

ASSETS	LIABILITIES
<b>NON-CURRENT ASSETS</b> <ul style="list-style-type: none"> <li>Property, plant and equipment</li> <li>Investment property</li> <li>Goodwill</li> <li>Other intangible assets</li> <li>Equity investment</li> <li>Other non-current financial assets</li> <li>Deferred tax</li> </ul>	<b>SHAREHOLDERS' EQUITY</b> <ul style="list-style-type: none"> <li>Issued capital</li> <li>Reserves                             <ul style="list-style-type: none"> <li>Legal</li> <li>Statutory</li> <li>Revaluation</li> <li>Profit/loss brought forward</li> </ul> </li> <li>Net profit/loss for the financial year</li> </ul>
<b>CURRENT ASSETS</b> <ul style="list-style-type: none"> <li>Trade and other receivables</li> <li>Inventories</li> <li>Ordered work in progress</li> <li>Short-term financial assets</li> <li>Cash and cash equivalents</li> </ul>	<b>NON-CURRENT LIABILITIES</b> <ul style="list-style-type: none"> <li>Bonds</li> <li>Bank debts</li> <li>Trade and other payables</li> <li>Other financial non-current liabilities</li> <li>Provisions</li> <li>Deferred tax liabilities</li> </ul>
	<b>CURRENT LIABILITIES</b> <ul style="list-style-type: none"> <li>Bonds</li> <li>Bank debts</li> <li>Trade and other payables</li> <li>Other financial non-current liabilities</li> <li>Current tax liabilities</li> </ul>
<b>ASSETS CLASSIFIED AS HELD FOR SALE AND DISPOSAL GROUPS</b>	<b>LIABILITIES DIRECTLY ASSOCIATED WITH ASSETS CLASSIFIED AS HELD FOR SALE AND DISPOSAL GROUPS</b>

By NATURE	By FUNCTION
+ revenues + other operating revenues + changes in inventories of finished goods (f-i) - raw materials and consumables used - cost of labor - other operating costs	+ revenues - cost of goods sold (COGS) = GROSS PROFIT + other operating revenues - sales & marketing costs - general & Administrative costs expenses - R&D costs
= EARNING BEFORE INTERESTS, TAXES, DEPRECIATION & AMORTIZATION = EBITDA - depreciation and amortization = EARNING BEFORE INTERESTS, TAXES = EBIT = OPERATING PROFIT	} SGAs
+ financial incomes - financial expenses = PROFIT BEFORE TAXES FROM CONTINUING OPERATIONS = EBT - taxes = NET PROFIT FROM CONTINUING OPERATIONS + profit from discontinued operations = NET PROFIT	

DIRECT METHOD	INDIRECT METHOD
= CASH AND CASH EQUIVALENTS AT BEGINNING OF PERIOD <b>CASH FLOW FROM OPERATING ACTIVITY</b> + cash receipts from customers - cash paid to suppliers - cash paid to employees - cash paid for other operating expenses - interest paid - income taxes paid = NET CASH FROM OPERATING ACTIVITIES	= CASH AND CASH EQUIVALENTS AT BEGINNING OF PERIOD <b>CASH FLOW FROM OPERATING ACTIVITY</b> +net income + adjustments for depreciation and amortization = EBIT - Increase in trade receivables - decrease in trade payables + decrease in inventories = OPERATIONAL CASH FLOW - interest paid - income taxes paid = CASH GENERATED FROM OPERATIONS
<b>CASH FLOW FROM INVESTING ACTIVITIES</b> - purchase of property, plant, and equipment + disposal of assets = NET CASH USED IN INVESTING ACTIVITIES	<b>CASH FLOW FROM INVESTING ACTIVITIES</b> - purchase of property, plant, and equipment + disposal of assets = NET CASH USED IN INVESTING ACTIVITIES
<b>CASH FLOW FROM FINANCING ACTIVITIES</b> - dividends paid +/- repayments of borrowings (long-term debt) + proceeds from issuance of common stock - principal payments under capital lease obligation = NET CASH USED IN FINANCING ACTIVITIES	<b>CASH FLOW FROM FINANCING ACTIVITIES</b> - dividends paid +/- repayments of borrowings (long-term debt) + proceeds from issuance of common stock - principal payments under capital lease obligation = NET CASH USED IN FINANCING ACTIVITIES
= NET INCREASE IN CASH AND CASH EQUIVALENTS = CASH AND CASH EQUIVALENTS AT END OF PERIOD	= NET INCREASE IN CASH AND CASH EQUIVALENTS = CASH AND CASH EQUIVALENTS AT END OF PERIOD

**Shareholders perspective**

$$ROE = \frac{\text{net profit}}{\text{shareholder's equity}}$$

$$NPM = \frac{\text{net profit}}{\text{revenues}}$$

$$\text{Payout Ratio} = \frac{\text{dividends per share (t)}}{\text{earnings per share (t-1)}} = \frac{\text{dividends (t)}}{\text{net profit (t-1)}}$$

$$\text{sustainable growth rate} = ROE * (1 - \text{payout ratio})$$

$$\text{earnings per share} = \frac{\text{net profit}}{\text{\#commonshares}}$$

**Overall company's perspective**

$$ROA = \frac{\text{Operating income (EBIT)}}{\text{total assets}}$$

$$ROI = \frac{\text{operating income (EBIT)}}{\text{Total assets - NonFinancial Liabilities}} = \frac{EBIT}{\text{equity} + (\text{short} + \text{long}) * \text{debts and bonds}}$$

$$ROCE = \frac{\text{operating income (EBIT)}}{\text{equity} + \text{long term debt and bond}}$$

$$ROACE = \frac{\text{operating income (EBIT)}}{\text{average equity} + \text{average long term debt and bond}}$$

$$OPM = ROS = \frac{\text{operating income (EBIT)}}{\text{revenues}}$$

$$EBITDA \text{ margin} = \frac{\text{operating income} + \text{depreciation} + \text{amortisation}}{\text{revenues}} = \frac{EBITDA}{\text{revenues}}$$

$$\text{quality of operating earning} = \frac{\text{operating cash flow (CFFO)}}{\text{operating profit (EBIT)}}$$

$$\text{asset turnover ratio} = \frac{\text{revenues}}{\text{total assets}}$$

**Stakeholder's perspective**

$$\text{debt to equity Ratio} = \frac{\text{liabilities}}{\text{shareholders' equity}}$$

$$\text{interest coverage ratio} = \frac{\text{operating income (EBIT)}}{\text{financial expenses}} \quad \text{or} \quad \frac{\text{operating income (EBIT)}}{\text{financial interests}}$$

$$\text{cost of debt} = \frac{\text{interest expenses}}{\text{financial debt}} = \frac{\text{interest expenses}}{(\text{long} \& \text{short}) * \text{debts}}$$

$$\text{Effective tax rate} = \frac{\text{taxes}}{\text{pre tax profit (EBT)}}$$

**Liquidity Analysis**

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

$$\text{Quick Ratio} = \frac{\text{Cash} + \text{short term investment} + \text{receivables}}{\text{Current Liabilities}}$$

$$\text{Inventory turnover Ratio} = \frac{\text{Revenues}}{\text{Inventories}}$$

$$\text{Average Collection Time of Trade Receivables} = \frac{\text{Trade receivables}}{\text{Revenues}} * 365$$

$$\text{cash flow to debts ratio} = \frac{\text{operating cash flow}}{\text{debt liabilities}} = \frac{CFFO}{\text{financial debt}}$$

$$\text{short term debt coverage} = \frac{CFFO}{\text{current financial debt}}$$

$$\text{capital expenditure coverage} = \frac{CFFO}{\text{capital expenditure (CAPEX)}}$$

$$\text{Economic Margin} = \frac{\text{cash flow from operating activities}}{\text{invested capital}} - K = \frac{\text{cash CFFO}}{\text{invested capital}} - K$$

$$CFROI = \frac{\text{cash flow from operating activities}}{\text{market value of invested capital}}$$

**Absolute**

$$\text{Residual income} = RI = EBIT - K * \text{invested capital}$$

$$EVA = (\text{Operating Profit after tax, NOPAT}) - K * \text{investments} = EBIT * (1 - \text{tax rate}) - K * \text{invested capital}$$

$$\text{cash EVA} = CFFO - K * \text{Invested Capital}$$

$$CVA = \text{cash flow from operating activities} - \text{cash flow required for operating activities}$$

$$\text{Dupont: } ROE = NPM * ATR * \left(1 + \frac{D}{E}\right)$$

$$\text{Financial analyst's: } ROE = ROA * \left(1 - \frac{1}{ICR^o} - \frac{1Tax}{EBIT}\right) * \left(1 + \frac{D}{E}\right)$$

$$\text{Academic perspective: } ROE = s * \left(ROA * \frac{D}{E} * (ROA - r)\right) \quad s = 1 - Tax; r = \frac{r^o}{D}$$

Budgeted revenues/sales: Price\*Unit sold

Budget of production: sales + inventories begin - inventories end

Check feasibility: Capacity available vs Capacity required

Production budget: make + buy

Computation of the unitary costs of production as total direct costs + manufactory ovh over the number of unit produced. (full product costs approach)

**Operating Budgets**

+ Revenues  
 -Budgeted cost of good sold  


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 = Gross margin  
 -Budgeted period costs  


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 =EBIT

**CASH FLOW STATEMENT:**

Cash at the beginning

+ CASH FLOW FROM OPERATING ACTIVITIES  
 + CASH FLOW FROM INVESTING ACTIVITIE (CAPEX BUDGET)  
 + CASH FLOW FROM FINANCIAL ACTIVITIES  


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 = CASH FLOW AT THE END

**CASH FLOW FROM OPERATING ACTIVITIES**

EBIT  
 + depreciation  


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 = EBITDA  
 - receivables(2020)+receivables(2019) }  
 - inventories(2020)+ inventories (2019) } -ΔNWC(2020→2019)  
 + payables (2020)-payables(2019) }  
 + financial revenues } + net financial costs  
 - financial costs (bank interests, coupon) }  
 - taxes (also debt of unpaid taxes)  


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 = Cash flow from operating activities

**Operating Budgets**

+ Revenues  
 -Budgeted cost of good sold  


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 = Gross margin  
 -Budgeted period costs  


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 =EBIT  
 +revenues expenses  
 -interest expenses  


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 =EBT  
 → Taxes: Tr\*EBT

**CASH FLOW FROM INVESTING ACTIVITIES**

-payment of new assets  
 +sale of new assets  


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 = Cash low from investing activities

**CASH FLOW FROM FINANCING ACTIVITIES**

-decrease in equity (dividends, buyback)  
 +increase of share capital  
 +,- bank debts  
 +,- bonds  


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 = Cash flow from financing activities

**INCOME STATEMENT FROM CORPORATE TO BUS**

Sales  
 Variable expenses  
 Contribution margin  
 Traceable fixed expenses  
 Sales segment margin  
 Common fixed expenses not traceable to sales  
 EBIT

$$WACC = \frac{E}{(D + E)} * Ke + \frac{D}{(D + E)} * Kd * (1 - Tc)$$

$$Ke = rf + \beta L * (rm - rf)$$

$$\beta L = \beta U * (1 + (1 - Tr) * \frac{D}{E})$$

$$Past Kd = \frac{financial\ costs}{financial\ debts}$$

$$Future Kd = rf + CDS$$

**COST VOLUME PROFIT ANALYSIS**

$$EBIT=(Selling\ Price\ Per\ Unit-Variable\ Cost\ Per\ Unit)*Volume - Fixed\ Cost$$

**ASSET SIDE**

EBIT(t)  
 +DEPREZATION & AMMORTIZATION(t)  
 -Account Receivables(t)+AR(t-1)  
 -INV(t)+INV(t-1)  
 +Account Payables(t)-AP(t-1) } - ΔNWC(t;(t-1))  
 -EBIT\* tax  
 -CAPEX(t)

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FCFF(t)=**EBIT(t)\*(1-tax)**+D&A(t)-ΔNWK(t)-CAPEX(t)  
 FCFF(T)=**NOPAT(t)** + D&A(t)-ΔNWK(t)-CAPEX(t)

$$EV = \sum_{t=1}^T \frac{FCFF(t)}{(1+wacc)^t} + \frac{TV}{(1+wacc)^T}$$

**EQUITY SIDE**

FCFF(t)  
 -I(t)  
 +I(t)\*tax  
 +financial incomes  
 - financial incomes\*Tr  
 +,- debts(t)  
 +,- share capital(t)  
 - dividends (t)

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=FCFE

$$E = \sum_{t=1}^T \frac{FCFE(t)}{(1+Ke)^t} + \frac{TV}{(1+Ke)^T}$$

**EQUITY SIDE**

EBIT(t)  
 +DEPREZATION & AMMORTIZATION(t)  
 -Account Receivables(t)+AR(t-1)  
 -INV(t)+INV(t-1)  
 +Account Payables(t)-AP(t-1)  
 -EBIT\* tax  
 -CAPEX(t)

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FCFF(t)=EBIT(t)\*(1-tax)+D&A(t)-ΔNWK(t)-CAPEX(t)  
 -I(t)  
 +I(t)\*tax  
 +financial incomes\*(1-Tr)  
 +,- debts(t)  
 +,- share capital(t)  
 - dividends (t)

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=FCFE

**MULTIPLIERS:**

	ASSET	EQUITY
Earning	$\frac{EV}{EBIT}$	$\frac{P}{E} = \frac{E}{\text{Earning}} = \frac{P}{EPS}$
		$PEG = \frac{P/E}{CAGAR}$
Cash	$\frac{EV}{EBITDA}$	$\frac{E}{\text{Net income} + D\&A}$
	$\frac{EV}{FCFF}$	$\frac{P}{FCFE}$
Revenues	$\frac{EV}{Sales}$	
Book Value	$\frac{EV}{\text{Book value}(E + D)}$	$\frac{EV}{\text{Book value } E}$

**EV = E + NFP** = Equity value + (long, short)Debts – Available Cash  
 Equity Value= Market Capitalization= #shares\*Price per share  
 Earning=net profit=net income

**Consolidation process:**

- Recognize the fair value of the assets
- Offset asset investments and owners' equity
- Offset the surplus on taxes from deferred tax liabilities. If there is a surplus on the provision liabilities we have to add the taxes in in deferred tax assets
- Include the goodwill in the asset side

**GOODWILL**

- Acquisition of 100% of the value controlled company:  
**Goodwill= book value – equity value – (surplus of the assets \* Tax rate) + (surplus of the liabilities \* Tax rate)**
- Acquisition of a non whole controlled company:
  - Full goodwill recognition: **Goodwill= total equity value – book value of equity – net surpluses**  
 Total equity value= value payed + fair value of non controlling interests → Total fair value of the company on the market.  
 Book value of equity= equity value from the balance sheet  
 Net surpluses = surpluses of assets \*(1-Tax rate) = (book value of the assets – fair value)\*(1-Tax rate)
  - Proportional shares: **Goodwill= price payed - % of the book value of the equity – % of net surpluses**  
 We consider only the % of the equity that the company purchase