How Equities are Valued

While traditionally offering the highest rates of return, equities are also extremely volatile, and investors have made – and lost – a lot of money over the years. From 1970 through 2023, the U.S. stock market has returned 7.58% per year, but that includes three major bear markets where the market declined around 40% each time. As of July, 2023, the global equity market capitalization was over $112 trillion.[1]

Why do stock prices go up and down? Investors buy stocks for two reasons:
- Receive dividends, which are fairly predictable
- Have the stock go up in value and sell it for a higher price, which is very unpredictable.

If all you wanted was the dividend, it wouldn't matter as much how much you paid for the stock. But if you wants to sell it for a profit, then the purchase price matters very much.

So how much *should* a stock be worth? The basic valuation model for any security is:

- The present value of future cash flows
- Discounted by the appropriate discount rate

In other words, you must calculate how much you expect to receive in future cash flows (dividends and the future sale of the stock) and then determine how much those cash flows are worth today based on your expected rate of return.

The model is very difficult to apply to equities because you must:
- Estimate uncertain cash flows (dividends and earnings are not always predictable)
- Estimate terminal value of the security (stocks have no maturity date)
- Estimate the appropriate discount rate (what rate do you expect to earn?)

There are two principal methods of analyzing equities and the equity market: fundamental analysis and technical analysis. Fundamental analysis looks at the intrinsic attributes of equities and the equity markets to determine the stock's intrinsic value. Technical analysis looks at trends and patterns to try to forecast the direction of a stock's price.

<u>Fundamental Analysis</u>

The principal intrinsic factors that drive the returns on an equity are:
- Earnings – how much does a company earn?
- Growth – how fast are those earnings growing?
- Valuation – how much are you willing to pay for those earnings?

[1] https://www.statista.com/statistics/274490/global-value-of-share-holdings-since-2000/

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Measuring the value of earnings

Earnings per Share (EPS)

Each corporate shareholder is entitled to a share of the company's income. How much each shareholder receives is calculated by determining the **earnings per share (EPS)**. EPS is the amount of corporate income that corresponds to each share of stock.

The basic equation for calculating EPS is[2]:

$$\frac{\text{Net Income}}{\text{Average \# Outstanding Common Shares}}$$

The EPS for each shareholder depends on *how much* income is generated and *how many* shares it is divided among. Anything that reduces income or increases the number of shares is potentially negative for the value of a stock.

Dividends

While shareholders are entitled to corporate earnings, they are not entitled to write a check on the company's account. Some of the company's earnings are reinvested in the company to help it grow, and some of the earnings are paid to shareholders in the form of **dividends**. Dividends are cash payments to shareholders that reflect a portion of the company's earnings.

Dividend Yield and Earnings Yield

Dividend Yield and Earnings Yield are methods of quantifying the cash flow return of a stock.

- The Dividend Yield divides the expected annual dividend by the price of the stock.
- The Earnings Yield divides the annual EPS by the price of the stock

Both of these measures are a way of comparing the expected return on a stock with the expected return on a bond.

Measuring growth of earnings

Corporate earnings grow as long as the return on equity (ROE) exceeds the cost of doing business AND all or part of the earnings generated are reinvested in the business. Estimating how fast earnings are growing is one of the greatest challenges facing fundamental analysts.

Over time, corporate profits have grown substantially, and the value of companies in the market correlates closely with the growth in corporate profits. However, the *reporting* of those profits is often flawed, and investors may think profits are growing when they are not. And when corporate

[2] Not all net income is available for distribution to commons shareholders, so there are some adjustments that are usually made to better reflect what each shareholder is really entitled to.

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profits decline – or fail to grow as much as expected – the value of the company's stock can fall dramatically.

Valuation Measures – P/E Ratio & PEG Ratio

If we know how much a company earns, and we can estimate how fast those earnings are growing, the next question is how much are you willing to pay for one year of earnings? The **Price Earnings Ratio (P/E Ratio)** compares the price of a stock to the EPS to come up with a measure of how expensive it is.

Let's compare two companies.

- Nike (NKE) is trading at a price of $113.50 and had EPS last year of 3.76. That means the P/E is 30.19. An investor who buys NKE is paying 30.19 times one year of earnings.
- General Dynamics (GD) is trading at a price of $237.75 but has EPS of $11.81. That means an investor who buys General Dynamics is paying 20 times one year of earnings.

STOCK	PRICE	EPS	P/E
Nike (NKE)	113.5	3.76	30.19
General Dynamics (GD)	237.75	11.81	20.13

At first it would seem that GD is a much more attractive investment, since for the same dollar investment you will receive much higher EPS in return. However, NKE has a much higher ROE than GD, and the earnings in the industry are growing at a very strong pace. GD, on the other hand, is facing a very difficult economic environment, and its growth rate is very low. The PE / Growth ratio (PEG Ratio) compares two companies based on their current P/E as well as the expected growth rate of their earnings. Now NKE looks like a more attractive company.

STOCK	P/E	Growth	PEG
Nike (NKE)	30.19	17.7	1.71
General Dynamics (GD)	20.13	8.0	2.52

P/E levels change significantly over time based on sentiment. When investors are **bullish**, and they expect stocks to go up, they are willing to pay more for those stocks. Conversely, when they are **bearish,** they may be willing to pay much less for the same stock.

The following chart shows how P/E ratios have changed over time.

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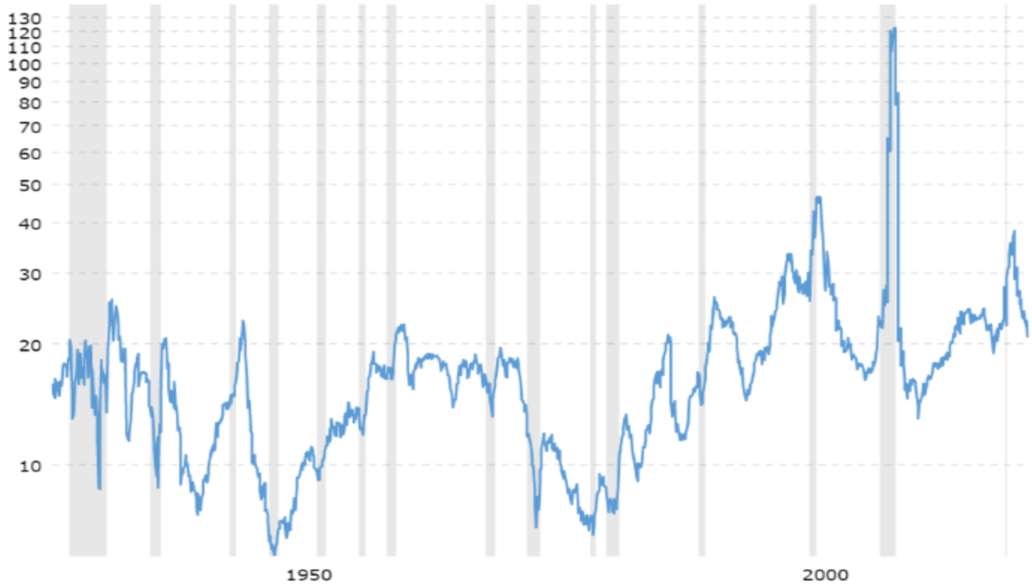
Historical P/E Ratios S&P 500



Source: Macrotrends: https://www.macrotrends.net/2577/sp-500-pe-ratio-price-to-earnings-chart

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