

## Topic 3.1

- Financial statements
  - Income statement
  - Balance sheet
- Accounting indicators

# Income Statement

- The first statement prepared is the Income Statement.
- The Income Statement reports a business' performance for the period.
- A simple format for an income statement is:

$$\text{Revenues} - \text{Expenses} = \text{Net Income}$$

# Income Statement

- **Revenues** are earned for the sale of goods or services. Note that revenues occur when the sale is made. The payment may or may not have been received.

Examples of revenues include sales, service revenue and interest revenue.

- **Expenses** are incurred when a business receives goods and services. Like revenues, payment may or may not have been made.

Examples of expenses include salaries expense, utility expense and interest expense.



# Income Statement

## complex format: more information

	Sales revenue
-	<u>Cost of goods sold</u>
	Gross profit
-	<u>Operating expenses</u>
	Income from operations
+/-	<u>Non-operating items</u>
	Income before taxes
-	<u>Income taxes</u>
	Net income

- **Cost of goods sold** represents the expense a business incurred to buy or make a product for resale.

**Example - a book store buys a book for \$25 and then sells it for \$32. The cost of goods sold is \$25.**

- **Operating expenses** are the usual expenses incurred in operating a business.

**Accounts such as salaries expense, utility expense, and depreciation expenses are all shown in this section.**

- **Non-operating items** are revenue, expenses, gains and losses that do not relate to the company's primary operations.

**Accounts include interest expense and gains and losses of the sale of equipment and investments.**

- **Income taxes** are computed by multiplying Income before taxes by the income tax rate.

**Example – Income before taxes is \$50,000. The income tax rate is 30%. Income taxes =  $\$50,000 * 30\% = \$15,000$ .**

# Balance sheet

- The purpose of the balance sheet is to report the financial position of an accounting entity at a particular point in time.

**The basic format for the balance sheet is:**

$$\text{Assets} = \text{Liabilities} + \text{Equity}$$

- **Assets** are economic resources owned by a company.

**Examples include cash, accounts receivable, supplies, buildings and equipment.**

- **Liabilities** are the company's debt or obligations.

**Examples are accounts payable, unearned revenues and bonds payable.**

- **Equity** is the residual balance.  $\text{Assets} - \text{liabilities} = \text{equity}$ . Equity is commonly called stockholders' equity if the business is a corporation as it represents the financing provided by the stockholders along with the earnings from the business not paid out as dividends.



- There are two different types of assets shown on a balance sheet. These are current assets and non-current assets.

$$\begin{array}{r} \text{Current assets} \\ + \text{ Non-current assets } \\ \hline \text{Total assets} \end{array}$$

- **Current assets** are assets that will be used or turned into cash within one year.

**Examples include cash, accounts receivable, inventory, short-term investments, supplies and prepaids.**

- **Non-current assets** comprise the remainder of the assets.

**These include accounts such as: long-term investments, land, building, equipment and patents.**

- There are two different types of liabilities shown on a balance sheet – current liabilities and long-term liabilities.

<b>Current liabilities</b> <b>+ <u>Long-term liabilities</u></b> <b>Total liabilities</b>
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- **Current liabilities** are obligations that will be paid in cash (or other services) or satisfied by providing service within the coming year.
- **Long-term liabilities** are obligations that will not be paid or satisfied within the year.

- **Stockholders' Equity** is divided into two categories: contributed capital and retained earnings.

$$\begin{array}{r} \text{Contributed capital} \\ + \text{ Retained earnings } \\ \hline \text{Total stockholders' equity} \end{array}$$

# Balance sheet

	<b>Current assets</b>
<b>+</b>	<b><u>Non-current assets</u></b>
	<b>Total assets</b>
	<b>Current liabilities</b>
<b>+</b>	<b>Long-term liabilities</b>
<b>+</b>	<b><u>Stockholders' equity</u></b>
	<b>Total liabilities and stockholders' equity</b>

# Example: Assets, Liabilities, Equity, Revenues, Expenses

Cash	5,000	Sales	100,000
Utility Expense	8,000	Buildings	65,000
Common Stock	45,000	Accounts Payable	12,000
Supplies	4,000	Cost of Goods Sold	58,000
Interest Expense	5,000	Additional Paid in Capital	20,000
Bonds Payable	40,000	Supplies Expense	3,000
Salaries Expense	16,000	Accounts Receivable	10,000
Inventories	45,000	Retained Earnings	5,000 (beg. bal.)
Income Tax Rate	30%		

# Accounting indicators: Terminology

## Basic concepts:

S: Sales' volume

TA: Total assets

$$\text{Asset turnover} = S / TA$$

E: Equity

D: Debt

$$d = D / E \text{ (debt ratio)}$$

$K_L = K_D = K_i$ : Cost of debt

EBIT: Earnings before interest and taxes

PBT: Profit before taxes

NP: Net profit

$$PBT = EBIT - (K_i \times D)$$

$$NP = PBT (1 - T)$$



# ROA

## Economic Rate of Return

ERR = ROA (Return on Assets)

$$ROA = ERR = \frac{EBIT}{TA}$$

It measures the rate of return from the ASSETS point of view, the economic performance

**It depends on the main activity characteristics, but not on the financial structure**

$$m = \frac{EBIT}{S}$$

It depends on:

**Sales margin:** what level of sales are converted in earnings

$$As.Turn. = \frac{S}{TA}$$

**Asset turnover:** Efficiency of the assets

$$ROA = \frac{EBIT}{S} * \frac{S}{TA}$$





# ROE

## Financial Rate of Return

FRR = ROE = Financial rate of return or Return on Equity

$$ROE = FRR = \frac{NP}{E}$$

It measures the rate of return from the equity or the owners or shareholders point of view

$$ROE = (ROA + (ROA - K_i) * (D/E)) * (1 - T) \quad T = \text{taxes}$$

Financial rate of return depends on:

- ROA: economic performance
- Level of debt (D/E)
- Financial leverage (ROA-K<sub>i</sub>)



# Return on Assets (ROA)

## The company's point of view !

- ROA is an Economic profitability
- **It answers the following question** : How much profit the firm is generating from the use of its assets ?
  - ROA does not depend upon the way the firm finances its assets
  - Usually define ROA on a pre-tax basis to make **international comparisons**
  - and to **compare** profitability across **firms** having **different financing strategies**

$$\text{Pre-tax ROA} = (\text{EBIT} / \text{Assets}) \cdot 100$$

Starworld Group	Year 1	Year 2	Year 3
EBIT	478	676	1042
Assets	2250	2605	2700
Pre-tax ROA	21,24 %	25,95 %	38,59 %

# Return on Assets (ROA) decomposition

- To show how Operating Cycle affects the Economic Profitability, ROA must be decomposed into 2 elements :
  - Pre-tax ROA = Return on Sales x Asset turnover
  - Pre-tax ROA = [ (EBIT) / Sales ] x [ Sales / Assets ]

Starworld Group	Year 1	Year 2	Year 3
EBIT	478	676	1042
Sales	2784	3341	4343
Assets	2250	2605	2700
<i>Return on Sales</i>	<i>17,17 %</i>	<i>20,23 %</i>	<i>23,99 %</i>
<i>Asset Turnover</i>	<i>1,237</i>	<i>1,283</i>	<i>1,609</i>
<b>Pre-tax ROA</b>	<b>21,24 %</b>	<b>25,95 %</b>	<b>38,59 %</b>

# ROA & AT

- **The Asset Turnover**
- ATO means the Sales generated by each € of assets  
But what is important is the trend.
- ***An improvement in the ATO :***
  - means a great deal of efficiency and creativity in managing and controlling the company assets
  - but it may also reveal that some assets (especially fixed assets) are not renewed, which may create some long term efficiency problems.
- ***A deterioration in ATO :***
  - is a signal of poor asset management or
  - is the result of an ambitious program of asset renewal or
  - an aggressive policy of acquisitions

# ROA improvement

- **Operating Managers can impact the company ROA**
  - either by improving the Profit margin [EBIT / Sales] through ***Cost Control*** or ***Revenue increases***
  - or by improving the Asset turnover [ Sales / Asset] through a ***better capacity utilization***



# **Return on Equity (ROE)**

## **The shareholders point of view !**

ROE is a basic measure of the efficiency with which the firm employs the owners' capital and estimates the earnings per € 100 of invested equity capital.

It incorporates the consequences of the financing policy of the firm, that is the way the assets are financed. This is called the "financial leverage".

# Return on Assets (ROE) decomposition

- ROE ratio can be decomposed into 3 elements :
  - *Return on sales [ Profit / Sales ]*
  - *Asset Turnover [ Sales / Assets ]*
  - *Financial Leverage [ Assets / Equity ]*

$$\text{ROE} = \frac{\text{Profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}$$

# Example ROE decomposition

This decomposition shows the 3 levels for managerial control of ROE.  
It also demonstrates that two companies may have the same ROE,  
but resulting from very **different cocktails or strategies**.

	<b>Profit margin</b>	<b>x</b>	<b>Asset Turnover</b>	<b>x</b>	<b>Financial leverage</b>	<b>=</b>	<b>ROE</b>
Firm A	6 %	x	0,5	x	4	=	12 %
Firm B	2 %	x	1,5	x	4	=	12 %





# ROE maximization

- ***Because we want to make our shareholders happy*** : fundamental objective of the firm.
  - How can we expect to raise additional funds from our shareholders if we do not provide them with a return with the risk they are accepting to take in investing their money in our firm ?
  - If you do not make your shareholders happy, somebody is going to make them happy for you.
- ***Because we want to maximize our Self-Sustainable Growth (SSG).***
  - What is SSG? It is the rate of growth that a company can maintain (can sustain) internally without changing its financial structure (D/E).
  - **The basic question is therefore:** given the firm's characteristics how large a growth rate can it support without distorting its D/E ratio and without raising additional outside equity capital ?



# Financial Leverage

- The fundamental relation between ROA and ROE

$$\text{ROE} = (\text{ROA} + (\text{ROA} - K_i) * (D/E) ) * (1 - T) \quad T = \text{taxes}$$

$$\text{Financial Leverage} = [ \text{ROA} - i ] \times \frac{D}{E}$$

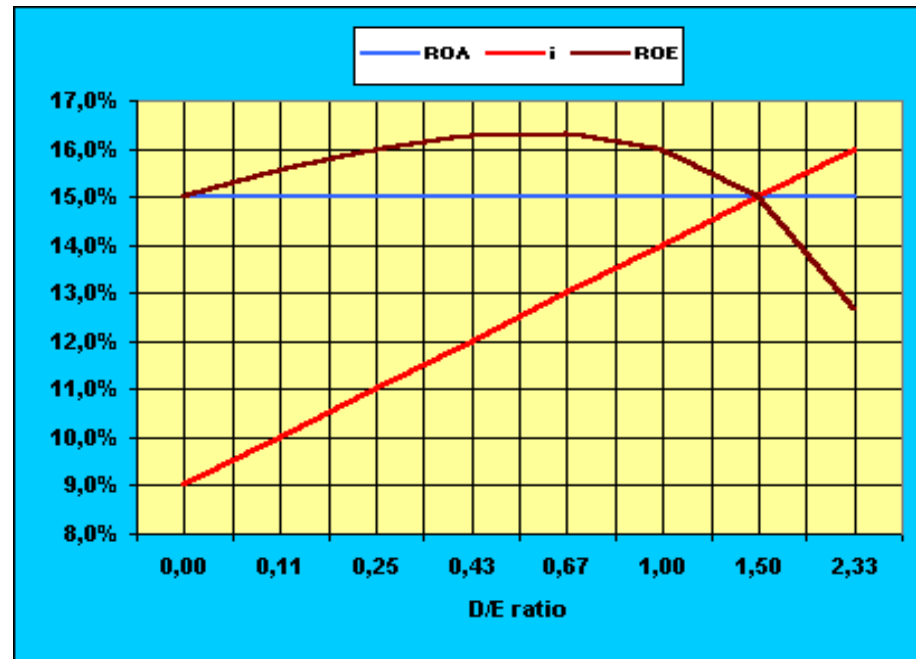


# ***Leverage factor***

- ***"Leverage factor" dependent upon 2 elements:***
  1. ROA - Interest rate
  2.  $D / E$  (gearing ratio)
- ***If a firm has no debt, Leverage factor = 0, ROE = ROA***
- ***If a firm has debts, 3 possible situations exist :***
  - **ROA > i** : invest borrowed money at the rate > cost of interest ;  $(ROA - i) > 0$  Leverage factor > 0
  - **ROA = i** : shareholders are not benefiting from the use of borrowed money.  $(ROA - i) = 0$ , Leverage factor = 0, ROA = ROE
  - **ROA < i** : Leverage factor < 0, ROE < ROA, Return to the shareholders is deteriorated by the use of borrowed funds.
    - ***Reasons of negative financial leverage:***
      - High levels of interest rates and depressed ROA caused by rising costs
      - increased competition
      - price controls, etc...

# Example

<b>D / E</b>	<b>0,0</b>	<b>0,11</b>	<b>0,25</b>	<b>0,43</b>	<b>0,67</b>	<b>1,00</b>	<b>1,50</b>	<b>2,33</b>
<b>ROA</b>	15 %	15 %	15 %	15 %	15 %	15 %	15 %	15 %
<b>i</b>	9 %	10 %	11 %	12 %	13 %	14 %	15 %	16 %
<b>ROA - i</b>	6 %	5 %	4 %	3 %	2 %	1 %	0 %	-1 %
<b>Leverage</b>	0,00%	0.55 %	1.00 %	1.29 %	1.34 %	1.00 %	0.00 %	-2.33 %
<b>ROE</b>	15 %	15,55%	16,00%	16,29%	16,34%	16,00%	15,00%	12,67%



# The Statement of Cash Flows

The ***statement of cash flows*** is a summary over a period of time of a firm's cash flows from ***operating, investment, and financing activities***.

By analyzing these individual flows, current and potential owners and creditors can examine such aspects of the business as:

- The source of financing for business operations, whether through internally generated funds or external sources of funds.
- The ability of the company to meet debt obligations (interest and principal payments).
- The ability of the company to finance expansion through operating cash flow.
- The ability of the company to pay dividends to shareholders.
- The flexibility the business has in financing its operations.

# The Statement of Cash Flows (indirect method)

- **Operating activities:** net income as reported on the income statement and adjust it for each change in current assets and current liabilities and each noncash operating item
- **Investing activities** includes cash flow due to investments in plant assets, the disposal of plant assets, acquisitions of other companies et
- **Financing activities** includes cash flows due to the sale or repurchase of common or preferred stock, the issuing or retirement of long-term debt securities, and the payment of common and preferred dividends.

	2003	2002
Cash flow from (used for) operating activities		
Net income	\$1,200	\$1,000
Add or deduct adjustments to cash basis:		
Change in accounts receivables	\$200	\$(200)
Change in accounts payable	100	400
Change in marketable securities	(200)	200
Change in inventories	(800)	(600)
Change in other current liabilities	300	0
Depreciation	<u>1,000</u>	<u>1,000</u>
	<u>600</u>	<u>800</u>
Cash flow from operations	\$1,800	\$1,800
Cash flow from (used for) investing activities		
Purchase of plant and equipment	<u>\$(1,000)</u>	<u>\$0</u>
Cash flow from (used for) investing activities	\$(1,000)	\$0
Cash flow from (used for) financing activities		
Sale of common stock	\$1,000	\$0
Repayment of long-term debt	(1,000)	(1,500)
Payment of preferred dividends	(100)	(100)
Payment of common dividends	<u>(500)</u>	<u>(400)</u>
Cash flow from (used for) financing activities	(600)	(1,900)
Increase (decrease) in cash flow	\$200	\$(100)
Cash at the beginning of the year	<u>200</u>	<u>300</u>
Cash at the end of the year	\$400	\$200

# The Statement of Cash Flows (indirect method)

- Colgate's cash balance increased by \$388 million. This net change in cash balance is explained through Colgate's operating activities providing \$2.896 billion, and its investing and financing activities using \$1.213 billion and \$1.242 billion, respectively. Overall, the cash flows depict a highly profitable company

<b>Exhibit 1.8</b> <b>Colgate's Consolidated Statements of Cash Flows (in millions, except per share amounts)</b>			
For the years ended December 31,	2011	2010	2009
<b>Operating Activities</b>			
Net income including noncontrolling interests .....	\$ 2,554	\$ 2,313	\$ 2,397
Adjustments to reconcile net income including noncontrolling interests to net cash provided by operations:			
Depreciation and amortization .....	421	376	351
Restructuring and termination benefits, net of cash .....	103	86	(18)
Venezuela hyperinflationary transition charge .....		271	
Gain before tax on sales of noncore product lines .....	(207)	(50)	(5)
Stock-based compensation expense .....	122	121	117
Deferred income taxes .....	88	29	(23)
Cash effects of changes in:			
Receivables .....	(130)	40	57
Inventories .....	(130)	(10)	44
Accounts payable and other accruals .....	199	(65)	294
Other noncurrent assets and liabilities .....	54	135	136
Net cash provided by operations .....	2,896	3,211	3,277
<b>Investing Activities</b>			
Capital expenditures .....	(537)	(550)	(575)
Sale of property and noncore product lines .....	263	42	17
Purchases of marketable securities and investments .....	(356)	(308)	(289)
Proceeds from sale of marketable securities and investments .....	423	167	—
Payment for acquisitions, net of cash acquired .....	(966)	—	—
Other .....	(40)	(9)	6
Net cash used in investing activities .....	(1,213)	(658)	(841)
<b>Financing Activities</b>			
Principal payments on debt .....	(4,429)	(4,719)	(3,950)
Proceeds from issuance of debt .....	5,843	5,015	3,424
Dividends paid .....	(1,203)	(1,142)	(981)
Purchases of treasury shares .....	(1,806)	(2,020)	(1,063)
Proceeds from exercise of stock options and excess tax benefits .....	353	242	300
Net cash used in financing activities .....	(1,242)	(2,624)	(2,270)
Effect of exchange rate changes on Cash and cash equivalents .....	(53)	(39)	(121)
Net increase (decrease) in Cash and cash equivalents .....	388	(110)	45
Cash and cash equivalents at beginning of year .....	490	600	555
Cash and cash equivalents at end of year .....	\$ 878	\$ 490	\$ 600