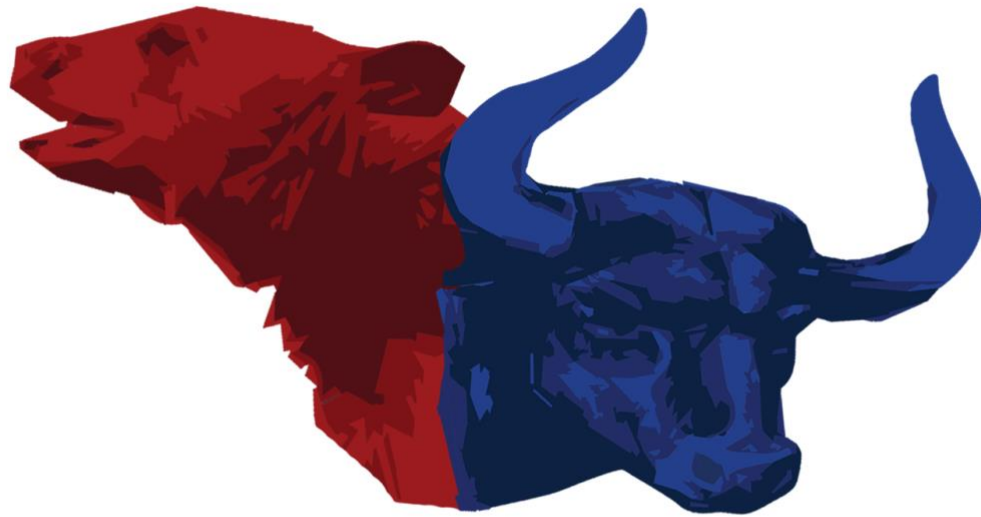




UTM CAPITAL

Management

3 Component DuPont Analysis Guide
By: Laith Sabunchi
UTMCM President – 2022/2023

Introduction

The DuPont analysis is a framework for analyzing fundamental performance and comparing the operational efficiency of firms. It aims to break down Return on Equity (ROE) into different components that can be further investigated. There are different variations of the DuPont analysis, this guide will cover a variant involving 3 components for ROE. All information needed to calculate Return on Equity and the sum of its parts can be derived from the income statement and balance sheet of a company.

ROE is generally calculated as Net Income / Equity.

More simply, net profit generated over a year divided by book value of shareholder capital.

- Net Income can be found from the bottom of income statement
- Equity can be found from balance sheet, usually taking the average between starting and ending total shareholder equity.

For the DuPont analysis, we want to break this down into more detailed components. In this guide, we define ROE using the following equation:

ROE = Return on Sales * Asset Turnover * Leverage

*Note: Return on Assets [or ROA] = (Return on Sales [or ROS] * Asset Turnover)*

ROS = Net Income / Sales

This is an indicator of profitability or operational efficiency i.e., how many cents of profit for every dollar of sales generated by the business.

- Net Income can be found from bottom of income statement
- Net Sales (or revenue) can be found from top of income statement

Asset Turnover = Sales / Total Assets

Helps us measure efficiency of company's assets to generate sales.

- Net Sales (or revenue) can be found from top of income statement
- Total Assets can be found from balance sheet, usually taken as the average of assets from starting and ending years.

Leverage = Total Assets / Total Shareholder Equity

Indicates relationship of total assets of the business to ownership by investors, and highlights company leverage (debt) used to finance the business.

- Total Assets can be found from balance sheet, usually taken as the average of assets from starting and ending year.
- Total Shareholder Equity can be found from balance sheet, usually taken as the average between starting and ending total shareholder equity.

If you can take on debt and put it into productive use, this may help the company grow faster. However, higher levels of debt is usually risky to take on. There isn't a 'correct' approach but is dependent on the investors' risk appetite, and whether use of leverage is sensible based on other factors (macroeconomic environment, comparison to competitors, etc.).

Example

We are going to calculate Nvidia's implied ROE using the 3 components we have learned, and compare this to one of Nvidia's competitors, AMD. We will find Nvidia's ROE breakdown for the last 3 reported years using Nvidia's 10-K Annual report, to show how the numbers have been changing over time.



[Nvidia Annual Report Jan 2020](#)

Note: All numbers are reported in millions.

Refer to pages 47 and 49

Net Income = \$2,796

Sales = \$10,918

ROS = 25.6%

Asset Turnover = Sales / Total Assets

Total Assets = (17,315 + 13,292)/2

~ 15,304

Remember, we take the averages in total assets listed

= \$10,918 / 15,304

= ~ 0.71

Leverage = Total Assets / Total Shareholder Equity

Total Shareholder equity = (12,204 + 9,342) / 2

= 10,773

15,304 / 10,773

= 1.42

[Nvidia Annual Report Jan 2021](#)

Note: All numbers are reported in millions.

Refer to pages 47 and 49

Net Income = \$4,332

Sales = \$16,675

ROS = 25.97%

Total Assets = (28,791+17,315)/2

= 23,053

Asset Turnover = ~ 0.72

Total Shareholder Equity = (16,893 + 12,204)/2

= ~ 14,549

Leverage = 1.58

[Nvidia Annual Report Jan 2022](#)

Note: All numbers are reported in millions.

Refer to pages 47 and 49

Net Income = 9,752

Sales = 26,914

ROS = 36.23%

Total Assets = (44,187 + 28,791)/2

= 36,489

Asset Turnover = ~ 0.74

Total Shareholder Equity = (26,612 + 16,893)/2

= ~21753

Leverage = 1.68

[AMD Annual Report Dec 2021](#)

Note: All numbers are reported in millions.

Refer to pages 48 and 50

Net Income = 3,162

Sales = 16,434

ROS = 19.24%

Total Assets = (12,419 + 8,962)/2

= ~10691

Asset Turnover = 1.53

Total Shareholder Equity = (7,947 + 5,837) / 2

= 6892

Leverage = 1.55

Breakdown

After doing all of the calculations, we can sort the numbers into a table in order to help us fully visualize trends going on with regards to Nvidia's ROE.

Table 1: DuPont Analysis Between Nvidia & AMD

Company	Nvidia			AMD
Return on Equity =	25.81%	29.54%	45.04%	45.63%
Return on Sales x	25.60%	25.97%	36.23%	19.24%
Asset Turnover x	0.71	0.72	0.74	1.53
Leverage	1.42	1.58	1.68	1.55

From the table we can draw a couple of simple conclusions:

1. Nvidia's ROE has steadily increased over the last 3 reported years. We can attribute much of this growth to the company's rapid increase in ROS. Upon further analysis we may be able to attribute this to external factors such as industry demand.
2. Nvidia's Asset Turnover has remained relatively stable, rising by only 3 basis points in the last 3 reported years.
3. Nvidia has steadily increased its use of leverage, but not by a substantial margin.
4. AMD reports similar figures for its ROE at ~ 45%. Although the company has less ROS by comparison, and uses less leverage, the Asset Turnover rate of 1.53 is substantially larger and is the heaviest relative contributor to its ROE calculation.

There are many variants of the DuPont analysis which can be applied to a variety of company types. In this example, we looked at two computer hardware companies to compare ROE through the lens of ROS, Asset Turnover and Leverage.