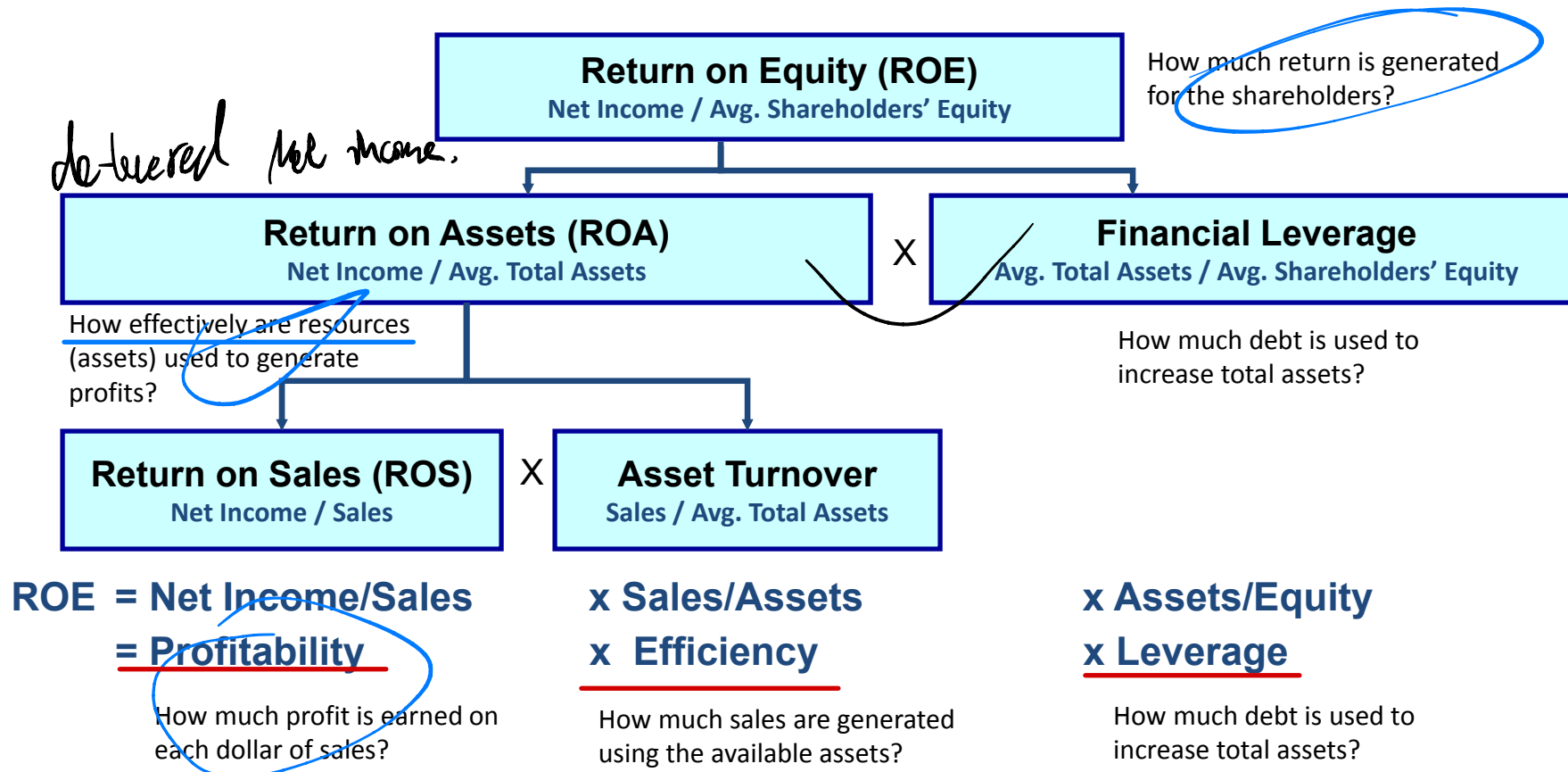


# RATIO ANALYSIS: DUPONT ANALYSIS

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## DuPont Ratio Analysis Framework



## 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
- $ROA = \text{De-Levered Net Income} / \text{Avg. Assets}$ 
  - $\text{De-levered Net Income} = \text{Net Income} + (1-t) \times \text{Interest Expense}$

A	B	C	D	E	F	I	U	V	W	X
	Woof Junction									
Ratio Analysis	2012	2013	2014	2015	Avg					
<b>Return on Equity</b>	27.0%	31.9%	36.1%	40.2%	33.8%	Return on Equity = Net Income / Avg. Stockholders' Equity				
Return on Assets	16.6%	18.8%	21.5%	24.2%	20.3%	Return on Assets = De-levered Net Income / Avg. Total Assets				
Financial Leverage	1.67	1.73	1.69	1.68	1.69	Financial Leverage = Avg. Total Assets / Avg. Stockholders' Equity				
Correction Factor	0.98	0.98	1.00	0.99	0.99	Correction Factor = Net Income / De-levered Net Income				
<b>Return on Assets</b>										
Return on Sales	6.1%	6.3%	7.5%	9.2%	7.3%	Return on Sales = De-levered Net Income / Sales				
Asset turnover	2.74	2.99	2.85	2.62	2.80	Asset turnover = Sales / Avg. Total Assets				

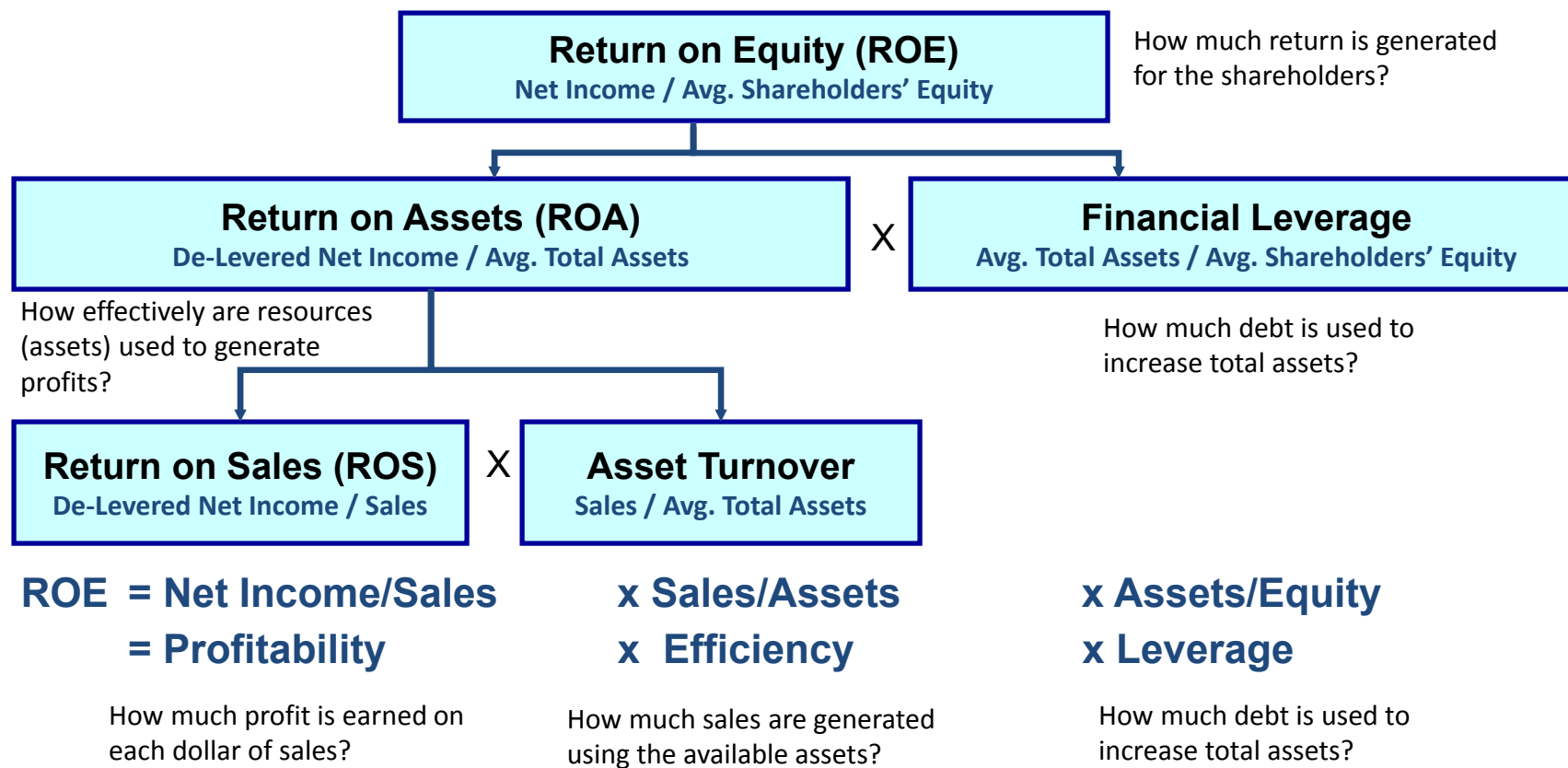
## ROA Example

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De-levering NI removes effects of capital structure:

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

## DuPont Ratio Analysis Framework



## Quick note on finding comparison firms

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- One approach is to look at standard classification schemes for industries
  - SIC Codes: [https://www.osha.gov/pls/imis/sic\\_manual.html](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

