Chapter 19 Share Based Compensation and Earnings Per Share

DILUTED EARNINGS PER SHARE
In a complex capital structure a corporation has securities that are potentially dilutive. That is, if converted, the earnings per share would decrease because the number of shares would have increased. When we have a complex capital structure we are required to report both basic EPS and diluted EPS. This gives the financial statement users an idea of the current status of EPS and under the worst scenario what EPS would be if all of the dilutive securities had been converted into common stock.

The basic EPS formula is identical to the formula shown above. It is the net income less preferred dividends divided by the weighted average of common shares outstanding. The diluted EPS formula takes into account the impact of all of the dilutive securities. It is possible to have convertible securities that do not have a dilutive effect (anti-dilutive.) Such securities would not be included in the formula presented below.

\[
\text{Diluted EPS} = \frac{\text{Net Income less Preferred Dividends plus Bond Interest Expense (net of tax) plus Convertible Preferred Dividends}}{\text{Weighted Average Number of Common Shares Outstanding Assuming Maximum Dilution}}
\]

Options, Rights and Warrants
Stock options, rights and warrants give the holder the right to purchase shares of common stock at a specified price. For the purpose of calculating diluted EPS we assume that the options were exercised on the first day of the fiscal year or the date of issuance if the security was issued during the current fiscal year.

The “treasury stock method” is used to record the dilutive effect of stock options, rights and warrants. This means that we assume that the options or warrants were exercised at the beginning of the year or the date of issue whichever is later and that the proceeds were used to purchase common stock from the treasury. To the extent that the proceeds are not sufficient to purchase all of the shares, the shortfall will be considered the dilutive effect, thus reducing the denominator of the above equation.

Example: Spencer Corporation reported net income of $300,000 in 2003 and had 200,000 shares of common stock outstanding throughout the year. Also outstanding all year were 30,000 options to purchase common stock at $10 per share. The average market price of the stock during the year was $15. Compute diluted earnings per share using the format provided.
Chapter 19 Share Based Compensation and Earnings Per Share

Treasury Stock Method

Shares assumed issued
Assumed proceeds: ?
Number of shares ?
Exercise price ?
Proceeds ?
Divided by average market price ?
Number of shares from treasury ?
Incremental shares ?

Adjusted Weighted-Average Common Shares Outstanding

Weighted-average common shares outstanding ?
Additional shares from options ?
Adjusted weighted-average common shares ?

Diluted EPS = $ \frac{\text{Proceeds}}{\text{shares}} = $

Solution:

Treasury Stock Method

Shares assumed issued 30,000
Assumed proceeds:
Number of shares 30,000
Exercise price $10
Proceeds $300,000
Divided by average market price $15
Number of shares from treasury 20,000
Incremental shares 10,000

Adjusted Weighted-Average Common Shares Outstanding

Weighted-average common shares outstanding 200,000
Additional shares from options 10,000
Adjusted weighted-average common shares 210,000

Diluted EPS = $ \frac{\$300,000}{210,000 \text{ shares}} = $1.43

Convertible Securities
Chapter 19 Share Based Compensation and Earnings Per Share

The “if-converted method” is used to account for the dilutive effects of potential conversion of convertible securities. We assume that

a) the conversion takes place on the first day of the current fiscal year or the date of issuance if the security was issued during the current fiscal year
b) interest expense (net of tax) and/or convertible preferred dividends associated with the security, are added back to net income

1. Convertible Bonds

With respect to convertible bonds both the numerator and the denominator of the basic EPS equation must be adjusted to derive diluted EPS. The net income (numerator) is increased by the interest expense (net of tax) that would be saved if the bonds had been converted on the first day of the year. The weighted average number of shares outstanding (denominator) is increased by the number of shares in the conversion option.

The basic equation is adjusted to derive diluted EPS as follows:

\[
\begin{align*}
\text{Numerator} & \quad \text{Net income less preferred dividends is increased by} \\
\text{Denominator} & \quad \text{Weighted average shares of common stock is increased by number of shares assumed issued}
\end{align*}
\]

Exercise: Spencer Company earned net income of $300,000 in 2003 and had 100,000 shares of common stock outstanding throughout the year. Also outstanding all year was $400,000 of 10% bonds, which are convertible into 16,000 shares of common stock. Spencer Company’s tax rate is 40%. Compute Spencer Company’s 2003 basic and diluted EPS using the format provided below:

**BASIC EPS**

\[
\text{Basic EPS} = \frac{\$300,000}{100,000 \text{ shares}} = \$3.00
\]

**Solution:**

\[
\text{Basic EPS} = \frac{\$300,000}{100,000 \text{ shares}} = \$3.00
\]

**DILUTED EPS**
Chapter 19 Share Based Compensation and Earnings Per Share

If-Converted Method

Adjustment to income available to common shares:
Net income
Interest expense
Income taxes
Interest expense (net of tax)
Adjusted income available to common shares

Adjustment to weighted-average common shares:
Weighted-average common shares
Conversion of convertible preferred shares
Adjusted weighted-average common shares

Solution

If-Converted Method

Adjustment to income available to common shares:
Net income $300,000
Interest expense $40,000
Income taxes 16,000
Interest expense (net of tax) 24,000
Adjusted income available to common shares $324,000

Adjustment to weighted-average common shares:
Weighted-average common shares 100,000
Conversion of convertible preferred shares 16,000
Adjusted weighted-average common shares 116,000

Diluted EPS = \frac{$324,000}{116,000 \text{ shares}} = $\underline{2.79}

2. Convertible Preferred Stock
As with convertible bonds, both the numerator and the denominator of the basic EPS equation must be adjusted to derive diluted EPS. The net income (numerator) is increased by the convertible preferred dividends that would be saved if the preferred shares had been converted on the first day of the year. The weighted average number of shares outstanding (denominator) is increased by the number of shares in the conversion option.
Chapter 19 Share Based Compensation and Earnings Per Share

The basic equation is adjusted to derive diluted EPS as follows:

\[
\begin{align*}
\text{Numerator} & \quad \text{Net income less preferred dividends is increased by convertible preferred dividends} \\
\text{Denominator} & \quad \text{Weighted average shares of common stock is increased by number of shares assumed issued}
\end{align*}
\]

**Example:** Spencer Company earned net income of $725,000 in 2003 and had 500,000 shares of common stock outstanding throughout the year. Also outstanding all year was 25,000 shares of 5% convertible preferred. The preferred stock has a par value of $100 par share. Each share could be converted six shares of common stock. Spencer Company’s tax rate is 40%. Spencer Company’s 2003 basic and diluted EPS would be calculated as follows:

**BASIC EPS**

\[
\text{Basic EPS} = \frac{\$600,000}{500,000} = \$1.20
\]

**Income available to common shares**

\[
\begin{align*}
\text{Net income} & \quad \$725,000 \\
\text{Less: preferred dividends} & \quad 125,000 \\
\text{Available to common shares} & \quad \$600,000
\end{align*}
\]

**DILUTED EPS**

\[
\text{Diluted EPS} = \frac{\$725,000}{650,000} = \$1.12
\]

**Adjustment to income available to common shares:**

\[
\begin{align*}
\text{Net income} & \quad \$725,000 \\
\text{Less preferred dividends} & \quad 125,000 \\
\text{Income available to common shares} & \quad 600,000 \\
\text{Plus: convertible preferred dividends} & \quad 125,000 \\
\text{Adjusted income available to common shares} & \quad \$725,000
\end{align*}
\]

**Adjustment to weighted-average common shares:**

\[
\begin{align*}
\text{Weighted-average common shares} & \quad 500,000 \\
\text{Conversion of convertible preferred shares} & \quad 150,000 \\
\text{Adjusted weighted-average common shares} & \quad 650,000
\end{align*}
\]

**Antidilutive Securities**
Chapter 19 Share Based Compensation and Earnings Per Share

At times the exercise of options or the conversion of convertible securities will increase rather than decrease EPS. This are called antidilutive securities and are omitted from the equation in calculating diluted EPS.

1. Options, Warrants, Rights
   Remember that we use the treasury stock method in calculating the dilutive effect of the exercise of stock options, warrants or rights. If the average market price of the common stock is less than the exercise price it is highly unlikely that the holder of the options would actually execute a transaction. The effect would be antidilutive. Therefore stock options, warrants and rights are only included in the calculation of diluted EPS when the average market price exceeds the exercise price.

2. Convertible Securities
   To determine if convertible securities have a dilutive effect on EPS we have to calculate the incremental effect of the conversion of each type of security. If the securities are dilutive on an individual basis (bonds and preferred stocks) the next test is to add one type of security at a time to the equation starting with the security that has the lowest incremental effect (the most dilutive).

Example: The following pertains to Spencer Company for 2003:

Net income for the year $1,200,000
8% convertible bonds issued at par ($1,000) per bond.
Each bond is convertible into 40 shares of common stock 2,000,000
6% convertible, cumulative preferred stock, $100 par value.
Each share convertible into 4 shares of common stock 3,000,000
Common stock, $10 par value 6,000,000
Tax rate 40%

The calculation of basic EPS is as follows:

\[
\text{Basic EPS} = \frac{\$1,020,000}{600,000} = \$1.70
\]

Income available to common shares
Net income $1,200,000
Less preferred dividends 180,000
Income available to common shares $1,020,000

To determine diluted EPS we need to calculate the incremental effect of the addition of each of the convertible securities.

Analysis of Conversion of Bonds
Chapter 19 Share Based Compensation and Earnings Per Share

**Incremental increase in income**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest (net of tax)</td>
<td></td>
</tr>
<tr>
<td>Interest expense</td>
<td>$160,000</td>
</tr>
<tr>
<td>Income taxes</td>
<td>64,000</td>
</tr>
<tr>
<td>Interest expense (net of tax)</td>
<td></td>
</tr>
<tr>
<td>Incremental increase in income</td>
<td>$96,000</td>
</tr>
</tbody>
</table>

**Incremental number of additional shares**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of bonds</td>
<td>2,000</td>
</tr>
<tr>
<td>Conversion ratio</td>
<td>40</td>
</tr>
<tr>
<td>Incremental increase in shares</td>
<td>80,000</td>
</tr>
</tbody>
</table>

**Incremental effect of converting bonds**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incremental increase in income</td>
<td>$96,000</td>
</tr>
<tr>
<td>Incremental increase in shares</td>
<td>80,000</td>
</tr>
<tr>
<td>Incremental effect of converting bonds</td>
<td>$1.20</td>
</tr>
</tbody>
</table>

**Analysis of Conversion of Preferred Stock**

**Incremental increase in income**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convertible preferred dividends</td>
<td>$180,000</td>
</tr>
<tr>
<td>Incremental increase in income</td>
<td>$180,000</td>
</tr>
</tbody>
</table>

**Incremental number of additional shares**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of convertible preferred shares</td>
<td>30,000</td>
</tr>
<tr>
<td>Conversion ratio</td>
<td>4</td>
</tr>
<tr>
<td>Incremental increase in shares</td>
<td>120,000</td>
</tr>
</tbody>
</table>

**Incremental effect of preferred stock**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incremental increase in income</td>
<td>$180,000</td>
</tr>
<tr>
<td>Incremental increase in shares</td>
<td>120,000</td>
</tr>
<tr>
<td>Incremental effect of converting preferred stock</td>
<td>$1.50</td>
</tr>
</tbody>
</table>

The convertible bonds have a lower incremental effect $1.20 than the convertible preferred stock, therefore the convertible bonds will be added first to the calculation of diluted EPS. Convertible securities are added from the lowest to the highest incremental effect.

**Tentative Calculation of Diluted EPS (conversion of bonds)**
Adjusted income available to common shares

Net income $1,200,000
Less preferred dividends 180,000
Income available to common shares 1,020,000
Add: bond interest net of tax 96,000
Adjusted income available to common shares $1,116,000

Adjusted common shares outstanding
Weighted-average common shares 600,000
Conversion of bonds 80,000
Adjusted common shares outstanding 680,000

Tentative Diluted EPS
Adjusted income available to common shares $1,116,000
Adjusted common shares outstanding 680,000
Tentative Diluted EPS $1.64

Since the incremental effect of the conversion of the convertible preferred stock ($1.50) is less than the tentative diluted EPS the convertible preferred stock will be added to the final equation to derive diluted EPS.

Final Calculation of Diluted EPS (conversion of preferred stock)

Adjusted income available to common shares
Tentative income available to common shares $1,116,000
Add: convertible preferred dividends 180,000
Adjusted income available to common shares $1,296,000

Adjusted common shares outstanding
Tentative common shares outstanding 680,000
Conversion of preferred stock 120,000
Adjusted common shares outstanding 800,000

Final Diluted EPS
Adjusted income available to common shares $1,296,000
Adjusted common shares outstanding 800,000
Diluted EPS $1.62