

Ubbes Company: Earnings Per Share: Instructor Guide

Title:

Ubbes Company: Earnings Per Share

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Discipline:

Accounting

Target Audience

Intermediate, accounting majors and finance majors

Keywords

EPS, earnings per share

Length of Time/Staging

This problem takes two seventy-five minute sessions or three fifty minute sessions.

Abstract

Having worked through the six phases of the Ubbes Company unfolding PBL problem, students will have learned the complexities of computing and reporting the earnings per share ratio. The



problem leads students into an understanding of calculating the weighted average number of shares outstanding when a company has experienced several changes to owners' equity during the period. They then review how to compute preferred dividends and the treatment thereof in the numerator of basic earnings per share. Once they have calculated basic earnings per share, students learn about the adjustments to the numerator and the denominator required for diluted earnings per share. They first encounter convertible securities, then options. Tests for anti-dilution have been incorporated into the problem. In the final phase, students learn the reporting of earnings per share when items below the line have occurred.

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Format of Delivery

The problem is delivered in a cooperative learning setting with mini-lectures interspersed.

Student Learning Objectives

Having worked through the Ubbes Company unfolding PBL problem, students will be able to accomplish the following:

1. Be able to distinguish between simple and complex capital structures and the earnings per share implications.
2. Calculate the weighted average number of common shares outstanding beginning with the ending balance of shares outstanding. Students will encounter several equity transactions in the process.
3. Calculate preferred dividends and adjust the numerator of basic earnings per share with the result.
4. Calculate basic earnings per share.
5. Adjust both the numerator and the denominator for convertible securities in order to arrive at diluted earnings per share using the "if converted method."
6. Make tests for anti-dilution.
7. Adjust the ratio when stock options exist using the treasury stock method.
 1. Options "in the money."
 2. Additional tests for anti-dilution.
8. Calculate diluted earnings per share.
9. Understand the implication of "below the line" items.
10. Prepare a final report for earnings per share.

Student Resources

Students may use an intermediate financial accounting text as a resource. As an alternative instructors may wish to have students search a system such as the FASB's Financial Accounting Reporting System.



Instructors may provide the students with the attached PBL Worksheet to assist them in their deliberations.

Instructor Resources

SFAS No. 128.

Author's Teaching Notes

1. Begin the first class by giving the students Phase 1 of the unfolding problem.
 - a. They work in groups to answer: 1) What do you know? 2) What do you need to know? 3) How would you use the information that you know and that you need? Instructors should provide a PBL worksheet (See student resources) to assist in organizing their thoughts. Students also discuss where they could find the needed information.
 - b. Note the earnings per share calculation given in the first phase is the result of the simplistic calculation of net income divided by the ending shares outstanding. To some students, this may appear correct.
 - c. Call on group reporters and get items on the board. Ask, "how will knowing [item] help you solve the problem?"
 - d. Do not concern yourself if certain "need to know items" have not arisen. Be patient. Let the students chew on the problem.
 - e. At some time the difference between a simple and a complex capital structure should arise, partially fulfilling the first learning objective. The first learning objective continuously evolves during the first few phases of the problem.
 - f. In the learning objectives below, keep things in tension. Do not make simplifying assumptions such as "working only with basic earnings per share at first." Give the students a chance to discover the teaching aspects of the problem through research and discussion.
2. The second learning objective consists of understanding and calculating weighted average number of shares.
 - a. Hand out Phase 2 of the unfolding problem. Just give the students the information. Let them decide what to do with it.
 - b. After a time students should have been able to calculate weighted average number of shares. A solution follows:
 - i. Students will first need to calculate beginning shares outstanding.

Ending Balance of Shares Outstanding	568,500
Deduct treasury shares sold	30,000 ¹
Adjust this number for the split	divide by 3
Add back treasury shares purchased	20,000

¹ The question of how we can sell back more treasure shares than we own may arise. The answer lies in the stock split.

Deduct shares sold	7,000	192,500
Adjust for the stock dividend divide by 1.1		175,000
Deduct shares sold	25,000	<u>150,000</u>

Thus the beginning balance is 150,000 shares.

- ii. Working from the beginning balance we can get the weighted average number of shares. Teaching point as you do this: The stock split and the stock dividends are adjusted as if they occurred at the beginning of the year.

Beginning Balance:	$150,000 * 12/12 * 3 * 1.1$	495,000
Shares sold:	$25,000 * 10/12 * 3 * 1.1$	68,750
Shares sold:	$7,000 * (5/12) * 3$	8,750
Treasury stock purchased:	$(20,000) * (4/12) * 3$	(20,000)
Treasury stock reissued:	$30,000 * (1/12)$	<u>2,500</u>
Weighted average common shares outstanding:		<u>555,000</u>

Weighted average number of shares is the denominator of basic earnings per share.

- c. After a time students should have been able to calculate weighted average number of shares.
 - d. Ask, "is there anything else we need to know and how will this [item] be used?"
3. The third learning objective consists of understanding the effect of preferred dividends. We are still working on basic earnings per share.
- a. Hand out Phase 3 of the unfolding problem. Just give the students the information. Let them decide what to do with it.
 - b. We must adjust the numerator to reflect net income available to common shareholders. This means deducting preferred dividends.

10% nonconvertible preferred:	$20,000 \text{ shares} * \$100 \text{ par} * 10\%$	\$200,000
8% convertible preferred:	$30,000 \text{ shares} * \$100 \text{ par} * 8\%$	<u>240,000</u>
Total preferred dividends:		<u>\$440,000</u>

- c. Note that cumulative dividends must be deducted whether or not declared, but noncumulative dividends are only deducted if declared.
4. The fourth learning objective is for students to calculate basic earnings per share. Students now have sufficient information to accomplish this. The solution follows:

$$\text{Basic EPS: } (2,565,000 - 440,000) / 555,000 =$$

$$2,125,000 / 555,000 = \$3.83 / \text{share.}$$

Continue to probe students as to whether there is any additional information they need and how they will use it.

5. The fifth learning objective consists of seeing the effect of convertible securities on diluted earnings per share using the if converted method.
 - a. Hand out Phase 4 of the unfolding problem. Just give the students the information. Let them decide what to do with it.
 - b. After students have engaged the problem call on a group to report.
 - c. Make sure the concept of testing for anti-dilution arises. It should, one of the bonds is anti-dilutive. Recognizing this fact fulfills the sixth learning objective.

Test for anti-dilution.

8% convertible preferred

Dividend (see above) \$240,000

Conversion shares: $30,000 * 3 = 90,000$

Test: $\$240,000 / 90,000 = \$2.67 < \$3.83$ dilutive

6% convertible bond

Interest: $(\$3,000,000 - \$100,000) * 7\% * (1 - 30\%) = \$142,100$

Conversion: $3,000 * 40 = 120,000$

Test: $\$142,100 / 120,000 = \$1.18 < \$3.83$ dilutive

9% convertible bond

Interest: $(\$2,000,000 - \$400,000) * 11\% * (1 - 30\%) = \$123,100$

Conversion : $2,000 * 15 = 30,000$

Test: $\$123,100 / 30,000 = \$4.11 > \$3.83$ antidilutive

- d. We must still test by adding one security at a time testing for dilutive effect on incremental earnings per share. We start with the security that has the smallest effect on incremental earnings per share. Here it is the bond.

	Numerator	Denominator	EPS
Simple capital structure	\$2,125,000	555,000	\$3.83
6% bond	<u>142,100</u>	<u>120,000</u>	
	\$2,267,100	675,000	\$3.36
Convertible preferred	<u>240,000</u>	<u>90,000</u>	
	\$2,507,100	765,000	\$3.28

- e. Ask the class, is there anything else we need to know and how will this [item] be used? After class discussion, proceed to Phase 5.

6. The seventh learning objective consists of seeing the effect of stock options using the treasury stock method.

- Hand out page five of the unfolding problem. Just give the students the information. Let them decide what to do with it.
- At this point students have enough information to find shares added to the denominator under the treasury stock method. The solution follows:

Number of shares if converted		100,000
Proceeds of this issue	$100,000 * \$30$	\$3,000,000
Shares purchased with proceed	$\$3,000,000 / \40	75,000
Shares added to denominator		25,000

- Note that only options "in the money" are considered. Conduct a Think-Pair-Share asking, what if the stock price went above \$55/share-say to \$1,000/share-briefly during the year? Could we assume that the executives holding the options would convert? Answer: The first option is still anti-dilutive because the company will get \$55/share for the stock and turn around and buy treasury shares at \$40/share. The effect would be to decrease the denominator, thus raising EPS.
- At this point we must check to see if the convertible securities are still dilutive. The options or warrants are always loaded first because they are always dilutive.

	Numerator	Denominator	EPS
Simple capital structure	\$2,125,000	555,000	\$3.83
Options	<u>-0-</u>	25,000	
	\$2,125,000	580,000	\$3.66
6% bond	<u>142,100</u>	<u>120,000</u>	
	\$2,267,100	700,000	\$3.24
Convertible preferred	<u>240,000</u>	<u>90,000</u>	
	\$2,507,100	790,000	\$3.17

- Because the EPS figure decreases at each stage, all remaining securities are dilutive.
- A student may inquire about the dividend for the nonconvertible preferred stock. It is not added back in the diluted earnings per share calculation because the security is not potentially dilutive.
- The last EPS figure above is diluted earnings per share. Its calculation fulfills the eighth learning objective.
- At this point review the difference between a simple capital structure and a complex capital structure.

- i. A simple capital structure exists when there are no convertible securities and no options or warrants outstanding. A complex capital structure exists when one of these does exist.
 - ii. Firms with simple capital structures need only report basic earnings per share. Firms with complex capital structures must report both basic earnings per share and diluted earnings per share.
 - iii. Antidilutive securities are not factored in. Conduct a Think-Pair-Share asking, what if all potentially dilutive securities turn out to be anti-dilutive? Answer: Basic earnings per share and diluted earnings per share would be the same.
- i. Ask, the class whether there is anything else we need to know and how will this [item] be used? After class discussion proceed to Phase 6.
- 7. The ninth learning objective is to understand the reporting implications of items below the line.
 - a. Hand out Phase 6 of the unfolding problem. Just give the students the information. Let them decide what to do with it.
 - b. Ask, is there anything else we need to know and how will this [item] be used? There should be nothing. The marginal tax rate (30%) was given in Phase 4 of the unfolding problem.
 - c. Once you are at this point, the problem can be completed and the tenth learning objective will be fulfilled. The final solution follows:

Convert the extraordinary gain to a net of tax figure:

$$\$90,000 * 70\% = 63,000$$

Calculations necessary for the final report:

Net income	\$2,565,000
Extraordinary loss net of tax	<u>63,000</u>
Net income from continuing operations	2,628,000
Preferred dividends	<u>(440,000)</u>
Numerator for basic earnings per share (continuing operations)	2,188,000
Bond interest (net of tax)	142,100
Convertible preferred dividend	<u>240,000</u>
Numerator for diluted earnings per share (continuing operations)	\$2,570,100

Final Report:

Earnings Per Share	Basic EPS	Diluted EPS
Continuing operations:		
\$2,188,000 / 555,000	\$3.94	
\$2,570,100 / 790,000		\$3.25
Extraordinary loss		

\$63,000 / 555,000	(\$0.11)	
\$63,000 / 790,000	<u> </u>	<u>(\$0.08)</u>
Net income	\$3.83	\$3.83

8. Review and conclude.

Assessment Strategies

The PBL worksheet that is attached in the teaching note contains a block at the bottom that asks students what they have learned. Throughout the process, the instructor may use student responses to assess learning (formative assessment). Having worked through this problem, students should be able to successfully take traditional accounting tests containing earnings per share questions (summative assessment).

Solution Notes

Contained in the Teaching Notes.