# RATIO ANALYSIS: DUPONT ANALYSIS

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# DuPont Ratio Analysis Framework

**Return on Equity (ROE)**
Net Income / Avg. Shareholders' Equity

How much return is generated for the shareholders?

**Return on Assets (ROA)**
Net Income / Avg. Total Assets

X

**Financial Leverage**
Avg. Total Assets / Avg. Shareholders' Equity

How effectively are resources (assets) used to generate profits?

How much debt is used to increase total assets?

**Return on Sales (ROS)**
Net Income / Sales

X

**Asset Turnover**
Sales / Avg. Total Assets

**ROE = Net Income/Sales x Sales/Assets x Assets/Equity**

**= Profitability x Efficiency x Leverage**

How much profit is earned on each dollar of sales?

How much sales are generated using the available assets?

How much debt is used to increase total assets?

## ROA and Leverage

- Ideally, ROA would measure operating performance independent of the company's financing decisions
- But, the numerator of ROA, Net Income, includes Interest Expense
  - More leverage => higher Interest Expense => lower Net Income
- To truly remove all financing effects from ROA, we must de-lever Net Income
- ROA = De-Levered Net Income / Avg. Assets
  - De-levered Net Income = Net Income + (1-t) x Interest Expense

# ROA Example

De-levering NI removes effects of capital structure:

| | | | No debt | Some debt |
|---|---|---|---|---|
| Pretax, pre-interest income | 300 | | 300 | |
| Interest expense | | 0 | | (50) |
| Pretax income | | 300 | | 250 |
| Taxes (35%) | | (105) | | (87.5) |
| Net income | | 195 | | 162.5 |
| | | | | |
| De-levered Net Income | 195 | | 195 [162.5+50(1-.35)] | |

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## Quick note on finding comparison firms

- One approach is to look at standard classification schemes for industries
  - SIC Codes: https://www.osha.gov/pls/imis/sic_manual.html
  - NAICS Codes: http://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2012
- Another approach is to look at who analysts and data services use as comparisons for the company
  - Analyst reports will often mention competitors
  - Google Finance (and others) give a list of “Related Companies”
  - Reuters gives Industry and Sector comparisons
- In the end, use your judgment on whether companies are competitors based on a detailed look at business and segments

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