

## 5.21: Market Value Ratios

### Learning Objectives

By the end of this section, you will be able to:

- Calculate earnings per share to determine the portion of profit allocated to each outstanding share of common stock.
- Evaluate firm value using the price/earnings ratio and book value per share.

In this section we will turn our attention to market value ratios, measures used to assess a firm's overall market price. Common ratios used include earnings per share, the price/earnings ratio, and book value per share.

### Earnings per Share (EPS)

Earnings per share (EPS) measures the portion of a corporation's profit allocated to each outstanding share of common stock. An increasing earnings per share can drive up a stock price. Conversely, falling earnings per share can lower a stock's market price. Earnings per share is also a component in calculating the price-to-earnings ratio (the market price of the stock divided by its earnings per share), which many investors find to be a key indicator of the value of a company's stock.

It's key to note, however, that EPS, like any ratio, should be used with caution and in tandem with other ratios and contextual data. Many financial professionals choose not to rely on income statement data and, similarly, EPS because they feel the cash flow statement provides more reliable and insightful information.

### Concepts In Practice

#### Alibaba Group Earnings Announcements Continue to Exceed Market Expectations

Alibaba, a Chinese-based company traded in the United States, exceeded market expectations in 2020 quarterly earnings releases. In the November 2020 earnings release, Alibaba reported earnings per share of 17.97 yuan versus market estimates of 14.33. Despite many companies struggling due to the pandemic, Alibaba reported strong earnings as a result of the surge in online shopping and remote work.

(sources: "Alibaba Beats Estimates as Pandemic Fuels Online, Cloud Computing Demand." *CNBC*. August 20, 2020. <https://www.cnbc.com/2020/08/20/alib...estimates.html>; Emily Bary. "Alibaba Earnings Top Expectations as Pandemic Drives Increased Digital Purchases. *Market Watch*. August 20, 2020. [www.marketwatch.com/story/al...ses-2020-08-20](http://www.marketwatch.com/story/al...ses-2020-08-20); Matthew Johnston. "Alibaba Earnings: What Happened." *Investopedia*. November 5, 2020. <https://www.investopedia.com/alibaba...rnings-5085444>; Chris Versace. "Why S&P 500 EPS Expectations Showcase the Need for Thematic Investing." *Tematica Research*. June 3, 2020. <https://www.tematicaresearch.com/why...atic-investing>)

### Calculating Earnings per Share

Earnings per share is the profit a company earns for each of its outstanding common shares. Both the balance sheet and income statement are needed to calculate earnings per share. The balance sheet provides details on the preferred dividend rate, the total par value of the preferred stock, and the number of common shares outstanding. The income statement indicates the net income for the period. The formula to calculate basic earnings per share is

$$\text{Earnings per Share} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Weighted Average Common Shares Outstanding}}$$

Dividends  
Weighted Average Common Shares Outstanding  
Earnings per Share =  $\frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Weighted Average Common Shares Outstanding}}$

5.21.1

By removing the preferred dividends from net income, the numerator represents the profit available to common shareholders. Because preferred dividends represent the amount of net income to be distributed to preferred shareholders, this portion of the income is obviously not available for common shareholders. While a number of variations of measuring a company's profit, such as NOPAT (net operating profit after taxes) and EBITDA (earnings before interest, taxes, depreciation, and amortization), are used in the financial world, GAAP requires companies to calculate earnings per share based on a corporation's net income, as this amount appears directly on a company's income statement, which for public companies must be audited.

In the denominator, only common shares are used to determine earnings per share because earnings per share is a measure of earnings for each common share of stock. The denominator can fluctuate throughout the year as a company issues and buys back shares of its own stock. The weighted average number of shares is used on the denominator because of this fluctuation. To illustrate, assume that a corporation began the year with 600 shares of common stock outstanding and then on April 1 issued 1,000 more shares. During the period January 1 to March 31, the company had the original 600 shares outstanding. Once the new shares were issued, the company had the original 600 plus the new 1,000 shares, for a total of 1,600 shares for each of the next nine months—from April 1 to December 31. To determine the weighted average shares, apply these fractional weights to both of the stock amounts (see Figure 5.21.1).

Number of Shares	×	Portion of Year	=	Weighted Shares
600	×	3/12	=	150
1,600	×	9/12	=	1,200
Weighted Average Shares				<u>1,350</u>

Figure 5.21.1: Weighted Shares

If the shares were not weighted, the calculation would not consider the time period during which the shares were outstanding.

To illustrate how earnings per share is calculated, assume Clear Lake Sporting Goods earns \$35,000 in net income during the current year. During the year, the company also declared a \$5,000 dividend on preferred stock and a \$6,000 dividend on common stock. The company had 8,000 common shares outstanding the entire year. Clear Lake Sporting Goods has generated \$3.75 of earnings (\$35,000 less the \$5,000 of preferred dividends) for each of the 8,000 common shares of stock it has outstanding.

$$\text{Earnings per Share} = \frac{\$35,000 - \$5,000}{8,000} = \$3.75$$

## 5.21.2

### Measuring Performance with Earnings per Share

Earnings per share is a key profitability measure that both current and potential common stockholders monitor. Its importance is accentuated by the fact that GAAP requires public companies to report earnings per share on the face of a company's income statement. This is the only ratio that requires such prominent reporting. If fact, public companies are required to report two different earnings per share amounts on their income statements—basic and diluted. We've illustrated the calculation of basic earnings per share. Diluted earnings per share, which is not demonstrated here, involves the consideration of all securities, such as stocks and bonds, that could potentially dilute, or reduce, the basic earnings per share.

#### Link to Learning

##### Finding Earning per Share for Public Companies

Where can you find earnings per share information on public companies? Use the Yahoo! Finance website to look up stock and earnings per share data for Tellurian Inc. (TELL), Amazon (AMZN), or CVS Pharmacy (CVS). Or use the search function to search for earnings per share data for your favorite corporation. Enter the ticker for the company you are looking up, and a basic chart and graph will display with stock price data along with several commonly used ratios (including earnings per share).

As you review data, keep in mind that a company can manipulate or impact its earnings per share by issuing new shares or buying back issued shares. What are the ethical implications of earnings per share calculations?

Common stock shares are normally purchased by investors to generate income through dividends or to sell at a profit in the future. Investors realize that inadequate earnings per share can result in poor or inconsistent dividend payments and fluctuating stock prices. As such, companies seek to produce earnings per share amounts that rise each period. However, an increase in earnings per share may not always reflect favorable performance, as there are multiple reasons that earnings per share may increase. One way earnings per share can increase is through increased net income. On the other hand, it can also increase when a company buys back its own shares of stock.

For example, assume that Clear Lake Sporting Goods generated net income of \$30,000 and paid out \$3,000 in preferred shareholder dividends last year. In addition, 10,550 shares of common stock were outstanding throughout the entire year. In January of the current year, the company buys back shares of its common stock and holds them as treasury shares, making its current weighted average shares outstanding for this year 8,000. Net income for the current year is \$35,000, \$5,000 of which was paid to preferred shareholders in dividends. In the prior year, the company's earnings per share were

$$\text{Earnings per Share} = \frac{\$30,000 - \$3,000}{10,550} = \$2.56$$

### 5.21.3

Clear Lake Sporting Goods' current year earnings per share is

$$\text{Earnings per Share} = \frac{\$35,000 - \$5,000}{8,000} = \$3.75$$

### 5.21.4

The purchase of treasury stock in the current year reduces the common shares outstanding to 8,000 because treasury shares are considered issued but not outstanding. Earnings per share for the current year is now \$3.75 per share even though earnings only increased by \$5,000. It's key to note the impact of purchasing treasury stock and the intentions in doing so. Treasury stock is commonly purchased for a variety of reasons, but doing so to intentionally manipulate earnings per share should not be a primary reason.

This increase in earnings per share occurred because the net income is now spread over fewer shares of stock. Similarly, earnings per share can decline even when a company's net income increases if the number of shares increases at a higher degree than net income.

## Concepts In Practice

### Stock Buybacks Can Drive Up Earnings per Share: Ethical?

As many companies struggled to make ends meet or meet their cash flow needs amid the COVID-19 pandemic, some companies continued to thrive. Apple continued to have a healthy financial position with ample cash supply. It repurchased \$18.5 billion of its own stock in the second quarter of 2020.<sup>1</sup> The total stock buyback over the preceding five years was \$282.87 billion, which is 3.5 times higher than any other company. Since the earnings per share calculation is earnings divided by average outstanding shares, the fewer shares there are outstanding, the higher the earnings per share goes without the firm having to actually raise earnings.

What do you think? Did Apple act ethically in repurchasing large quantities of its own shares? Is it ethical for any company to do so? If you were an investor or analyst, what questions would you ask or what cautions would you take in assessing and comparing earnings per share data?

(sources: Wayne Duggan. "7 S&P 500 Companies with Stock Buybacks." *US News & World Report*. December 14, 2020. [money.usnews.com/investing/s...ybacks?slide=2](https://money.usnews.com/investing/s...ybacks?slide=2); "Apple's \$460 Billion Stock Buyback." *Above Avalon*. April 23, 2020. <https://www.aboveavalon.com/notes/20...-stock-buyback>; "Apple Stock Buybacks (Quarterly)." *Ycharts*. n.d. [ycharts.com/companies/AAPL/stock\\_buyback](https://ycharts.com/companies/AAPL/stock_buyback))

## Link to Learning

### Stock Buybacks

This *Wall Street Journal* [video about stock buybacks](#) explains the various perspectives on the subject. It walks through the basic concepts of how buybacks work and explores some viewpoints on whether buybacks are good, bad, or otherwise.

To put a firm's earnings per share into perspective and allow for a more meaningful analysis, earnings per share is often tracked over a number of years, such as when presented in the comparative income statements for Clear Lake Sporting Goods (see Figure 5.21.2).

Clear Lake Sporting Goods Comparative Year-End Income Statements			
	Current Year	Prior Year	2 Years Prior
Net Sales	\$120,000	\$100,000	\$90,000
Cost of Goods Sold	60,000	50,000	45,000
Gross Profit	60,000	50,000	45,000
Rent Expense	5,500	5,000	5,000
Depreciation Expense	3,600	2,500	2,000
Salaries Expense	5,400	3,000	2,750
Utility Expense	2,500	1,500	1,250
Operating Income	43,000	38,000	34,000
Interest Expense	2,000	3,000	2,000
Income Tax Expense	6,000	5,000	5,000
Net Income	\$ 35,000	\$ 30,000	\$27,000
Basic Weighted Shares Outstanding	8,000	10,550	11,100
Basic Net Income per Share (EPS)	\$ 3.75	\$ 2.56	\$ 2.21
Common Dividends	\$ 6,000	\$ 4,000	\$ 3,500
Preferred Dividends	\$ 5,000	\$ 3,000	\$ 2,500

Figure 5.21.2: Comparative Year-End Income Statements Earnings per share year after year can be a good indication of a company's financial health.

Most analysts believe that a consistent improvement in earnings per share year after year is an indication of continuous improvement in the earning power of a company. This is what is seen in Clear Lake Sporting Goods' earnings per share amounts over each of the three years reported, moving from \$2.21 to \$2.56 to \$3.75. However, it is important to remember that earnings per share is calculated on historical data, which is not always predictive of the future.

### Think It Through

#### Would You Have Invested?

What if, in 1997, you invested \$5,000 in Amazon? Today, your investment would be worth nearly \$6 million. Potential investors viewing Amazon's income statement in 1997 would have seen earnings per share of negative \$1.27. In other words, Amazon lost \$1.27 for each share of common stock outstanding. Would you have invested?

### Price/Earnings (P/E) Ratio

The price/earnings (P/E) ratio measures the current market share price of a company's stock relative to its earnings per share (EPS). The ratio is helpful in comparing performance and stock price of a company to other companies. It's also helpful in evaluating how much investors are willing to pay for earnings performance. Investors, in particular, use this ratio and rely on two key characteristics: past performance (trailing) and future estimates (forward). Trailing data can be calculated but is also easily found online, as it's a common measure reported on financial sites. Investors will often look for P/E TTM, which is the price/earnings ratio for the trailing 12 months (last year worth of earnings data). This helps investors assess one day's stock price relative to the earnings per share over the past 12 months. P/E ratio is widely used by investors to determine if a stock is over- or undervalued. It also helps them compare one firm to that of the industry average or index, such as the S&P 500.

$$\text{Price/Earnings Ratio} = \frac{\text{Market Value per Share}}{\text{Earnings per Share}}$$

5.21.5

In the prior section we saw earnings per share data for Clear Lake Sporting Goods. Using its current year earnings per share of \$3.75 and the current stock price of \$69.41, we can calculate price/earnings ratio for Clear Lake Sporting Goods:

$$\text{Price Earnings Ratio} = \frac{\$69.41}{\$3.75} = 18.51$$

5.21.6

An 18.51 ratio means an investor would expect to invest \$18.51 to gain \$1 of earnings.

### Book Value per Share

Book value per share is often used hand in hand with market value per share. Investors compare the two in order to see if the stock is possibly over- or undervalued. Book value is derived from accounting practices and shows the value of the firm on paper. Market value, on the other hand, is determined by supply and demand, based on what investors are willing to pay for the stock. If the market value per share is higher than the book value, the stock is considered overvalued. If the market value is lower than the book value, it's considered undervalued.

In theory, book value per share represents the total value common shareholders would receive if the firm were liquidated. It is total equity less preferred equity, spread across the total shares outstanding. The formula to calculate book value per share is

$$\text{Book Value per Share} = \frac{\text{Total Equity} - \text{Preferred Equity}}{\text{Total Shares Outstanding}}$$

5.21.7

The book value per share for Clear Lake Sporting Goods is

$$\text{Book Value per Share} = \frac{\$100,000 - \$20,000}{8,000} = \$10$$

5.21.8

If investors compared the book value per share of \$10.00 for Clear Lake Sporting Goods to the P/E ratio of 18.51, they would likely conclude that the stock was undervalued in the year of analysis.

### Link to Learning

#### Book Value versus Market Value of Shares

This [video about book value and market value](#) explains the basic concepts and discusses how the two differ. Samples of the concept are then explored using Apple Inc. as an example.

### Footnotes

- 1 Bill Maurer. "Apple: New Highs Seem Likely." Seeking Alpha. May 11, 2020. [seekingalpha.com/article/434...hs-seem-likely](https://seekingalpha.com/article/434...hs-seem-likely)

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