

Stocks

Stocks, also known as equities, represent ownership in a corporation. Suppose that Vandelay Enterprises, a latex manufacturer, consists of 1 million shares, each selling at \$100. The market capitalization of Vandelay Enterprises would then be \$100 million. As of August 2026, the largest market cap belonged to NVIDIA at around \$5 trillion. JC Penny's was \$41 million, roughly equal to Cleveland Brown QB Deshaun Watson's 2026 salary. A publicly traded corporation is one where any person may generally purchase shares.¹ If I buy 100,000 shares of Vandelay Enterprises, I own 10% of the firm, legally entitling me to 10% of its profits and usually 10% of the vote at shareholder meetings.

Not all firms that issue stocks are publicly traded. Private equity refers to firms where ownership of shares is in some way restricted.

A complex set of law governs how stock ownership works. Go to law school if you want to fully understand it. A few key points are:

1. Suppose that Vandelay Enterprises makes \$10 million in 2026. As a 10% owner, I have a claim to \$1 million. The firm's management, led by CEO Art Vandelay, an architect, has discretion over how to distribute these profits. It can simply send me the \$1 million. This is known as a dividend. Or the firm could decide to reinvest these profits in the firm, possibly by expanding into the matchstick business. If it chooses to do this, then the firm should become more profitable, leading to a higher share price. Instead of receiving a dividend, I receive a *capital gain* in the form of a higher share price. A very long literature examines when and why firms choose to issue dividends versus reinvesting profits. Without going into detail, older established companies generally pay more dividends than younger companies that are growing.² Stock ownership grants

the shareholder *limited liability*. If Vandelay Enterprises goes bankrupt, its share price may go to

¹There are exceptions. An employee with private information may not buy shares until that information is made public. Doing so is insider trading and can land the person in prison.

zero and I will lose my \$10 million. I cannot, however, be held personally liable for any remaining liabilities that the bankrupt firm has.

3. The flipside of limited liability is that the firm's profits are taxed twice. When Vandelay Enterprises makes a profit, it is subject to corporate income taxation. As a shareholder, I must also pay dividend taxes on any dividends, as well as a capital gains tax when I sell my shares.

4. Many stocks are not purchased individually but rather bundled together in an index funds, mutual funds etc. I might, for example, buy a bundle that matches a popular index such as the S&P 500. This is known as diversification. Households usually want to avoid having their portfolio too connected to any individual firm, By diversifying, they reduce their exposure to any individual firm performing poorly.

As of August 2026, 58% of Americans own stocks with 37% owning stocks outside of retirement accounts. As you would expect, stock ownership is highly concentrated among wealthier households.

A Model of Stock Prices

There are two basic motivations for holding stocks. The first is that by holding stock, I collect dividends. The second is known as the speculative motive. I may buy a stock today in the hopes of selling it at a higher price in the future. We will model stock prices based on the first motivation. The resulting model is known as the *dividend discount model*.

As with other models, we will start with some assumptions:1. A person plans to buy the stock, hold the stock forever (or pass it to their heirs), and simply enjoy the dividends. As a result, they do not care about the share price. This eliminates the speculative motive.

2. The share holder discounts the future. If the interest rate is 5%, then the value of a dividend payable in a year needs to be divided by 1.05.

3. The shareholder pays a price equal to the discounted stream of dividends that they will receive.

The resulting model is very simple. If I buy a share in 2026, assume that I get an immediate dividend, denoted D_{26} . Because I get this right away, I do not need to discount it.

I also get a dividend in 2027. Because it is one-year ahead, I discount it using $(1 + i_{26})$. We can think of i_{26} as the one-year Treasury rate in 2026. Firms can change their dividend payouts. As a result, I do not know in 2026 what D_{27} will be. I this have to rely on my expectation, my best guess.

Then I get a dividend in 2028. Because it is two years ahead, I have to discount twice by dividing by $(1 + i_{26})(1 + i_{27})$. Once, again, I have to rely on my best guess for anything beyond 2026.

This process continues forever. Putting it all together, the stock price equals:

$$s_t = E[D_{26} + \frac{D_{27}}{(1 + i_{26})} + \frac{D_{28}}{(1 + i_{26})(1 + i_{27})} + \frac{D_{29}}{(1 + i_{26})(1 + i_{27})(1 + i_{28})} + \dots] \quad (1)$$

The price of a stock is simply the sum of dividends from now until the end of time, discounted using interest rates. The E just indicates that I am making guesses about future variables. The actual price of a stock may not equal this price. This price is known as a stock's *fundamental value*.

1. Although the price may differ from the fundamental value in the short-term, eventually we expect the stock price to return to its fundamental value.
2. A stock need not pay a dividend today ($D_{26} = 0$) to have a positive fundamental value. It can still have a positive fundamental value if it is expected to pay a dividend in the future. As of August 2026, Berkshire Hathaway has a share price of over \$700,000 per share despite not paying a dividend since 1967. It is expected to pay very high dividends sometime in the future.
3. Higher short term interest rates, either now or in the future, reduce the fundamental value if stocks. This does not mean that higher yields always coincide with lower stock prices. As we saw earlier, if savers become less risk averse, they may move from bonds to stocks, raising share prices and raising Treasury yields.

4. Higher dividends, either now or in the future, raise the fundamental value. This can happen in different ways. On a microeconomic level, corporations issue financial reports each quarter. If better than expected, share prices should go up. On a macroeconomic level, strong GDP growth is good news for most firms' profitability. There are exceptions, however, where some firms thrive during weak macroeconomic conditions.

5. When announcing profits or dividends, what matters is how a firm performs versus expectation. Suppose that a firm paid a \$15 dividend in 2025 and analysts expected this to grow to \$25 in 2026. If the firm announces a \$20 dividend instead, we would expect the share price to fall, because that \$25 figure had been reflected in the price and now it will switch to \$20. Likewise, if the Bureau of Economic Analysis announces that GDP grew at 3.0%, a strong figure, but 4% was expected, we might expect share prices to fall.

6. Finally, when the actual share price differs significantly from its fundamental value, it is known as a *speculative bubble*. Famous widespread stock bubbles include 1929 and 1999. Why bubbles form, when and how they burst is a complicated topic beyond the scope of an introductory class. They often, however, lead into economic downturns.

How stocks affect the economy

We have already seen how changes in interest rates or GDP can affect stocks. What about the causality in the other direction, how do higher or lower stock prices affect the economy? In my opinion, the relationship is important but often overstated. In popular memory, for example, the stock market crash of 1929 led into the Great Depression. While it played a role, other post-1929 factors are more to blame. In general, higher stock prices boost aggregate demand while lower stock prices reduce it. There are a pair of mechanisms:

1. The Wealth Effect. Higher stock prices make shareholders wealthier. We expect households to consume more as they become wealthier.
2. The Investment Effect. Earlier, we saw that firms may finance investment by issuing debt. Another way is to issue new shares. The proceeds may then be used to finance investment. This is

more effective when share prices are high. Note that doing this dilutes ownership. If I own 10% before new shares are issued, and I do not buy any of the new shares, my fraction of ownership declines.