

**ON BALANCE SHEET**

Net Operating Assets = Net PP&E + Net Intangibles

**Funded by Equity of LT Debt**

Invested Capital = Shareholder's Equity + Capital Leases + Long-term Debt + Short-term Debt [e.g. Notes Payable]

Investment = Short Term Investments + Total Non-Current Assets

Capital Employed = Net Operating Assets + Net Working Capital

Working Capital = Total Current Assets - Total Current Liabilities

Net Working Capital = (Total Current Assets - Cash - ST Investments) - (Total Current Liabilities - Short Term Debt) = Inventory + Net Accounts Receivable - Accounts Payable - Accrued Expenses

**Liquidity**

Cash Ratio = (Cash + Short Term Investments) / Total Current Liabilities [aka as Liquidity 1. degree]

Current Ratio = Total Current Assets / Total Current Liabilities

Quick Ratio = (Cash + Short Term Investments + Accounts Receivable) / Total Current Liabilities = (Total Current Assets - Inventory) / Total Current Liabilities

Defensive Interval = (Cash + Short Term Investments + Accounts Receivable) / Capital Expenditure = (Total Current Assets - Inventory) / Capital Expenditure

**Equity Utilization**

Gearing = (Financial Liabilities - Cash - Short Term Investments) / Shareholder's Equity

Equity-Asset-Ratio = Shareholder's Equity / Total Assets

Debt-Asset-Ratio = Total Liabilities / Total Assets

Long-term Debt Ratio = Long-term Debt / (Long-term Debt + Shareholder's Equity)

Debt-Equity-Ratio = Total Liabilities / Shareholder's Equity

Leverage = Total Assets / Shareholder's Equity

Leverage Ratio = Shareholder's Equity / Total Assets

Goodwill Ratio = Goodwill / Shareholder's Equity

**Intensity**

Current-Total-Asset-Ratio = Current Assets / Total Assets

Non-Current-Total-Asset-Ratio = Non-Current Assets / Total Assets

NC Asset cover degree I = Shareholder's Equity / Non-current Assets

NC Asset cover degree II = (Shareholder's Equity + Long-term Debt) / Non-current Assets

Investment-Ratio = Invested Capital / Total Assets

Capital Employment-Ratio = Capital Employed / Total Assets

**Wear and Tear**

Degree of Tangible Assets Depreciation = (Accumulated Depreciation of PPE + Accumulated Depreciation of Lease Object) / (PPE + Lease Object)

Degree of Intangible Assets Amortization = Accumulated Amortization / Intangibles

## ON INCOME STATEMENT

### Absolute Performance of Operating Activities

EBITDA (Earnings Before Income, Tax, Depreciations & Amortizations)  
= Earnings Before Interest & Tax (EBIT) + Depreciations & Amortizations

NOPLAT (Net Operating Profit Less Adjusted Tax) = Operating Income x (100% - Tax Rate%)

## ON INCOME STATEMENT & BALANCE SHEET

### Sustainability

Investment Rate = CapEx / NOPLAT

### Profitability

Tax Rate = EBT > 0 ? Taxes / EBT : 0 (NOTATION) true or false ? this if true : that if false

Return On  $\emptyset$  Equity = Net Income / [ (Shareholder's Equity\_last + Shareholder's Equity\_current) / 2 ]

Return On  $\emptyset$  Assets = (Net Income + Interest Expenses) / [ (Total Assets\_last + Total Assets\_current) / 2 ]

Return On  $\emptyset$  Investment = (Net Income + Interest Expenses) / [ (Investment\_last + Investment\_current) / 2 ]

Return On  $\emptyset$  Net Operating Assets = NOPLAT / [ (Net Operating Assets\_last + Net Operating\_current) / 2 ]

Return On  $\emptyset$  Invested Capital = (Net Income + Interest Expenses) / [ (Invested Capital\_last + Invested Capital\_current) / 2 ]

Return On  $\emptyset$  Capital Employed = NOPLAT / [ (Capital Employed\_last + Capital Employed\_current) / 2 ]

Times Interest Earned (Interest Coverage) = Operating Income / Net Interest Expenses

Equity Burn Rate\_t = Net Income\_t < 0 ? Shareholder's Equity\_{t-1} / |Net Income\_t| : "-" (NOTATION) true or false ? this if true : that if false

### Covenants

Debt-to-EBITDA = Total Liabilities / EBITDA

NetDebt-to-EBITDA = (Total Liabilities - Cash - Short Term Investments) / EBITDA

EBITDA-to-DebtPayments = EBITDA / (Net Interest Expenses + Debt Repayments)

EBITDA-to-Interest = EBITDA / Net Interest Expenses

### Efficiency

$\emptyset$  Working Capital Turnover = Revenue / [ (Working Capital\_last + Working Capital\_current) / 2 ]

$\emptyset$  Working Capital Intensity = 1 /  $\emptyset$  Working Capital Turnover

$\emptyset$  Total Asset Turnover = Revenue / [ (Total Assets\_last + Total Assets\_current) / 2 ]

$\emptyset$  Total Asset Intensity = 1 /  $\emptyset$  Total Asset Turnover

$\emptyset$  Net Operating Asset Turnover = Revenue / [ (Net Operating Assets\_last + Net Operating Assets\_current) / 2 ]

$\emptyset$  Fixed Asset Turnover = Revenue / [ (Fixed Assets\_last + Fixed Assets\_current) / 2 ]

Receivables Turnover = Revenue / [ (Accounts Receivable\_last + Accounts Receivable\_current) / 2 ]

Days Sales Outstanding = [ Accounts Receivable\_last + Accounts Receivable\_current ] / 2 / (Revenue / 365)

Inventory Turnover = Costs of Goods Sold (COGS) / [ (Inventory\_last + Inventory\_current) / 2 ]

Days Inventory = [ (Inventory\_last + Inventory\_current) / 2 ] / (COGS / 365)

Payables Period = [ (Accounts Payable\_last + Accounts Payable\_current) / 2 ] / (COGS / 365)

Cash Conversion Cycle = Days Sales Outstanding + Days Inventory - Payables Period

DuPont RoE = ... x ... x ... x ... x ...

RoE = Net Income /  $\emptyset$  Equity = Net Income / EBIT  $\times$  EBIT / Revenue  $\times$  Revenue /  $\emptyset$  Net Operating Assets  $\times$   $\emptyset$  Net Operating Assets /  $\emptyset$  Total Assets  $\times$   $\emptyset$  Total Assets /  $\emptyset$  Equity

### Growth

EBITDA YoY = (EBITDA\_current - EBITDA\_last) / EBITDA\_last

EBIT YoY = (EBIT\_current - EBIT\_last) / EBIT\_last

Net Income YoY = (Net Income\_current - Net Income\_last) / Net Income\_last

EBITDA YoY = (EBITDA\_current - EBITDA\_last) / EBITDA\_last

## CASH FLOW & BALANCE SHEET

Cash from Sales € = Revenue + (Net Accounts Receivable\_current - Net Accounts Receivable\_last)

CapEx € = (PPE\_current - PPE\_last) + (Intangible Assets\_current - Intangible Assets\_last)

### Cash Flow Sufficiency

Fixed Charges Coverage = Operating Income / Fixed Charges

Cash Flow Ratio = Cash from Operations / Current Liabilities

Cash Flow Operations / Capital Expenditure = Cash from Operations / CapEx

Free Cash Flow = Cash from Operations - Capital Expenditure

Payout Ratio = Dividends Paid / Net Income

### Free Cash Flow Generation

Free Cash Flow / Sales = Free Cash Flow / Sales

Free Cash Flow / Net Income = Free Cash Flow / Net Income

Cash Flow Operations / OI = Cash from Operations / Operating Income

## VALUE & VALUATION

Economic Value Added = NOPLAT - WACC \* Capital Employed

Economic Value Added % = ROCE - WACC

Market Capitalization = Floating Shares × Share Prices

Equity Value = Shares Outstanding \* Price per Share

Enterprise Value = Equity Value + Total Liabilities - Cash - Short Term Investments - Non Operating Assets (e.g. Long Term Investments)

### Investment Yields

Earnings per Share = Earnings / Number of Shares

Price/Earnings = Equity Value / Net Income = Price per Share / Earnings per Share

Price/Book = Equity Value / Book Value of Shareholder's Equity

Price/Sales = Equity Value / Revenue

Price/Cash Flow = Equity Value / Cash Flow from Operations

Dividend Yield = Dividends Paid / Equity Value

### Multiples

EV / EBITDA = Enterprise Value / EBITDA

EV / Ebit = Enterprise Value / EBIT

EV / Sales = Enterprise Value / Revenue

### Shares

Shares Issued = All the shares of the company. They add to Common & Preferred Stock.

Shares Outstanding = Shares Issued - Shares bought back [i.e. Treasury Stock]

Shares Floating = Percentage of Shares Issued that are publicly traded on a stock exchange.

## TERMINOLOGY

Asset Swap = Value in one asset position is exchanged with value in a different asset position

Balance Sheet Extension = Assets and liabilities simultaneously increase by the same amount.  
This is neutral to the Income Statement

Balance Sheet Contraction = Assets and liabilities simultaneously decrease by the same amount.  
This is neutral to the Income Statement.

## EXPLANATIONS

WACC = Weighted Average Cost of Capital (after Tax)

SG&A = Sales, General & Administrative expense, e.g. payroll, sales and marketing, rent, office supplies, legal costs, insurance costs, utilities

COGS = Costs Of Goods Sold, e.g. labor directly tied to production, direct materials needed for the production of goods and services, utilities of the facilities tied to production

\_Expenses\_ are \_Costs\_ that are matched with \_Revenues\_ on the income statement. Thus, all \_Expenses\_ are \_Costs\_, but not vice versa.

Thus, \_Costs\_ can either be an \_Expense\_ or an \_Investment\_. In the latter case, they are turned into an \_Asset\_ and end up on the B/S. Depreciation of the \_Asset\_ will then be an \_Expense\_.

Expenses associated with the main activity of the business are referred to as operating expenses. Expenses associated with a peripheral activity are nonoperating or other expenses.

## DOUBLE ENTRY BOOKKEEPING

T-ACCOUNT				
DATE	DESCRIPTION	DEBIT (left side)	CREDIT (right side)	BALANCE
		Assets ↑	Assets ↓	
		Liabilities ↓	Liabilities ↑	
		Equity ↓	Equity ↑	
		Expenses ↑	Revenues ↑	
		Dividends ↑	Owners contrib. ↑	

Every position on the B/S, Income Statement, Cash-Flow Statement or Shareholder's Equity has its own T-Account.

Bookkeeping: from Debit (left side) to Credit (right side)

debited = increased what I own, gained, expended or lost OR decreased what I owe

credited = decreased what I own, gained, expended or lost OR increased what I owe