QUEEN HEDVIG ACADEMY

Executive Education

Program for Management Development

Finance for Managers

Prof. Dr. Astrid Schornick

16. – 17. April 2026

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Finance for Managers

AGENDA

01 What the Statements Say

02 P&L, Balance Sheet: connections

03 Growth and Value

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01

FINANCE FOR MANAGERS

What the Statements Say

- Income Statement and Balance Sheet
- How they connect:

  the Cash Flow Statement
- KPIs: what do these tell us?

How to find signals of success

What are the first numbers you look at?

Balance Sheets (€'000)

	31/12/99	31/12/00	31/12/01
Assets			
Fixed Assets (net)	1200	1300	1450
Accounts Receivable	2730	3100	4200
Inventories	2800	3200	4300
Prepaid Expenses	0	0	0
Cash	600	350	300
Total Assets	**7330**	**7950**	**10250**
Liabilities & Owners' Equity			
Owners' Equity	4130	4390	4850
Long-term debt	1300	1200	1100
Short-term debt	300	500	1900
Accounts payable	1400	1600	2050
Accrued expenses	200	260	350
Total Liabilities & Owners' Equity	**7330**	**7950**	**10250**

Income Statements (€'000)

	1999	2000	2001
Revenues	22100	24300	31600
Cost of goods sold (COGS)	17600	19300	25100
Selling, General & Administrative (SG&A)	3750	4000	5000
Depreciation expenses	100	100	150
Earnings Before Interest & Tax (EBIT)	**650**	**900**	**1350**
Net interest expenses	110	130	260
Earnings Before Tax (EBT)	540	770	1090
Income tax expense	220	310	430
Earnings after Tax (EAT)	**320**	**460**	**660**
Dividends	**180**	**200**	**200**
Retained Earnings	140	260	460

The Meller Company

Paul Meller is the sole owner of the family company he inherited, a toy distribution firm.

A few years ago, he considered selling the company, having become frustrated with years of declining profit margins in the industry. Instead, he hired Ann as CEO of the company, based on her convincing pitch of a two-step plan:

1. **Control costs in order to improve margins and increase profitability.**
   Higher profits would allow faster growth rates.
2. **Build volume by reviving older profitable product lines and introduce new products, esp. video games.**

So far, he has been happy with the summary performance reports that have reached his desk.

Now the company‘s relationship bank manager has contacted Paul to request a meeting. The credit line limit of €1.9m that had been agreed with the bank is close to being fully drawn. Any further loans would have to be renegotiated.

Paul needs to understand what is going on before meeting the banker and talking about the way forward for his company.

Financial Analysis: Value in Numbers (?)

Financial Analysis focuses on how **accounting data** can help managers understand the **strengths and weaknesses** of their company, and ultimately, how and where they generate value.

This includes understanding

- **Liquidity**
- **Operating Efficiency**
- **Cash Flows**
- **Profitability, Economic Value Added (EVA), and growth**

before taking these insights and extending them to **forecasting future cash flows**. Which in turn are used to assess the **value of new investment opportunities**. And ultimately, whole companies.

Accounting standards

There exist multiple rule books according to which accounting numbers are written down:

IFRS *: International Financial Reporting Standards*

GAAP *: Generally Accepted Accounting Principles (USA)*

Details vary, but the principle remains the same:

- **what** do you own?
- **who** gave you the money (with which type of contract) to buy it?
- did it become **more or less over time**?

Balance Sheet (IFRS)

ASSETS

NONCURRENT ASSETS

- Property, plant & equipment
  - *gross value*
  - *accumulated depreciation*
- Intangibles
- Financial assets
- Goodwill

CURRENT ASSETS

- Inventories
- Accounts receivable
- Prepaid expenses
- Cash

LIABILITIES & OWNERS' EQUITY

OWNERS' EQUITY

NONCURRENT LIABILITIES

- Long-term debt
- Long-term provisions for employees

CURRENT LIABILITIES

- Short-term debt
  - *owed to banks*
  - *current portion of long-term debt*
- Accounts payable
- Accrued expenses

OWNERS' EQUITY = ASSETS – LIABILITIES

Income Statement (IFRS)

REVENUES

– Cost of Goods Sold (COGS)

GROSS PROFIT

– Selling, general, and administrative expenses (SG&A)

– Depreciation expenses

EARNINGS BEFORE INTEREST & TAX (***EBIT***)

– Net interest expenses

EARNINGS BEFORE TAX (***EBT***)

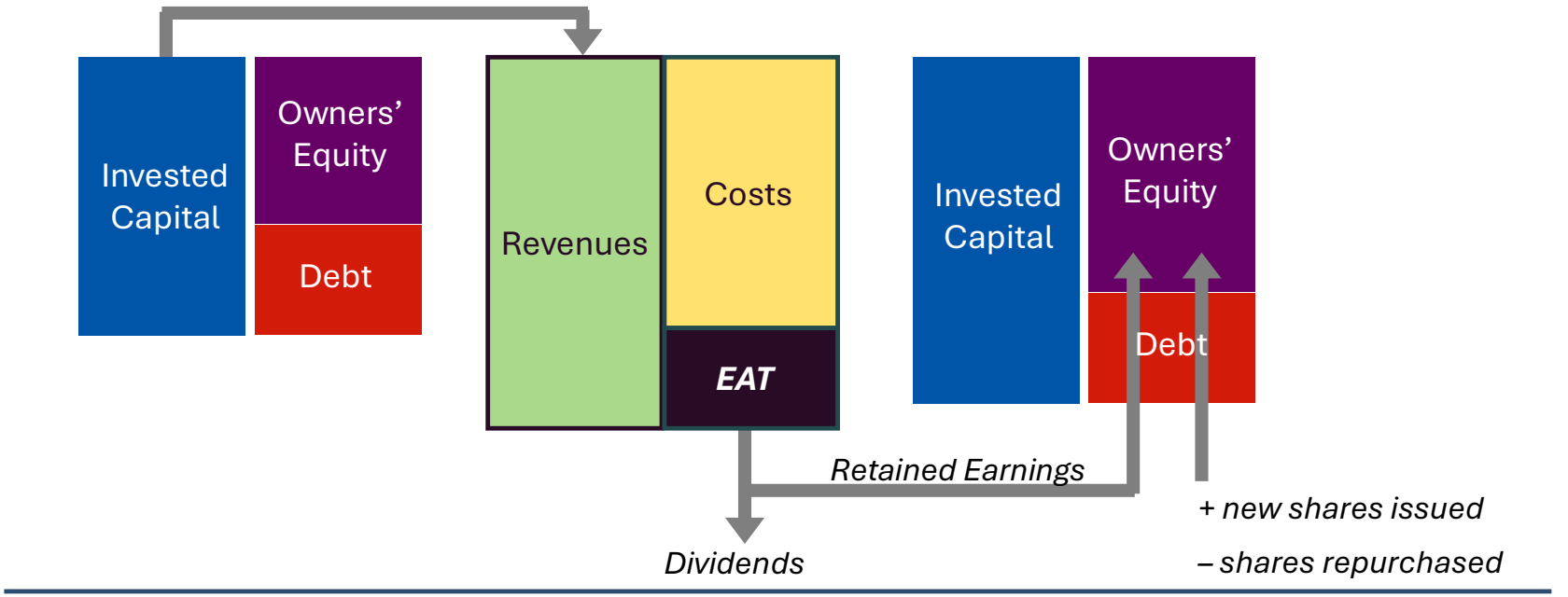
– Income tax expenses

EARNINGS AFTER TAX (***EAT***)

→ *Dividends*

→ *Retained Earnings*

Changes in Owners' Equity



Change in Owners' Equity =

Retained Earnings = *Earnings after taxes – dividends*

+ € from new issues

– € from repurchases

Meller S.A.

The financial statements of the Meller company

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Goal: what happened, why did it happen, can it be solved?

Balance Sheet (IFRS)

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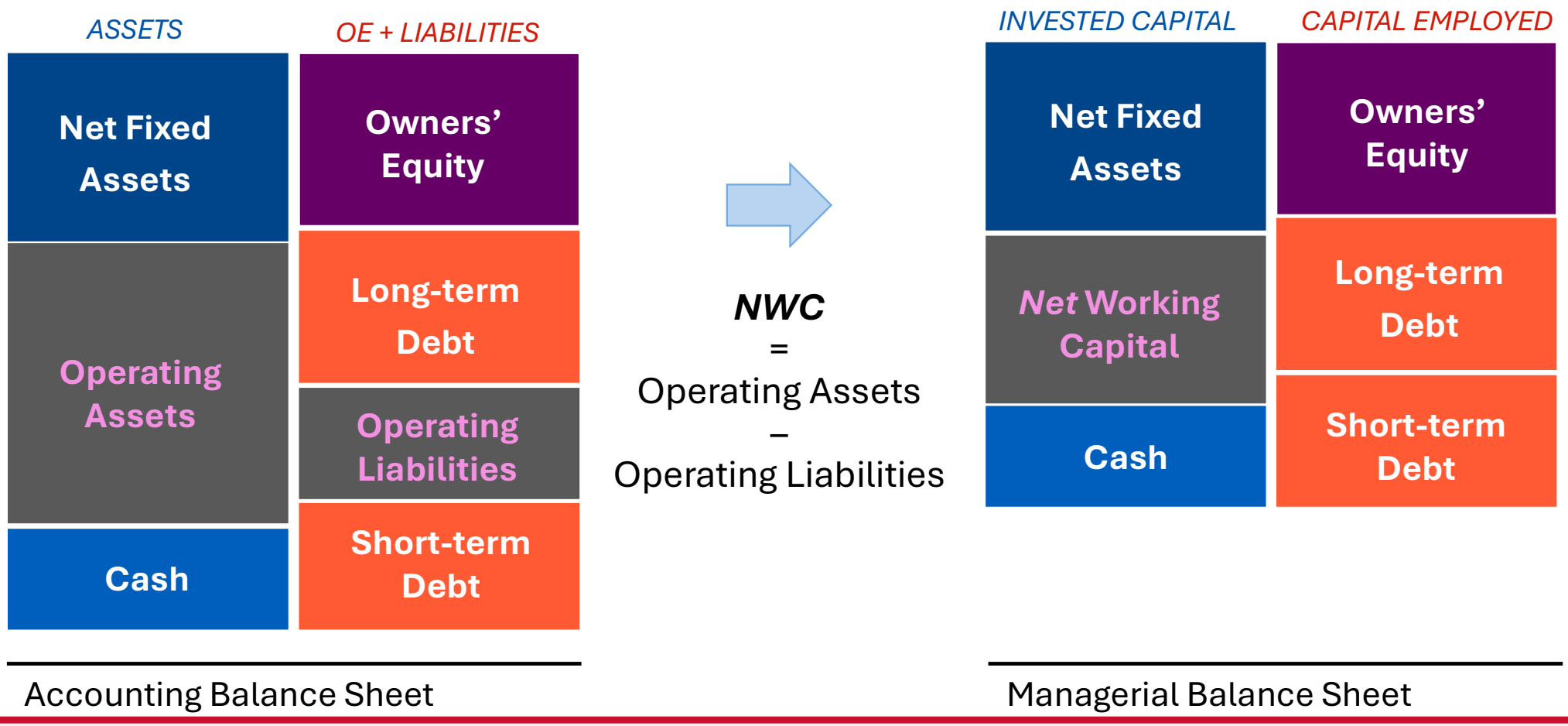
'operational liabilities' is

not money given by investors!

Two perspectives: Managerial Balance Sheet



Cash Flow Statement – indirect approach

Opening Cash Balance

CASH FLOW FROM OPERATING ACTIVITIES

EBIT
+ Depreciation
– Tax Expenses
– **Change in Net Working Capital**

Capital that we tie up in „production process“ is no longer available as cash…

A. Net Operating Cash Flow

CASH FLOW FROM INVESTING ACTIVITIES

Sale of fixed assets
– Capital expenditures and acquisitions

B. Net Cash Flow from Investing Activities

CASH FLOW FROM FINANCING ACTIVITIES

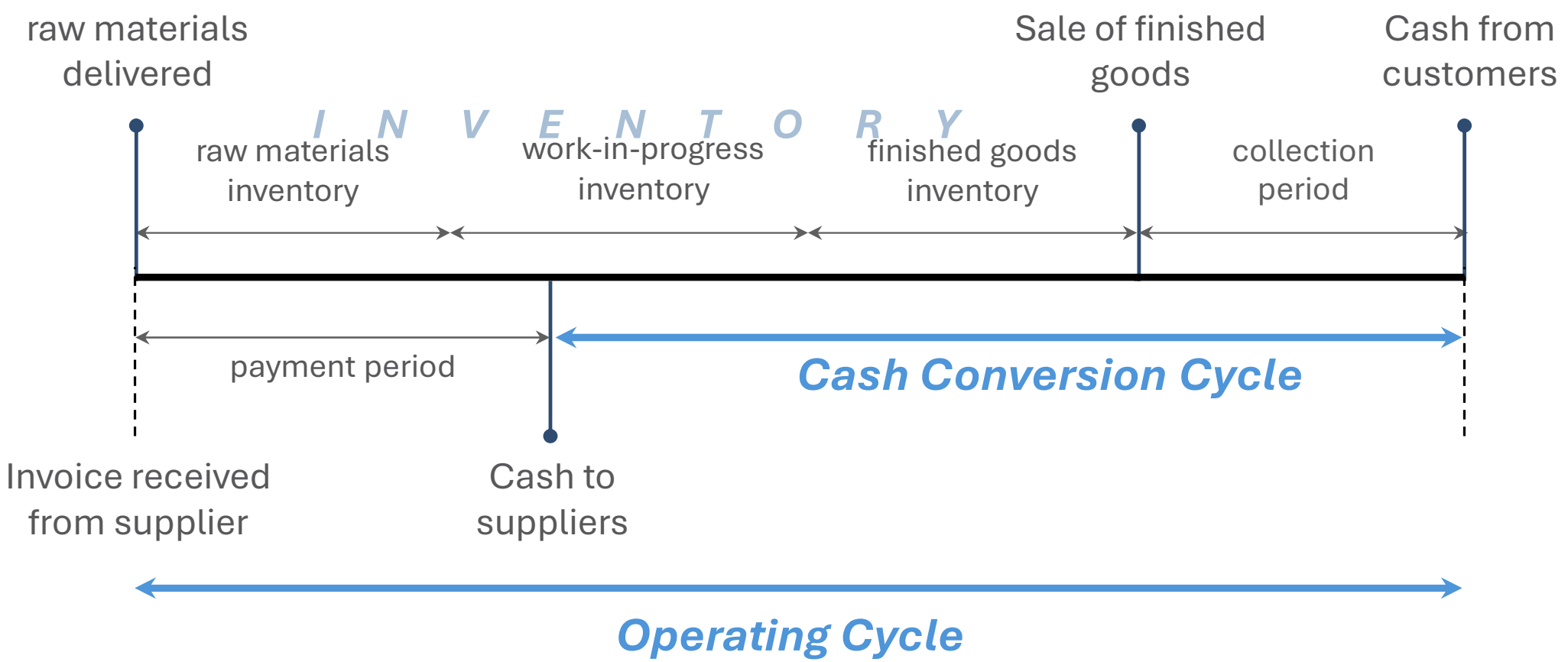
+ new short- or long-term debt / – ST or LT debt repaid
+ new equity issued / – equity repurchased
– Interest Payment
– Dividend Payment

C. Net Cash Flow from Financing Activities

Closing Cash Balance: Opening Cash + A + B + C

“**Free Cash Flow**” = Operating + Investment Cash Flows

NWC and Cash Conversion Cycle



Operating Efficiency

Collection Period *(avg, in days)*

$$\frac{\text{Accounts Receivable}}{\text{Average Daily Sales}}$$

Payment Period *(avg, in days)*

$$\frac{\text{Accounts Payable}}{\text{Average Daily Purchases}}$$

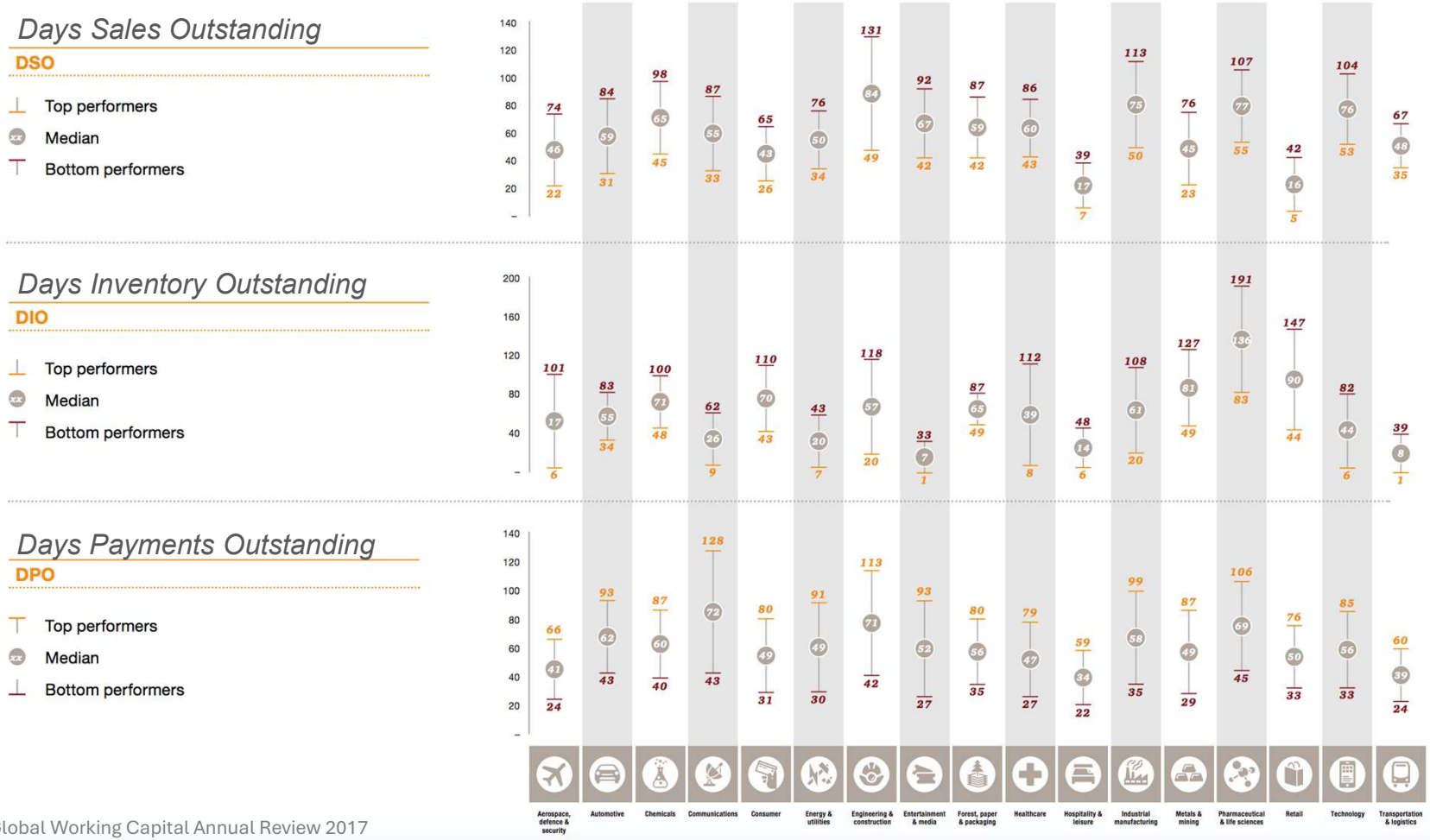
Inventory Turnover

$$\frac{\text{Cost of Goods Sold}}{\text{Inventory}}$$

Operating Cycle Management

$$\frac{\text{Net Working Capital}}{\text{Revenue}}$$

NWC Variations within Sectors



source: PWC, Global Working Capital Annual Review 2017

NWC and Firm Size

firm receives client payments after *x* days

Inventory suffices for *x* days of sales

firm pays invoices after *x* days

source: PWC, Global Working Capital Annual Review 2017

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02

FINANCE FOR MANAGERS

Vital Connections

- Working Capital: why profit and cash diverge
- Growth as an amplifier: investment requires money – whose?
- Is growth intrinsically valuable?

Operating Cash Flow vs Operating Profit

Profit and cash generation are related, but not equivalent.

OCF = [Net Revenue – COGS – SG&A – Tax Expenses] – Change in NWC

EBIT = [Net Revenue – COGS – SG&A – Depreciation Expenses]

OCF = EBIT + Depreciation Expenses – Tax Expenses – Change in NWC

Cash Flow Statement – indirect approach

Opening Cash Balance

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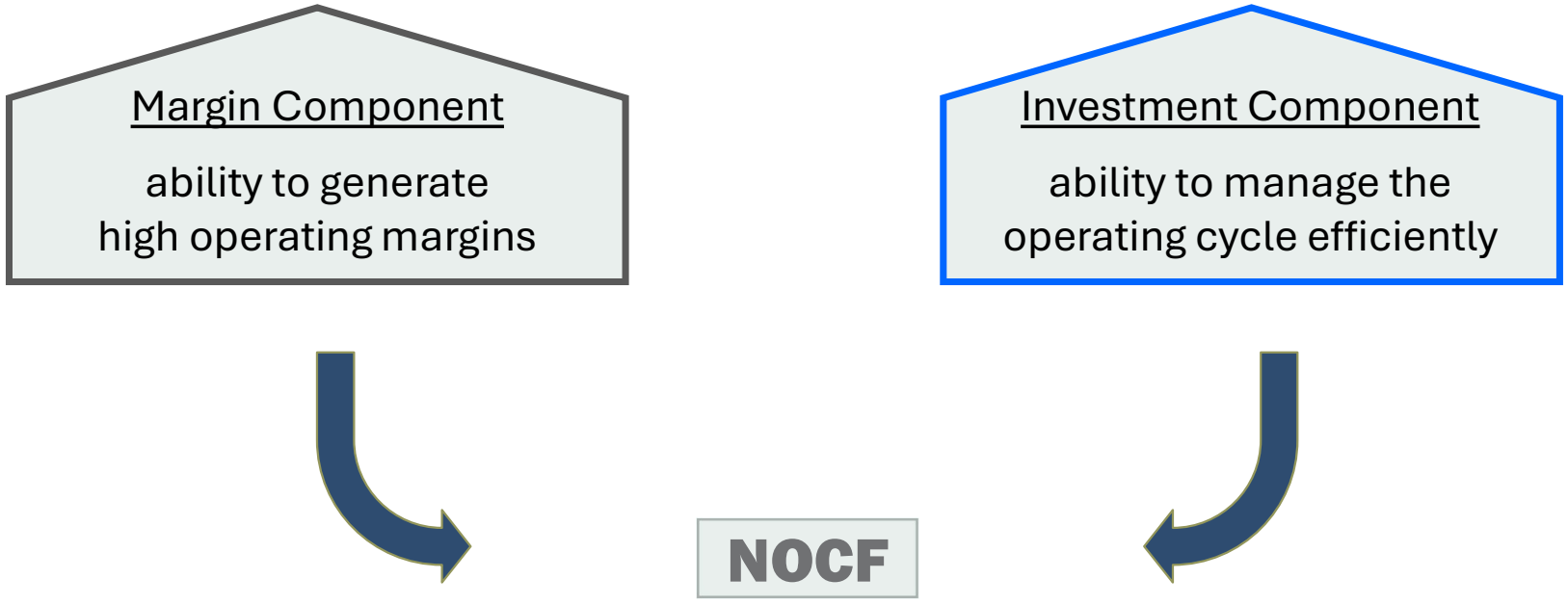
Operating Cash Flow

NOCF = [Net Revenue – COGS – SG&A – Tax Expenses] – Change in NWC



Connection: Balance Sheet & Income Statement

Opening Cash Balance

CASH FLOW FROM OPERATING ACTIVITIES

EBIT
+ Depreciation
– Tax Expenses
– Change in Net Working Capital

- Not all sales are immediately paid by the customer.
- Some costs hit the Income Statement before they are paid.
- Some costs are paid before they hit the Income Statement.

A. Net Operating Cash Flow

CASH FLOW FROM INVESTING ACTIVITIES

Sale of fixed assets
– Capital expenditures and acquisitions

B. Net Cash Flow from Investing Activities

CASH FLOW FROM FINANCING ACTIVITIES

+ new short- or long-term debt / – ST or LT debt repaid
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"**Free Cash Flow**" = Operating + Investment Cash Flows

Connection: Balance Sheet & Income Statement

Opening Cash Balance

CASH FLOW FROM OPERATING ACTIVITIES

EBIT
+ Depreciation
– Tax Expenses
– Change in Net Working Capital

A. Net Operating Cash Flow

Fixed Assets are paid for when they are purchased.
But their cost is allocated across their accounting lifetime, over all the revenues they help generate.

CASH FLOW FROM INVESTING ACTIVITIES

Sale of fixed assets
– Capital expenditures and acquisitions

B. Net Cash Flow from Investing Activities

CASH FLOW FROM FINANCING ACTIVITIES

+ new short- or long-term debt / – ST or LT debt repaid
+ new equity issued / – equity repurchased
– Interest Payment
– Dividend Payment

C. Net Cash Flow from Financing Activities

"**Free Cash Flow**" = Operating + Investment Cash Flows

Closing Cash Balance: Opening Cash + A + B + C

Operating Cash Flow vs Operating Profit

NOCF = EBIT + Depreciation Expenses – Tax Expenses – Increase in NWC

If cash flow and profit are so closely linked,
why do they have to be analysed separately?

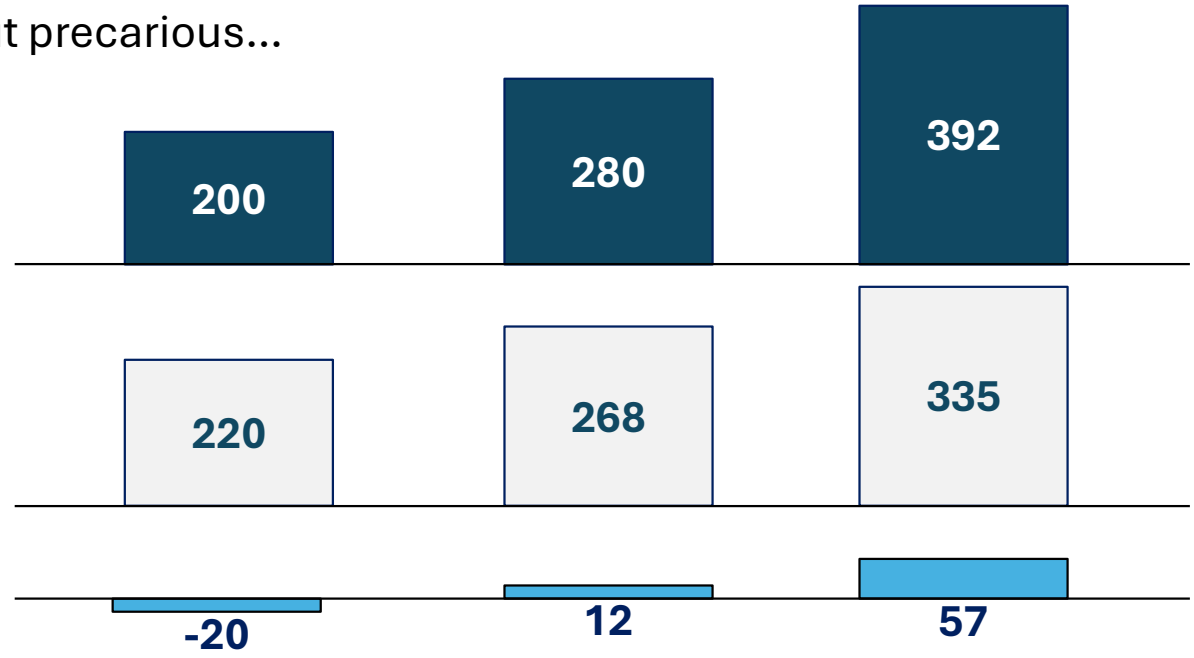
Looking at cash and profitability separately helps reveal the type of problem a company may be facing.

Depending on the circumstance, it may even reveal *that* there is a problem at all…

Why Cash Flows, not Profits?

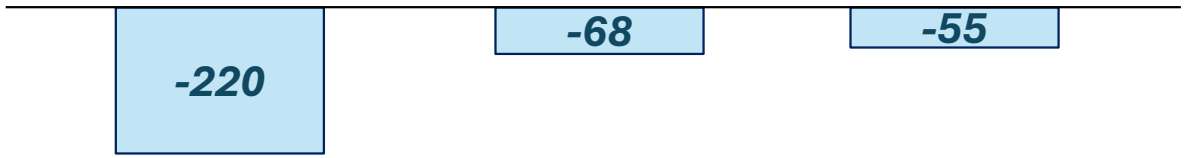
startup bakery: profitable, but precarious...

first three months:



Bakery business: *Costs paid up front*

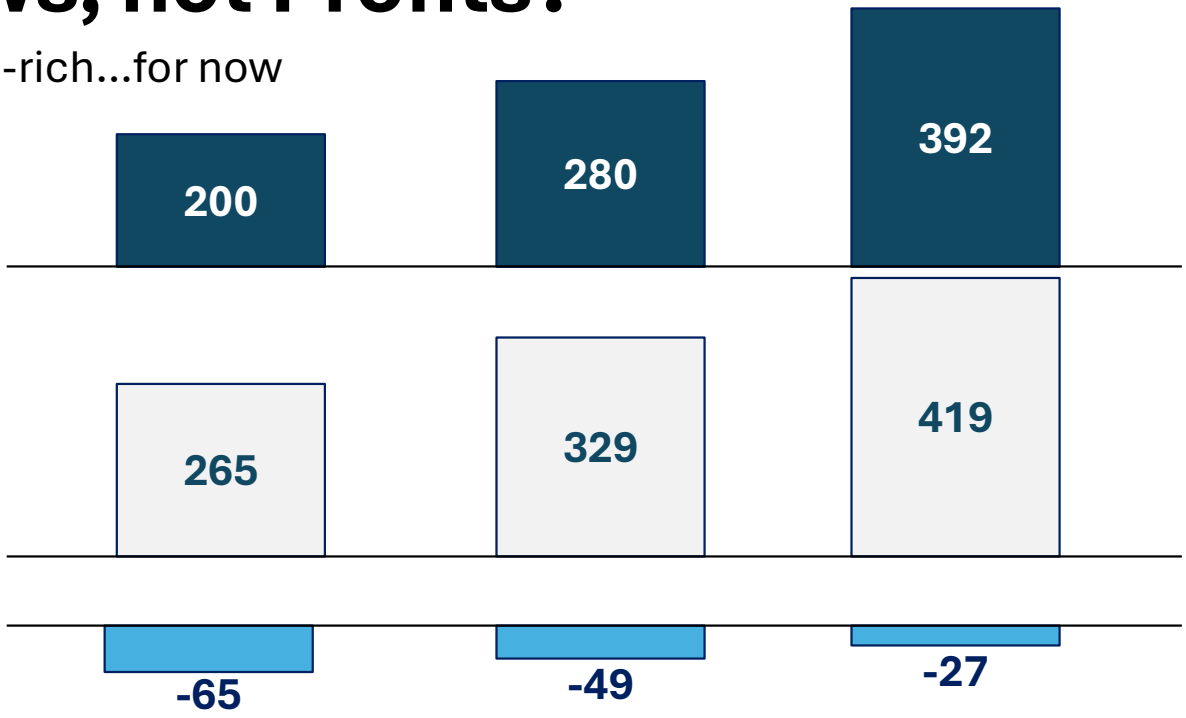
CCC *Customer payment terms: 30 days → Revenue: Accounts Receivable*



Why Cash Flows, not Profits?

startup stationery shop: cash-rich…for now

first three months:



Revenue

Costs
(COGS & expenses)

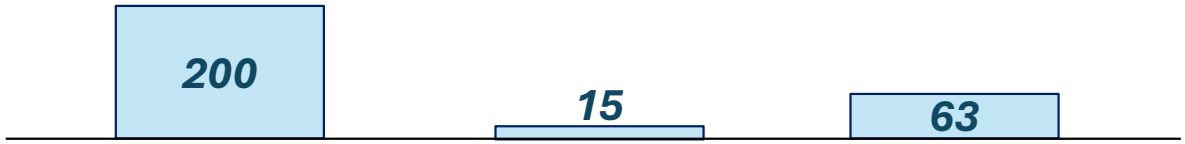
Profit

Retail business:

CCC

Costs & expenses payment terms: 30 days Ø → Accounts Payable

Customer payment terms: cash



Cash Flow

Cash vs Profit

neither startup is in good shape… yet(?)

Bakery: profitable, but no cash; ⇨ *need finance expertise*

needs to finance the shortfall until profit growth results in cash

Stationery: cash generated, but no profit; ⇨ *need operational expertise*

unless profitability is established, the firm will go bankrupt

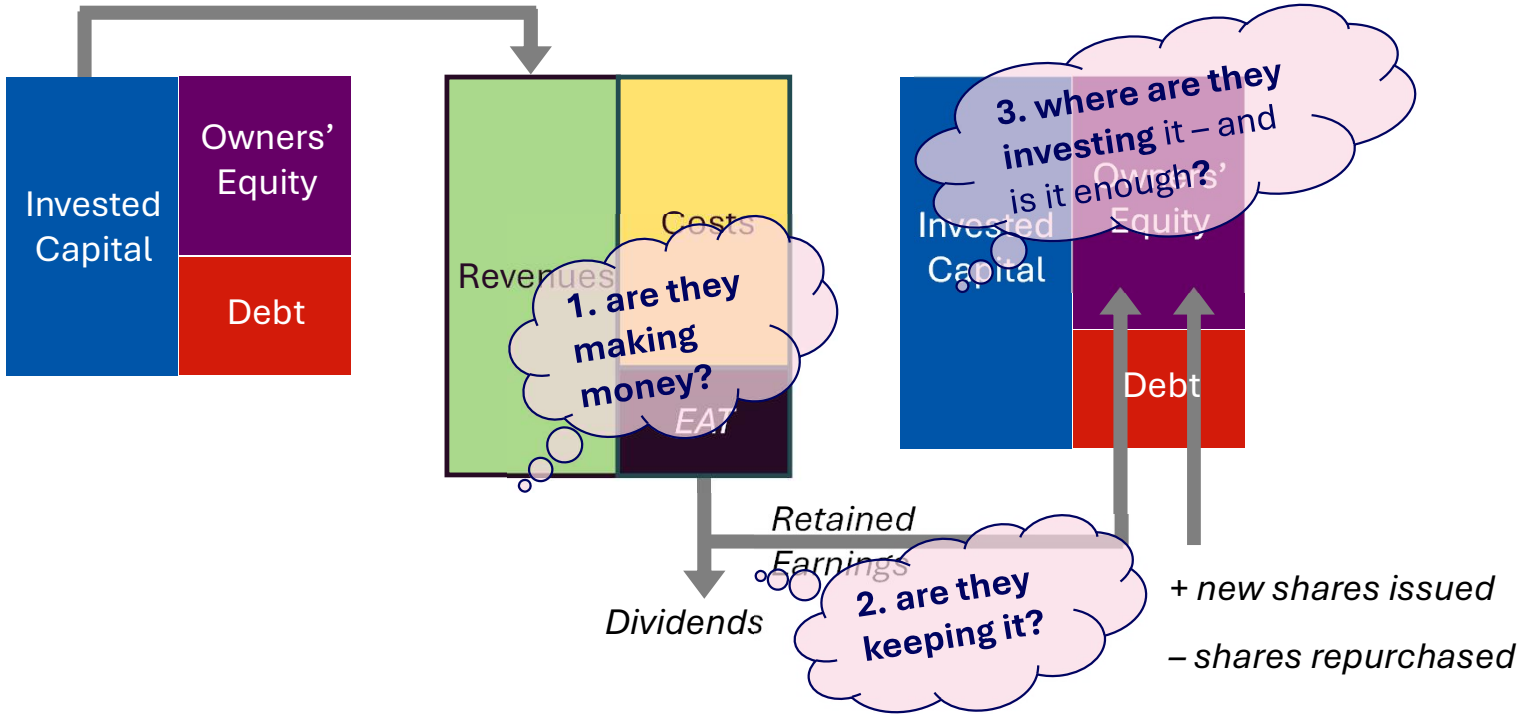
When is this most important?

FCF = Operating + Investment Cash Flows

Operating Cash Flow		*Investment Cash Flow:*
EBIT + Depreciation – Taxes – △NWC	**+**	**Expenditure on new long-term assets**

Cash flow analysis shows the story of which challenges a firm is facing, and where it is possible to create space to grow.

Links between the numbers



The **Income Statement** shows whether you are making money…

Changes in the **Balance Sheet** reveal where you are putting the money you earned…

… and the **Cash Flow Statement** traces these flows.

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03

FINANCE FOR MANAGERS

Growth and Value

- Decomposing Profitability: margins vs asset efficiency
- Linking financial analysis to decisions: resource allocation and forecasting
- Capital budgeting tools

Profitability: Margins

Margin ratios capture the **contribution of one Euro of sales to a measure of profit**.

That is, the percentage of revenue left after deducting costs: either only cost of goods sold (COGS), or also other non-tax expenses (SG&A and depreciation).

Gross Margin

$$\frac{\text{Revenues} - \text{Cost of Goods Sold}}{\text{Revenues}}$$

Operating Margin

$$\frac{\text{EBIT}}{\text{Revenues}}$$

REVENUES
– COGS
GROSS PROFIT
– SG&A
– Depreciation
EBIT
– Interest
EBT
– Taxes
EAT

Profitable vs. Profitable Enough

From investors' view, the profits represent the money they have "earned" on their investment.

(even if it will not be paid out immediately, but perhaps reinvested…)

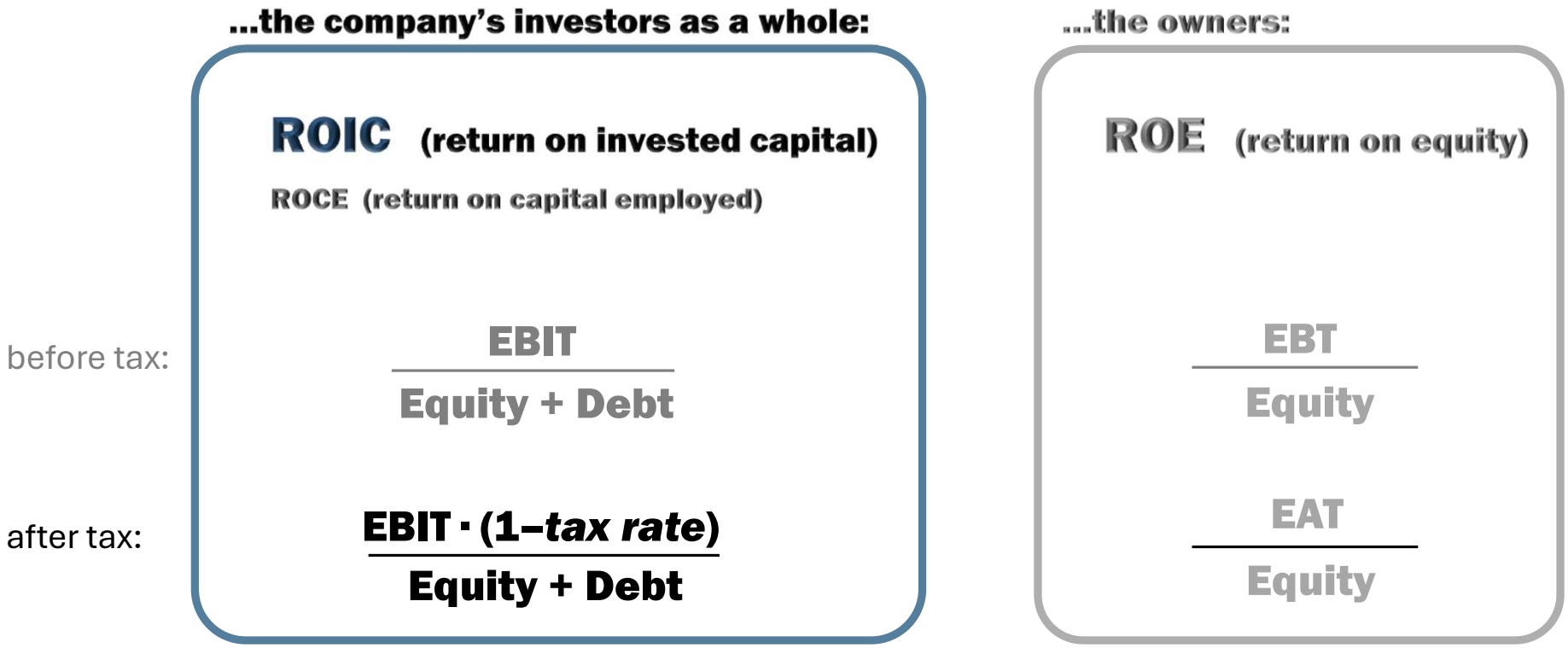
Which investment?	**Debt**:	the cash given to the firm by lenders; banks or bonds
	Equity:	the cash given to the firm by its owners

The rights of debt and equity to demand immediate cash payment of returns differ – but they all expect to make money in some form at some point.

Earnings of the firm must – *in the long-term* – be enough to satisfy these expectations.

Economic Profitability

Two Points of View...



note: Equity + Debt is the sum of "Invested Capital" from the Managerial Balance Sheet !

Comparing across Companies

two operationally identical firms – the only difference being the source of their funding.

COMPANY J is **all equity** financed: E = € 20m

COMPANY K is **50% equity, 50% debt**: E = € 10m + D = € 10m *(interest r = 10%)*

	company J	**company K**
Revenues	20.000.000	20.000.000
- COGS	- 12.500.000	- 12.500.000
Gross Profit	7.500.000	7.500.000
- other operating expenses	- 2.500.000	- 2.500.000
EBIT	***5.000.000***	***5.000.000***
- interest (10%)	0	- 1.000.000
EBT	5.000.000	4.000.000
- taxes (50%)	- 2.500.000	- 2.000.000
EAT	2.500.000	2.000.000

Return Differences Co. J vs K

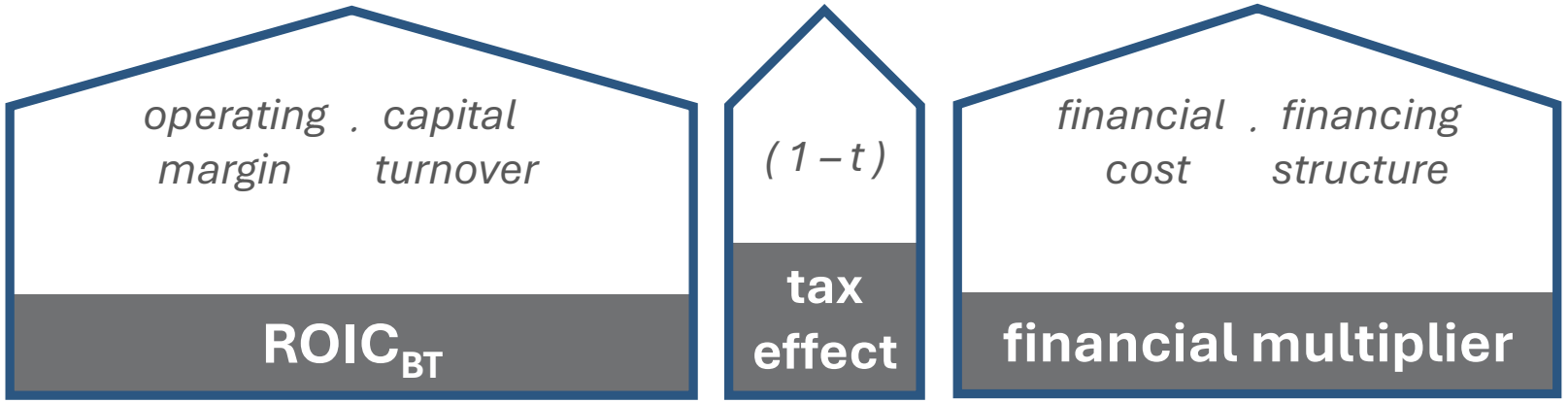
$$\text{ROIC} = \frac{operating\ profit}{Invested\ Capital} \qquad \text{ROE} = \frac{net\ profit}{equity\ capital}$$

		ROIC	ROE
Company J	before taxes:	$\frac{5\ m}{20\ m} = 25\%$	$\frac{5\ m}{20\ m} = 25\%$
	after taxes:	$\frac{2{,}5\ m}{20\ m} = 12{,}5\%$	$\frac{2{,}5\ m}{20\ m} = 12{,}5\%$
Company K	before taxes:	$\frac{5\ m}{20\ m} = 25\%$	$\frac{4\ m}{10\ m} = 40\%$
	after taxes:	$\frac{2{,}5\ m}{20\ m} = 12{,}5\%$	$\frac{2\ m}{10\ m} = 20\%$

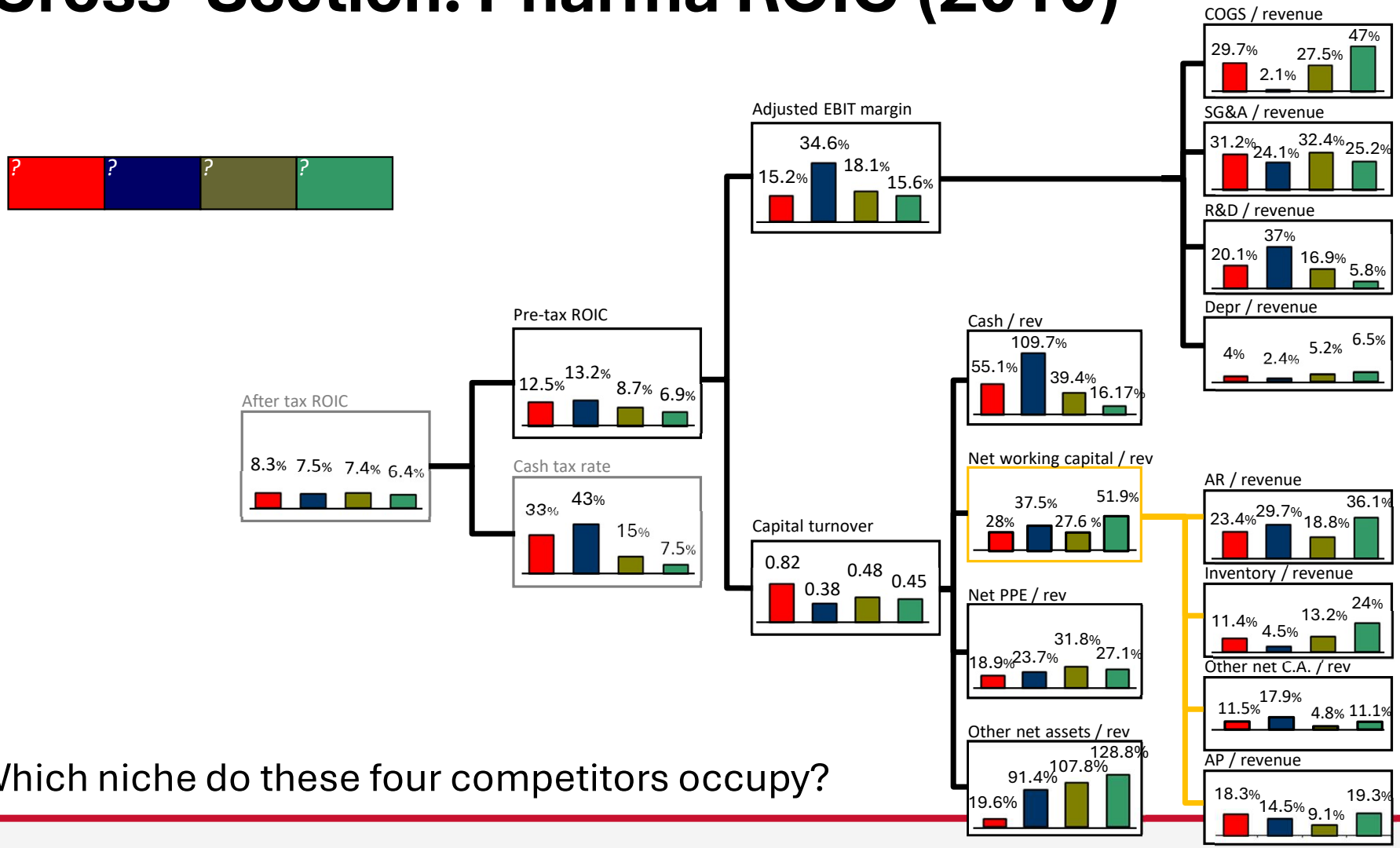
Decomposition of ROE

ROIC captures the operating profits generated. **ROE** includes how they are distributed among investor groups.

$$\underbrace{\left(\frac{EBIT}{Revenues} \cdot \frac{Revenues}{Equity + Debt}\right)}_{\text{Operations}} \cdot \underbrace{\left(\frac{EAT}{EBT}\right)}_{\text{Taxes}} \cdot \underbrace{\left(\frac{EBT}{EBIT} \cdot \frac{Equity + Debt}{Equity}\right)}_{\text{Leverage}} = \left(\frac{EAT}{Equity}\right) = ROE$$

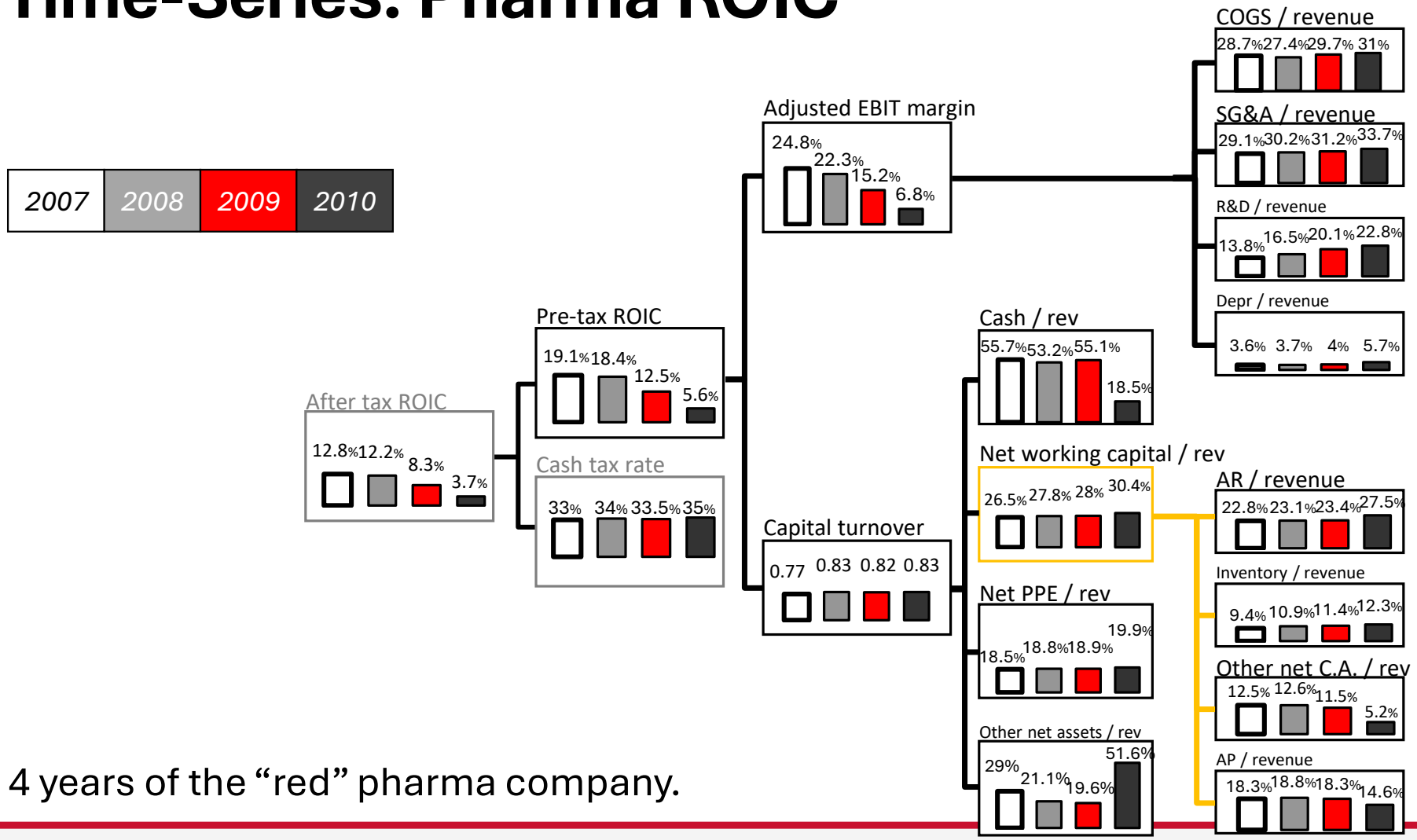


Cross–Section: Pharma ROIC (2010)



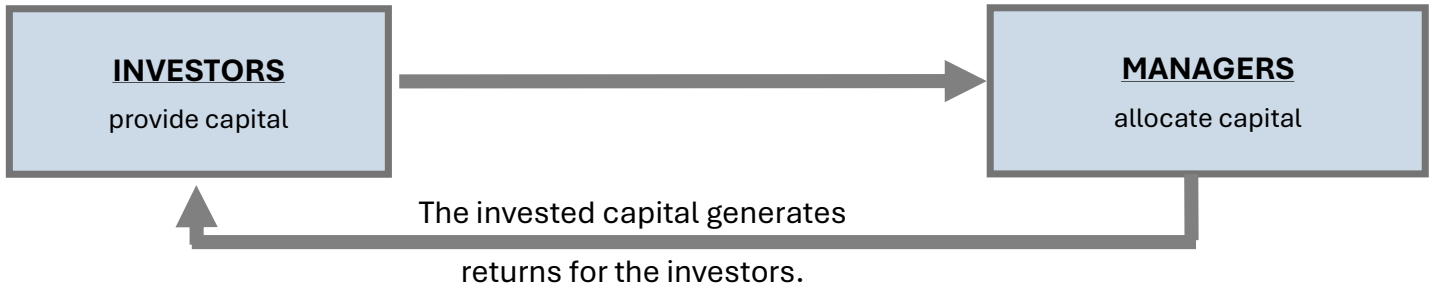
Which niche do these four competitors occupy?

Time-Series: Pharma ROIC

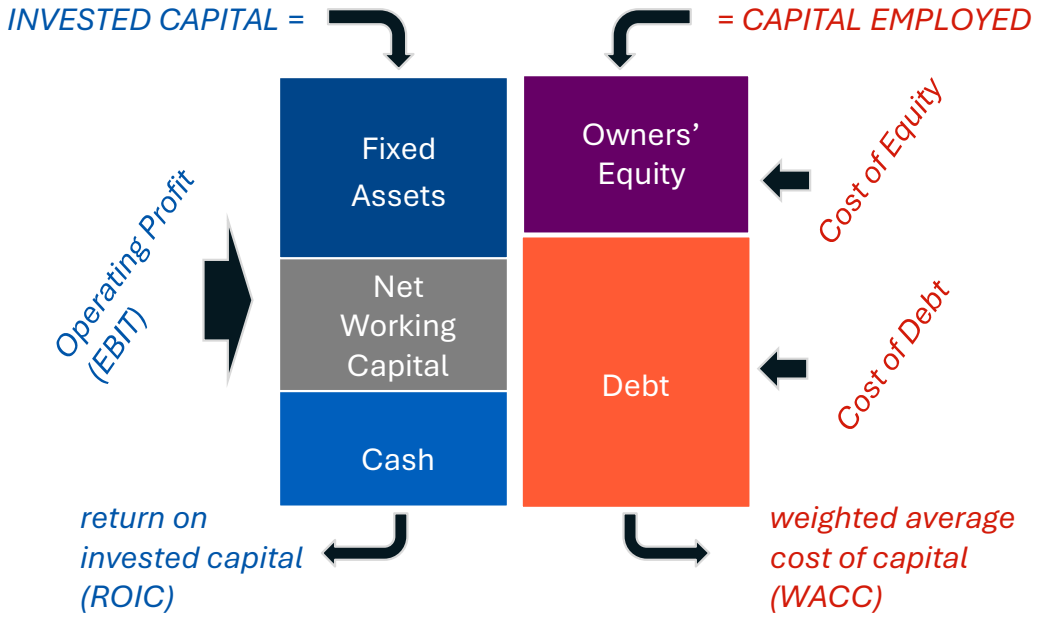


4 years of the “red” pharma company.

Rethinking the Value Creation Process

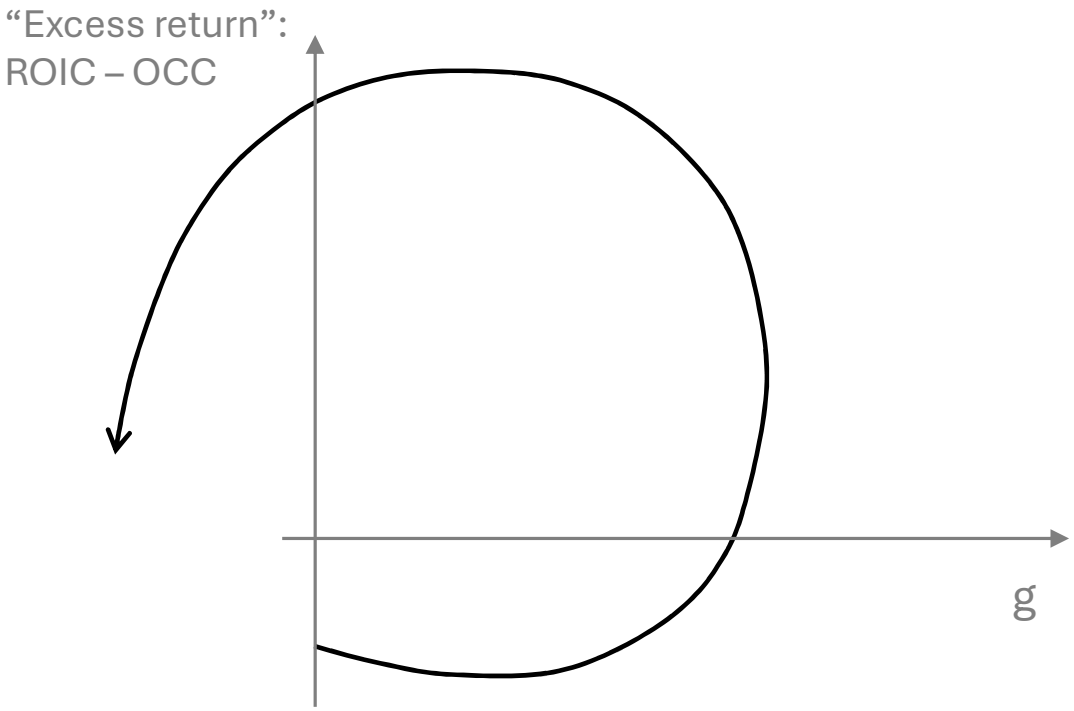


Generating value implies undertaking projects that **generate a return** on the capital invested in them (ROIC) that is **higher than** the **opportunity costs of capital** (OCC, estimated by WACC).



Firm Life Cycle

If growth and profitability naturally change over time… how do investors think of **value**?



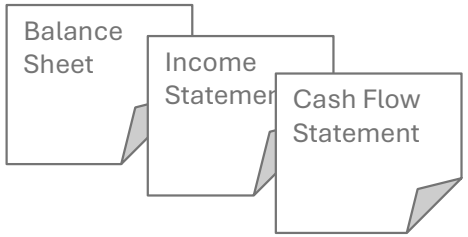
* Opportunity Cost of Capital, which is estimated through WACC (Weighted Average Cost of Capital)

from Financial Analysis to Capital Budgeting

No matter how detailed our available accounting data is, it cannot capture value creation.

what happened *vs* **what is expected**

financial statements



probabilistic assessment of the future

Past vs Future Performance

Financial analysis using past financial statements helps us analyse a firm's

- liquidity
- profitability
- financial leverage
- past cash flows

However, an investor is interested the *future* performance of the firm.

Namely, its future *cash flows*.

How should the ***value*** of the future "free cash flow" the firm generates be measured?

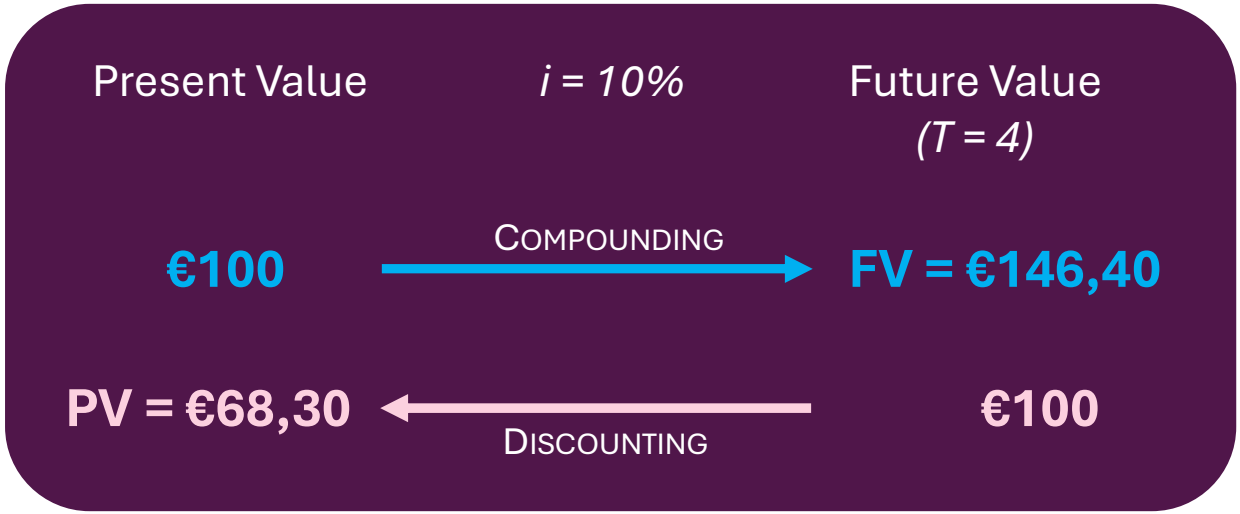
A thought experiment

Would you buy this parcel of land?

Time Value of Money

Compounding: *"If a bank gives 10% interest per year, how much is in the account after 4 years?"*

Discounting: *"To have €100 in 4 years, if interest rates are 10% per year, how much do you have to invest today?"*



Is waiting (and investing) always better...

...as long as you will get more cash?

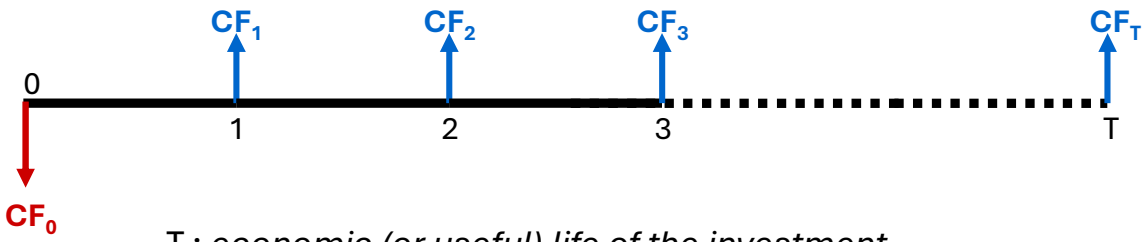
No. It depends on a combination of the following:

- **how much more?**
- **how much later?**
- **how expensive is waiting?**

$$Present\ Value = \frac{Future\ Value}{(1+k)^t}$$

These are not in a linear relation to one another, so general rules cannot be established.

The NPV Calculation



T : *economic (or useful) life of the investment*

CF_t : *expected cash flow from the project*

k : *opportunity cost of capital, reflecting returns on other assets of comparable risk*

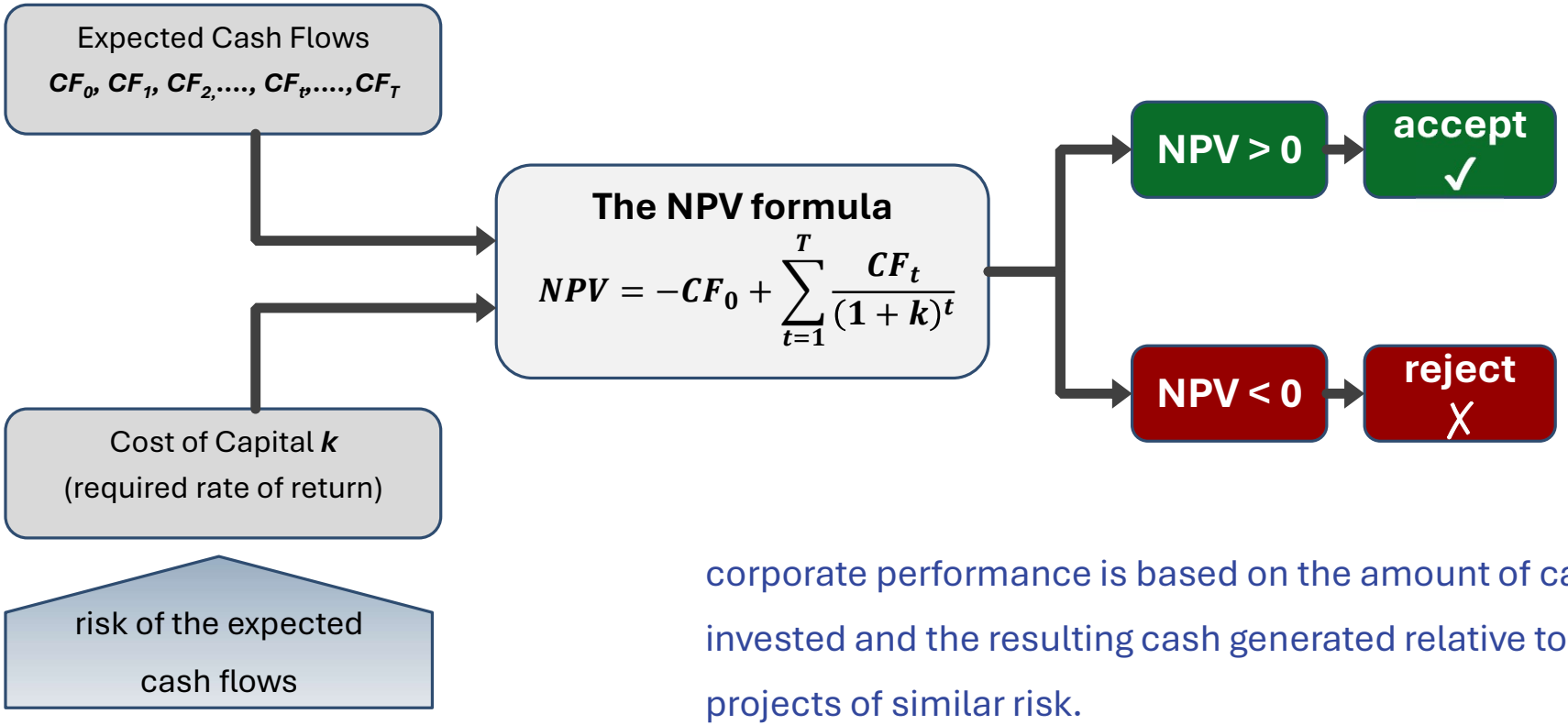
NPV = – INITIAL CASH OUTLAY + VALUE OF THE EXPECTED CASH FLOWS FOR THE INVESTORS

$$NPV = -CF_0 + \frac{CF_1}{(1+k)} + \frac{CF_2}{(1+k)^2} + \frac{CF_3}{(1+k)^3} + \cdots + \frac{CF_T}{(1+k)^T}$$

$\frac{CF_t}{(1+k)^t}$ is the **present value of CF_t**, where $\frac{1}{(1+k)^t}$ is the **discount factor**

The NPV Rule

How is the number used to decide?



corporate performance is based on the amount of capital invested and the resulting cash generated relative to other projects of similar risk.

NPV Rule and the 3 Principles of Value

$$NPV = -CF_0 + \frac{CF_1}{(1+k)} + \frac{CF_2}{(1+k)^2} + \frac{CF_3}{(1+k)^3} + \cdots + \frac{CF_T}{(1+k)^T}$$

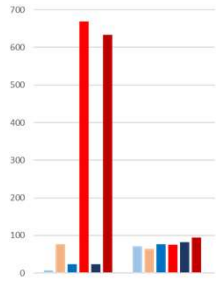
- NPV is the ***difference*** between the ***Present Value*** of the cash flows ***generated*** by the investment, i.e., CF_1, CF_2, …, CF_T), ***and the cost*** of the investment, i.e., the initial cash outlay, CF_0.
- The ***later*** the cash flows, the ***less*** they contribute to the value of the investment.
- The ***riskier*** the cash flows, the ***higher the opportunity cost of capital***, and the ***lower*** the value of the investment.

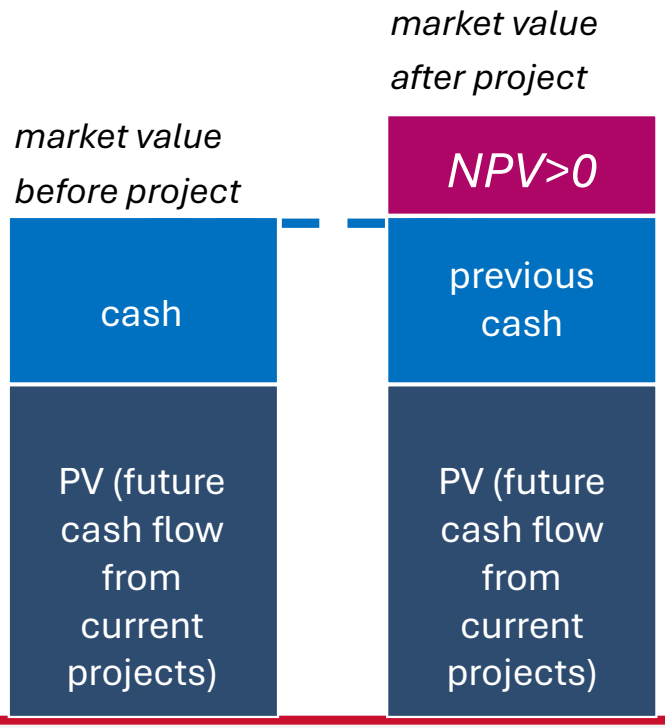
NPV and firm value

Firms are collections of many projects plus (typically) a certain amount of cash. The market value of the firm is the sum of cash and the present value of the future cash flows generated by the (current and anticipated) projects.

The NPV says how much a project generates ***IN EXCESS*** of the cash needed to recover the investment *and* to pay the required return on the capital invested in the project.

If the project is undertaken, the market value of the firm will go up (or down…) by the NPV of the investment.





In the “news”...

Australia miner Oz says copper find could reap billions in revenue REUTERS 18 Aug 2014

Oz Minerals Ltd said on Monday a copper and gold mine it wants to develop in Australia could generate A$22.1 billion ($20.58 billion) in revenue over more than 20 years but will require a partner to proceed.

The company's projections, based on a target of 114,000 tonnes of copper and 117,000 tonnes of gold a year coming out of the company's Carrapateena project, drove Oz Minerals shares **3 percent higher to A$4.40**. [...]

Oz Minerals, capitalised at A$1.34 billion, has been looking for partners to help shoulder the **A$2.985 billion** it forecasts will **cost** to get the mine up and running later this decade. [...]

OZ Minerals has put a **net present value** on the project of **A$1.15** billion based on a pre-feasibility study, higher than previous estimates by analysts of around A$500 million. [...]

In the “news”…

What is a high NPV? €100, €100 million, … ? IRR tries to solve that.
It puts the overall cash flows of the project in relation to its upfront cost.

Australia miner Oz says copper find could reap billions in revenue REUTERS 18 Aug 2014

[…] OZ Minerals has put a **net present value** on the project of **A$1.15** billion based on a pre-feasibility study, higher than **previous estimates** by analysts of around **A$500 million**.

"It doesn't have a great return, it only has an **internal rate of return** at **13 percent**, with a very very big price tag of A$3 billion so I think they'll be quite challenged to find anybody that's prepared to buy into the project at that kind of the price," said Brenton Saunders, a portfolio manager with BT Investment Management.

"So to come out and say it's now worth A$1.1 billion is quite a big difference so I guess the market is reacting to that," Saunders said.

The past vs the future

The Armchair General

Capital budgeting is a more daunting task for managers than financial statement analysis, since the future is uncertain.

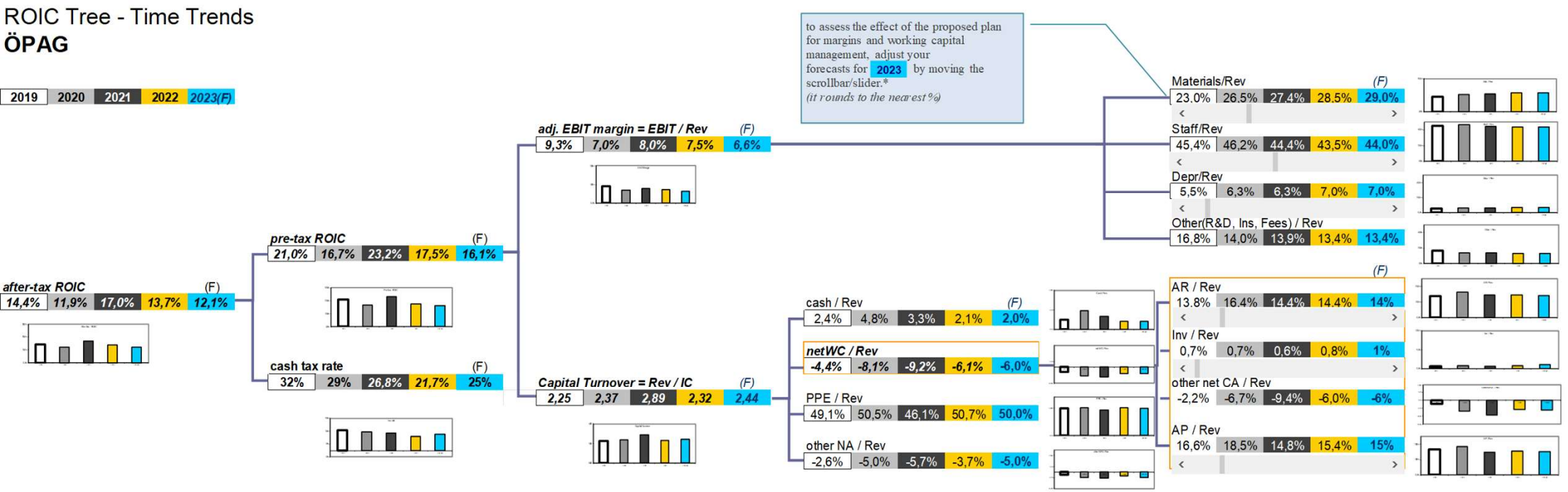
But to create value, managers need to make decisions involving the future:

how to employ the capital they are given.

→ The **NPV** tool forces managers to articulate what drives expectations about the future.

→ **Financial Statement Analysis** can help inform whether those expectations are realistic.

Time-Series: Österreichische Post AG



Which cash flows are needed for investment decisions?

From financial reports to forecasting

1. **After-tax cash flows**, but we use ‘artificial’ taxes by ignoring the tax effect of the firm’s financing decisions (the interest tax shield). Only tax effects of operations, i.e. **NOPLAT**
2. **Incremental cash flows**, that is we want to estimate the effect of this investment on the cash flows of the firm, considering e.g.
   - ✧ **cannibalization of other projects?**
   - ✧ **opportunity costs of using company’s resources?**
   - ✧ **overhead costs: do they really increase cash outflows?**
3. **Ignore sunk costs**, i.e. *costs already incurred and not recoverable*.
   If we do not get the money back even if we stop the project now, then those cash flows are not incremental. That is, the investment calculation does not tell us whether the project was good or bad, it only tells us whether we should continue the project today.

From cash flow statement to forecasting

The cash flows we do not need…

The only cash flows you should ***NOT*** take into account in your cash flow forecasts are the **financing costs**:

- Interest payments
- Loan repayments
- Dividends
- Opportunity cost of cash

These cash flows are important, but are taken into account in the **discount rate** or **cost of capital**.

The cash flow to be discounted for NPV is very similar to the free cash flow known from financial analysis:

Free Cash Flow = EBIT + depreciation – taxes – increase in NWC – Capex

! unlike the accounting cash flow statement, the expected cash flows forecasted use 'artificial' taxes !

PMD: Finance for Managers

When reading any set of financials:

Is **profit growing** — and is **cash keeping pace**, or is working capital consuming it?

When assessing performance:

Are margins improving, or is **growth** being bought **at the expense of efficiency** — and what does the competitor benchmark say?

When evaluating an investment or resource decision:

What are the **expected future cash flows**, when do they arrive, and does the **return justify the capital** committed?

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Finance for Managers

Program for Management Development

Prof. Dr. Astrid Schornick