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P/E Ratio Tutorial

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Introduction

Chances are you've heard the term [price/earnings ratio](#) (P/E ratio) used before. When it comes to valuing stocks, the price/earnings ratio is one of the oldest and most frequently used metrics.

Although a simple indicator to calculate, the P/E is actually quite difficult to interpret. It can be extremely informative in some situations, while at other times it is next to meaningless. As a result, investors often misuse this term and place more value in the P/E than is warranted.

In this tutorial, we'll introduce you to the P/E ratio and discuss how it can be used in security analysis and, perhaps more importantly, how it should not be used.

If you don't have a solid understanding of stocks and how they trade on the stock market, we also suggest that you check out our [Stock Basics](#) tutorial

What Is It?

P/E is short for the ratio of a company's share price to its per-share earnings. As the name implies, to calculate the P/E, you simply take the current stock price of a company and divide by its earnings per share (EPS):

$$\text{P/E Ratio} = \frac{\text{Market Value per Share}}{\text{Earnings per Share (EPS)}}$$

Most of the time, the P/E is calculated using EPS from the last four [quarters](#). This is also known as the [trailing P/E](#). However, occasionally the EPS figure comes from estimated earnings expected over the next four quarters. This is known as the [leading or projected P/E](#). A third variation that is also sometimes seen uses the EPS of the past two quarters and estimates of the next two quarters.

There isn't a huge difference between these variations. But it is important to realize that in the first calculation, you are using actual historical data. The other two calculations are based on analyst estimates that are not always perfect or precise.

Companies that aren't profitable, and consequently have a negative EPS, pose a challenge when it comes to calculating their P/E. Opinions vary on how to deal with this. Some say there is a negative P/E, others give a P/E of 0, while most just say the P/E doesn't exist.

Historically, the average P/E ratio in the market has been around 15-25. This fluctuates significantly depending on economic conditions. The P/E can also vary widely between different companies and industries.

Using The P/E Ratio

Theoretically, a stock's P/E tells us how much investors are willing to pay per dollar of earnings. For this reason it's also called the "multiple" of a stock. In other words, a P/E ratio of 20 suggests that investors in the stock are willing to pay \$20 for every \$1 of earnings that the company generates. However, this is a far too simplistic way of viewing the P/E because it fails to take into account the company's growth prospects.

Growth of Earnings

Although the EPS figure in the P/E is usually based on earnings from the last four quarters, the P/E is more than a measure of a company's past performance. It also takes into account market expectations for a company's growth. Remember, stock prices reflect what investors think a company will be worth. Future growth is already accounted for in the stock price. As a result, a better way of interpreting the P/E ratio is as a reflection of the market's optimism concerning a company's growth prospects.

If a company has a P/E higher than the market or industry average, this means that the market is expecting big things over the next few months or years. A

company with a high P/E ratio will eventually have to live up to the high rating by substantially increasing its earnings, or the stock price will need to drop.

A good example is Microsoft. Several years ago, when it was growing by leaps and bounds, and its P/E ratio was over 100. Today, Microsoft is one of the largest companies in the world, so its revenues and earnings can't maintain the same growth as before. As a result, its P/E had dropped to 43 by June 2002. This reduction in the P/E ratio is a common occurrence as high-growth startups solidify their reputations and turn into [blue chips](#).

Cheap or Expensive?

The P/E ratio is a much better indicator of the value of a stock than the market price alone. For example, all things being equal, a \$10 stock with a P/E of 75 is much more "expensive" than a \$100 stock with a P/E of 20. That being said, there are limits to this form of analysis - you can't just compare the P/Es of two different companies to determine which is a better value.

It's difficult to determine whether a particular P/E is high or low without taking into account two main factors:

1. Company growth rates - How fast has the company been growing in the past, and are these rates expected to increase, or at least continue, in the future? Something isn't right if a company has only grown at 5% in the past and still has a stratospheric P/E. If projected growth rates don't justify the P/E, then a stock might be overpriced. In this situation, all you have to do is calculate the P/E using projected EPS.

2. Industry - It is only useful to compare companies if they are in the same industry. For example, utilities typically have low multiples because they are low growth, stable industries. In contrast, the technology industry is characterized by phenomenal growth rates and constant change. Comparing a tech company to a utility is useless. You should only compare high-growth companies to others in the same industry, or to the industry average. You can find [P/E ratios by industry on Yahoo! Finance](#).

Problems With The P/E

So far we've learned that in the right circumstances, the P/E ratio can help us determine whether a company is over- or under-valued. But P/E analysis is only valid in certain circumstances and it has its pitfalls. Some factors that can undermine the usefulness of the P/E ratio include:

Accounting

[Earnings](#) is an accounting figure that includes non-cash items. Furthermore, the

guidelines for determining earnings are governed by accounting rules ([Generally Accepted Accounting Principles](#) (GAAP)) that change over time and are different in each country. To complicate matters, EPS can be twisted, prodded and squeezed into various numbers depending on how you do the books. The result is that we often don't know whether we are comparing the same figures, or apples to oranges.

Inflation

In times of high inflation, [inventory](#) and [depreciation](#) costs tend to be understated because the replacement costs of goods and equipment rise with the general level of prices. Thus, P/E ratios tend to be lower during times of high inflation because the market sees earnings as artificially distorted upwards. As with all ratios, it's more valuable to look at the P/E over time in order to determine the trend. Inflation makes this difficult, as past information is less useful today.

Many Interpretations

A low P/E ratio does not necessarily mean that a company is undervalued. Rather, it could mean that the market believes the company is headed for trouble in the near future. Stocks that go down usually do so for a reason. It may be that a company has warned that earnings will come in lower than expected. This wouldn't be reflected in a trailing P/E ratio until earnings are actually released, during which time the company might look undervalued.

It's Not A Crystal Ball

What goes up ... well, sometimes it stays up for an awfully long time.

A common mistake among beginning investors is the [short selling](#) of stocks because they have a high P/E ratio. If you aren't familiar with short selling, it's an investing technique by which an investor can make money when a shorted security falls in value.

First of all, we believe that novice investors shouldn't be shorting. Secondly, you can get into a lot of trouble by valuing stocks using only simple indicators such as the P/E ratio. Although a high P/E ratio could mean that a stock is overvalued, there is no guarantee that it will come back down anytime soon. On the flip side, even if a stock is undervalued, it could take years for the market to value it in the proper way.

Security analysis requires a great deal more than understanding a few ratios. While the P/E is one part of the puzzle, it's definitely not a crystal ball.

Conclusion

What have we learned about the P/E ratio? Although the P/E often doesn't tell us much, it can be useful to compare the P/E of one company to another in the same industry, to the market in general, or to the company's own historical P/E ratios.

Some points to remember:

- The [P/E ratio](#) is the current stock price of a company divided by its [earnings per share](#) (EPS).
- Variations exist using [trailing EPS](#), [forward EPS](#), or an average of the two.
- Historically, the average P/E ratio in the market has been around 15-25.
- Theoretically, a stock's P/E tells us how much investors are willing to pay per dollar of earnings.
- A better interpretation of the P/E ratio is to see it as a reflection of the market's optimism concerning a firm's growth prospects.
- The P/E ratio is a much better indicator of a stock's value than the market price alone.
- In general, it's difficult to say whether a particular P/E is high or low without taking into account growth rates and the industry.
- Changes in accounting rules as well as differing EPS calculations can make analysis difficult.
- P/E ratios are generally lower during times of high [inflation](#).
- There are many explanations as to why a company has a low P/E.
- Don't base any buy or sell decision on the multiple alone.