The DuPont Equation

by Sophia

WHAT'S COVERED

In this lesson, you will learn about the components of the DuPont equation and the significance of each to the organization. Specifically, this lesson will cover:

1. The DuPont Equation

The DuPont equation is a means of calculating return on equity based on three components:

- Net profit margin
- Total asset turnover
- Financial leverage

The title originates from the DuPont Corporation. This organization began using this formula as early as the 1920s in their strategic analysis. Ultimately, the name stuck and is what we commonly use today to refer to the formula.
In the DuPont equation, return on equity (ROE) is equal to profit margin multiplied by asset turnover multiplied by financial leverage.

FORMULA TO KNOW

Return on Equity

$$ROE = \frac{\text{Net Income}}{\text{Sales}} \cdot \frac{\text{Sales}}{\text{Total Assets}} \cdot \frac{\text{Total Assets}}{\text{Shareholders Equity}} = \frac{\text{Net Income}}{\text{Shareholders Equity}}$$

Return on equity (ROE) measures the rate of return on the ownership interest or shareholders' equity of the common stock owners. It is a measure of a company's efficiency at generating profits using the shareholders' stake of equity in the business. In other words, return on equity is an indication of how well a company uses

investment funds to generate earnings growth. It is also commonly used as a target for executive compensation, since ratios such as ROE tend to give management an incentive to perform better.

HINT

Returns on equity between 15% and 20% are generally considered to be acceptable.

1a. Components

By splitting ROE into three parts, companies can more easily understand changes in their ROE over time. Let's take a closer look at the three components of the DuPont Equation.

Components of DuPont Equation	Description
Profit Margin	This is a measure of profitability. It is an indicator of a company's pricing strategies and how well the company controls costs. Profit margin is calculated by finding the net profit as a percentage of the total revenue. As one feature of the DuPont equation, if the profit margin of a company increases, every sale will bring more money to a company's bottom line, resulting in a higher overall return on equity.
Asset Turnover	This is a financial ratio that is used to evaluate how effectively an organization is utilizing its assets to generate a profit. Organizations that typically have lower net margins will have higher total asset turnover, and vice versa for those firms with higher net margins.
Financial Leverage	This refers to the amount of debt that a company utilizes to finance its operations, as compared with the amount of equity that the company utilizes. As is the case with asset turnover and profit margin, increased financial leverage will also lead to an increase in return on equity. This is because the increased use of debt as financing will cause a company to have higher interest payments, which are tax deductible. Because dividend payments are not tax deductible, maintaining a high proportion of debt in a company's capital structure leads to a higher return on equity.

BIG IDEA

Expressed as a percentage, return on equity is best used to compare companies in the same industry. The decomposition of return on equity into its various factors presents various ratios useful to companies in fundamental analysis.

1b. Potential Limitations

Just because a high return on equity is calculated does not mean that a company will see immediate benefits. Stock prices are most strongly determined by earnings per share (EPS) as opposed to return on equity. Earnings per share is the amount of earnings per each outstanding share of a company's stock. EPS is equal to profit divided by the weighted average of common shares.

FORMULA TO KNOW

Earnings Per Share

$$EPS = \frac{\text{Profit}}{\text{Weighted Average of Common Shares}}$$

The true benefit of a high return on equity comes from a company's earnings being reinvested into the business or distributed as a dividend. In fact, return on equity is presumably irrelevant if earnings are not reinvested or distributed.

SUMMARY

In this lesson, you learned about **the DuPont equation**, which is a method for calculating return on equity (ROE) using the **components** of net profit margin, asset turnover, and financial leverage. It is important to remember that a high return on equity alone has **potential limitations**; a company's earnings must be reinvested into the business or distributed as a dividend for the company to reap benefits.

Best of luck in your learning!

FORMULAS TO KNOW

Earnings Per Share

$$EPS = \frac{Profit}{Weighted\ Average\ of\ Common\ Shares}$$

Return on Equity

$$ROE = \frac{Net\ Income}{Sales} \cdot \frac{Sales}{Total\ Assets} \cdot \frac{Total\ Assets}{Shareholders\ Equity} = \frac{Net\ Income}{Shareholders\ Equity}$$