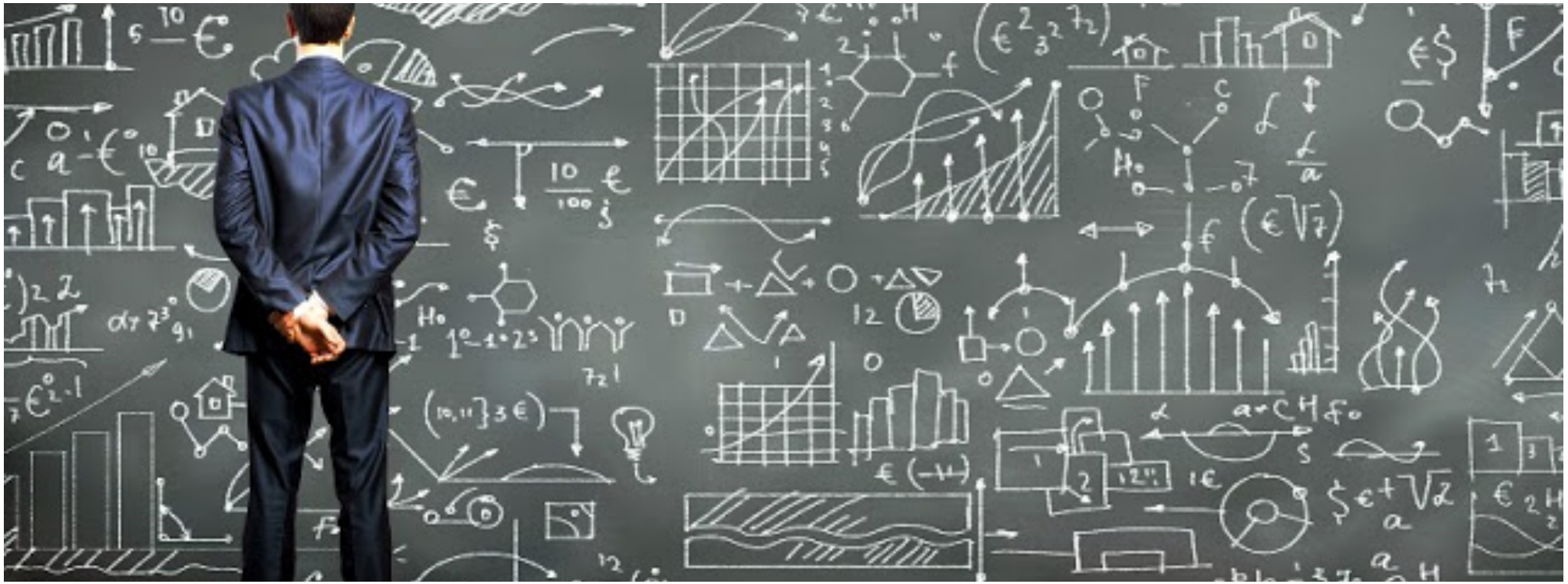
ASSETS TURNOVER RATIOS & PROFITABILITY

Efficiency in the “deployment” of economic resources



EFFICIENCY

1. **OPERATIONAL PRODUCTIVITY**

$$\frac{O_{PHYSICAL}}{I_{PHYSICAL}}$$

   a) **Partial**

   b) **Total**

2. **FINANCIAL PRODUCTIVITY**

$$\frac{O_{REVENUES}}{I_{EXPENSES}}$$

   a) **Partial**

   b) **Total**

WHICH IS THE BEST?

Sales Revenues	**1,000 $**	**5,000 $**
Operating costs	- 600 $	- 4,000 $
EBIT	**400 $**	**1,000 $**

RETURN ON SALES

Sales Revenues	**1,000 $**	**5,000 $**
Operating costs	- 600 $	- 4,000 $
EBIT	**400 $**	**1,000 $**
r.o.s.	**40%**	**20%**

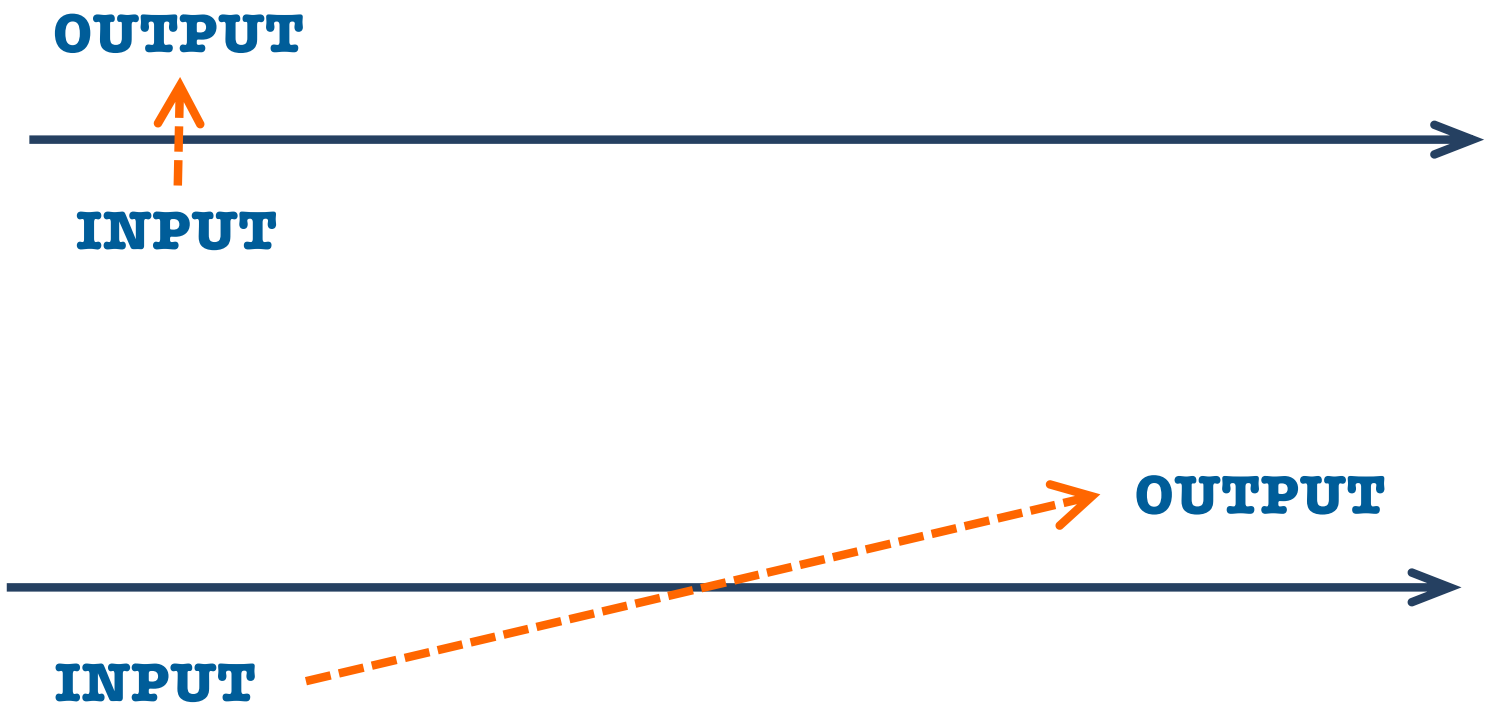
EFFICIENCY IN THE SHORT TERM

Efficiency in the **use** of economic resources.

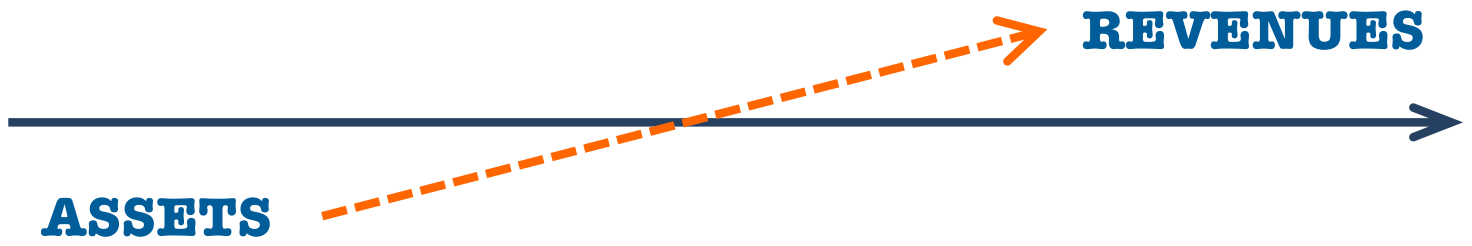
The "sacrifice" of economic resources is made in this period in order to be able to achieve an economic "benefit" in the same time frame. From an economic point of view this normally determines the incurrence of **one or more costs** and the attainment of **one or more revenues.**

This situation is normally portraits inside the **income statement.**

TWO DIFFERENT ISTANCES



EFFICIENCY IN THE SHORT TERM



Efficiency in the **deployment** of economic resources (broader view: it encompasses the utilization (investment) of "capital" (wealth) obtained from both external and internal sources.

The "sacrifice" of economic resources has been made in this period or in the past in order to be able to achieve an economic "benefits" in the future.

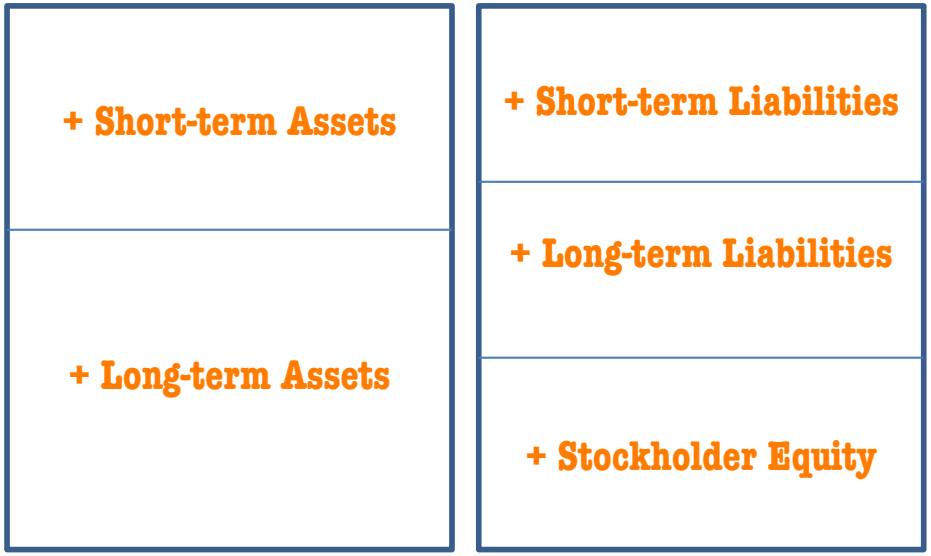
An asset is a **resource** controlled by the entity as a result of past events and from which **future economic benefits are expected to flow** to the entity. The residual value is stated in the **balance sheet**.

CAPITAL EMPLOYED

Sales Revenues	**1,000 $**	**5,000 $**
Operating costs	- 600 $	- 4,000 $
EBIT	**400 $**	**1,000 $**
r.o.s.	**40%**	**20%**
Capital Employed (Investment)	**2,000 $**	**2,500 $**

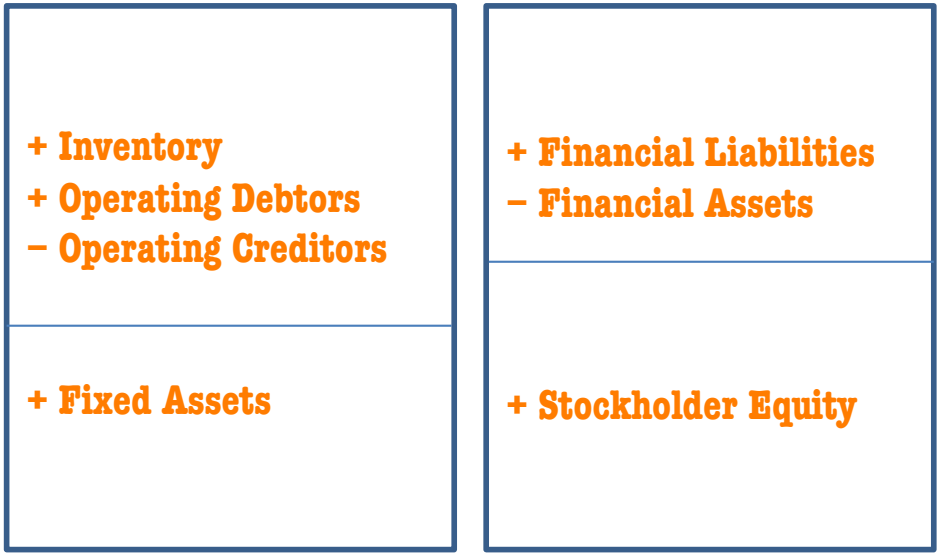
BALANCE SHEET

SOLVENCY-AND-LIQUIDITY ANALYSIS
OF THE BALANCE SHEET



Debit side **Credit side**

CAPITAL-EMPLOYED ANALYSIS
OF THE BALANCE SHEET



Debit side **Credit side**

SOLVENCY-AND-LIQUIDITY ANALYSIS

BSE Company

Cash	300		Short Term Loans	1.200	
Accounts Receivable	1.950		Accounts Payable	1.500	
Accruals and Prepaid expenses	230		Accrued Expenses	180	
Other Operating Receivables (short term)	470		Deferred Revenues	220	
Invertory (short term)	2.900		Other Operating Payables	400	
Financial Receivables (short term)	700		Financial Payables (short term)	2.420	
Marketable securities	1.450		**Current Liabilities**		**5.920**
Current Assets		**8.000**			
			Tax and Social Security Liabilities	2.280	
Invertory (slow moving)	320		Long Term Loans	18.500	
Property, Plant & Equipment	9.050		**Long Term Liabilities**		**20.780**
Intellectual Property & Patents	1.300				
Goodwill	4.630		Share capital	2.000	
Financial Receivables (long term)	1.400		Paid in capital in excess of par	6.000	
Equity in associated companies	3.200		Retained Earnings	3.550	
Long-term investments	12.100		Net Income for the year	1.750	
Long Term Assets		**32.000**	**Owners' Equity**		**13.300**
Total Assets		*40.000*	*Total Liabilities + Shareholders' Equity*		*40.000*

SOLVENCY-AND-LIQUIDITY ANALYSIS

+ Current Assets	8.000	R.O.I.	+ Sales Revenues	15.584
+ Long Term Assets	32.000		- C.O.G.S.	-5.300
= Total Assets	**40.000**		**= Gross Margin**	**10.284**
			- S. G. & A. Expenses	-6.800
			+ Dividends from Strategic Investments	150
			+ Interest Revenues, Dividends & Gains	308
- Current Liabilities	-5.920		**= EBIT**	**3.942**
- Long-Term Liabilities	-20.780	R.O.D.	- Interest Expenses	-1.106
			= EBT	**2.836**
= Owner's Equity	**13.300**	R.O.E.	- Income Taxes	-993
			= EAT	**1.843**

SOLVENCY-AND-LIQUIDITY ANALYSIS

$$ROI_{SL} = \frac{EBIT}{TOTAL\ ASSETS}$$

$$ROD_{SL} = \frac{-\ INTEREST\ EXPENSES}{-\ TOTAL\ LIABILITIES}$$

$$ROE^{BT} = \frac{EARNINGS\ BEFORE\ TAX}{OWNERS'\ EQUITY} \qquad ROE^{AT} = \frac{EARNINGS\ AFTER\ TAX}{OWNERS'\ EQUITY}$$

TWO DIFFERENT NATURES

BSE Company

Cash	300		Short Term Loans	1.200	
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Total Assets		*40.000*	*Total Liabilities + Shareholders' Equity*		*40.000*

TWO DIFFERENT NATURES

DEBIT SIDE ⟶ – CREDIT SIDE

BSE Company

Cash	300		Short Term Loans	1.200	
Accounts Receivable	1.950		Accounts Payable	1.500	
Accruals and Prepaid expenses	230		Accrued Expenses	180	
Other Operating Receivables (short term)	470		Deferred Revenues	220	
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Long Term Assets		**32.000**	**Owners' Equity**		**13.300**
Total Assets		*40.000*	*Total Liabilities + Shareholders' Equity*		*40.000*

TWO DIFFERENT NATURES

- DEBIT SIDE ⟵ CREDIT SIDE

BSE Company

Cash	300		Short Term Loans	1.200	
Accounts Receivable	1.950		Accounts Payable	1.500	
Accruals and Prepaid expenses	230		Accrued Expenses	180	
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Total Assets		*40.000*	*Total Liabilities + Shareholders' Equity*		*40.000*

CAPITAL-EMPLOYED ANALYSIS

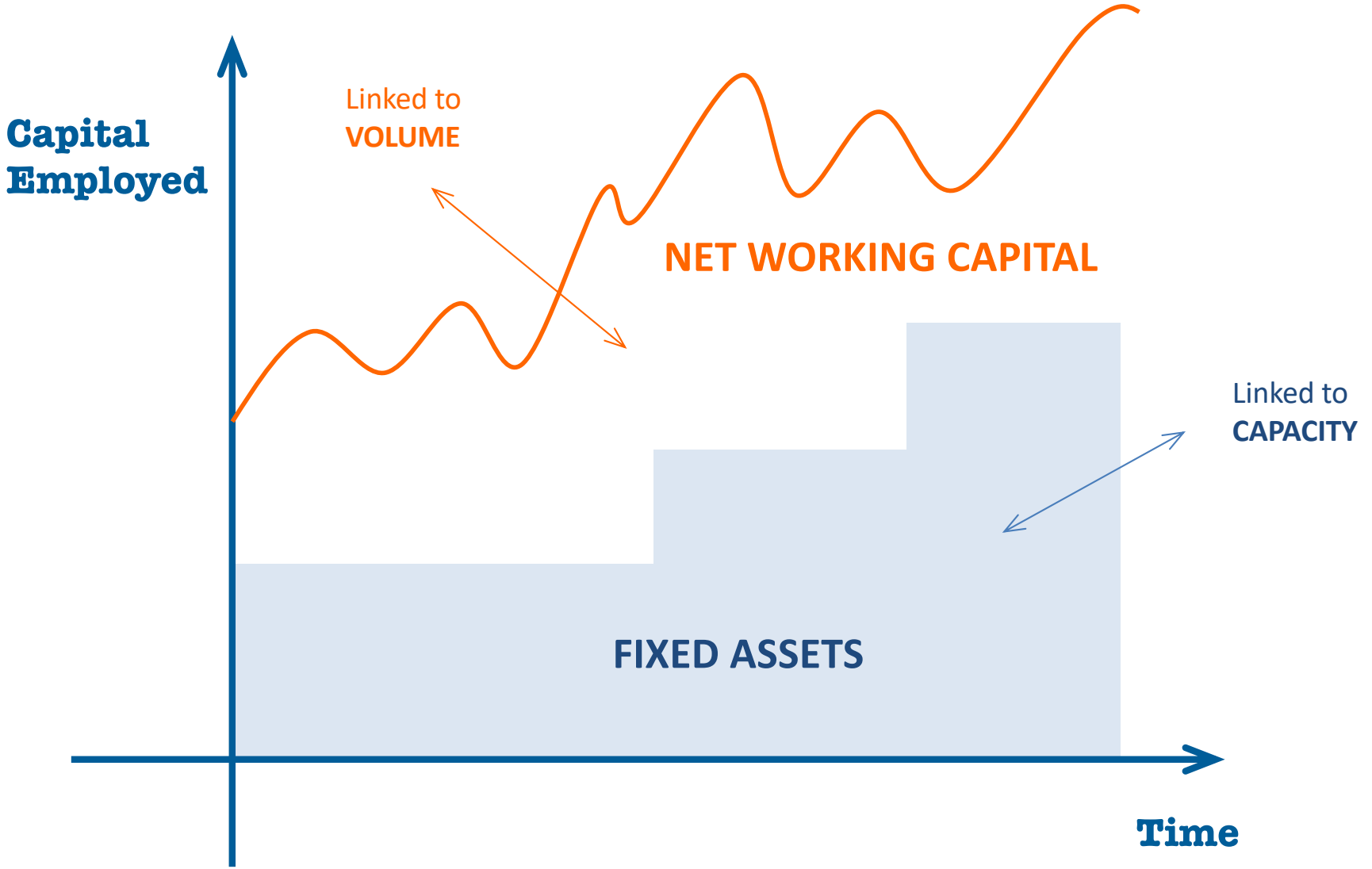
Also called to
NET FINANCIAL OBLIGATIONS (NFO)

BSE Company

+ Accounts Receivable		1.950		+ Short Term Loans		1.200	
+ Accruals and Prepaid expenses		230		+ Long Term Loans		18.500	
+ Other Operating Receivables (short terr		470		+ Financial Payables (short term)		2.420	
+ Invertory (short term)		2.900		- Financial Receivables (long term)	-	1.400	
+ Invertory (slow moving)		320		- Financial Receivables (short term)	-	700	
- Accounts Payable	-	1.500		- Marketable securities	-	1.450	
- Accrued Expenses	-	180		- Cash	-	300	
- Deferred Revenues	-	220		**Net Financial Debt**			**18.270**
- Other Operating Payables	-	400					
-Tax and Social Security Liabilities	-	2.280		Share capital		2.000	
Net Working Capital			**1.290**	Paid in capital in excess of par		6.000	
				Retained Earnings		3.550	
Property, Plant & Equipment		9.050		Net Income for the year		1.750	
Intellectual Property & Patents		1.300		**Owners' Equity**			**13.300**
Goodwill		4.630					
Equity in associated companies		3.200					
Long-term investments		12.100					
Fixed Assets			**30.280**				
Net Capital Employed			*31.570*	*Sources of Net Capital Employed*			*31.570*

Also called to
NET OPERTATING ASSETS

CAPITAL-EMPLOYED ANALYSIS



CAPITAL-EMPLOYED ANALYSIS

+ Operating Debtors	2.650
+ Inventory	3.220
- Operating Creditors	-4.580
= Net Working Capital	**1.290**
+ Fixed Tangible Assets	9.050
+ Fixed Intangible Assets	5.930
+ Strategic Investments	15.300
= Capital Employed	**31.570**
- Net Financial Debt	-18.270
= Owner's Equity	**13.300**

R.O.I.

R.O.D.

R.O.E.

+ Sales Revenues	15.584
- C.O.G.S.	-5.300
= Gross Margin	**10.284**
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+ Dividends from Strategic Investments	150
= EBIT	**3.634**
- Interest Expenses	-1.106
+ Interest Revenues, Dividends & Gains	308
= EBT	**2.836**
- Income Taxes	-993
= EAT	**1.843**

Please note: I purposely did not want to change the names of the different ratios. As a matter of fact, in the considerations we are making, the terms "return on investment" or "return on debt" or "return on equity" should be understood as "families, groups, of indicators" rather than as specific indicators calculated in a given way.

CAPITAL-EMPLOYED ANALYSIS

$$ROI_{CE} = \frac{\overbrace{EBIT_{SL} - \text{INCOME FROM FINANCIAL ASSETS}}^{EBIT_{CE}}}{\underbrace{\text{TOTAL ASSETS} - \text{FINANCIAL ASSETS} - \text{OPERATING DEBTS}}_{\text{NET CAPITAL EMPLOYED}}}$$

$$ROD_{CE} = \frac{\overbrace{\text{- INTEREST EXPENSES + INCOME FROM FINANCIAL ASSETS}}^{\text{FINANCIAL OPERATIONS NET INCOME}}}{\underbrace{\text{- TOTAL LIABILITIES + OPERATING DEBTS + FINANCIAL ASSETS}}_{\text{NET FINANCIAL OBLIGATIONS}}}$$

$$ROE^{BT} = \frac{\text{EARNINGS BEFORE TAX}}{\text{OWNERS' EQUITY}} \qquad ROE^{AT} = \frac{\text{EARNINGS AFTER TAX}}{\text{OWNERS' EQUITY}}$$

SOLVENCY-AND-LIQUIDITY ANALYSIS

What the company **owns**

What the company **owes**

Assets

BSE Company

Cash	300		Short Term Loans	1.200	
Accounts Receivable	1.950		Accounts Payable	1.500	
Accruals and Prepaid expenses	230		Accrued Expenses	180	
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Equity in associated companies	3.200		Retained Earnings	3.550	
Long-term investments	12.100		Net Income for the year	1.750	
Long Term Assets		**32.000**	**Owners' Equity**		**13.300**
Total Assets		*40.000*	*Total Liabilities + Shareholders' Equity*		*40.000*

Liabilities

Net Equity

CAPITAL-EMPLOYED ANALYSIS

What is the level and what are the components of of invested capital required by the carrying out of operating activities (net of the portion financed by operating suppliers)?

Who provided the funds required to finance the net operating investment recorded in the debit section?

Net Capital Employed

BSE Company

+ Accounts Receivable		1.950		+ Short Term Loans	1.200	
+ Accruals and Prepaid expenses		230		+ Long Term Loans	18.500	
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Property, Plant & Equipment		9.050		Net Income for the year	1.750	
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Long-term investments		12.100				
Fixed Assets			**30.280**			
Net Capital Employed			*31.570*	*Sources of Net Capital Employed*		*31.570*

Net Financial Obligations

Net Equity

RETURN ON CAPITAL EMPLOYED

Sales Revenues	**1,000 $**	**5,000 $**
Operating costs	- 600 $	- 4,000 $
EBIT	**400 $**	**1,000 $**
r.o.s.	**40%**	**20%**
Capital Employed (Investment)	**2,000 $**	**2,500 $**
r.o.i.	**20%**	**40%**

also Return On Capital Employed (ROCE) o Return on Assets (ROA) o Return on Net Assets (RONA)

PORTER ON PERFORMANCE

"Performance, Porter argues, must be defined in terms that reflect the economic purpose every organization shares: to produce goods or services whose value exceeds the sum of the costs of all the inputs. In other words, organizations are supposed to use resources effectively.

The financial measure that best captures this idea is return on invested capital (ROIC). ROIC weighs the profits a company generates versus all the funds invested in it, operating expenses and capital. Long-term ROIC tells you how well a company is using its resources.

It is also, Porter points out, the only measure that matches the multidimensional nature of competition: creating value for customers, dealing with rivals, and using resources productively. ROIC integrates all three dimensions. Only if a company earns a good return can it satisfy customers in a sustainable way. Only if it uses resources effectively can it deal with rivals in a sustainable way."

Excerpt From: Magretta, Joan. "Understanding Michael Porter." iBooks.

FLAWED GOALS

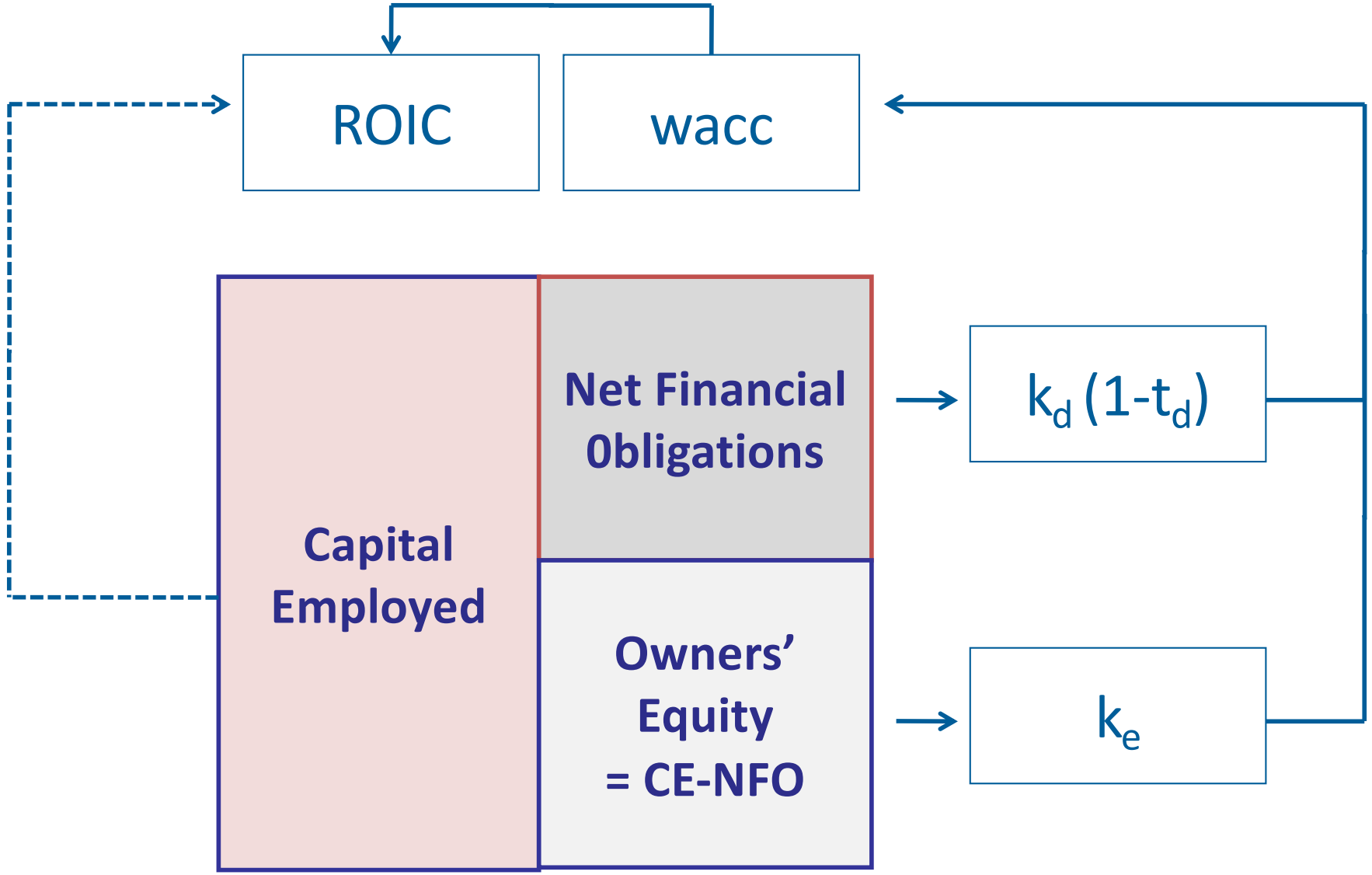
"When Porter questions why so few companies are able to maintain successful strategies, he often points to flawed goals as the culprit:

- Return on sales (ROS) is used widely, although it ignores the capital invested in the business and therefore is a poor measure of how well resources have been used.
- Growth is another widely embraced goal, along with its sister goal, market share. Like ROS, these fail to account for the capital required to compete in the industry. Too often companies pursue unprofitable growth that never leads to superior return on capital. As Porter notes wryly when he talks to managers, most companies could instantly achieve rapid growth simply by cutting their prices in half.
- Shareholder value, measured by stock price, has proven to be a spectacularly unreliable goal, yet it remains a powerful driver of executive behavior. Stock price, Porter warns, is a meaningful measure of economic value only over the long run."

Excerpt From: Magretta, Joan. "Understanding Michael Porter." iBooks.

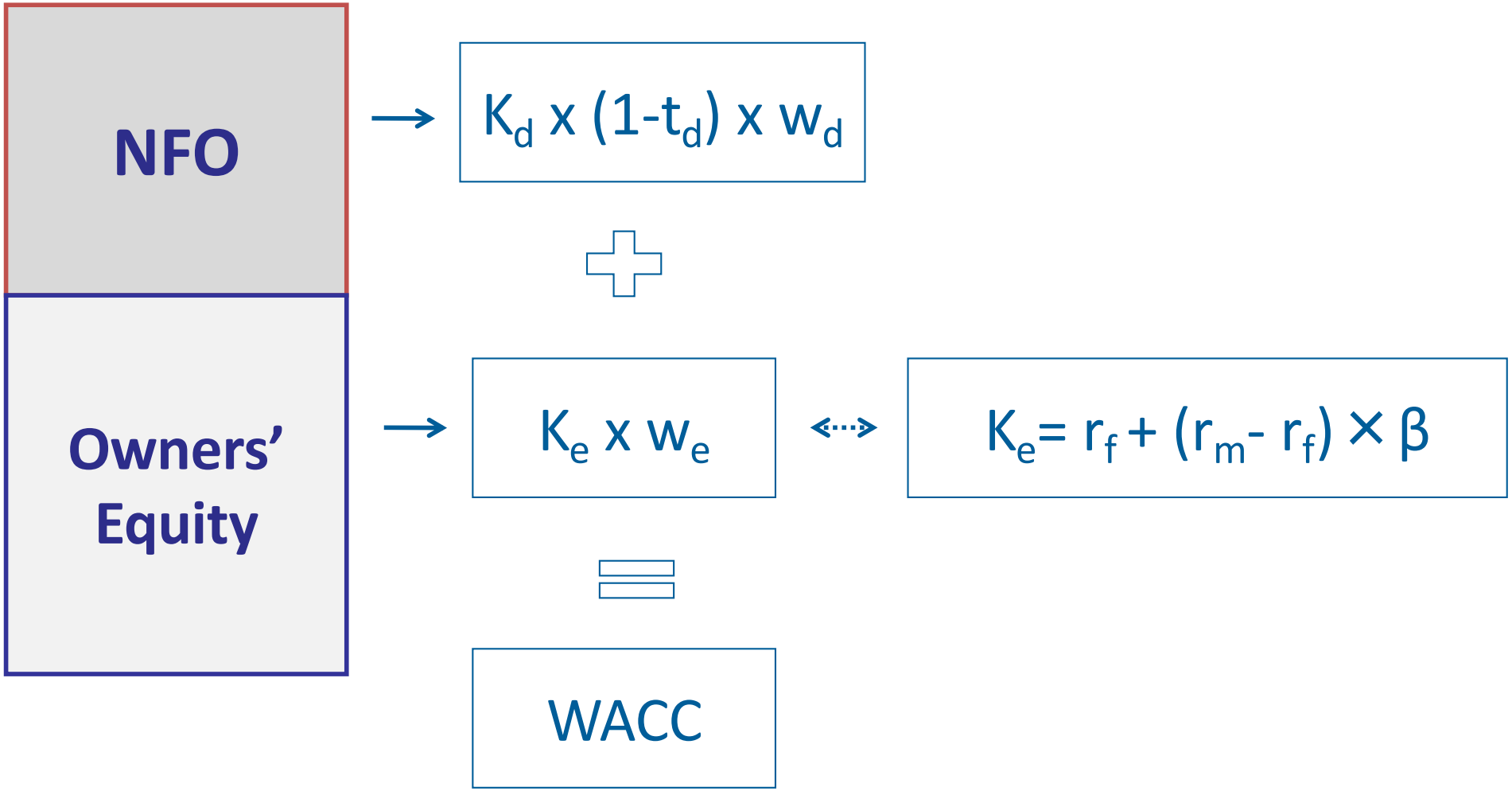
CREATING VALUE

This slide concerns concepts that have only been partially examined and will not be assessed in the exam



WEIGTHED AVERAGE COST OF CAPITAL

This slide concerns concepts that have only been partially examined and will not be assessed in the exam

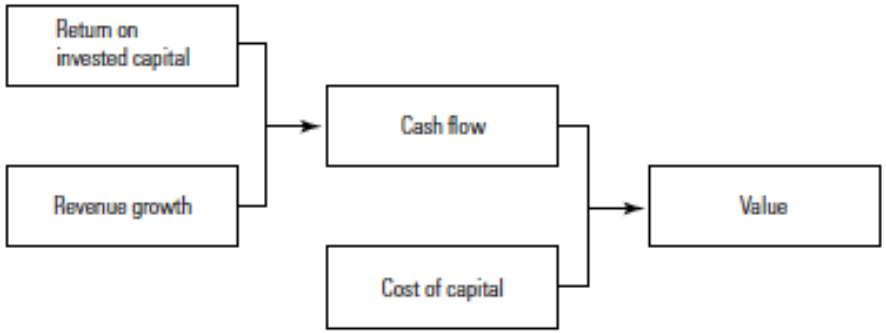


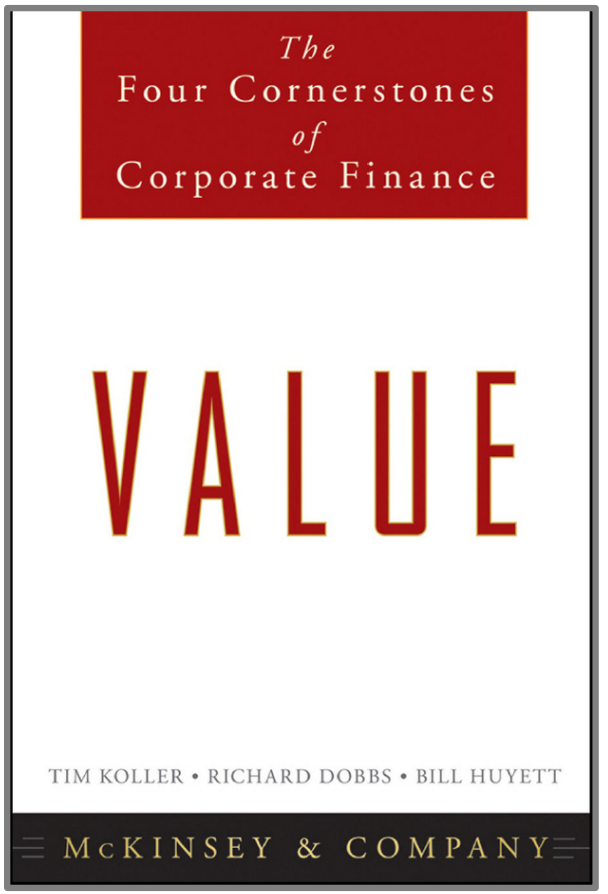
FIRST CORNERSTONE OF VALUE

This slide concerns concepts that have only been partially examined and will not be assessed in the exam

«The first and guiding cornerstone is that *companies create value by investing capital from investors to generate future cash flows at rates of return exceeding the cost of that capital* (that is, the rate investors require to be paid for the use of their capital). The faster companies can grow their revenues and deploy more capital at attractive rates of return, the more value they create. In short, the combination of growth and return on invested capital (ROIC) drives value and value creation. *[…]* This first cornerstone, the core of value, is illustrated by Exhibit 2.1».

EXHIBIT 2.1 **Growth and ROIC Drive Value**





Excerpt From: T. Koller, R. Dobbs, B. Huyett, "Value. The Four Cornerstones Of Corporate Finance McKinsey & Company, John Wiley & Sons, 2011.

ASSET TURNOVER RATIO

$$\text{ROCE} = \frac{\text{EBIT}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Capital Employed}}$$

The asset turnover ratio measures the value of a company's sales or revenues generated relative to the value of its assets. It can often be used as an indicator of the efficiency with which a company is deploying its assets in generating revenue.

Capital employed refers to the assets within a manager's direct span of control. Some companies define capital employed as total assets controlled by a manager minus noninterest-bearing liabilities (for example, accounts payable). These assets typically include accounts receivable, inventory, and plant and equipment.

In other cases, some corporate-level assets, such as goodwill, are also allocated to profit centers to be included in the "capital" that is employed to generate revenue and profit.

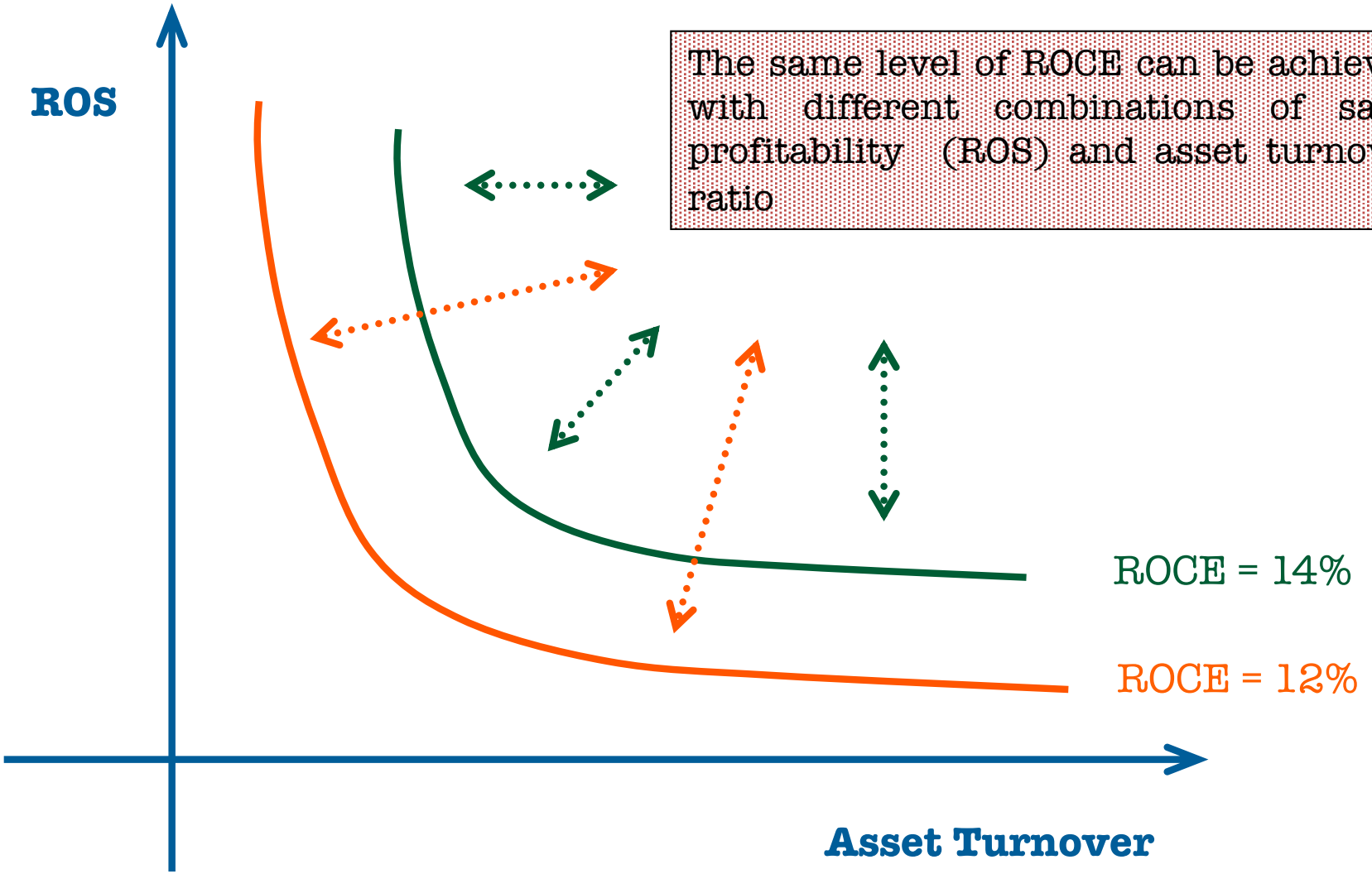
TURNOVER RATIOS

In accounting, turnover ratios are the financial ratios in which an annual **income statement amount** is divided by the average balance of an asset (or group of assets) throughout the year.

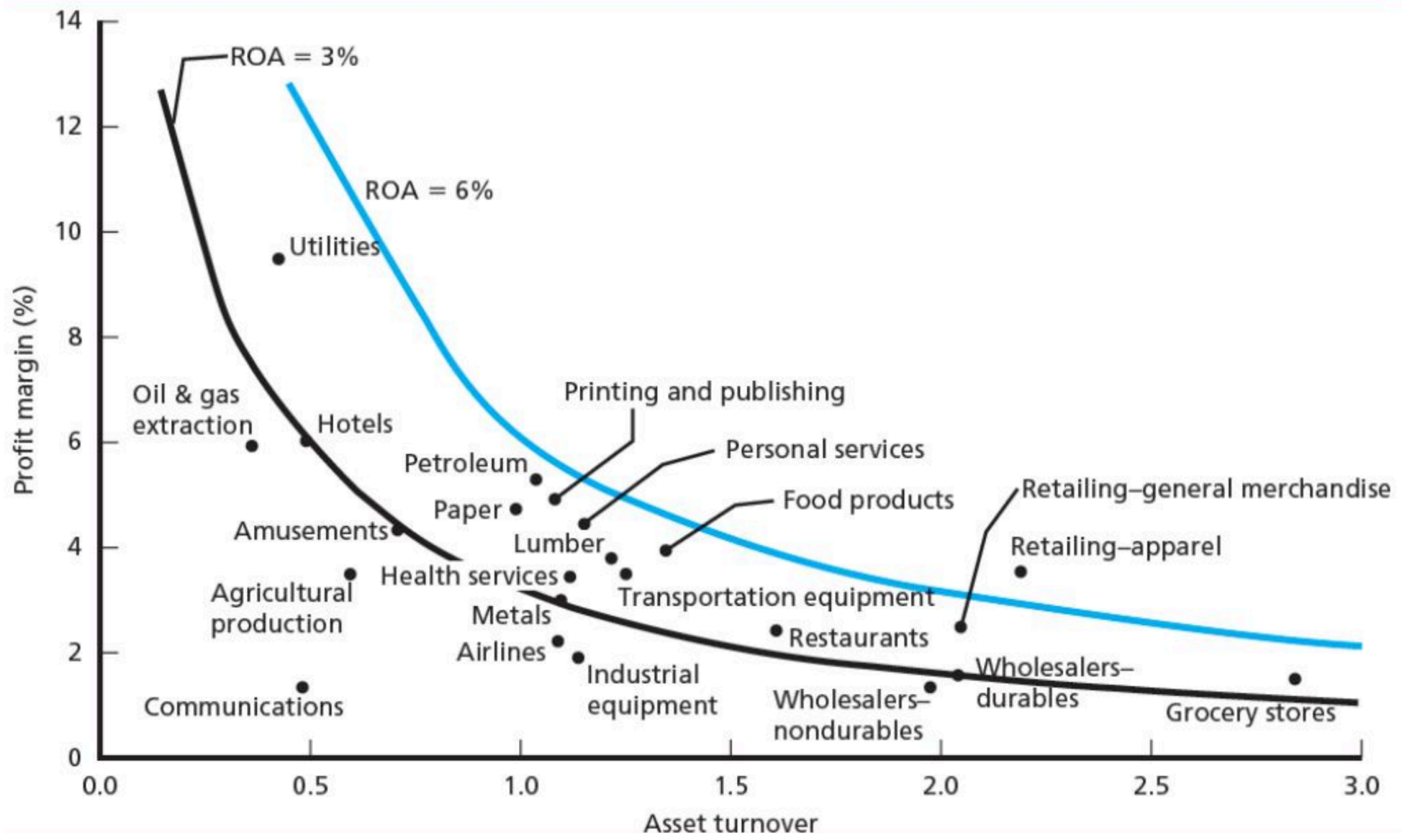
Turnover ratios include:

- Capital employed turnover ratio
- Total assets turnover ratio
- Accounts receivable turnover ratio
- Inventory turnover ratio
- Working capital turnover ratio
- Fixed assets turnover ratio

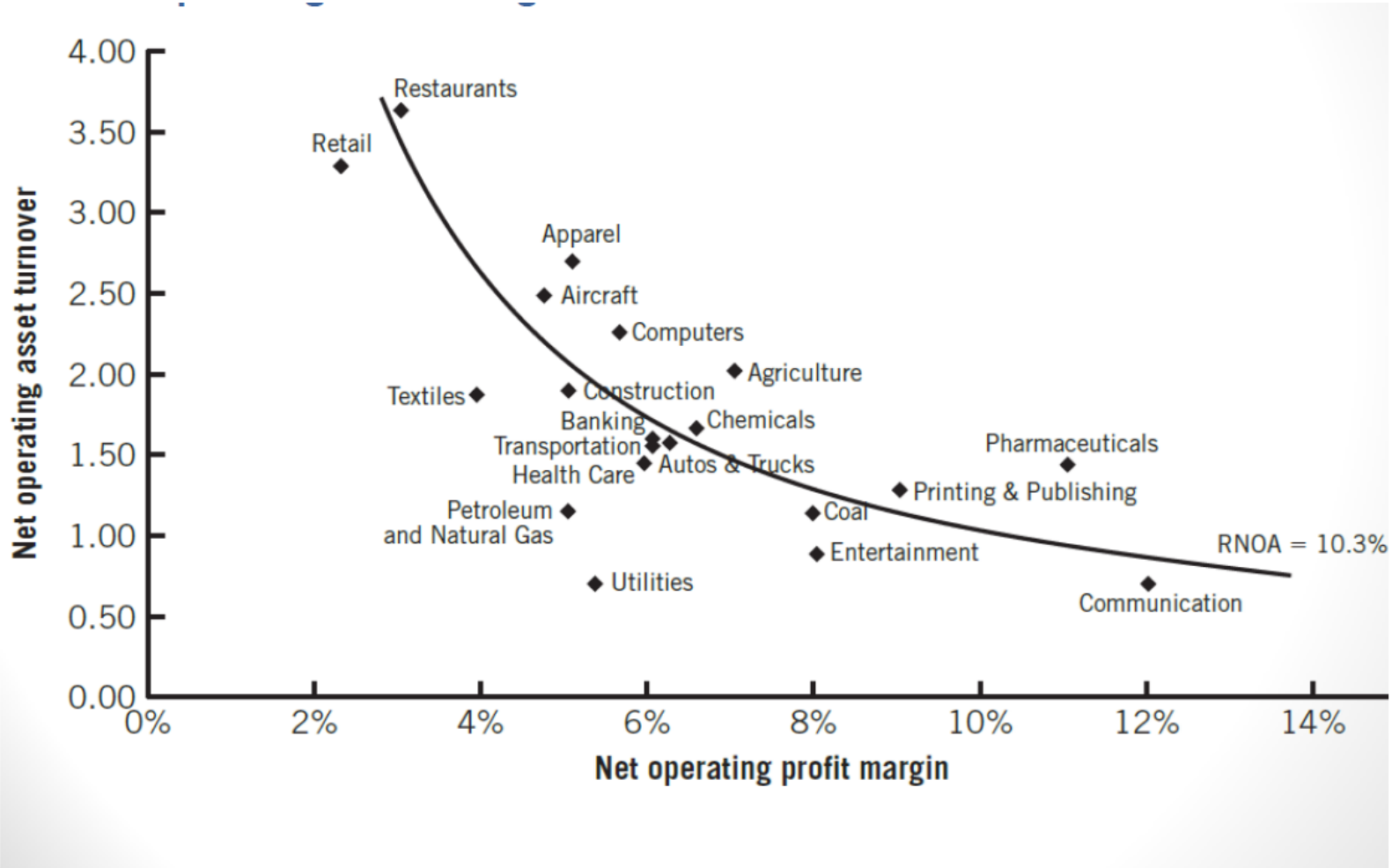
DISAGGREGATION OF ROCE



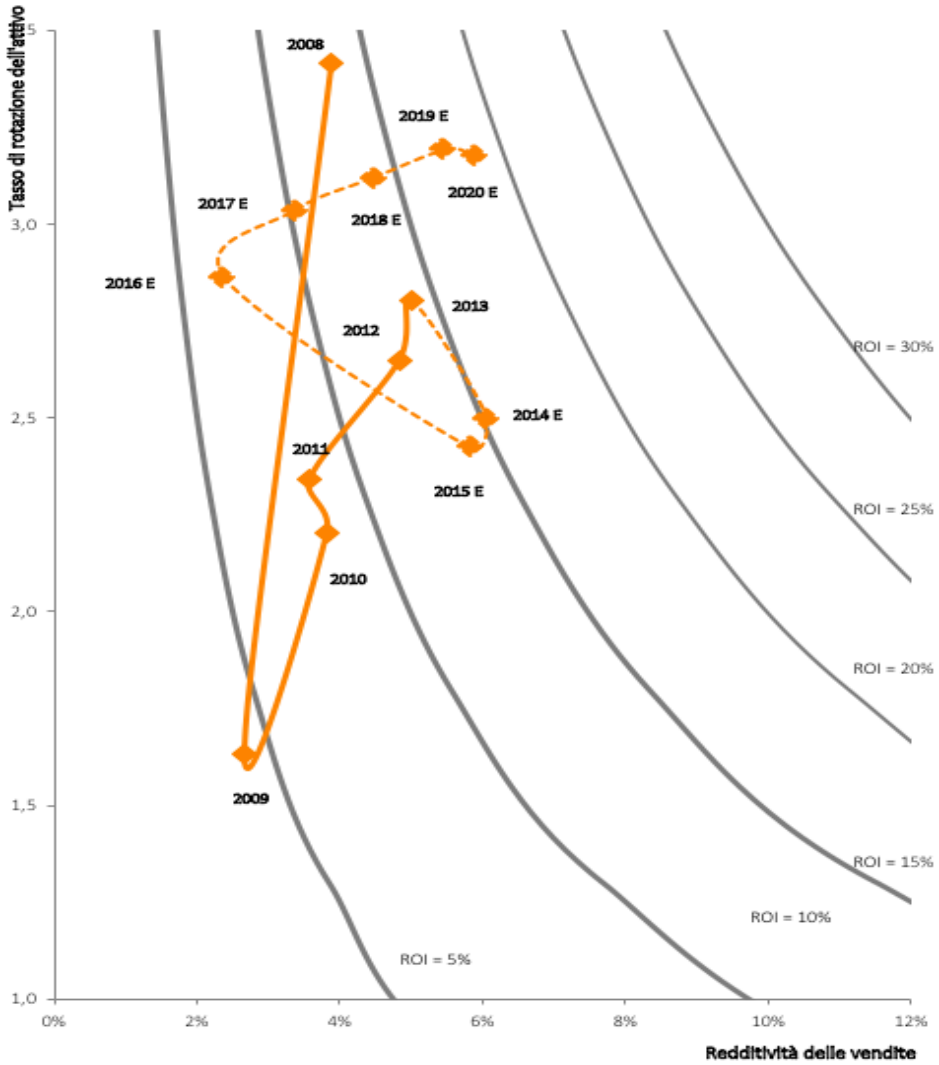
DISAGGREGATION OF ROCE (ROA) IN REAL LIFE



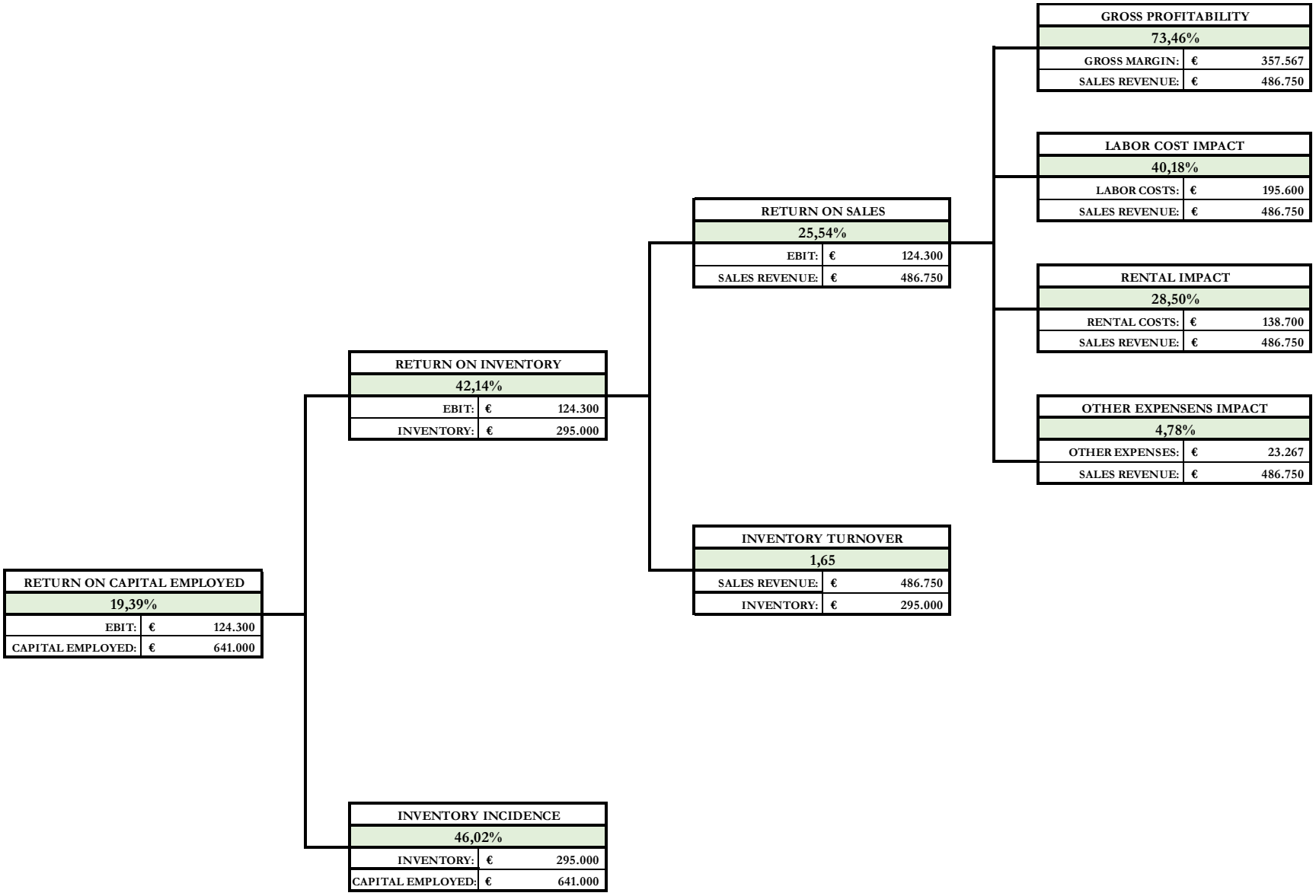
DISAGGREGATION AT A DIFFERENT LEVEL



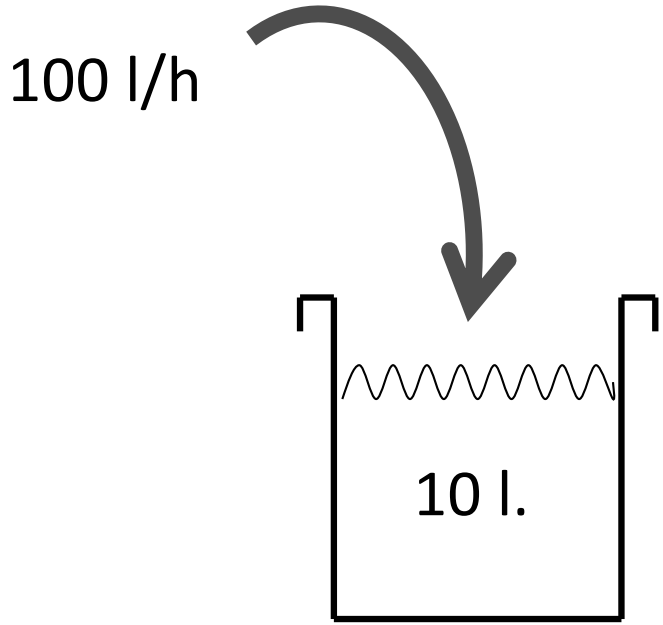
DISAGGREGATION OF ROCE IN REAL LIFE



STORE PROFITABILITY ANALYSIS



BACK TO ELEMENTARY SCHOOL

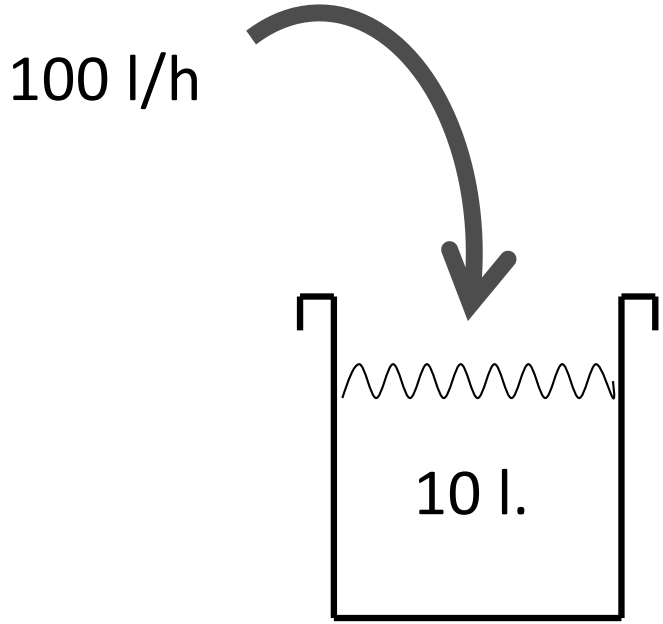


A tap leaks 100 litres of water every hours into a 10 litres container.

A. How many times does the container fill over the course of an hour (imagining that once the container is loaded it is drained immediately, with no loss of time)?

B. How long does it take to completely fill the container?

BACK TO ELEMENTARY SCHOOL



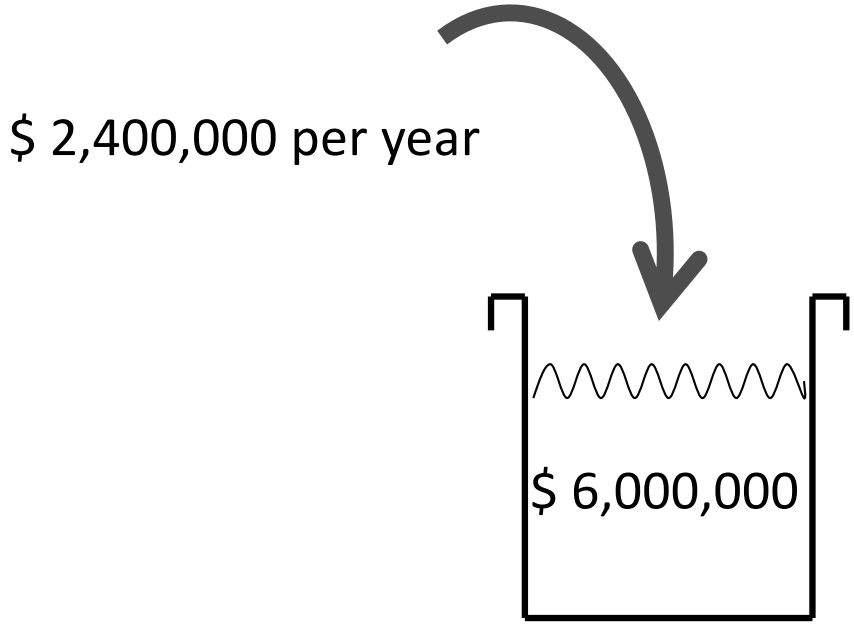
Turnover ratio:

$$\frac{100\ \text{l/h}}{10\ \text{l.}} = 10\ \text{times/hour}$$

Time required :

$$\frac{10\ \text{l}}{100\ \text{l/h}} = 1/10\ \text{hour}$$

BACK TO ELEMENTARY SCHOOL



Capital Employed Turnover Ratio:

$$\frac{\$\ 2{,}400{,}000}{\$\ 6{,}000{,}000} = 0.4 \text{ times/year}$$

$$\frac{\$\ 6{,}000{,}000}{\$\ 2{,}400{,}000} = 2.5 \text{ years}$$

MANAGING ASSET TURNOVER

$$\frac{\text{Sales}}{\text{Capital Employed}} = \frac{1}{\dfrac{\text{Capital Employed}}{\text{Sales}}}$$

It is easier to decompose from a mathematical point of view

$$\frac{\text{Capital Employed}}{\text{Sales}} = \frac{\text{Fixed Assets}}{\text{Sales}} + \frac{\text{Net Working Capital}}{\text{Sales}}$$

$$\frac{\text{Net Working Capital}}{\text{Sales}} = \frac{\text{Accounts Receivables}}{\text{Sales}} + \frac{\text{Inventory}}{\text{Sales}} - \frac{\text{Account Payables}}{\text{Sales}}$$

MANAGING ASSET TURNOVER

$$\frac{\text{Sales}}{\text{Capital Employed}} = \frac{1}{\dfrac{\text{Capital Employed}}{\text{Sales}}}$$

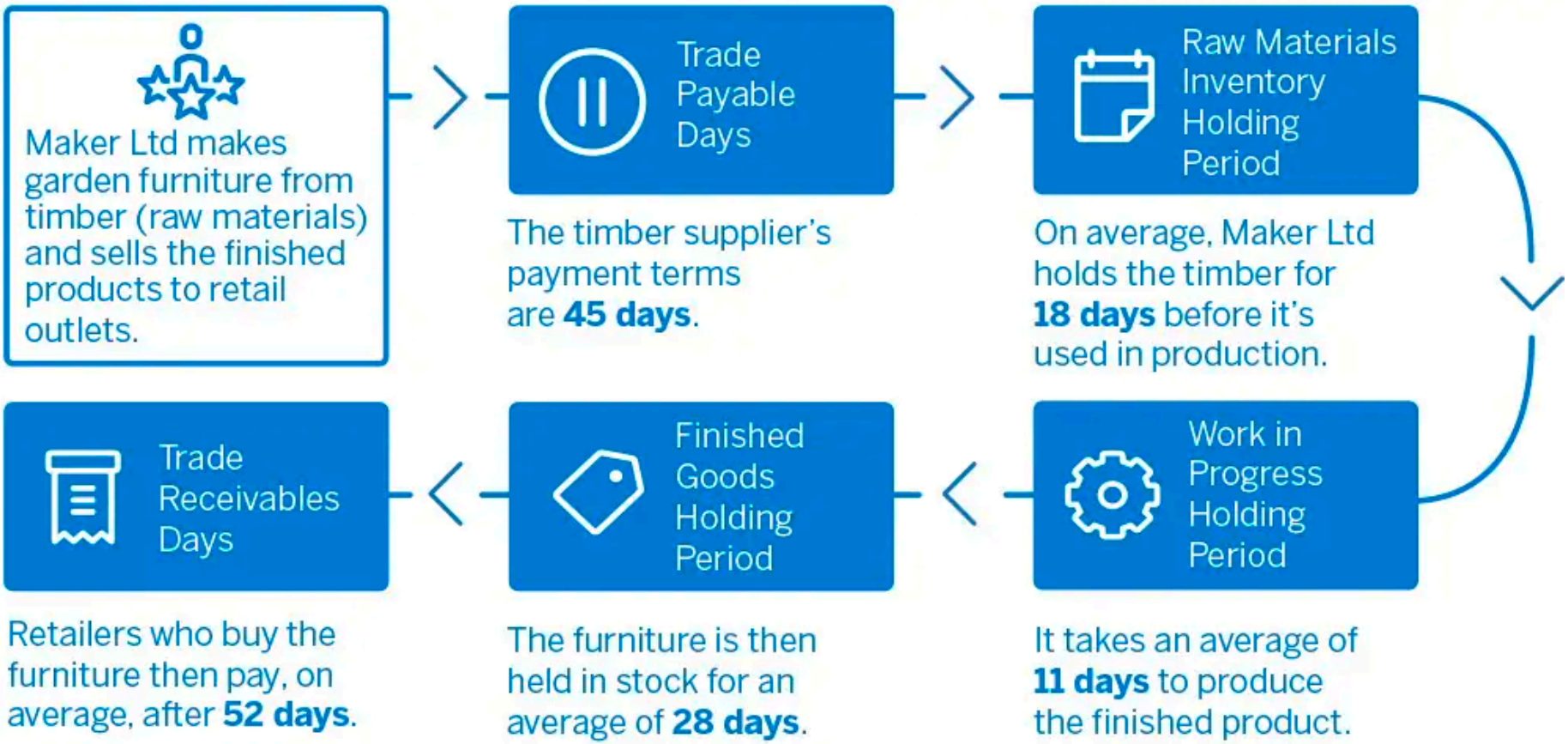
Short Term Decisions

Long Term Decisions

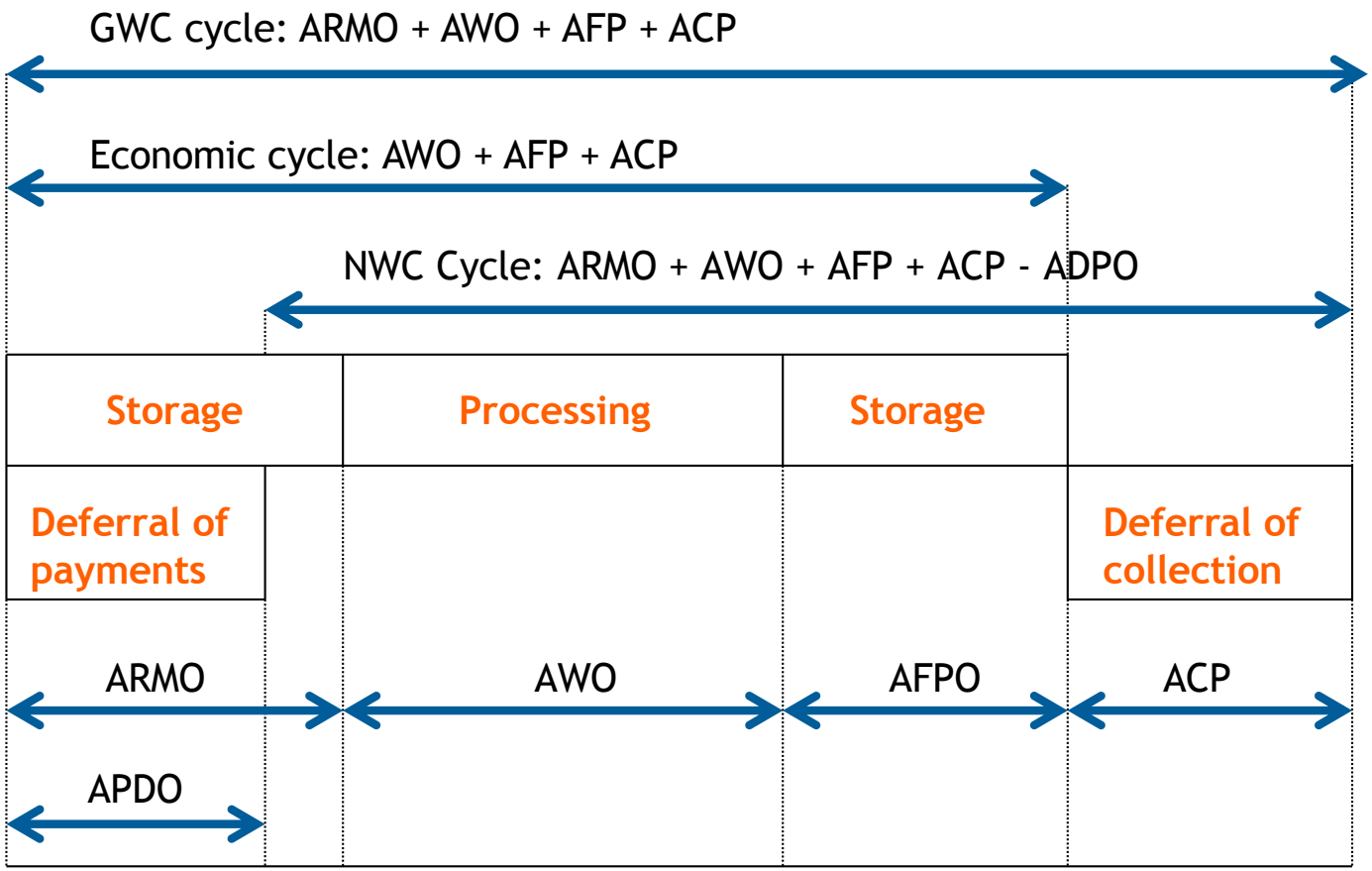
$$\frac{\text{Fixed Assets}}{\text{Sales}} + \frac{\text{Net Working Capital}}{\text{Sales}}$$

$$\frac{\text{Net Working Capital}}{\text{Sales}} = \frac{\text{Accounts Receivables}}{\text{Sales}} + \frac{\text{Inventory}}{\text{Sales}} - \frac{\text{Account Payables}}{\text{Sales}}$$

NET WORKING CAPITAL CYCLE



NET WORKING CAPITAL CYCLE



ARMO = Average Raw Materials Outstanding
AWO = Average W.I.P. Outstanding
AFPO = Average Finished Goods Outstanding
ACP = Average Collection Period
APD= = Average Payable Days Outstanding

FINISHED PRODUCTS INVENTORY

"PianoSolo" is an industrial company that manufactures and sells only one model of digital piano. During financial year 20X0 it sold 2,400 units of the product at an average price of € 1,800. The average stock in the warehouse dedicated to finished products is 800 units. The average unit cost of production is € 1,100.

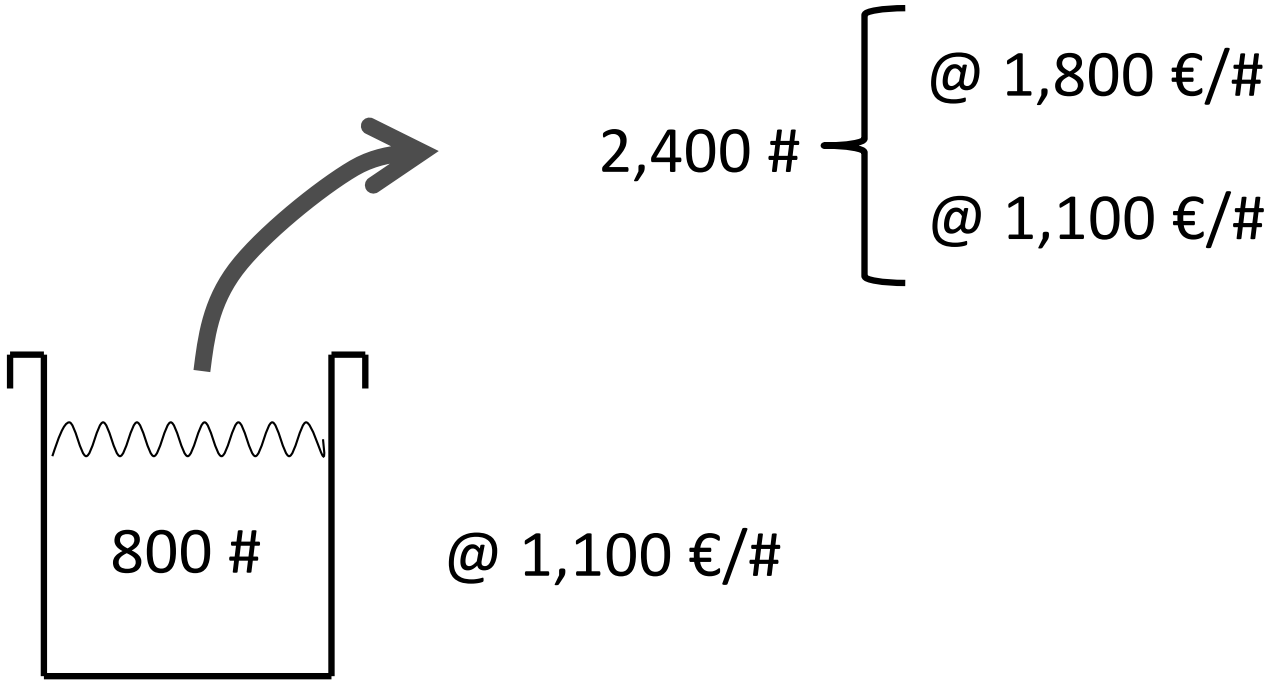
Required:

Determine the finished products turnover rate and average finished products days outstanding using first the data in pieces and then the data in euros.

FINISH PRODUCT INVENTORY

$$\text{Finished product turnover rate} = \frac{\text{Sales}}{\text{Inventory}}$$

$$\text{Finished product days outstanding} = \frac{\text{Inventory}}{\text{Sales}} * 360$$



FINISH PRODUCT INVENTORY

$$\text{Finished product turnover rate} = \frac{\text{Sales}}{\text{Inventory}}$$

$$= \frac{\text{COGS}}{\text{Inventory}} * \frac{\text{Sales}}{\text{COGS}}$$

$$\text{Finished product days outstanding} = \frac{\text{Inventory}}{\text{Sales}} * 360$$

$$= \frac{\text{Inventory}}{\text{COGS}} * 360 * \frac{\text{COGS}}{\text{Sales}}$$

RAW MATERIALS INVENTORY

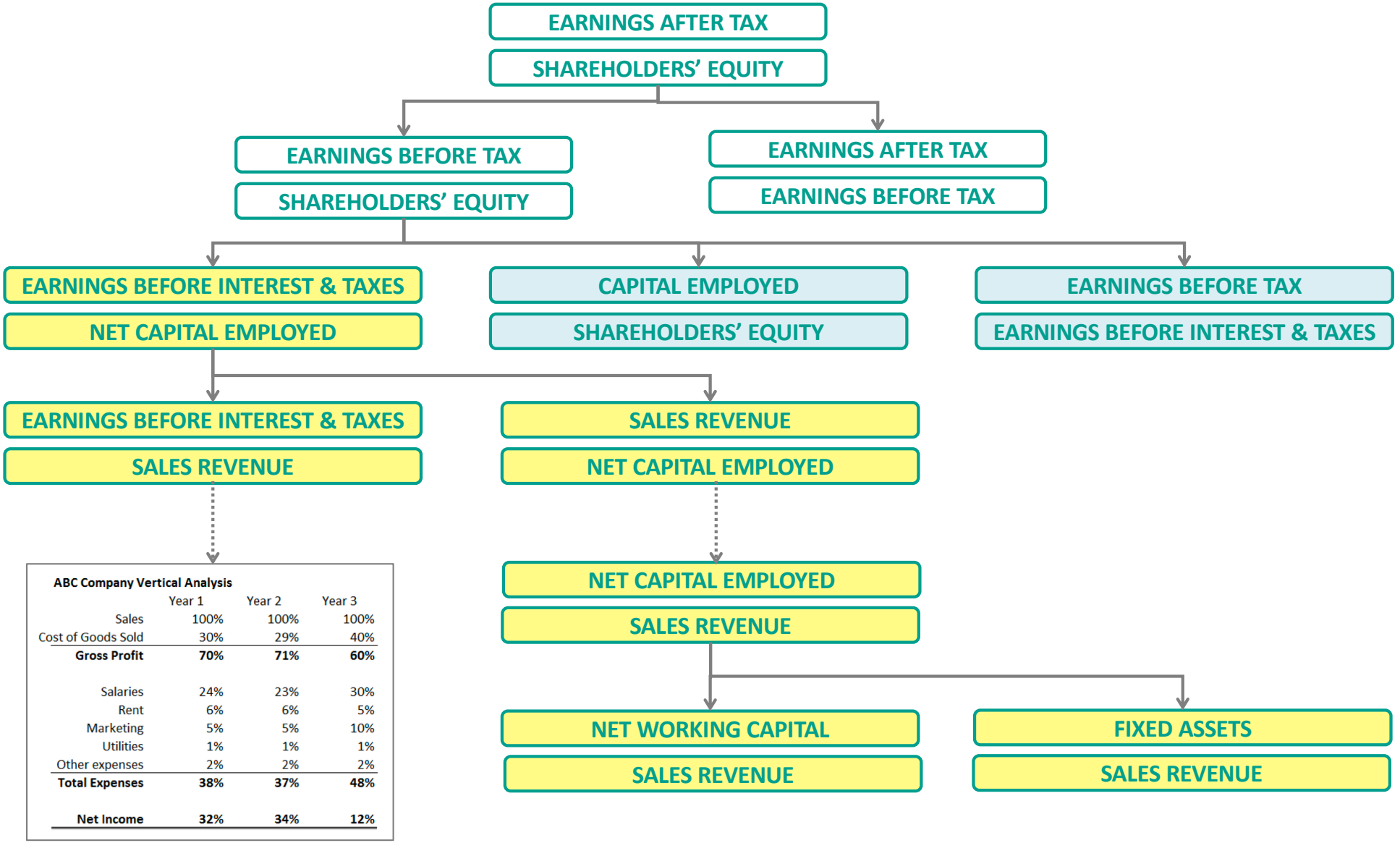
$$\text{Raw materials turnover rate} = \frac{\text{Sales}}{\text{Inventory}}$$

$$= \frac{\text{Consumption}}{\text{Inventory}} * \frac{\text{COGS}}{\text{Consumption}} * \frac{\text{Sales}}{\text{COGS}}$$

$$\text{Raw materials days outstanding} = \frac{\text{Inventory}}{\text{Sales}} * 360$$

$$= \frac{\text{Inventory}}{\text{Consumption}} * 360 * \frac{\text{Consumption}}{\text{COGS}} * \frac{\text{COGS}}{\text{Sales}}$$

OPERATING DECISIONS



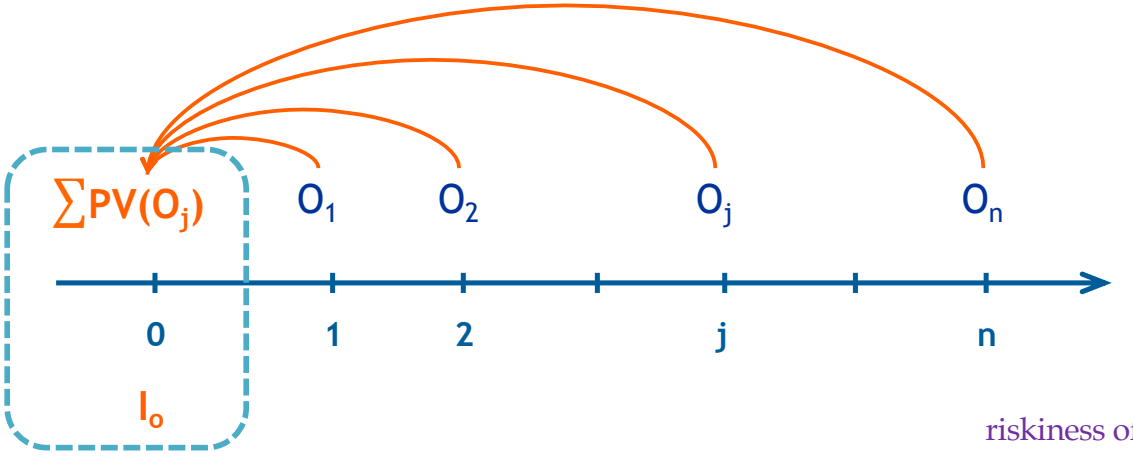
ABC Company Vertical Analysis

	Year 1	Year 2	Year 3
Sales	100%	100%	100%
Cost of Goods Sold	30%	29%	40%
Gross Profit	**70%**	**71%**	**60%**
Salaries	24%	23%	30%
Rent	6%	6%	5%
Marketing	5%	5%	10%
Utilities	1%	1%	1%
Other expenses	2%	2%	2%
Total Expenses	**38%**	**37%**	**48%**
Net Income	**32%**	**34%**	**12%**

CAPITAL INVESTMENTS

This slide concerns concepts that have only been partially examined and will not be assessed in the exam

«Companies create value for their owners by investing cash now to generate more cash in the future. The amount of value created is the difference between investments made and cash inflows—adjusted for the fact that tomorrow's cash flows are worth less than today's, due to the time value of money and riskiness of future flows. […] a company's return on invested capital (ROIC), and its revenue growth, determine how revenues get converted into cash flows. Therefore, value creation is ultimately driven by ROIC, revenue growth and, of course, the ability to sustain both over time».



$$PV(O_j) = \frac{O_j}{(1+r)^j}$$

riskiness of future flows

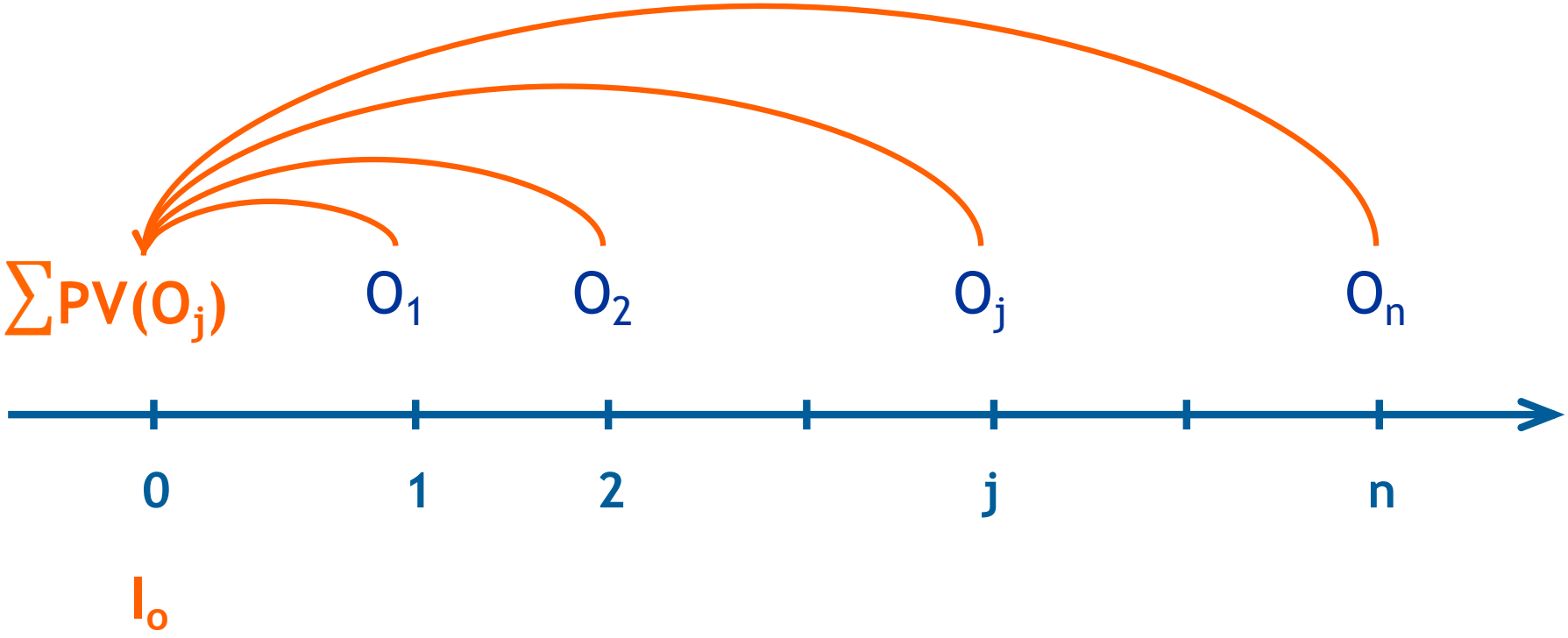
$$r = r_f + (r_m - r_f) \times \beta$$

time value of money

Excerpt from: T. Koller, R. Dobbs, B. Huyett, "Value. The Four Cornerstones Of Corporate Finance McKinsey & Company, John Wiley & Sons, 2011.

CAPITAL INVESTMENTS

This slide concerns concepts that have only been partially examined and will not be assessed in the exam



$$\frac{\sum PV(O_j)}{I_o} > 1$$

$$\underbrace{\sum PV(O_j) - I_o}_{NPV} > 0$$

VALUE BASED MANAGEMENT

This slide concerns concepts that have only been partially examined and will not be assessed in the exam

«The thinking behind VBM is simple. The value of a company is determined by its discounted future cash flows. Value is created only when companies invest capital at returns that exceed the cost of that capital. VBM extends these concepts by focusing on how companies use them to make both major strategic and everyday operating decisions. Properly executed, it is an approach to management that aligns a company's overall aspirations, analytical techniques, and management processes to focus management decision making on the key drivers of value.

VBM calls on managers to use value-based performance metrics for making better decisions. It entails managing the balance sheet as well as the income statement, and balancing long- and short-term perspectives».

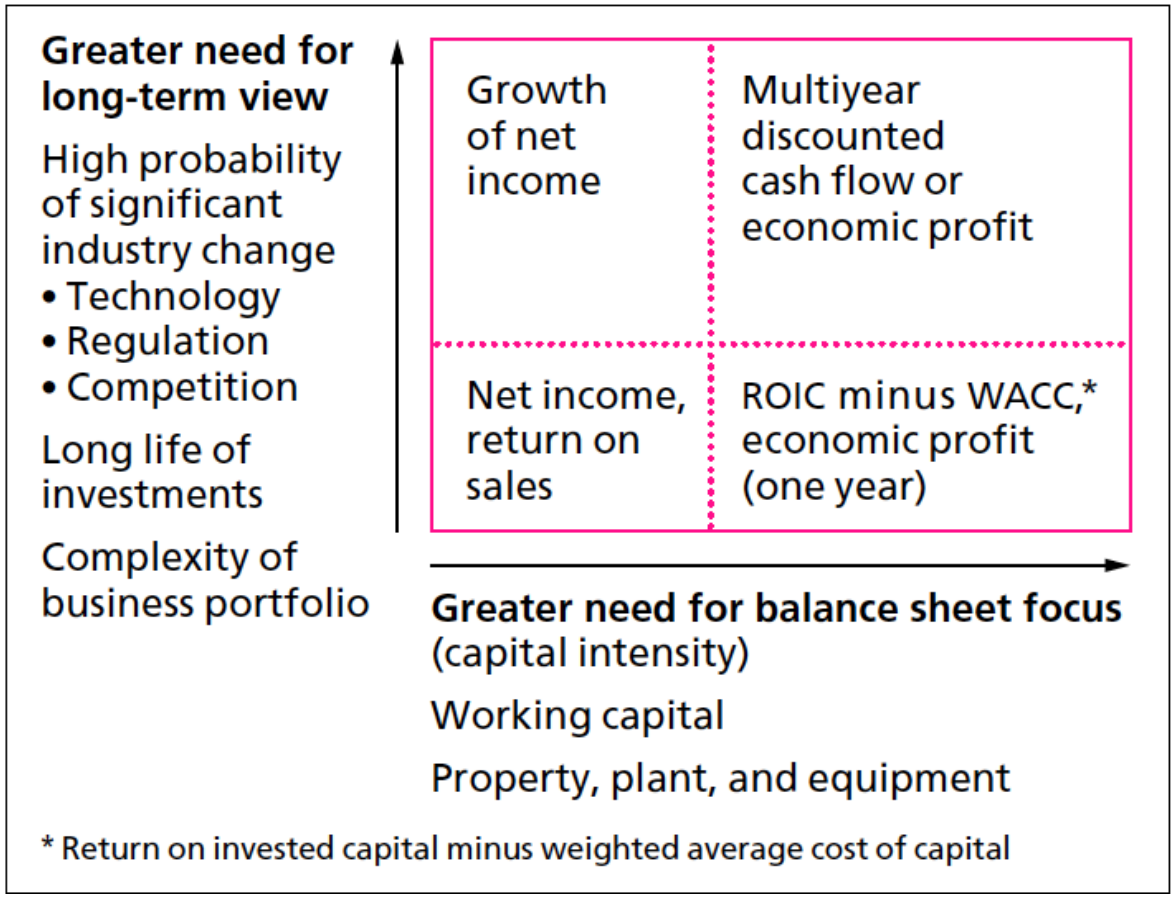
Excerpt from: T. Koller, "What is value-based management?", The McKinsey Quarterly, 1994, Number 3

VALUE BASED MANAGEMENT

This slide concerns concepts that have only been partially examined and will not be assessed in the exam

Exhibit 2

Measuring corporate performance



Excerpt from: T. Koller, "What is value-based management?", The McKinsey Quarterly, 1994, Number 3

VALUE DRIVERS

This slide concerns concepts that have only been partially examined and will not be assessed in the exam

«An important part of VBM is a deep understanding of the performance variables that will actually create the value of the business – the key value drivers. Such an understanding is essential because an organization cannot act directly on value. It has to act on things it can influence – customer satisfaction, cost, capital expenditures, and so on. Moreover, it is through these drivers of value that senior management learns to understand the rest of the organization and to establish a dialogue about what it expects to be accomplished.

A value driver is any variable that affects the value of the company. To be useful, however, value drivers need to be organized so that managers can identify which have the greatest impact on value and assign responsibility for them to individuals who can help the organization meet its targets».

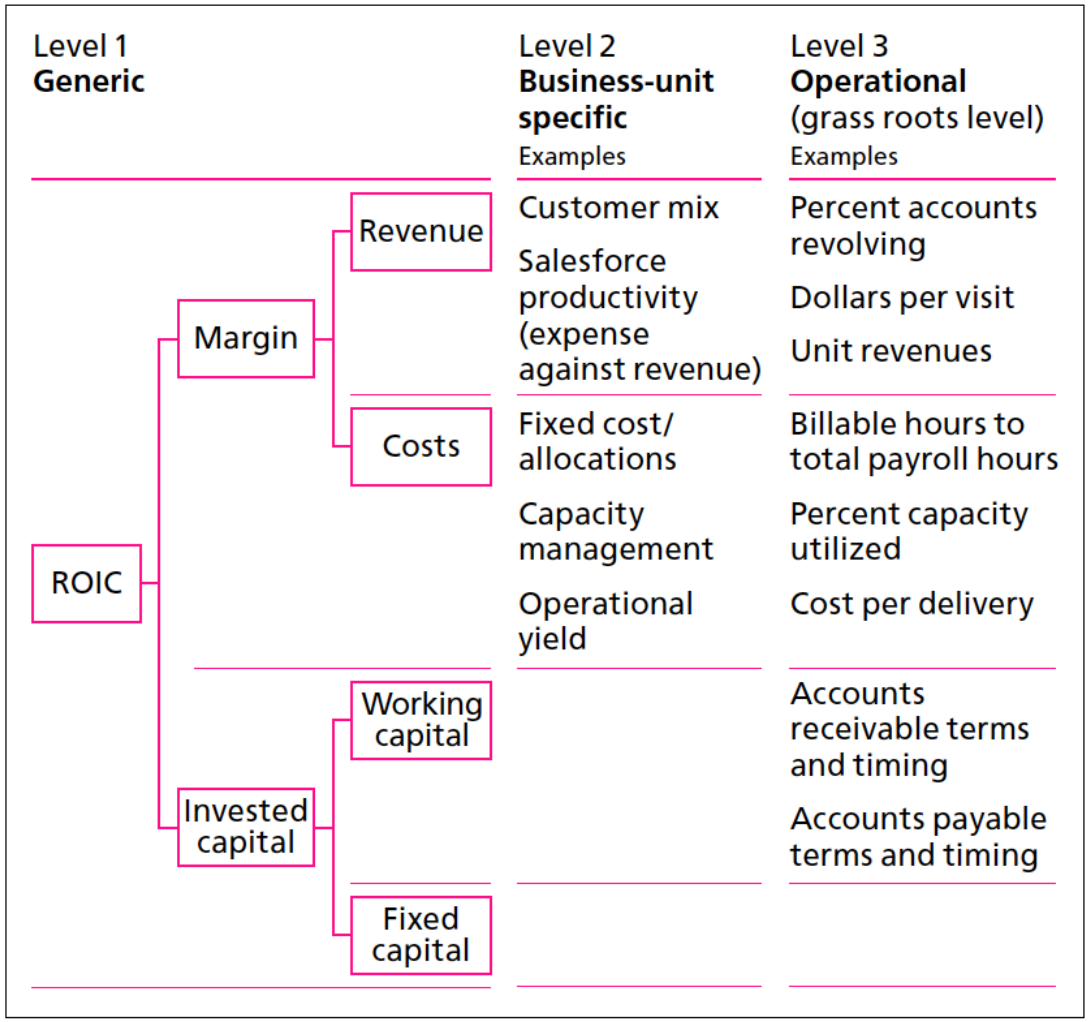
Excerpt from: T. Koller, "What is value-based management?", The McKinsey Quarterly, 1994, Number 3

MANAGING VALUE DRIVERS

This slide concerns concepts that have only been partially examined and will not be assessed in the exam

Exhibit 3

Levels of value drivers



Excerpt from: T. Koller, "What is value-based management?", The McKinsey Quarterly, 1994, Number 3

FOUR SETS OF METRICS

EFFICIENCY

1. **OPERATIONAL PRODUCTIVITY**

$$\frac{O_{PHYSICAL}}{I_{PHYSICAL}}$$

2. **FINANCIAL PRODUCTIVITY**

$$\frac{O_{REVENUES}}{I_{EXPENSES}}$$

3. **ASSET TURNOVER**

$$\frac{O_{REVENUE}}{I_{ASSETS}}$$

4. **PROFITABILITY**

$$\frac{O_{PROFIT}}{I_{INVESTMENT}}$$

CAUSES AND EFFECT