$1,298,678		
Dividends on Preferred (200,000 X \$3)	(\$600,000)		
<b>Basic EPS</b>	<u><u>\$698,678</u></u>	<u><u>1,050,000</u></u>	<u><u>\$0.67</u></u>

(b)

Diluted Earnings Per Share calculations:

For preferred shares:

Dividends avoided from conversion \$3 X 200,000 shares = \$600,000  
 divided by 100,000 additional common shares pro-rated to 9 months =  
 75,000 additional shares = \$8.00 > \$0.67

Antidilutive and therefore excluded from the diluted earnings per  
 share calculation.

For 5% convertible bonds:

Maturity value (10,000 X \$1,000)	\$10,000,000
Stated rate	<u>X 5%</u>
Interest expense	500,000
1 – tax rate (30%)	<u>X .70</u>
After-tax interest	<u><u>\$ 350,000</u></u>

$$\$10,000,000 / \$1,000 = 10,000 \text{ bonds}$$

Increase in diluted earnings per share denominator:

10,000

$$\underline{X 9} \text{ the most advantageous rate to the holder}$$
90,000
 Individual EPS calculation:  $\$350,000 / 90,000 = \$3.89 > \$0.67$ 

Antidilutive and therefore excluded from the diluted earnings per  
 share calculation.

**PROBLEM 17-4 (Continued)**

<u>Diluted Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Basic (a) above	\$698,678	1,050,000	\$0.67
Call Options (see P17-3)		714	
	<u>\$698,678</u>	<u>1,050,714</u>	\$0.66

**Earnings per common share:**

Basic earnings per share	<u>\$0.67</u>
Diluted earnings per share	<u>\$0.66</u>

**Disclaimer:** For simplicity, ignore the IFRS requirement to record the debt and equity components of the bonds separately.

**PROBLEM 17-5**

(a)

**Weighted average number of shares:**

Beginning balance Jan. 1,	330,000 X 7/12 =	192,500
Balance from July 31, to Dec. 31	375,000 X 5/12 =	<u>156,250</u>
<b>Total number of common shares to calculate basic earnings per share</b>		<b><u>348,750</u></b>

(b)

<u>Basic Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Income from continuing operations	\$950,000		
Dividends on preferred shares (10,000 X \$4.00)	<u>(40,000)</u>		
<b>Basic EPS</b>	<b><u>\$910,000</u></b>	<b><u>348,750</u></b>	<b><u>\$2.61</u></b>

Individual earnings per share calculations are done for each potentially dilutive security to determine if securities are in fact dilutive, when compared to basic earnings per share of \$2.61. Only dilutive securities will be used in the calculation of diluted earnings per share. Each will be used in sequence, from most dilutive to least dilutive in order to arrive at the most diluted earnings per share result. In the ranking of securities, stock options will be used first if they are in the money (exercise price of \$40 is below the average market price \$50). The warrants are not in the money as their exercise price of \$52 is above the average market price of \$50 and they are therefore ignored for purposes of calculating diluted earnings per share.

**PROBLEM 17-5 (Continued)****For Options:**

**\*Use treasury stock method to determine incremental shares outstanding**

Proceeds from exercise of options (20,000 X \$40)	<u>\$800,000</u>
Shares issued upon exercise of options	20,000
Shares purchasable with proceeds (Proceeds ÷ Average market price) (\$800,000 ÷ \$50)	<u>16,000</u>
Incremental shares outstanding	<u>4,000</u>

**For 7% convertible bonds:**

Maturity value	\$2,000,000
Stated rate	<u>X 7%</u>
Interest expense	140,000
1 – tax rate (30%)	<u>X ,70</u>
After-tax interest	<u>\$ 98,000</u>

$\$2,000,000 / \$1,000 = 2,000$  bonds

Increase in diluted earnings per share denominator:

2,000
<u>X 20</u>
<u>40,000</u>

Individual EPS calculation:  $\$98,000 / 40,000 = \$2.45 < \$2.61$

<u>Diluted Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Basic	\$910,000	348,750	\$2.61
Options		<u>4,000</u>	
	\$910,000	352,750	\$2.58
Bonds	98,000	40,000	
Diluted Earnings Per Share	<u>\$1,008,000</u>	<u>392,750</u>	<u>\$2.57</u>

**PROBLEM 17-5 (Continued)**

<b>Basic EPS:</b>	<b>Income</b>	<b>Shares</b>	<b>EPS</b>
Income before discontinued operations	\$910,000	348,750	\$2.609
Discontinued operation loss	(150,000)	348,750	(0.430)
Net Income	<u>\$760,000</u>	<u>348,750</u>	<u>\$2.179</u>

<b>Diluted EPS:</b>	<b>Income</b>	<b>Shares</b>	<b>EPS</b>
Income before discontinued operations	\$1,008,000	392,750	\$2.567
Discontinued operation loss	(150,000)	392,750	(0.382)
Net Income	<u>\$858,000</u>	<u>392,750</u>	<u>\$2.185</u>

**Partial Income Statement**

Income from continuing operations	\$950,000
Loss from discontinued operations (net of tax recovery)	<u>150,000</u>
Net Income	<u>\$800,000</u>

<b>Basic earnings per share:</b>	
Income from continuing operations	\$2.61
Discontinued operations loss	<u>(.43)</u>
Net Income	<u>\$2.18</u>

<b>Diluted earnings per share:</b>	
Income from continuing operations	\$2.57
Discontinued operations loss	<u>(.38)</u>
Net Income	<u>\$2.19</u>

**Disclaimer:** For simplicity, ignore the IFRS requirement to record the debt and equity components of the bonds separately.

**PROBLEM 17-6**

- (a) Bryce Corporation has a simple capital structure since it does not have any potentially dilutive securities.
- (b) The weighted average number of shares that Bryce Corporation would use in calculating earnings per share for the fiscal years ended May 31, 2014, and May 31, 2015, is 1,600,000 and 2,200,000 respectively, calculated as follows:

<u>2014:</u> Event	Dates Outstanding	Shares Outstanding	Restate- ment	Fraction of Year	Weighted Shares
Beginning bal.	June 1–Oct. 1	1,000,000	1.20	4/12	400,000
New issue	Oct. 1–May 31	1,500,000	1.20	8/12	<u>1,200,000</u>
					<u><u>1,600,000</u></u>

  

<u>2015:</u> Event	Dates Outstanding	Shares Outstanding		Fraction of Year	Weighted Shares
Beginning bal.	June 1–Dec. 1	1,800,000*		6/12	900,000
New issue	Dec. 1–May 31	2,600,000		6/12	<u>1,300,000</u>
					<u><u>2,200,000</u></u>

\* 1,500,000 X 1.2

**PROBLEM 17-6 (Continued)**

**(c) BRYCE CORPORATION**  
**Comparative Income Statements**  
**For Fiscal Years Ended May 31, 2014 and 2015**

	<u>2014</u>	<u>2015</u>
Income from operations	\$1,800,000	\$2,500,000
Interest expense (1)	<u>240,000</u>	<u>240,000</u>
Income before tax	1,560,000	2,260,000
Income tax	<u>468,000</u>	<u>678,000</u>
Income from continuing operations	1,092,000	1,582,000
Discontinued operation loss, net of income tax of \$180,000		<u>420,000</u>
Net income	<u>\$ 1,092,000</u>	<u>\$ 1,162,000</u>
Earnings per share:		
Income from continuing operations	\$0.65 <sup>a</sup>	\$0.69 <sup>a</sup>
Discontinued operations loss		<u>(0.19)<sup>b</sup></u>
Net income	<u>\$0.65</u>	<u>\$0.50</u>

(1) Interest expense = \$2,400,000 X .10 = \$240,000

	<u>2014</u>	<u>2015</u>
<sup>a</sup> Income from continuing operations	\$1,092,000	\$1,582,000
Preferred dividend (2)	<u>(60,000)</u>	<u>(60,000)</u>
	\$1,032,000	\$1,522,000
Weighted average number of shares	1,600,000	2,200,000
Earnings per share – basic	<u>\$ 0.65</u>	<u>\$ 0.69</u>
<sup>b</sup> Discontinued operations loss		<u>\$(420,000)</u>
Weighted average number of shares		2,200,000
Weighted average number of shares		<u>\$ (0.19)</u>

(2) Preferred div. = (No. of Shares X Par Value X Dividend %)  
= (20,000 X \$50 X .06) = \$60,000 per year

**Disclaimer:** For simplicity, ignore the IFRS requirement to record the debt and equity components of the bonds separately.

**PROBLEM 17-7**

(a) The number of shares used to calculate basic earnings per share is 4,951,000, as calculated below.

<u>Event</u>	<u>Dates Outstanding</u>	<u>Shares Outstanding</u>	<u>Restate- ment</u>	<u>Fraction of Year</u>	<u>Weighted Shares</u>
Beginning Balance, including 5% stock dividend	Jan. 1–Apr. 1	2,100,000	2.0	3/12	1,050,000
Conversion of preferred shares	Apr. 1–July 1	2,520,000*	2.0	3/12	1,260,000
Stock split	July 1–Aug. 1	5,040,000		1/12	420,000
Issued shares for building	Aug. 1–Nov. 1	5,340,000		3/12	1,335,000
Purchase of shares	Nov. 1–Dec. 31	5,316,000		2/12	<u>886,000</u>
Total number of common shares to calculate basic earnings per share					<u><u>4,951,000</u></u>

\* 400,000 shares of preferred stock X 1.05 (factor due to stock dividend) = 420,000 additional common shares

**PROBLEM 17-7 (Continued)**

- (b) The number of shares used to calculate diluted earnings per share is 5,791,000, as shown below.

Number of shares to calculate basic earnings per share	4,951,000
Convertible preferred shares—still outstanding (300,000 X 2 X 1.05)	630,000
Convertible preferred shares—converted (400,000 X 2 X 1.05 X 3/12)	<u>210,000</u>
Number of shares to calculate diluted earnings per share	<u>5,791,000</u>

- (c) The adjusted net income to be used as the numerator in the basic earnings per share calculation for the year ended December 31, 2014, is \$10,550,000, as calculated below:

Net income	\$11,550,000
Preferred share dividends	
March 31 (700,000 X \$3.00 X 3/12)	\$525,000
June 30, September 30, and December 31 (300,000 X \$3.00 X 3/12 X 3)	<u>675,000</u>
Adjusted net income	<u>\$10,350,000</u>

**PROBLEM 17-8**

The calculation of Camden Pharmaceutical Industries' basic and diluted earnings per share for the fiscal year ended June 30, 2014, are shown below.

(a)

<u>Basic Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Net Income	\$1,500,000		
Dividends on Preferred (25,000 X \$4.25)	<u>(\$106,250)</u>		
Basic EPS	<u>\$1,393,750</u>	<u>1,000,000</u>	\$1.39

Individual earnings per share calculations are done for each potentially dilutive security to determine if the securities are in fact dilutive, when compared to basic earnings per share of \$1.39. Only dilutive securities will be used in the calculation of diluted earnings per share. Each will be used in sequence, from most dilutive to least dilutive in order to arrive at the most diluted earnings per share result. In the ranking of securities, options will be used first if they are in the money (exercise price of \$15 is below the average market price \$20).

**For Options:**

**\*Use treasury stock method to determine incremental shares outstanding**

Proceeds from exercise of options (100,000 X \$15)	<u>\$1,500,000</u>
Shares issued upon exercise of options	100,000
Shares purchasable with proceeds (Proceeds ÷ Average market price) (\$1,500,000 ÷ \$20)	<u>75,000</u>
Incremental shares outstanding	<u>25,000</u>

**PROBLEM 17-8 (Continued)****For 7% convertible bonds:**

<b>Maturity value</b>	<b>\$5,000,000</b>
<b>Stated rate</b>	<b>X 7%</b>
<b>Interest expense</b>	<b>350,000</b>
<b>1 – tax rate (30%)</b>	<b>X .70</b>
<b>After-tax interest</b>	<b><u>\$ 245,000</u></b>

**\$5,000,000 / \$1,000 = 5,000 bonds**

**Increase in diluted earnings per share denominator:**

<b>5,000</b>
<b>X 50</b>
<b><u>250,000</u></b>

**Individual EPS calculation: \$245,000 / 250,000 = \$.98 < \$1.39**

<b><u>Diluted Earnings Per Share</u></b>	<b><u>Income</u></b>	<b><u>Shares</u></b>	<b><u>EPS</u></b>
<b>Basic</b>	<b>\$1,393,750</b>	<b>1,000,000</b>	<b>\$1.39</b>
<b>Options</b>		<b>25,000</b>	
	<b>1,393,750</b>	<b>1,025,000</b>	<b>1.36</b>
<b>Bonds</b>	<b>245,000</b>	<b>250,000</b>	
<b>Diluted Earnings Per Share</b>	<b><u>\$1,638,750</u></b>	<b><u>1,275,000</u></b>	<b><u>\$1.29</u></b>

**PROBLEM 17-8 (Continued)**

- (b)** When calculating the interest assumed to have been saved by the conversion of bonds, the amortization of any premium or discount will be taken into account in the calculation. Premium amortization will reduce interest expense while discount amortization will increase interest expense relative to the cash amount of interest paid. Following the adjustment for any premium or discount amortization to the assumed interest savings, income tax must also be applied, before the net savings are added to the net income numerator in the diluted earnings per share ratio calculation. Note that when effective interest amortization of premium or discount is employed, the interest added back is the actual effective interest amount, net of tax, rather than the cash interest paid.

**Disclaimer:** For simplicity, ignore the IFRS requirement to record the debt and equity components of the bonds separately.

- (c)** Preferred dividends were not declared in 2014; however one year of dividends on the preferred shares was deducted from net income to arrive at net income available to common shareholders. This is because the preferred shares are cumulative, meaning that the annual dividend not paid in any given year must be made up in a later year before any profits can be distributed to common shareholders. If the company has cumulative preferred shares outstanding, the annual dividend is deducted from net income to arrive at net income available to common shareholders, even if the annual dividend is not declared, because common shareholders need to know how much of the company's available income can be attributed to the shares that they own. Common shareholders refer to earnings per share information to help them assess future dividend payouts and the value of each common share. Therefore the effect of cumulative dividends on preferred shares is included in basic and diluted earnings per share.

**PROBLEM 17-9**

The calculation of Earl Limited's basic and diluted earnings per share for the 2014 fiscal year are shown below.

(a)

<u>Basic Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Net Income	\$1,750,000		
Dividends on Preferred (280,000 X \$.80)	<u>(\$224,000)</u>		
Basic EPS	<u>\$1,526,000</u>	<u>1,800,000</u>	<u>\$0.85</u>

(b) Individual earnings per share calculations are done for each potentially dilutive security to determine if the securities are in fact dilutive, when compared to basic earnings per share of \$0.85. Only dilutive securities will be used in the calculation of diluted earnings per share. Each will be used in sequence, from most dilutive to least dilutive, in order to arrive at the most diluted earnings per share result. In the ranking of securities, options will be used first if they are in the money (exercise price of \$12 is below the average market price \$18).

**For Options:**

* Use treasury stock method to determine incremental shares outstanding	
Proceeds from exercise of options (50,000 X \$12)	<u>\$600,000</u>
Shares issued upon exercise of options	50,000
Shares purchasable with proceeds (Proceeds ÷ Average market price) (\$600,000 ÷ \$18)	<u>33,333</u>
Incremental shares outstanding	<u>16,667</u>

**PROBLEM 17-9 (Continued)****For 4% convertible bonds:**

Maturity value	\$3,000,000
Stated rate	<u>X 4%</u>
Interest expense	120,000
1 – tax rate (31%)	<u>X .69</u>
After-tax interest	<u><u>\$ 82,800</u></u>

$\$3,000,000/\$1,000 = 3,000$  bonds

Increase in diluted earnings per share denominator:

3,000
<u>X 80</u>
<u>240,000</u>

Individual EPS calculation:  $\$82,800 / 240,000 = \$0.35 < \$0.88$

— Ranked most dilutive after options

**For 6% convertible bonds:**

Maturity value	\$4,000,000
Stated rate	<u>X 6%</u>
Interest expense – annual	240,000
Pro-rated to six months	<u>X .5</u>
Interest expense	120,000
1 – tax rate (31%)	<u>X .69</u>
After-tax interest	<u><u>\$ 82,800</u></u>

$\$4,000,000/\$1,000 = 4,000$  bonds X  $6/12 = 2,000$

Increase in diluted earnings per share denominator:

2,000
<u>X 80</u>
<u>160,000</u>

Individual EPS calculation:  $\$82,800 / 160,000 = \$0.52 < \$0.88$

— Ranked second most dilutive after 4% bonds above.

**For preferred shares:**

Dividends avoided from conversion  $\$0.80 \times 280,000$  shares =  
 $\$224,000$  divided by 280,000 additional common shares (one to  
 one ratio) =  $\$0.80 < \$0.85$  — Ranked least dilutive.

**PROBLEM 17-9 (Continued)**

<u>Diluted Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Basic (a) above	\$1,526,000	1,800,000	\$0.85
Options		16,667	
	<u>1,526,000</u>	<u>1,816,667</u>	0.84
4 % Bonds	82,800	240,000	
	<u>1,608,800</u>	<u>2,056,667</u>	0.78
6 % Bonds	82,800	160,000	
Diluted Earnings Per Share	1,691,600	2,216,667	0.76
Preferred shares	224,000	280,000	
	<u>\$1,915,600</u>	<u>2,496,667</u>	\$0.77

The preferred shares, although initially appearing dilutive, ultimately would cause diluted earnings per share to become greater. The preferred shares are therefore excluded from the diluted earnings per share calculation. Diluted earnings per share remain \$0.76.

**Disclaimer:** For simplicity, ignore the IFRS requirement to record the debt and equity components of the bonds separately.

**PROBLEM 17-9 (Continued)**

- (c) Preferred dividends were not declared in 2014; however one year of dividends on the convertible preferred shares was deducted from net income to arrive at net income available to common shareholders in calculating basic earnings per share. This is because the convertible preferred shares are cumulative, meaning that the annual dividend not paid in any given year must be made up in a later year before any profits can be distributed to common shareholders. In calculating diluted earnings per share, the effect of converting the convertible preferred shares into common shares was considered (including elimination of the annual preferred share dividend), and it was determined that conversion of the preferred shares would not reduce diluted earnings per share. Therefore the effect of converting the preferred shares was excluded from the calculation of diluted earnings per share, and the annual preferred share dividend was deducted from net income to arrive at net income available to common shareholders. Common shareholders need to know how much of the company's available income can be attributed to the shares that they own, and they refer to earnings per share information to help them assess future dividend payouts and the value of each common share. Therefore the effect of cumulative dividends on convertible preferred shares must be carefully considered in calculating basic and diluted earnings per share.**
- (d) If diluted EPS was not reported, a potential shareholder would only be presented with basic EPS, which would not reflect the significant adverse effect of conversion or exercise of all potentially dilutive securities. EPS is also used in calculation of Price Earnings ratio (market price per share / EPS), and diluted EPS should be presented on the company's financial statements to provide a calculation of EPS for comparison to market price per share.**

**PROBLEM 17-10**

The calculation of Benoit Limited's basic and diluted earnings per share for the 2014 fiscal year are shown below.

(a)

<u>Basic Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Net Income	\$16,400,000		
Dividends on Preferred (800,000 X \$8)	<u>(6,400,000)</u>		
Basic EPS	<u>\$10,000,000</u>	<u>2,000,000</u>	<u>\$5.00</u>

(b) Individual earnings per share calculations are done for each potentially dilutive security to determine if the securities are in fact dilutive, when compared to basic earnings per share of \$5.00. Only dilutive securities will be used in the calculation of diluted earnings per share. Each will be used in sequence, from most dilutive to least dilutive, in order to arrive at the most diluted earnings per share result. In the ranking of securities, options will be used first if they are in the money (exercise price of \$60 is below the average market price \$75).

**For Options:**

* Use treasury stock method to determine incremental shares outstanding	
Proceeds from exercise of options (100,000 X \$60)	<u>\$6,000,000</u>
Shares issued upon exercise of options	100,000
Shares purchasable with proceeds (Proceeds ÷ Average market price) (\$6,000,000 ÷ \$75)	<u>80,000</u>
Incremental shares outstanding	<u>20,000</u>

**PROBLEM 17-10 (Continued)****For 5% convertible debentures:**

<b>Maturity value</b>	<b>\$100,000,000</b>
<b>Stated rate</b>	<u>    X 5%</u>
<b>Interest expense</b>	<b>5,000,000</b>
<b>1 – tax rate (30%)</b>	<u>    X .70</u>
<b>After-tax interest</b>	<b><u>\$3,500,000</u></b>

**\$100,000,000/\$1,000 = 100,000 debentures**

**Increase in diluted earnings per share denominator:**

<b>100,000</b>
<u>    X 20</u>
<b><u>2,000,000</u></b>

**Individual EPS calc.: \$3,500,000 / 2,000,000 = \$1.75 < \$5.00**

**— Ranked most dilutive after options**

**For preferred shares:**

**Dividends avoided from conversion \$8.00 X 800,000 shares  
= \$6,400,000 divided by 1,600,000 additional common shares  
(one to two ratio) = \$4.00 < \$5.00**

**— Ranked least dilutive**

**PROBLEM 17-10 (Continued)**

<u>Diluted Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Basic (a) above	\$10,000,000	2,000,000	\$5.00
Options		20,000	
	10,000,000	2,020,000	4.95
5 % debentures	3,500,000	2,000,000	
Diluted Earnings Per Share	13,500,000	4,020,000	\$3.36
Preferred shares	6,400,000	1,600,000	
	<u>\$19,900,000</u>	<u>5,620,000</u>	\$3.54

The preferred shares, although initially appearing dilutive, ultimately cause diluted earnings per share to become greater. The preferred shares are therefore excluded from the diluted earnings per share calculation. Diluted earnings per share remain \$3.36.

**Disclaimer:** For simplicity, ignore the IFRS requirement to record the debt and equity components of the bonds separately.

**PROBLEM 17-11**

- (a) The controller's calculations are not correct in that the straight arithmetic average of the common shares outstanding at the beginning and end of the year is used.

The weighted average number of shares outstanding should be calculated as follows:

Dates Outstanding	Shares Outstanding	Fraction of Year	Weighted Shares
Jan. 1–Oct. 1	1,285,000	9/12	963,750
Oct. 1–Dec. 1	1,035,000	2/12	172,500
Dec. 1–Dec. 31	1,200,000	1/12	<u>100,000</u>
Weighted average number of shares outstanding			<u>1,236,250</u>

Net income for year \$3,374,960

$$\text{Earnings per share} = \frac{\$3,374,960}{1,236,250} = \$2.73$$

**PROBLEM 17-11 (Continued)**

$$(b) \text{ Basic earnings per share} = \frac{\$3,374,960}{1,236,250} = \$2.73$$

$$\text{Diluted earnings per share} = \frac{\$3,374,960}{1,306,250} = \$2.58$$

**\*Calculation of weighted average number of shares adjusted for dilutive securities**

Average number of shares under options outstanding	140,000
Option price per share	X     \$10
Proceeds upon exercise of options	<u>\$1,400,000</u>
Shares issued upon exercise of options	140,000
Market price of common shares: Average \$20	
Treasury shares that could be repurchased with proceeds (\$1,400,000 ÷ \$20)	<u>70,000</u>
Excess of shares under option over treasury shares that could be repurchased (140,000 – 70,000)	<u>70,000</u>
Incremental shares	70,000
Average number of common shares outstanding	<u>1,236,250</u>
Weighted average number of shares adjusted for dilutive securities	<u>1,306,250</u>

**Disclaimer:** For simplicity, ignore the IFRS requirement to record the debt and equity components of the bonds separately.

**PROBLEM 17-12**

The calculation of Polo Limited's basic and diluted earnings per share for the 2014 fiscal year are shown below.

(a)

<u>Basic Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Net Income	\$2,300,000		
Dividends on Preferred (4,000,000 X 6%)	<u>(240,000)</u>		
<b>Basic EPS</b>	<b><u>\$ 2,060,000</u></b>	<b><u>600,000</u></b>	<b><u>\$3.43</u></b>

(b) Individual earnings per share calculations are done for each potentially dilutive security to determine if the securities are in fact dilutive, when compared to basic earnings per share of \$3.43. Only dilutive securities will be used in the calculation of diluted earnings per share. Each will be used in sequence, from most dilutive to least dilutive, in order to arrive at the most diluted earnings per share result. In the ranking of securities, options will be used first if they are in the money (exercise price of \$20 is below the average market price \$25).

**For Options:**

\* Use treasury stock method to determine incremental shares outstanding

Proceeds from exercise of options (75,000 X \$20)	<b><u>\$1,500,000</u></b>
Shares issued upon exercise of options	75,000
Shares purchasable with proceeds (Proceeds ÷ Average market price) (\$1,500,000 ÷ \$25)	<b><u>60,000</u></b>
Incremental shares outstanding (additional potential common shares)	<b><u>15,000</u></b>

**PROBLEM 17-12(Continued)****For 8% convertible bonds:**

Maturity value	\$2,000,000
Stated rate	<u>X 8%</u>
Interest expense	160,000
1 – tax rate (30%)	<u>X .70</u>
After-tax interest	<u>\$ 112,000</u>

$\$2,000,000 / \$1,000 = 2,000$  bonds

Increase in diluted earnings per share denominator:

2,000
<u>X 30</u>
<u>60,000</u>

Individual EPS calculation:  $\$112,000 / 60,000 = \$1.87 < \$3.43$   
 — Ranked most dilutive after options.

**For 6% convertible preferred shares:**

Dividends avoided from conversion  $6\% \times \$4,000,000 =$   
 $\$240,000$  divided by  $(\$4,000,000 / \$100 \text{ par})$  or 40,000  
 preferred shares  $\times 3$  (one to three ratio) = 120,000 additional  
 common shares =  $\$2.00 < \$3.43$   
 — Ranked least dilutive

<u>Diluted Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Basic (part a)	\$2,060,000	600,000	\$3.43
Options		<u>15,000</u>	
	2,060,000	615,000	3.35
Bonds	<u>112,000</u>	<u>60,000</u>	
	2,172,000	675,000	3.22
Preferred Shares	<u>240,000</u>	<u>120,000</u>	
	<u>\$2,412,000</u>	<u>795,000</u>	<u>\$3.03</u>

**Disclaimer:** For simplicity, ignore the IFRS requirement to record the debt and equity components of the bonds separately.

**PROBLEM 17-12(Continued)**

- (c) If diluted EPS was not reported, a potential shareholder would only be presented with basic EPS, which would not reflect the significant adverse effect of conversion or exercise of all potentially dilutive securities. EPS is also used in calculation of Price Earnings ratio (market price per share / EPS), and diluted EPS should be presented on the company's financial statements to provide a calculation of EPS for comparison to market price per share.**

**PROBLEM 17-13**

<b>(a) Interest expense incurred in 2014</b>	<b>\$1,178,200</b>
Less interest on 10% bonds issued at par (\$5,000,000 X 10%)	<u><b>500,000</b></u>
Remaining interest expense on 7.25% bonds	<u><b>\$678,200</b></u>

**(b)**

<u>Basic Earnings Per Share</u>	<u>Income</u>	<u>Shares</u>	<u>EPS</u>
Net Income	\$8,500,000		
Dividends on \$4.50 Preferred (120,000 X \$4.50)	(540,000)		
Dividends on \$3.00 Preferred (400,000 X \$3.00)	<u>(1,200,000)</u>		
Basic EPS	<u>\$6,760,000</u>	<u>1,700,000</u>	<b>\$3.98</b>

**(c) Individual earnings per share calculations are done for each potentially dilutive security to determine if the securities are in fact dilutive, when compared to basic earnings per share of \$3.98. Only dilutive securities will be used in the calculation of diluted earnings per share. Each will be used in sequence, from most dilutive to least dilutive, in order to arrive at the most diluted earnings per share result.**

**For \$4.50 convertible preferred shares:**

Dividends avoided from conversion of \$4.50 preferred shares is \$540,000 divided by (120,000 X 2) or 240,000 additional common shares = \$2.25 < \$3.98.

— Ranked most dilutive.

**For \$3.00 convertible preferred shares:**

Dividends avoided from conversion of \$3.00 preferred shares is \$1,200,000 divided by 400,000 additional common shares = \$3.00 < \$3.98.

— Ranked third most dilutive after the \$4.50 convertible preferred shares and the convertible bonds.

**PROBLEM 17-13 (Continued)****For 7.25% convertible bonds:**

Interest expense refer to part (a)	<b>\$678,200</b>
1 – tax rate (30%)	<u>    X .70</u>
After-tax interest	<b><u>\$ 474,740</u></b>

**\$9,000,000/\$100 = 90,000 bonds**

**Increase in diluted earnings per share denominator:**

<b>90,000</b>
<u>    X 2</u>
<b><u>180,000</u></b>

**Individual EPS calculation: \$474,740 / 180,000 = \$2.64 < \$3.98**

**— Ranked second most dilutive after the \$4.50 convertible preferred shares**

**(d)**

<b><u>Diluted Earnings Per Share</u></b>	<b><u>Income</u></b>	<b><u>Shares</u></b>	<b>EPS</b>
<b>Basic (part b)</b>	<b>\$6,760,000</b>	<b>1,700,000</b>	<b>\$3.98</b>
<b>\$4.50 Preferred Shares</b>	<u>    540,000</u>	<u>    240,000</u>	
	<b>7,300,000</b>	<b>1,940,000</b>	<b>3.76</b>
<b>7.25% Bonds</b>	<u>    474,740</u>	<u>    180,000</u>	
	<b>7,774,740</b>	<b>2,120,000</b>	<b>3.67</b>
<b>\$3.00 Preferred Shares</b>	<u>    1,200,000</u>	<u>    400,000</u>	
	<b><u>\$8,974,740</u></b>	<b><u>2,520,000</u></b>	<b><u>\$3.56</u></b>

**PROBLEM 17-13 (Continued)****(e)**

**The splitting of the annual dividend entitlement of both classes of preferred shares into quarters may be preferred by the shareholders. More frequent dividends enhance their cash inflows on investments. In the case of Jackie Enterprises Ltd., neither issuances nor conversions of preferred shares took place during 2014. Consequently, there is no impact on the calculation of diluted earnings per share for the year. Had any conversions taken place, the dividend entitlement would have been reduced proportionately, with a corresponding increase in the number of common shares outstanding from the date of conversion. However, since conversion is assumed to have occurred at the beginning of the year, the diluted EPS amount would not change regardless of when the conversion actually took place.**

**PROBLEM 17-14**

(a)

Event	Dates Outstanding	Shares Outstanding	Restate-ment	Fraction of Year	Weighted Shares
Beginning balance	Jan. 1–March 1	90,000	1.1	2/12	16,500
Issued shares	March 1–June 1	120,000	1.1	3/12	33,000
Stock dividend	June 1–Nov. 1	132,000		5/12	55,000
Acquired shares	Nov. 1–Dec. 31	102,000		2/12	<u>17,000</u>
<b>Weighted average number of shares outstanding</b>					<b><u>121,500</u></b>

(b)

<b>Basic Earnings Per Share</b>	<b>Income</b>	<b>Shares</b>	<b>EPS</b>
Net Income	<b>\$150,000</b>		
Dividends on 4% Preferred (\$100,000 X 4%)	<b>(4,000)</b>		
<b>Basic EPS</b>	<b><u>\$146,000</u></b>	<b><u>121,500</u></b>	<b>\$1.20</b>

**PROBLEM 17-14 (Continued)**

- (c) Individual earnings per share calculations are done for each potentially dilutive security to determine if the securities are in fact dilutive, when compared to basic earnings per share of \$1.20. Only dilutive securities will be used in the calculation of diluted earnings per share. Each will be used in sequence, from most dilutive to least dilutive, in order to arrive at the most diluted earnings per share result.

**For the stock options:**

The stock options are not in the money and therefore are antidilutive. The exercise price of the options exceeds the average market price of the common shares for the 2014 fiscal year. The options are excluded for purposes of calculating diluted earnings per share.

**For 4% cumulative convertible preferred shares:**

Dividends avoided from conversion of 4% preferred shares is \$4,000 divided by 15,000 additional common shares = \$0.27 < \$1.20 — Ranked most dilutive

**For 6% convertible bonds:**

Interest expense	\$6,000
1 – tax rate (30%)	<u>X .70</u>
After-tax interest	<u>\$4,200</u>

Interest expense avoided from the conversion of the 6% bonds is \$4,200 divided by 10,000 additional common shares = \$0.42 < \$1.20 — Ranked less dilutive than the 4% convertible preferred shares.

**PROBLEM 17-14 (Continued)**

**(d)**

<b><u>Diluted Earnings Per Share</u></b>	<b><u>Income</u></b>	<b><u>Shares</u></b>	<b>EPS</b>
<b>Basic (part b)</b>	<b>\$146,000</b>	<b>121,500</b>	<b>\$1.20</b>
<b>4% Preferred Shares</b>	<b>4,000</b>	<b>15,000</b>	
	<b>150,000</b>	<b>136,500</b>	<b>1.10</b>
<b>6% Bonds</b>	<b>4,200</b>	<b>10,000</b>	
	<b><u>\$154,200</u></b>	<b><u>146,500</u></b>	<b><u>\$1.05</u></b>

**Disclaimer:** For simplicity, ignore the IFRS requirement to record the debt and equity components of the bonds separately.

## CASES

**Note: See the Case Primer on the Student website, as well as the Summary of the Case Primer in the front of the text. Note that the first few chapters in volume 1 lay the foundation for financial reporting decision making.**

### CA 17-1 CANTON PRODUCTS (CPI)

#### Overview

- Shares trade on exchange therefore IFRS is a constraint.
- The company is worried about cash flows and interest rate being paid. The latter is influenced by the dilutive impact of potential common shares (which are driving share prices down and therefore decreasing its ability to borrow money at lowest rates).
- Investors/shareholders are worried about dilutive impact of potential common shares.
- Banks will be interested in share price (which is negatively affected by the potential common shares).
- Role – as auditor – you will want most transparent and conservative reporting especially given shareholder and investor focus on dilutive impact of potential common shares.

#### Analysis and recommendations

Issue: How to account for new potential common shares. Company has exchanged old convertible senior subordinated notes for new ones.

Calculate DEPS under the if-converted method	Calculate DEPS under the “treasury stock” method
<ul style="list-style-type: none"> <li>- New notes in substance are similar to the old notes and should be calculated under the “if-converted” method.</li> <li>- This will be dilutive since share price is above conversion price — in the money.</li> <li>- Care should be taken to ensure that this exchange was not done solely to manipulate DEPS.</li> </ul>	<ul style="list-style-type: none"> <li>- New shares essentially contain an embedded option.</li> <li>- Since share price does not exceed 20% of the conversion price— not dilutive since conditions for dilution not met.</li> </ul>

Conclusion: More conservative to include in DEPS calculation.

## IC 17-1 TIZIANA'S FOODS LIMITED

### Overview

- Currently a public company— therefore IFRS constraint.
- Wants to go private— consortium will be major user. They have agreed to buy the company if share prices are at a certain level. Not sure if this is likely or probable at this point. Will want transparent statements. If private, will have a choice to follow IFRS or ASPE.
- Therefore bias by company to ensure only positive financial statements to ensure that share price is not negatively affected.
- The controller may want to ensure that statements present company in its best light.

### Analysis and recommendations

Issue: How to account for initial upfront franchise fees

Recognize revenues when locations found and deposits taken	Recognize later
<ul style="list-style-type: none"> <li>- At this point— major events have occurred and company has earned its revenue.</li> <li>- Critical event is finding locations.</li> <li>- Research shows that it is highly likely that no losses by stores will occur given locations— therefore no (little) risk of loss.</li> <li>- Funds deposited in trust fund by franchisees— ensure that deal will go through and there will be sufficient funds to run the store— minimizes risk of franchise failure.</li> </ul>	<ul style="list-style-type: none"> <li>- No real sale since stores not yet opened.</li> <li>- In addition, risks and rewards not yet passed since the company has agreed to absorb first five years of losses— still has risk of loss.</li> </ul>

Recommendations:

Defer recognition of revenues until stores open—there is too much uncertainty up to that point.

**IC 17-1 (Continued)**

Issue: Should the additional shares be recorded as part of the cost of sale of franchise?

Record cost	Do not record
<ul style="list-style-type: none"> <li>- If probable that stores will be profitable (and measurable) should record cost in order to show true profit—research shows stores will not suffer losses and franchisees have deposited funds ensuring that stores will have sufficient operating capital.</li> <li>- More transparent.</li> </ul>	<ul style="list-style-type: none"> <li>- Too early to tell—not measurable.</li> <li>- Research may not be accurate.</li> </ul>

Conclusion: Do not record yet—there is too much uncertainty, but must note disclose.

Issue: How to account for the long-term debt

Part debt/part equity	All debt – measure at 100% or 120%
<ul style="list-style-type: none"> <li>- Compound instrument—part debt and part equity.</li> <li>- Economic substance is that the right to convert adds extra value—embedded call option should be accounted for separately.</li> <li>- More transparent.</li> <li>- Company just thinking of going private— not necessarily likely or probable at this stage. Would only measure as all debt where contingency is beyond control of company (not the case here as the company has the final decision as to whether to go private).</li> </ul>	<ul style="list-style-type: none"> <li>- Ignoring the contingency re going private, the conversion feature results in the company paying a variable number of shares and thus the instrument is debt. They will either repay the debt in cash or issue a variable number of shares to make up the face value.</li> <li>- If the company goes private, the debt is automatically repayable at 120%.</li> <li>- The extra premium is not payable until a decision is made to sell the company (has not yet happened).</li> </ul>

Conclusion: Book as a liability since there is a contractual obligation to pay either cash or a variable number of shares.

## TIME AND PURPOSE OF WRITING ASSIGNMENTS

### WA 17-1 (Time 25–35 minutes)

Purpose—to provide the student with an understanding of how earnings per share is affected by preferred dividends and convertible debt. The student is required to explain how preferred dividends and convertible debt are handled for EPS calculations. The student is also required to explain when the “treasury stock method” is applicable in EPS calculations. Finally, the student also must discuss why P/E ratios might be high.

### WA 17-2 (Time 25–35 minutes)

Purpose—to provide the student with an opportunity to articulate the concepts and procedures related to stock options and anti-dilution. Responses are provided in a written memorandum. Other parts of the question examine the impact of the IASB’s proposals on some changes to EPS.

### WA 17-3 (Time 25–35 minutes)

Purpose—to provide the student with an opportunity to look at how contingently issuable shares will impact the EPS calculation.

### WA 17-4 (Time 25–35 minutes)

Purpose—to provide the student with an understanding of the current financial reporting issues on per share data other than earnings and an opportunity to articulate the concepts related to “per share” information. The student is also required to provide a balanced point of view by arguing for both sides.

## SOLUTIONS TO WRITING ASSIGNMENTS

### WA 17-1

- (a) Dividends on outstanding preferred shares must be subtracted from net income or added to net loss for the period before computing EPS on the common shares. This generalization will be modified by the various features and different requirements preferred shares may have with respect to dividends. Thus, if preferred shares are cumulative, it is necessary to subtract the current dividend requirements from net income (or to add them to net loss) regardless of whether or not the preferred dividends were actually declared. Where the preferred shares are noncumulative, only preferred dividends actually declared during the current period need be subtracted from net income (or added to net loss) to arrive at the income to be used in EPS calculations.

If the preferred shares are convertible into common shares, then when assuming conversion, dividend requirements on the preferred shares are not deducted from net income. This applies when testing for potential dilution to determine whether or not the diluted EPS figures for the period are lower than earnings per common share figures.

- (b) When options and warrants to buy common shares are outstanding and their exercise price (i.e., proceeds the corporation would derive from issuance of common shares pursuant to the warrants and options) is less than the average price at which the company could acquire its outstanding shares as treasury shares, the treasury stock method is generally applicable. In these circumstances, existence of the options and warrants would be dilutive. However, if the exercise price of options and warrants exceeded the average price of the common shares, the cash proceeds from their assumed exercise would provide for repurchasing more common shares than were issued when the warrants were exercised, thereby reducing the number of shares outstanding. In these circumstances, assumed exercise of the options and warrants would be antidilutive, so exercise would not be presumed for purposes of computing diluted EPS.

**WA 17-1 (Continued)**

- (c) In arriving at the calculation of diluted EPS figures where convertible debentures are assumed to be converted, their effective interest cost (net of tax) is added back to net income as the numerator element of the EPS calculation while the weighted average number of shares of common shares into which they would be convertible is added to the shares outstanding to arrive at the denominator element of the calculation. If the bonds can be settled in cash or shares at the issuer's option, it is assumed that shares would be issued and they are included in the calculation of the diluted EPS as described above.
- (d) The P/E ratio should be used with caution. At first look the P/E ratios for these two companies appear to be far too high, much higher than the averages, indicating that the shares are overpriced. However, there may be some valid explanations. Part of this multiple is an indication of investors' expectations' of growth in earnings. In the case of Maple Leaf Foods, what we would really want to know is what the forecasted EPS is? We know from the chapter material that in 2008, the company had total unusual losses of \$103 million due to product recalls, restructuring costs and other related costs. This would significantly reduce the EPS and increase the P/E multiple on these depressed earnings (assuming no change in share price). However, if these losses are likely not to recur, and a forecast is made for the next year's earnings without these losses, would the P/E ratio be more in line? As the EPS increases, the PE multiple would decline. (In fact, doing this the P/E ratio is around 13, more in line with the market averages.)

A similar analysis can be done for Finning. Questions we would need to answer are: (1) Is Finning's earnings abnormally low for 2008? If the commodity market was depressed, impacting Finning, this would cause the EPS to be low, and the resulting P/E multiple to be high (given no change in the share price). (2) What is the commodity related industries forecasted to do, and by implication, what are Finning's forecasted earnings for 2009 or even 2010? If investors expect the EPS for next year to be higher, then the P/E multiple would decline, given no change in the share price.

**WA 17-2**

Dear Mr. Kacskos:

(a) I hope that the following brief explanation helps you understand why your warrants were not included in Howat's earnings per share calculations.

Earnings per share (EPS) provides income statement users a quick assessment of the earnings that were generated for each common share outstanding over a given period. When a company issues only common and preferred shares, it has a simple capital structure; consequently, the only ratio needed to calculate EPS is the following:  $(\text{Net Income} - \text{Preferred Dividends}) \div \text{Number of Common Shares Outstanding}$ .

However, corporations that have a variety of other securities outstanding—convertible bonds, convertible preferred shares, stock options, and stock warrants—have a complex capital structure. Because these securities could be converted to common shares, they have a potentially “dilutive” effect on EPS.

In order not to mislead users of financial information, generally accepted accounting principles require that EPS calculations be conservative. Thus, a security which might dilute EPS must be figured into EPS calculations as though it had been converted into common shares. Basic EPS assumes only the weighted average of common shares outstanding while diluted EPS assumes that any potentially dilutive security has been converted.

Some securities, however, might actually inflate the EPS figure rather than dilute it. These securities are considered antidilutive and are excluded from the EPS calculation. Take, for example, your options. The calculations below provide a good example of how options are treated in diluted EPS. In these calculations, we assume that Howat will purchase treasury stock using the proceeds from the exercise of your options.

## WA 17-2 (Continued)

When you exercise your 15,000 options at \$30, the company does not simply add 15,000 shares to common shares outstanding; rather, for diluted EPS, Howat is assumed to purchase and retire 18,000 shares of treasury stock at \$25 with the proceeds ((15,000 X \$30) / \$25 per share). Therefore, if you add the 15,000 exercised options to the common shares outstanding and then subtract the 18,000 shares presumably purchased, the number of shares outstanding would be reduced to 97,000 (100,000 + 15,000 – 18,000). Because the ratio's denominator would be reduced by this inclusion, it would cause the ratio to increase, which defeats the purpose of the dilution. These options are considered antidilutive and, therefore, are not included in EPS calculations.

This explanation should address any concerns you may have had about the use of your warrants in EPS calculations. If you have any further questions, please call me.

Sincerely,

Your name, Accountant

- (b) If the year-end market price was \$33, then using the same procedure as described above, we would have the following impact on the number of common shares outstanding.

When you exercise your 15,000 options at \$30, the company would now be able to purchase and retire only 13,636 shares of treasury stock at \$33 with the proceeds ((15,000 X \$30) / \$33 per share). Therefore, if you add the 15,000 exercised options to the common shares outstanding and then subtract the 13,636 shares presumably repurchased, the number of shares outstanding would be increased to 101,364 (100,000 + 15,000 – 13,636). Consequently, the ratio's denominator would be increased by this inclusion, and the EPS would be diluted as follows:

$$\$228,000 / 101,364 = \$2.25$$

The basic EPS would have been \$2.28 (228,000 / 100,000) so there is a dilution of \$0.03 per share.

**WA 17-2 (Continued)**

- (c) If the options are recorded at fair value, with changes reflected immediately in the net profit or loss for the period, then the earnings has already been adjusted to reflect the benefits or losses due to these options. Since the options will be settled in cash, not shares, the denominator should not be adjusted.
- (d) Solutions from students will vary – the following is a list of the key points:  
Business reasons for using stock options:
- To satisfy pre-emptive right
  - Enhance marketability of another security or reduce costs
  - Give key executives compensation (compensatory)
  - Recruit and retain key executives (provide incentive for ownership of the business and participate in wealth accumulation)
  - For non-compensatory stock option plans, mainly to raise capital
  - Compensation in a purchase or acquisition transaction
  - As "poison pill" to make entity less attractive for takeover
  - Hedging and speculation to reduce risk
  - As fractional shares in stock dividends

**WA 17-3**

The first issue to recognize is that these are contingently issuable shares. Consequently, as described in IAS 33 paragraph 52, they are only included in the calculation of the diluted EPS when the conditions have been met. Once the conditions have been met, the dilutive shares are included from the beginning of the period or the date of the agreement, if later.) If the conditions are not satisfied, then the number of shares included in the diluted factor will be the number of shares to be issued as if it was the end of the contingency period.

Calculations of the basic and diluted EPS are as follows for Seaway:

<b>Calculation of Basic EPS</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Earnings for the year (1)	\$22,000,000	\$19,000,000	\$24,000,000
Calculation of denominator			
Original shares outstanding – beginning of year	5,000,000	5,000,000	5,000,000
Weighted average of shares issued due to Tweel 100,000 X 50%	50,000	100,000	100,000
Issued due to meeting profit average (see note below)	0	0	50,000
Share issued due to number of customers			
August 1, 2013 – 3,000 X 5/12	1,250	3,000	3,000
November 1, 2013- 3,000 X 2/12	500	3,000	3,000
March 1, 2014 – 6,000 X 10/12		5,000	6,000
May 1, 2014 – 3,000 X 8/12		2,000	3,000
September 1, 2014 – 6,000 X 4/12		2,000	6,000
Total shares	5,051,750	5,115,000	5,171,000
Basic EPS (1) / (2)	\$4.35	\$3.71	\$4.64

Note: The average profit for the three years, 2013, 2014 and 2015, is not known until the end of 2015. At the end of 2015, we can calculate the average profit for the three year period to be \$7.3 million  $(\$7 + \$9 + \$6) / 3$ . This amount is greater than the \$5 million required so the condition has been met. The number of shares for the basic EPS is adjusted for year 2015 only, since this is when the condition was known.

**WA 17-3 (Continued)**

<b>Calculation of Diluted EPS</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Earnings for the year (1)	\$22,000,000	\$19,000,000	\$24,000,000
Calculation of denominator			
Original shares outstanding – beginning of year	5,000,000	5,000,000	5,000,000
Weighted average of shares issued due to Tweel 100,000 X 50%	50,000	100,000	100,000
Issued due to meeting profit average (see note below)	0	50,000	50,000
Share issued due to number of customers			
August 1, 2013 – 3,000 X 5/12	1,250	3,000	3,000
November 1, 2013- 3,000 X 2/12	500	3,000	3,000
March 1, 2014 – 6,000 X 10/12		5,000	6,000
May 1, 2014 – 3,000 X 8/12		2,000	3,000
September 1, 2014 – 6,000 X 4/12		2,000	6,000
Total shares	5,051,750	5,165,000	5,171,000
Diluted EPS (1) / (2)	\$4.35	\$3.68	\$4.64

For the average profit calculation – an average of \$5 million per year, for 3 years, is treated as a total of \$15 million over 3 years. By the end of 2013, only \$7 million has been earned in profits, which is below the threshold. By the end of 2014, the accumulated total of profits is \$16 million, which is now greater than the \$15 million threshold. Therefore, for the diluted EPS, the 50,000 shares are assumed to be issued. In 2015, the average for the three years is now known, and so the 50,000 shares are included in the basic EPS.

## WA 17-4

The pros of allowing alternate per share amounts to be included in the annual financial statements of companies are that such amounts may provide additional information that is useful to investors and other financial statement users. The practice of reporting cash flow per share in the financial statements was long established and well accepted in Canada, and many felt that discontinuing this practice was a disservice to financial statement users. Some argued that this would result in a loss of information, and others argued that it would result in less reliable information since it was likely that cash flow per share data would instead be reported elsewhere in the annual report where it would be unaudited and therefore less reliable. Other types of per share data that could be provided are: operating earnings per share, assets per share and equity per share. As long as the note disclosure provides the details of how the numerator and denominator are determined, this could provide useful information to shareholders.

The cons of allowing alternate per share amounts to be included in the financial statements of companies are that there is a risk that such data will be used in place of earnings per share, which is a much more conceptually sound measure. Cash flow, in any of its various definitions, is not a residual amount and does not accrue to the common shareholder, which makes it conceptually weak to express an amount on a per share basis. There is also a problem with determining what cash flow amount to use as the numerator. There are many different practices for both calculation and presentation, and such differences, as well as the lack of standardization, can hinder comparability among financial statements and be potentially misleading to users. Analysts may not support the disclosure of other per share amounts mainly due to the lack of agreement on the numerator and the lack of conceptual basis for this measure.

(b) Arguments to support comprehensive income per share:

- As the accounting policies now define “income” to include other comprehensive income items such as unrealized gains and losses, conceptually, there is support to measure comprehensive income per share.
- The current standards could easily be applied to the comprehensive income, with few changes required.
- Company’s share prices should include the recognition of other comprehensive income items, so per share data could be used to properly reflect price earnings multiples.

## WA 17-4 (Continued)

Arguments to support not reporting comprehensive income per share:

- Other comprehensive income items relate to unrealized gains and losses that are not yet recognized as part of profit or losses for specific reasons. As the impact of these items on profit or loss will likely change once recognized, it would be premature to include these items in a per share measure. In fact, there are some items that affect OCI but will never impact earnings such as revaluation surpluses, actuarial gains and losses on pensions or gains and losses on investments classified as FV through OCI.
  - How would comprehensive income per share be calculated – is it possible to eliminate some OCI items? What would be the treatment, for example, of revaluation surpluses and actuarial gains and losses? As noted above, these items will never impact profit or loss, so should they be eliminated in the calculation of comprehensive income per year?
  - Companies in similar industries may have very different other comprehensive income items depending on their involvement in hedging, foreign subsidiaries, and accounting policies adopted for the property, plant and equipment and pension plans. These differences could have significant impact on per share calculations that have really little to do with operating profit. Consequently, when price earnings multiples are calculated and compared, there might be significant differences even when operations are very similar.
- (c) Examples will vary depending on what the students find. One example is Stora Enso Oyj that provides additional per share disclosure on:
- Comprehensive income continuing operations per share,
  - Comprehensive income discontinued operations per share,
  - Other comprehensive income per share
  - Shareholder's equity per share
  - Capital repayment/dividend declared per share.

## RESEARCH AND FINANCIAL ANALYSIS

### RA17-1 BRITISH SKY BROADCASTING GROUP PLC

(a) In note 10, the company provides the details of its calculations of basic and diluted earnings per share as follows:

	2012 (in millions)	2011 (in millions)
Calculation of weighted average number of shares		
Ordinary shares (in millions)	1,731	1,753
ESOP ordinary shares	-10	-10
Number for the basic EPS	1,721	1,743
Dilutive ordinary shares from stock options	16	20
Total number for diluted	1,737	1,763
Profit or loss attributable to equity shareholders of parent	£875	£725
Basic EPS	50.8p	41.6p
Diluted EPS	50.4p	41.1p

The company notes that fewer than 1 million share options have been excluded from the calculation of diluted EPS because they would be antidilutive (2 million in 2011).

As per note 25, the company had 1,674,454,881 ordinary shares outstanding in 2012 and 1,752,842,599 ordinary shares outstanding for 2011.

Note 25 provides no disclosure about the ESOP trust shares of 10 million that have been deducted in 2012 (10 million in 2011). The note does outline a variety of option plans, including the Executive Share Option plan.

We know from the question that the company's share price traded between £6.97 and £8.49 per share. Note 25 also provides details of the various options outstanding at various exercise prices.

As the highest range of exercise prices is £7.00-£8.00 and the share price traded within that range during the year, the items that are anti-dilutive are all those that would increase the earnings per share or reduce the loss per share. These are options that are considered unlikely to be exercised.

**RA17-1 (Continued)**

The number of share awards that are antidilutive agrees with the note disclosure in Note 10 of 1 million. However, the number of remaining options outstanding is 35 million. Many of these awards are contingently issuable awards which are only included in the diluted EPS once the conditions have been met. However, we have not been given any information as to whether or not the performance targets have been met. Consequently the number of dilutive shares of 16 million cannot be verified.

(b) In order to determine the number of options that are dilutive, we need to look at the exercise prices of the options and compare with the average share price of the company during the year. The average share price is assumed to be £7.73 (£6.97+ £8.49)/2). In looking at the options that are outstanding with prices less than £7.73, we determined the following at June 30, 2012 from note 24: (Note we assumed that any options that had exercise prices in the £7.00 to £8.00, had exercise prices greater than £7.73.

	Number of options	Received on exercise £
£0.0 - £1.00 (these are all 0 as per the note)	25,303,300	0
£3.00 - £4.00 assumed average of £3.50	578,155	2,023,543
£4.00 - £5.00 assumed average of £4.50	1,597,612	7,189,254
£5.00 - £6.00 assumed average of £5.50	6,381,348	35,097,414
£6.00 - £7.00 assumed average of £6.50	1,310,170	8,516,105
 Total options	 35,170,585	 52,826,316
 Number of shares to buy back using exercise proceeds and assuming price of £7.73	 6,833,935	
 Net number of shares after treasury stock method	 28,336,650	

**RA17-1 (Continued)**

As per Note 25, these Senior Management Scheme options have nil as an exercise price.

(c) In note 10, the company also discloses adjusted profit per share on a basic and diluted basis. The company has made adjustments for items that are not comparable across the years, distorting the analysis. The company suggests that the adjusted profit is a better indicator of operating performance. The table below shows the calculation of the adjusted profit and the items that have been adjusted.

<b>Millions of £</b>	<b>2012</b>	<b>2011</b>
Profit or loss for the year	906	758
Costs (recovery) related to New Corporation	(31)	15
Costs related to restructuring	11	-
Living TV restructuring costs	-	26
Recovery of import duty	-	(41)
RCF fee write-off	5	-
Remeasurement of derivatives (not hedges)	(19)	(18)
Profit on disposal of JV	(7)	-
Profit on disposal of available for sale investment	-	(9)
Tax credit on settlement of liability	-	(15)
Tax effect on above items	10	9
Adjusted profit or loss	875	725

In reviewing the adjustments made, some appear to be normal and occurring every year. Examples of these types of adjustments are: remeasurement of derivatives, legal costs. Often with these adjustments the volatility of the adjusted profits is greatly reduced in comparison to the unadjusted profit.

From an investor's point of view any additional information is useful. However, the investor should make their own decision as to whether these adjustments are actually performance related or not.

## RA17-2 MOLSON COORS BREWING COMPANY

(a) The company provides per share data on the following:

- Basic income per share for continued operations;
- Basic income per share for discontinued operations;
- Diluted income per share for continued operations; and
- Diluted income per share for discontinued operations.

(b) The company has a complex capital structure. This is evident from the fact that diluted earnings per share are reported on the statements of operations. In reviewing the stockholders' equity note 9, the company has the following shares issued and outstanding:

- Class A and Class B common shares
- Class A Exchangeable and Class B Exchangeable shares which can be converted at any time at the holder's option into the corresponding common shares on a one-for-one basis.

As outlined in Note 11, the Class A and Class B and the Class A Exchangeable and Class B exchangeable all have the same dividend rights and share equitably in the undistributed earnings. Consequently, the number of all of these shares are added together to determine the number outstanding for the basic EPS, taking into consideration the weighting of changes made in the numbers during the year.

(c) As per note 14, the company has the following share based compensation plans:

- The 1990 Incentive award program which awarded restricted stock and stock options on Class B shares with no awards granted in 2009, 2010, or 2011;;
- Equity compensation for non-employee directors which provides for awards of restricted stock or stock options on Class B shares with no awards granted in 2009, 2010, or 2011;
- Company incentive plan - that provides awards on Class B shares in the form of: options, restricted stock units, deferred stock units, performance units, performance share units, stock options, and stock-only stock appreciation rights. These awards are given to eligible employees, directors and officers.

Potential common shares exist in the form of all of the above awards described.

**RA17-2 (Continued)**

(d) As detailed in Note 10, the company had some awards that were dilutive as follows:

<b>In millions</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>
Dilutive			
Options and share appreciation rights	0.9	0.9	1.0
Restricted share units, performance units and deferred stock units	0.6	0.5	0.5
<b>Total</b>	<b>1.5</b>	<b>1.4</b>	<b>1.5</b>

The following table describes the items that were found to be anti-dilutive:

<b>In millions</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>
Anti-dilutive			
Options and share appreciation rights and restricted units	0.9	0.7	0.6
2.5% convertible senior notes convertible into Class B shares	10.8	10.5	10.5
Warrants to issue Class B shares	10.8	10.5	10.5
<b>Total</b>	<b>22.5</b>	<b>21.7</b>	<b>21.6</b>

As explained in Note 10, the stock option, share appreciation rights and restricted share units are anti-dilutive either because the exercise price is more than the average market price, or as a result of the impact of the unrecognized compensation expense on the calculation of the assumed proceeds for the treasury stock method.

The convertible bond and warrants are anti-dilutive until the share price reaches \$53.40 and \$67.82, respectively.

**RA17-3 BCE INC.**

(a) The company provides per share data on the following:

- Basic earnings per share for continued operations;
- Basic earnings per share for discontinued operations;
- Diluted earnings per share for continued operations; and
- Diluted earnings per share for discontinued operations.

(b) As per note 23, the company has First Preferred shares outstanding from Series Q to AL. The dividend rates vary from using floating to fixed with rates varying from a low of 3.393% to a high of 4.8%. The dividends are all cumulative. The company also has common shares outstanding.

(c)

<b>In millions</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	<b>2007</b>
Earnings from continuing operation	2,574	2,190	1,749	1,033	3,959
Dividends on preferred shares	(119)	(112)	(107)	(124)	(131)
Earnings attributable to Non-controlling interest	(234)	5	-	-	-
Earnings from continuing operations - basic	2,221	2,083	1,642	909	3,828

The adjustment relates to the dividends paid on the preference shares. This must be deducted in order to determine the earnings that are available to the common shareholders. In 2011 and 2010 there were deductions for earnings attributable to non-controlling interest as well. In the previous years the non-controlling interest amount was deducted before the earnings figure. This change in presentation also differed from 2009 as the Net earnings figure is split between attributable to common shareholders, preferred

**RA17-3 (Continued)**

shareholders, and non-controlling interest rather than being presented as earnings from continuing operations – basic.

On reviewing the Consolidated Statement of Earnings, we can see that in 2007, the company had a large gain which has been included in Other income. The company sold Telesat which resulted in a gain of \$2.3 billion. For 2008, we find that the company had losses on investments of \$308 million resulting from write downs due to impairments. Also in 2008, the operating income was down due to higher restructuring costs.

(d) The table below provides the solution:

<b>In millions</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	<b>2007</b>
Weighted average number of shares	771.4	759.0	772.9	805.8	804.8
Earnings from continuing operations basic	2,221	2,083	1,642	909	3,828
Shares outstanding 2007	804.8	804.8	804.8	804.8	804.8
EPS on 2007 number	2.76	2.59	2.04	1.13	4.76
EPS as reported by the company	2.88	2.74	2.12	1.13	4.76
Change in EPS	0.12	0.15	0.08	0	0
Impact on share price at 12X EPS	\$1.44	\$1.80	\$0.96	0	0

As can be seen from the above table, the reduction in the number of shares has caused an increase in the share price by as much as \$1.80.

**RA17-3 (Continued)**

(e) As seen in the note on EPS (note 10 for 2011), the assumed exercise of options have caused the dilutive impact. The diluted EPS only includes the options that would be exercised given the average market price for the year. All other options have been excluded as they would be anti-dilutive since their exercise price was greater than the average market price for the year. The number of options that have been excluded were:

- 17,070 for 2011
- 3,368,508 for 2010
- 10,508,239 for 2009,
- 4,646,53 for 2008, and
- 5,278,529 for 2007

## RA17-4 EPS HARMONIZATION

The following describes the proposals made in the August 2008 Exposure Draft.

### Basic Earnings per Share

- Mandatorily convertible instruments and ordinary shares issued for little or no consideration will no longer affect basic EPS, as they do not give a right to the holder to share in the current profit or loss.
- Contracts such as physically settled put options and forward contracts require the entity to repurchase its own shares for cash or other assets. These contracts are participating contracts when dividends are allocated to the financial liability that represents the redemption amount of the contracts. As such they are excluded for the calculation of EPS (both diluted and basic) and treated as though the repurchase has already taken place. In cases where the dividends must be paid back by the holder, then these are not participating instrument. (A participating instrument is one that participates in dividends with ordinary shareholders.) This treatment would be similar for mandatorily redeemable ordinary shares. The proposal introduces a test to determine whether a convertible instrument could be more dilutive if converted. In calculating the diluted EPS, the more dilutive treatment is used.
- Instruments that are measured at fair value at each reporting period, with changes in fair value immediately reported to profit or loss already have adjusted the earnings for any benefits or detriments related to these instruments. Consequently, in calculating the diluted EPS, there will be no further adjustments required to either the numerator or the denominator.
- For options, warrants and their equivalents that are not measured at fair value, the treasury stock method will continue to be used to determine their dilutive impact. However, the share price at the end of the reporting period, rather than the average for the period, will be used in order to simplify the calculation.
- Forward contracts that provide for the entity to sell its own shares will be included in the diluted EPS assuming that the shares are sold under the contract. If these contracts are measured at fair value through profit or loss, there will be no impact on the diluted EPS.

## RA17-4 (Continued)

One of the main qualitative characteristics of accounting information is comparability. Since most investors and other users are reviewing financial statements of more than one company, it is important that there be a high degree of comparability between the statements. Given the move to increasingly global markets, such comparability is important not just within a country but on an international scale.

The FASB decided that the objective of the convergence project was to arrive at the same denominator in the diluted earnings per share calculation. Therefore, convergence will be achieved when both U.S. GAAP and IFRS result in the same diluted EPS denominator, regardless of any differences that may arise in the numerator. Since EPS is a very key figure that is used extensively when making comparisons between companies, the move to harmonize the standards for EPS should result in better financial reporting by greatly enhancing the comparability of these figures among companies reporting in different countries.

With respect to the specific changes discussed in the “Exposure Draft”, all of the changes appear to simplify the calculation of EPS. This is desirable from the point of enhancing the understandability of financial reports, which is another key characteristic of useful information. Another change to EPS noted is the removal of some of the choices that were previously involved in calculating diluted EPS in certain specific situations. Removing the choice and prescribing one specific treatment for each situation strengthens the objectivity of the information. Since objectivity is one of the key components of reliability, this move should enhance the reliability of the earnings per share data reported as well.

One final change proposed in the exposure draft is to adjust for those instruments that are measured at fair value and therefore already measure their benefit or detriment on the earnings available to the ordinary shareholders. These changes will ensure that there is more consistency in the treatment of these types of contracts in the calculation of EPS.

### CUMULATIVE COVERAGE (Chapters 15-17)

(a)

January 1

Cash .....	5,150,000
Bonds Payable .....	4,900,000
Contributed Surplus – Stock Warrants ... ..	150,000
Contributed Surplus – Conversion Rights.....	100,000
Cash received for bond issue: \$5,000,000 x 1.03	\$5,150,000
Allocated to bond .98 x \$5,000,000	(4,900,000)
Allocate to warrants \$3 x 10 x \$5,000,000/\$1,000	<u>(150,000)</u>
Balance allocated to conversion rights	<u>\$ 100,000</u>

Calculate the effective interest rate on the bonds:

Excel formula =RATE(nper,pmt,pv,fv,type)

Using a financial calculator:

<b>PV</b>	<b>\$ 4,900,000</b>	<b>Yields 12.5626 %</b>
<b>I</b>	? %	
<b>N</b>	5	
<b>PMT</b>	<b>\$ (600,000)</b>	
<b>FV</b>	<b>\$ (5,000,000)</b>	
<b>Type</b>	0	

**CUMULATIVE COVERAGE (Chapters 15-17) [Continued]**

**HOMELAND CORPORATION**  
**Bond Effective Interest Table**  
**EFFECTIVE INTEREST RATE 12.56256%**

Date	Cash Interest (12%)	Effective Interest (12.56256%)	Discount Amortized	Carrying Amount
1/1/14				\$4,900,000
12/31/14	\$600,000	\$615,566	\$15,566	4,915,566
12/31/15	600,000	617,522	17,522	4,933,088
12/31/16	600,000	619,723	19,723	4,952,810
12/31/17	600,000	622,200	22,200	4,975,011
12/31/18	600,000	624,989	24,989	5,000,000

**June 1**

Interest Expense ( $\$615,566 \times 30\% \times 5 \div 12$ ).....	76,946	
Cash ( $\$600,000 \times 30\% \times 5 \div 12$ ).....		75,000
Bonds Payable ( $\$15,566 \times 30\% \times 5 \div 12$ ).....		1,946
Interest paid on those bonds that were converted		

**June 1**

Bonds Payable ( $\$4,900,000 \times 30\%$ ) + \$1,946.....	1,471,946	
Contributed Surplus – Conversion Rights*.....		30,000
Common Shares.....		1,501,946
* ( $\$100,000 \times 30\%$ )		

**July 31**

Cash* .....	1,375,000	
Contributed Surplus – Stock Warrants** ...		75,000
Common Shares.....		1,450,000
* ( $\$5,000,000 \div \$1,000 \times 10 \times 50\% \times \$55$ )		
** ( $\$150,000 \times 50\%$ )		

**CUMULATIVE COVERAGE (Chapters 15-17) [Continued]****October 1**

<b>Cash (1,200 X \$55) .....</b>	<b>.. 66,000</b>
<b>Contributed Surplus – Stock Options* .....</b>	<b>.. 15,000</b>
<b>Common Shares .....</b>	<b>81,000</b>
<b>* (\$25,000 ÷ 2,000 X 1,200)</b>	

**December 1**

<b>Common Shares (10,000 X \$45.03)* .....</b>	<b>450,300</b>
<b>Contributed Surplus .....</b>	<b>.. 75,000</b>
<b>Retained Earnings .....</b>	<b>.. 44,700</b>
<b>Cash (10,000 X \$57.00) .....</b>	<b>570,000</b>

**\*Calculation of average per share amount:**

<b>Transaction date</b>	<b>Total paid in for shares</b>	<b>Shares Issued</b>
<b>Opening balance</b>	<b>\$4,000,000</b>	<b>100,000</b>
<b>June 1, 2014</b>	<b>1,501,946</b>	<b>30,000</b>
<b>July 31, 2014</b>	<b>1,450,000</b>	<b>25,000</b>
<b>October 1, 2014</b>	<b>81,000</b>	<b>1,200</b>
<b>Total</b>	<b>\$7,032,946</b>	<b>156,200</b>
<b>Weighted Average</b>	<b>\$7,032,946</b>	<b>= \$45.03</b>
	<b>156,200</b>	

**December 31**

<b>Contributed Surplus – Stock Options* .....</b>	<b>.. 10,000</b>
<b>Salaries and Wages Expense .....</b>	<b>10,000</b>
<b>*(\$25,000 – \$15,000)</b>	

**To record expiry of stock options due to failure to complete  
employment contract**

**CUMULATIVE COVERAGE (Chapters 15-17) [Continued]****(b)****December 31**

Interest Expense (\$615,566 X 70%).....	430,896
Cash (\$600,000 X 70%) .....	420,000
Bonds Payable.....	10,896

**December 31**

Retained Earnings * (**146,200 X \$2.50)....	365,500
Cash.....	365,500

\* Dividends Declared may also be used

\*\* See part (c) below

**Part c)****Weighted average common shares and basic EPS**

<b>Date</b>	<b>Changes</b>	<b># shares</b>	<b>Fraction of year</b>	<b>Weighted Avg</b>
<b>Jan 1-June 1</b>		<b>100,000</b>	<b>5/12</b>	<b>41,667</b>
<b>June 1-July 31</b>	<b>+ 30,000</b>	<b>130,000</b>	<b>2/12</b>	<b>21,667</b>
<b>July 31-Oct 1</b>	<b>+ 25,000</b>	<b>155,000</b>	<b>2/12</b>	<b>25,833</b>
<b>Oct 1-Dec 1</b>	<b>+ 1,200</b>	<b>156,200</b>	<b>2/12</b>	<b>26,033</b>
<b>Dec 1-Dec 31</b>	<b>- 10,000</b>	<b>146,200</b>	<b>1/12</b>	<b>12,183</b>
<b>Total</b>		<b>146,200</b>		<b>127,383</b>

$$\text{Basic EPS} = \$4,000,000 / 127,383 = \$31.40$$

**CUMULATIVE COVERAGE (Chapters 15-17) [Continued]****Diluted EPS**

Effect of each potentially dilutive security:

**i) Bond conversion rights**

Interest expense to July 1 on bonds converted		\$76,946	
Interest paid on December 31 on remaining bonds (70%)		430,896	\$507,842
Less income tax reduction from save interest 25%			(126,961)
Interest avoided net of tax			<u>\$380,881</u>
Maximum number of shares on conversion of all bonds (\$5,000,000 / \$1,000 X 20)		100,000	
Less issued on conversion June 1, 2014		(17,500)	<u>82,500</u>
Per share effect	$\frac{\$380,881}{82,500} =$	\$4.62	

Therefore dilutive

- ii) Warrants – these are antidilutive because the average share price during the year of \$52 is less than the exercise price of \$55.
- iii) Compensatory stock options – these are antidilutive because the average share price during the year of \$52 is less than the exercise price of \$55.

Recalculate EPS:

	Income available to common shareholders	WACS
Basic EPS	\$4,000,000	127,383
12% convertible bond	380,881	82,500
Total	4,380,881	209,883

Therefore, diluted EPS is $\$4,380,881/209,883 = \$20.87$
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**CUMULATIVE COVERAGE (Chapters 15-17) [Continued]****Presentation of EPS**

<b>Basic earnings per common share</b>	<b>\$ 31.40</b>
<b>Diluted earnings per common share</b>	<b>\$ 20.87</b>

**CUMULATIVE COVERAGE (Chapters 15-17) [Continued]****Part d) Statement of Shareholders' Equity**

	Common shares		Contributed Surplus				Retained Earnings
	#	\$	Common Share Repurchase	Conversion Rights	Warrants	Stock Options	
<b>Balance, December 31, 2013</b>	<b>100,000</b>	<b>4,000,000</b>	<b>\$75,000</b>			<b>\$25,000</b>	<b>\$150,000</b>
<b>12% convertible bond</b>				<b>\$100,000</b>	<b>\$150,000</b>		
<b>Portion of bond converted</b>	<b>30,000</b>	<b>1,501,946</b>		<b>(30,000)</b>			
<b>Warrants exercised</b>	<b>25,000</b>	<b>1,450,000</b>			<b>(75,000)</b>		
<b>Stock options exercised</b>	<b>1,200</b>	<b>81,000</b>				<b>(15,000)</b>	
<b>Stock options expired</b>						<b>(10,000)</b>	
<b>Repurchase common shares</b>	<b>(10,000)</b>	<b>(450,300)</b>	<b>(75,000)</b>				<b>(44,700)</b>
<b>Net income</b>							<b>4,000,000</b>
<b>Dividend</b>							<b>(365,500)</b>
<b>Balance, December 31, 2014</b>	<b>146,200</b>	<b>6,582,646</b>	<b>0</b>	<b>\$70,000</b>	<b>\$75,000</b>	<b>0</b>	<b>\$3,739,800</b>

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