

**Solution:**

(1)

At the end of 2018, there are 2 million common stocks issued, and the common stockholders' equity is given by

$$\text{Common Equity} = \text{Total} - \text{Preferred Equity} = 120 - 15 = \$105 \text{ million}$$

, meaning that the book value will be:

$$\text{Book Value Per Share (Common Stock)} = \$ \frac{105 \text{ million}}{2 \text{ million}} = \$52.50$$

(2)

The rate of return of common equity is given by:

$$ROE = \frac{\text{Net income} - \text{Preferred Dividend}}{\text{Average common equity}}$$

Now, let us find the dividend.

The preferred dividend is given by:

$$\text{Preferred dividend} = \$15 \times 0.08 = \$1.2 \text{ million}$$

Moreover, the net income is already given to be \$14 million. Also, the average common equity is calculated to be:

$$\text{Average common equity} = \frac{(120 - 15) + (112 - 15)}{2} = \$101 \text{ million}$$

Thus, we get the value as:

$$ROE = \frac{\$14 \text{ million} - \$1.2 \text{ million}}{\$101 \text{ million}} = 12.67\%$$

(3)

Let us calculate the dividends declared as follows:

$$\begin{aligned} \text{Dividends paid} &= \text{Beginning Retained Earnings} + \text{Income} \\ &\quad - \text{Ending Retained Earnings} \\ &= \$65.2 + \$14 - \$71 = \$8.2 \text{ million} \end{aligned}$$

Since the dividends paid to the preferred holders is given by \$1.2 million, the dividend paid to the common stockholders is given by \$7 million.

