SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)
COIMBATORE-35.
Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

DEPARTMENT OF AUTOMOBILE ENGINEERING

COURSE NAME : 19AUZ405 – LEAN MANUFACTURING

IV YEAR / VII SEMESTER

Topic – Dupont Model

DuPont Model

DuPont Model

The DuPont model, which was developed by a French engineer in the 1940s.

It is an excellent tool to use to generate a "what if " analysis utilizing a company's income statement and the balance sheet.

It is time-honored instruments of the financial community are pivotal documents for reflecting the overall health of a company.

The "what if" scenario to determine whether improvement through a change in sales, an increase in asset turnover, or lower inventory levels will support operational objectives.

1. Also known as
   a) Du Pont Identity
   b) Du Pont Equation
   c) Du Pont Model
   d) Du Pont Method
2. Pioneered by DU PONT Company of United States
3. It is a system of financial analysis which received wide spread recognition and acceptance
4. It was developed by DU PONT company for analyzing and controlling financial performance
5. It is an expression which breaks Return on Equity into three parts :
   a) Profitability (Measured by **Profit Margin**)
   b) Operating Efficiency (Measured by **Asset Turnover**)
   c) Financial Leverage (Measured by **Equity Multiplier**)

Du Pont Analysis

Margin Ratios	Turn Over Ratios	Leverage Ratios
$\frac{\text{Net Profit}}{\cancel{\text{Sales}}}$	$\frac{\cancel{\text{Sales}}}{\cancel{\text{Total Assets}}}$	$\frac{\cancel{\text{Total Assets}}}{\text{Owner's Equity}}$

$$\textbf{Return on Equity (ROE)} = \frac{\textbf{Net Profit}}{\textbf{Owner's Equity}}$$

Profit Margin

$$\text{Profit Margin} = \frac{\text{Net Profit}}{\text{Sales}}$$

Net Profit = Net Sales – Total Cost

Cost of Goods Sold	=	xxx
Operating Expenses	=	xxx
Interest and Taxes	=	xxx
Total Cost	=	xxx

Asset Turnover

$$\text{Asset Turnover} = \frac{\text{Net Sales}}{\text{Total Assets}}$$

Total Assets = Current Assets + Fixed Assets

Inventory	=	xxx
Accounts Receivables	=	xxx
Cash and Bank Balance	=	xxx
Current Assets	=	xxx

Equity Multiplier

$$\text{Equity Multiplier} = \frac{\text{Assets}}{\text{Shareholder's Equity}}$$

Return on Equity

Return on Equity = Net Profit Margin X Asset Turnover X Equity Multiplier

$$\text{Return on Equity} = \frac{\text{Net Profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Shareholder's Equity}}$$

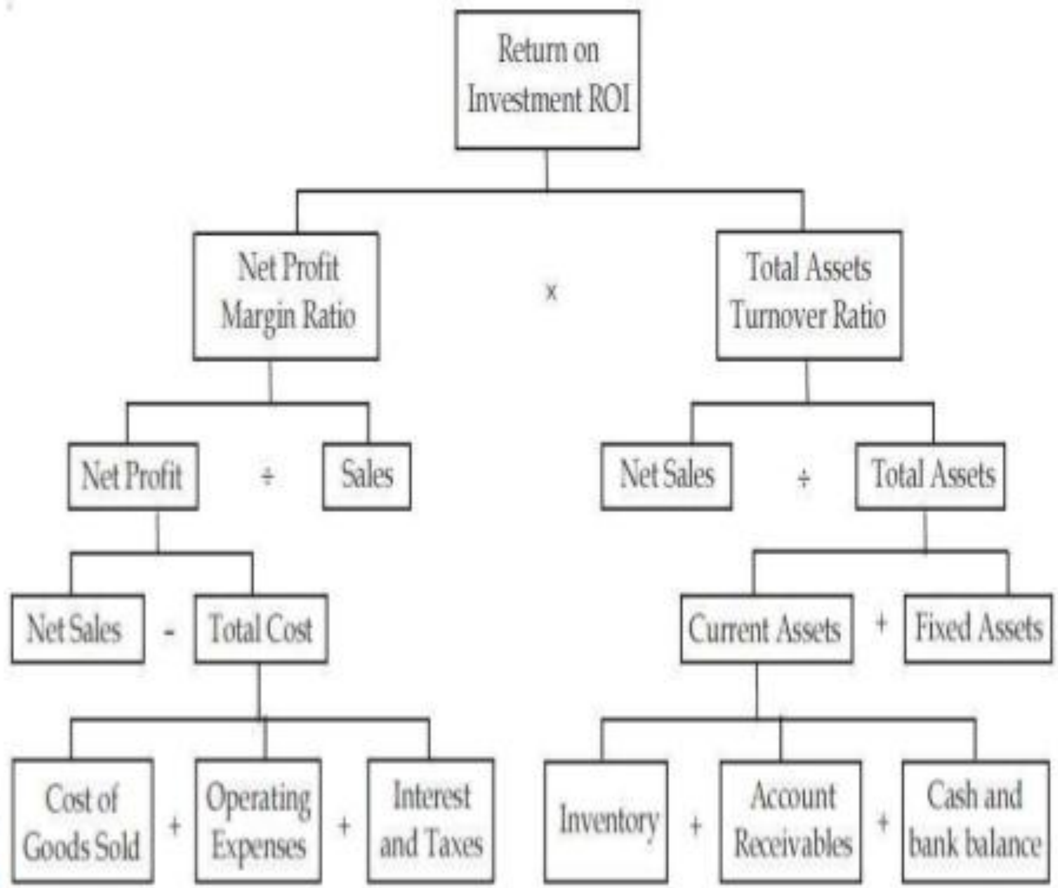
$$\text{Return on Equity} = \frac{\text{Net Profit (or Profit after Tax)}}{\text{Shareholder's Equity}}$$

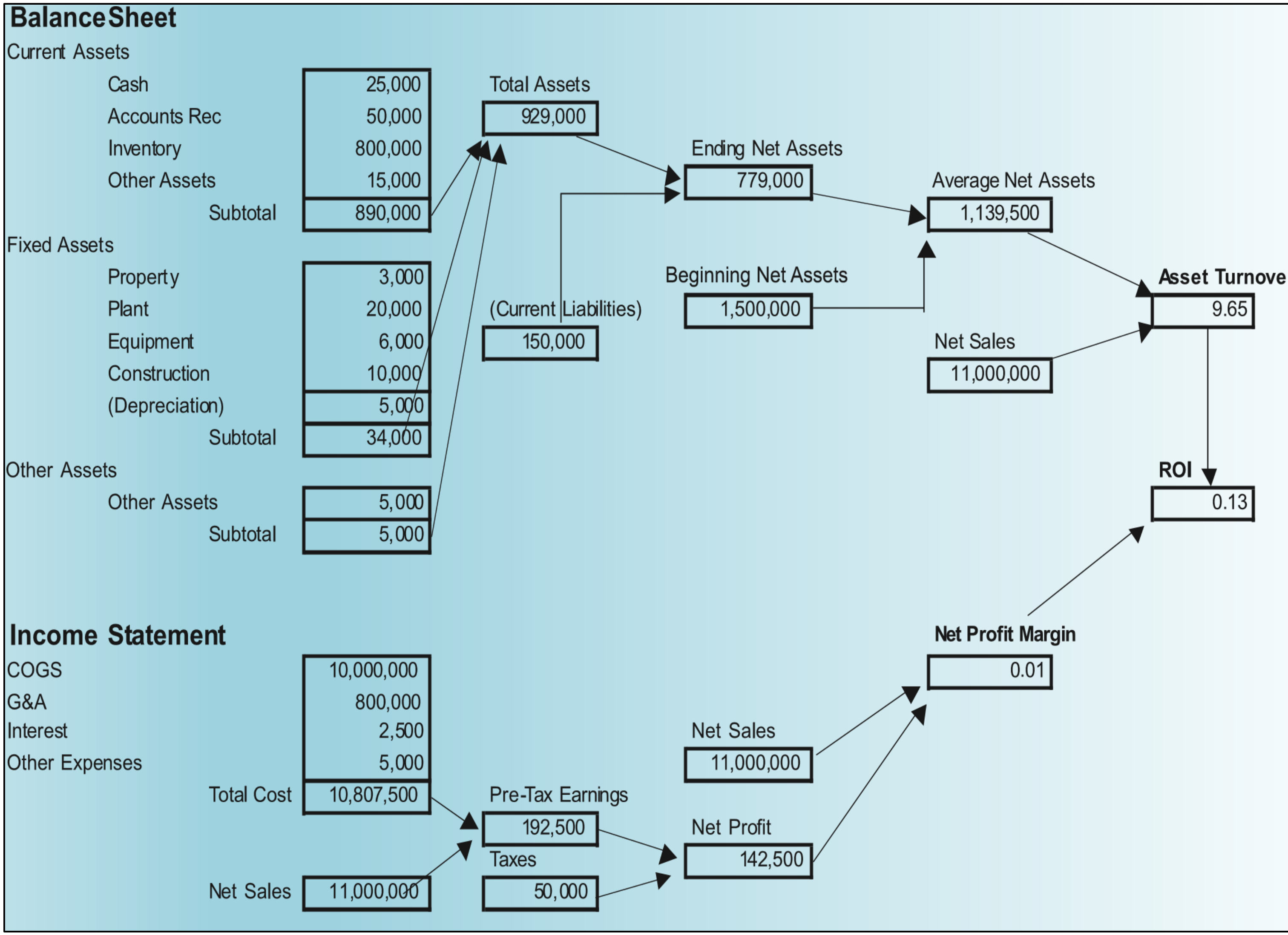
6. Helps in understanding How the net Return on Investment is influenced by the Net Proft Margin and Total Asset Turnover Ratio

Return on Investment

Return on Investment = Net Profit Margin X Asset Turnover

DU PONT CHART




Balance Sheet
Current Assets
Cash
25,000
Accounts Rec
50,000
Inventory
800,000
Other Assets
15,000
Subtotal
890,000
Fixed Assets
Property
3,000
Plant
20,000
Equipment
6,000
Construction
10,000
(Depreciation)
5,000
Subtotal
34,000
Other Assets
Other Assets
5,000
Subtotal
5,000
Total Assets
929,000
(Current Liabilities)
150,000
Ending Net Assets
779,000
Beginning Net Assets
1,500,000
Average Net Assets
1,139,500
Net Sales
11,000,000
Asset Turnover
9.65
ROI
0.13
Income Statement
COGS
10,000,000
G&A
800,000
Interest
2,500
Other Expenses
5,000
Total Cost
10,807,500
Net Sales
11,000,000
Pre-Tax Earnings
192,500
Taxes
50,000
Net Sales
11,000,000
Net Profit
142,500
Net Profit Margin
0.01

Example 1:

If the plant can reduce inventory by 21%, then total assets will decrease and the asset turnover ratio will increase by 9%. With all other elements remaining equal, this will improve the return on investment (ROI) calculation by 5%..

Example 2:

A second example would be if the cost of goods sold (COGS) is reduced by 7%, then total costs will decrease and net profit will improve by 4%. With all other elements remaining equal, this will improve the profit margin calculation by 2%.

Thank You !