

# Relative Value Ratios

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**GRADE LEVEL(S):** 9, 10, 11, 12

## ≡ OVERVIEW:

This lesson continues to look at the investor’s decision-making process. Financial documents and financial ratios are one piece of this puzzle. In this lesson, students will learn about another piece of evidence that investors use when making choices: relative value ratios. This lesson will cover the main relative value ratio (P/E ratio), giving students more tools for their investment toolbox.

## ≡ NBEA STANDARD(S):

- Entrepreneurship, IV. Finance
- Entrepreneurship, V. Accounting

## ≡ RELATED ARTICLES:

- [“Research Strategies for New Investors”](#)
- [“Portfolio Management: Making Decisions about Your Investments”](#)
- [“Financial Ratios: Evaluating a Company’s Health and Worth”](#)
- [“10 Terms New Investors Should Know”](#)

## NBEA Standard(s):

- Accounting: Financial Reports
- Accounting: Financial Analysis
- Accounting: Interpretation and Use of Data
- Finance: Industry Analysis
- Finance: Financial Decision Making

**Common Core Standard(s):** A-REI

**Objectives/Purposes:** The purpose of this lesson is for students to understand and apply different relative value ratios. After this lesson, students will be able to define and calculate earnings per share and price/earnings ratio; moreover, students will be able to use these ratios to inform their investment decisions. Students should also be familiar with other relative value ratios that investors may use (e.g. price/sales, price/cash flow).

**Knowledge@Wharton Article:** [“How Employee Stock Options Can Influence the Value of Ordinary Shares”](#)

**Tying It All Together:**

The lesson is divided into five parts: (1) Introduction, (2) Definitions, (3) Activity, (4) Guided Reading, and finally (5) Closing

*Introduction (5 mins)*

In this lesson, we will be once again looking at the major financial documents released by publicly traded companies. More specifically, this lesson focuses on how investors create relative value ratios based on financial documents to compare and contrast the value of a company's stock. Before introducing students to these ratios, it is important to once again provide a background for the students.

During the lesson introduction, have the class briefly go over the three main financial statements and the key financial ratios. If your class has not gone over this material before, teachers should look to lesson 9 of this unit. As a class, or in small groups, have students elaborate on the different types of financial ratios: liquidity, operating efficiency, and risk.

These ratios provide information about the internal health of the company. Today we will be looking at ratios that help us understand how the company performs relative to other companies in the industry.

### *Definitions (20-25 mins)*

Before defining terms, it is important for students to understand why relative value ratios are important. Investors use these ratios to get an idea of the relative value of a stock. For example, by comparing the price/earnings (P/E) ratio of one company to the average P/E ratio of its competitors, an investor gains insight into if the company is over or under valued. In other words, relative value ratios are a tool for investors to directly compare investments.

Start a discussion around this topic before introducing vocabulary. Begin by asking students how investors make their decisions. Expand the discussion by asking how investors decide *between* investments.

One way to think about the value of a company is to look at its **earnings per share (EPS)**:

$$\text{EPS} = \text{Net Income} / \text{Average Outstanding Shares}$$

In other words, EPS divides a company's net income by the total number of stock shares. EPS tells us the proportion of profit associated with each individual share of stock. In a way, EPS tells an investor how much of (company) "profit" one share can buy.

Building on this informant, the **price-to-earnings (P/E) ratio** tells investors how EPS relates to the price of a company's stock. A P/E ratio tells us how much we are paying for \$1 of a company's profit:

$$\text{P/E ratio} = \text{price of 1 share of stock} / \text{EPS}$$

Just looking at this equation, students should notice a few things. As the stock price goes up (as the investment becomes more expensive), the P/E ratio goes up. Similarly, as the EPS increases (as the company reports higher profits with fewer outstanding shares of stock), the P/E ratio goes down. Stocks with comparatively higher P/E ratios may be less attractive investments or overvalued. Stocks with comparatively lower P/E ratios may be less attractive investments or overvalued. Remember that is important to compare stocks within an industry.

### *Activity (10-15 mins)*

It is critical for students to recognize that P/E ratios differ by industry. In other words, some industries may have companies with high P/E ratios across the board. This does not mean that the entire industry is necessarily overvalued. What we want to compare is the P/E ratio of a

company *relative* to other companies around it. To emphasize this point, the following activity should focus on multiple companies within the same industry.

If your class has access to a computer, have the class pick an industry (e.g. airlines, apparel, computer hardware, etc.). As a class, create a list of 5 to 10 different companies that compete in this industry. Once you have created a list, use [finance.yahoo.com](https://finance.yahoo.com) to search for each company's financial information. Using the search bar on this page, you can find detailed information for each company that students choose. Type the name of the company in the "get quotes" search bar. All the information should be listed on the company's display page. For each company, have students find:

1) Price

2) EPS

3) P/E ratio (*note: P/E ratios are listed on the Yahoo! website; however, encourage your students to create the ratio themselves using the equation above*)

Once you have found the information for all of the students' companies, have students compare and contrast. What do they notice? Which seems like a good investment? Why?

If you do not have access to a computer in the classroom, choose 5-10 companies on your own. Again, choose companies from a similar industry. Create a list of the prices and EPS for each company. Break students into small groups and have each group calculate the P/E ratio for the companies listed. Again, have students compare and contrast.

*Guided Reading (5-10 mins)*

To continue this discussion of relative value ratios, have students read through the Knowledge@Wharton article "[How Employee Stock Options Can Influence the Value of Ordinary Shares.](#)" After students read, encourage them to think about how companies might control their financial reports. Are these trustworthy documents? Why or why not?

*Closing (10-15 mins)*

Depending on students' interest level, close the lesson by expanding the discussion of trustworthiness or by expanding students' knowledge of relative value ratios.

For trustworthiness, ask students *why* they think companies might want to influence the reporting of financial information. Is there a benefit to reporting a higher EPS? Next, ask students what prevents companies from manipulating their financial information. This conversation can talk about investor confidence, customer confidence, and federal regulations (i.e. SEC).

For relative value ratios, build on the definition of a P/E ratio by introducing students to other ratios, such as,

- Price/Sales (P/S) Ratio = (total shares \* current stock price) / total sales
- Price/Cash Flow Ratio = Share Price / (Cash flow per share)

Each of these ratios offers additional insight into the relative performance of a company's stock. Comparing the P/E ratio to the P/S ratio, students should recognize that the P/S ratio helps investors better understand companies in low-earnings periods. Rather than write these companies off, investors can compare price to sales. Similarly, the Price-to-Cash-Flow ratio gives investors a relative measure of a company's share price as a proportion of its cash. Regardless of the measure, relative value ratios help investors compare across companies within industries.

### **What Worked and What I Would Do Differently:**

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