TECHNISCHE HOCHSCHULE OSTWESTFALEN-LIPPE
UNIVERSITY OF APPLIED SCIENCES AND ARTS

Management Skills and Business Administration

Finance, Numbers and Reporting

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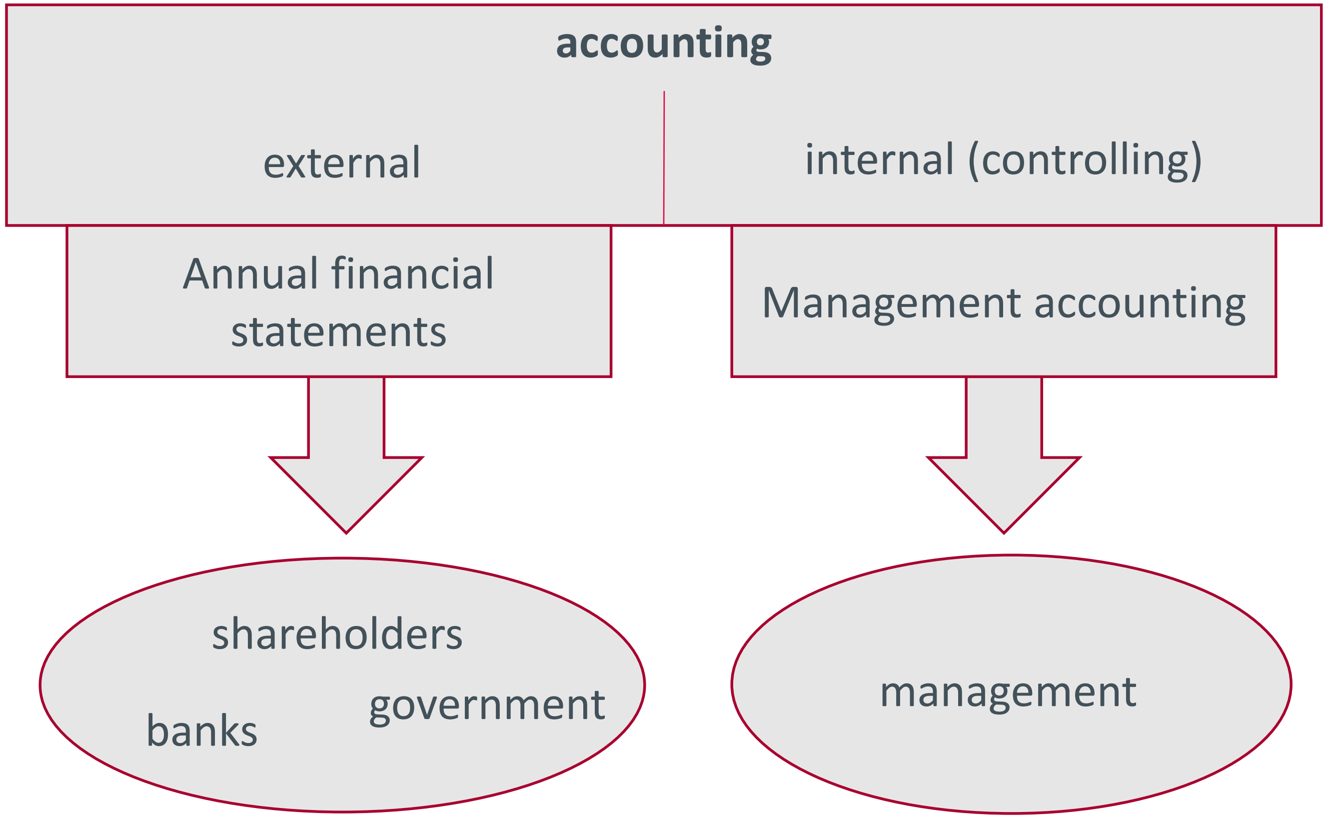
Agenda

- **External Accounting**
- **Internal Accounting**
- **Finance**

External Accounting

Structure of Accounting



Terms

- **Deposits and withdrawals:**
  inflow or outflow of liquid funds (cash, sight deposits)
- **Revenue and expenditure:**
  Increase or decrease in financial assets (financial assets = liquid assets + receivables - liabilities)
- **Profits and expenses:**
  net worth increase or net worth decrease
- **Activities and costs:**
  Value of all services rendered in the context of typical business activity or assessed consumption of business services

Duty to keep books

§ 238 Abs. 1 HGB: „Every merchant is obliged to keep books and to make his commercial transactions and the position of his assets visible in these according to the principles of proper accounting. The bookkeeping must be such that it can provide an expert third party with an overview of the business transactions and the situation of the company within a reasonable time. The business transactions must be traceable in their development and processing.“

Financial Accounting

- **Documentation of all business transactions in a period using accounts and booking records (double-entry bookkeeping)**
- **Vier Kontenarten:**
  - Active stock account (asset account)
  - Passive stock account (passive account)
  - Profit account
  - Expense account
- **“Left side” of an account is called debit, “right side” is called credit**

Annual Financial Statement

- **Structure of the annual financial statement**
  - Balance Sheet
  - Profit and Loss Account
  - Appendix (corporations only)
- **General standard of the HGB (Section 264, Paragraph 2): "The annual financial statements of the corporation must give a true and fair view of the asset, financial and earnings position of the corporation, taking into account the principles of proper accounting. If special circumstances lead to the fact that the annual financial statements do not convey a true and fair view within the meaning of sentence 1, additional information must be given in the appendix"**

Tasks of the annual financial statements

- **Documentation function**
  Recording of all business transactions in accordance with the statutory accounting obligation (§238 HGB)
- **Payment measurement function**
  Determination of the annual profit to determine
  - Dividend payment
  - Tax payment
  - Employee bonusses
- **Information function**
  Informing the balance sheet addressees (lenders, equity investors, government, suppliers, management, employees) about the asset, financial and earnings situation

Asset side of the balance sheet

- **The assets side shows the use of funds: What were the company's funds used for on the reporting date?**
- **Main positions of the asset side**
  - Capital assets
  (long-term tied assets)
  - Current assets
  (short-term tied assets)
  - Prepaid expenses and deferred charges

Liabilities side of the balance sheet

- The liabilities side shows the source of funds: Who provided the company with funds in what amount on the reporting date?
- Main positions of the liabilities side:
  - Equity (balance sheet value of the company; residual amount)
  - Liabilities (debts with banks, suppliers, etc.)
  - Provisions (expected liabilities that are still uncertain in terms of amount or reason)
  - Deffered income
- All items that are not equity are referred to as debt

Equity

- **Share of owners in total assets of the company**
- **The equity is liable to the outside capital**
- **Equity is the residual amount of the balance sheet, the following applies:**

$$Equity = Total\ Assets - Borrowed\ Capital - Deferred\ Income - Accruals$$

- **Equity consists of**
  - Subscribed capital
  - Capital reserves
  - Annual surplus

Opening and closing balance

- **Opening balance: Balance at the beginning of the financial year**
- **Closing balance: Balance at the end of the financial year**
- **Closing balance in year n is the opening balance in year n + 1**
- **All balance sheet items of the opening balance sheet are posted as opening balances in the corresponding asset and liability accounts of the financial accounting**
- **The closing balance is made up of the balances of the individual asset and liability accounts at the end of the financial year**
- **The profit after tax is added to equity**

Sample (fictitious, simplified)

Assets	December 31st, 2019	Liabilities

Assets		Liabilities	
Capital Assets	**126,879,181**	**Equity**	**14,718,606**
Property, plant & equipment	75,433,985		
Intangible assets	17,230,312	**Liabilities**	**108,921,928**
Financial assets	34,214,884	Short-term liabilities	21,905,218
		Long-term liabilities	87,016,710
Current assets	**33,910,044**		
Inventory	11,259,849	**Accruals**	**37,345,518**
Receivables	7,225,338	Shirt-term accruals	5,906,699
Securities	10,204,841	Long-term accruals	31,438,819
Liquid funds	5,220,016		
Prepaid expenses & deferred charges	**375,273**	**Deferred income**	**178,446**
Total assets 161,164,498		Total liabilities 161,164,498	

A German balance sheet (example)

BILANZ zum 31. Dezember 2018

Embever GmbH Entwicklung von Soft- und Hardware & Beratung, Magdeburg

AKTIVA

	EUR	01.01.2018 - 31.12.2018 EUR	Vorjahr EUR
A. Anlagevermögen			
I. Immaterielle Vermögens-gegenstände			
1. entgeltlich erworbene Konzessionen, gewerbliche Schutzrechte und ähnliche Rechte und Werte sowie Lizenzen an solchen Rechten und Werten		7,00	0,00
II. Sachanlagen			
1. andere Anlagen, Betriebs- und Geschäftsausstattung		935,00	0,00
B. Umlaufvermögen			
I. Forderungen und sonstige Vermögensgegenstände			
1. Forderungen aus Lieferungen und Leistungen	29.836,27		0,00
2. sonstige Vermögensgegenstände	1.095,69		1.453,21
		30.931,96	1.453,21
II. Kassenbestand, Bundesbank-guthaben, Guthaben bei Kreditinstituten und Schecks		13.086,97	17.510,34
		44.960,93	18.963,55

Embever GmbH Entwicklung von Soft- und Hardware & Beratung, Magdeburg

PASSIVA

	EUR	01.01.2018 - 31.12.2018 EUR	Vorjahr EUR
A. Eigenkapital			
I. Gezeichnetes Kapital		25.000,00	25.000,00
II. Verlustvortrag		7.270,44-	0,00
III. Jahresüberschuss		2.036,01	7.270,44-
B. Rückstellungen			
1. Steuerrückstellungen	4.763,78		0,00
2. sonstige Rückstellungen	695,00		675,00
		5.458,78	675,00
C. Verbindlichkeiten			
1. Verbindlichkeiten aus Lieferungen und Leistungen	366,52		558,99
2. sonstige Verbindlichkeiten	19.370,06		0,00
		19.736,58	558,99
		44.960,93	18.963,55

Profit and loss account

- **Summarizes the income and expenses of the financial year**
- **The balance of income and expenses is the annual profit before taxes * (Earnings before Taxes; EBT)**
- **Determination according to two principles:**
  - Expense of sales method
  - Total cost method

*** Note the differences between the commercial balance sheet and the tax balance sheet**

Different profit definitions

- **Annual surplus (also called annual profit after taxes)**

$$EAT = EBT - Taxes$$

- **Operating profit (Earnings before interest and taxes)**

$$EBIT = EBT + Interests$$

- **EBITDA (earnings before interest, taxes, depreciation, and amortization) describes the operational performance before capital expenditure**

$$EBITDA = EBIT + Depreciation$$

Depreciation

- **Record the impairment of fixed assets e.g. B. through time and wear and tear**
- **Posting via expense account**
- **Two types of depreciation calculation in external accounting:**
  - linear depreciation
  - geometric-degressiv depreciation

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Equity and debt ratio

- **Equity ratio:**

$$equity\ ratio = \frac{equity}{total\ assets}$$

Indicates what proportion of the company's assets belongs to the owners

- **Debt ratio:**

$$Fremdkapitalquote = \frac{Fremdkapital}{Bilanzsumme}$$

Indicates what proportion of the company's assets is financed by debt, accruals and deferred income.

- **It is:**

$$equity\ ratio + debt\ ratio = 1$$

Golden Accounting Rule

- **Long-term tied assets must not be financed with short-term borrowed capital**
- **The golden rule of accounting is fulfilled if**

$$\frac{Equity + longterm\ liabilities + longterm\ accruals}{capital\ assets} \geq 1$$

Degrees of liquidity

- **Degree of liquidity I (Cash-Ratio:**

$$DL1 = \frac{Liquid\ Funds + Securities}{Shortterm\ liabilities + shortterm\ accruals}$$

- **Degree of liquidity II (Acid-Test-Ratio):**

$$DL2 = \frac{Liquid\ funds + Receivables + Securities}{Shortterm\ liabilities + shortterm\ accruals}$$

- **Degree of liquidity III (Current Ratio):**

$$DL3 = \frac{Current\ assets}{Shortterm\ liabilities + shortterm\ accruals}$$

Internal Accounting

Fixed costs

- **Fixed costs $K(0)$ are independent of service quantity.**
- **Fixed costs already arise from willingness to perform.**
- **If no service readiness is required (e.g. because no service is needed), there are no fixed costs either.**
- **Fixed costs are therefore flexible available.**

Fixed costs versus Sunk Costs

- **Sunk costs are costs that have already been incurred (i.e. costs that can no longer be planned) and are independent of activity quantities. Sunk costs are not included in the cost function (not relevant for decision-making).**
- **If, for example, a pizza delivery service is faced with the decision to purchase an additional delivery vehicle, the costs incurred (taxes, depreciation, maintenance, interest) are fixed costs. If the delivery vehicle has already been purchased, these are sunk costs.**

Variable costs

- **Variable costs $K_V(x)$ are activity-based costs**
- **It applies**

$$K(x) = K(0) + K_V(x).$$

- **It applies as well**

$$K_V(0) = 0.$$

Average cost

- **Average cost (also called unit costs):** $\frac{K(x)}{x}$
- **Fixed unit costs:** $\frac{K(0)}{x}$
- **Variable unit costs:** $\frac{K_V(x)}{x}$
- **It applies:** $\frac{K(x)}{x} = \frac{K(0)}{x} + \frac{K_V(x)}{x}$

Marginal costs

- **Marginal cost is the cost of the next additional unit of output.**
- **In the case of continuous and quasi-continuous output quantities, the marginal cost, where they exist, corresponds to the derivative of the cost function $K'(x)$. Elsewhere, they are not defined.**
- **In the case of a discrete quantity of output, the marginal cost of the x-th unit $K(x)-K(x-1)$**

Tasks of cost calculation

- **Support decision making**

  Collection and preparation of relevant cost data as a basis for management decisions

- **Control mechanism**

  Control of the profitability of operational activities and sub-areas, plausibility checks

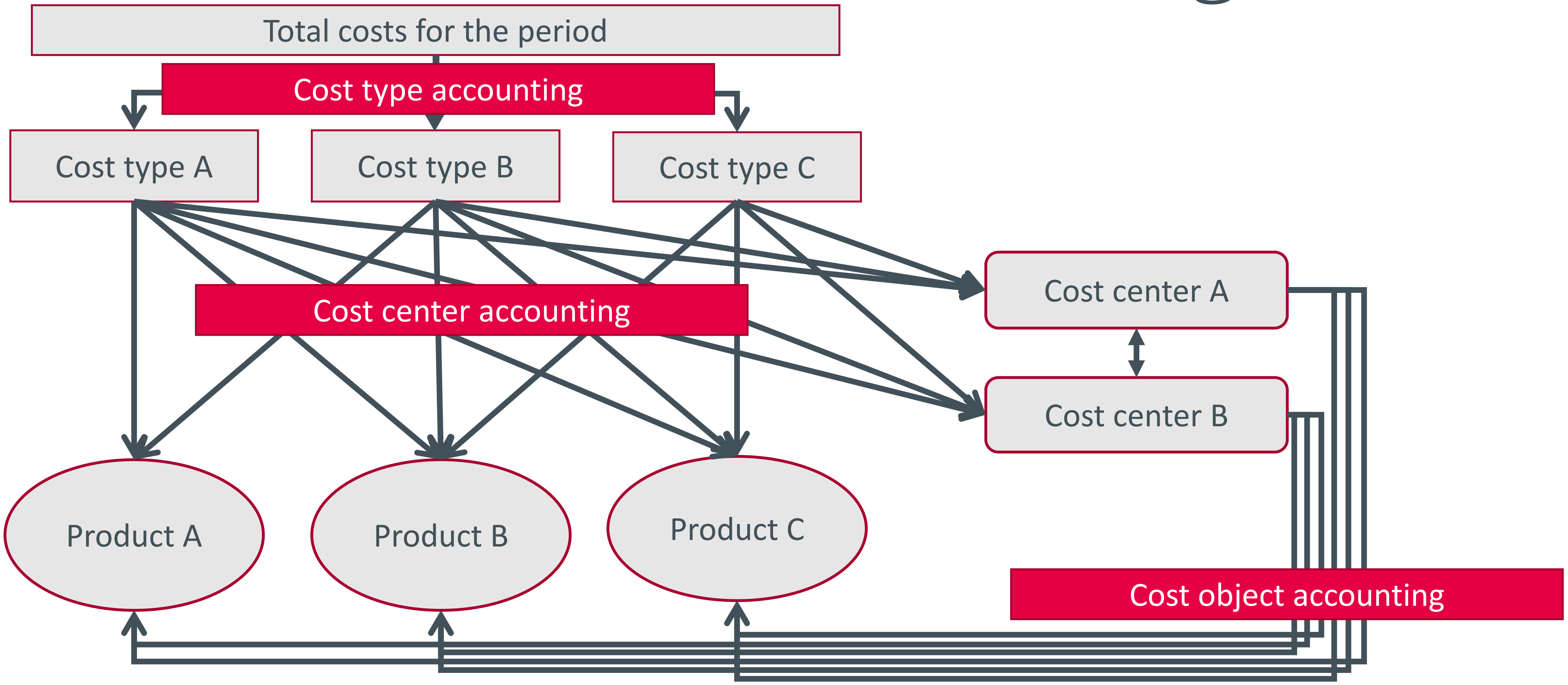
- **Behavioral Control**

  Performance measurement and rewards, preventing criminal or opportunistic behavior, changing behavior based on cost information.

Outline of cost types

1. **Material costs**
2. **Personnel costs**
3. **Cost of operating resources**
4. **Costs of internal activity allocation**
5. **Other costs**

Procedure of cost accounting



Substep 1: Cost type accounting

Cost type accounting determines the costs of a period and assigns them to cost objects (direct costs) and cost centers (cost object overhead):

1. Systematic recording of all production factors (mostly by type of input goods)

2. Recording and evaluation of the quantitative consumption of the individual production factors

3. Breakdown of costs into direct costs and cost object overheads

4. Assignment to cost objects and cost centers

Substep 2: Cost center accounting

- **Breakdown of costs into direct costs and overheads**
- **Allocation of overhead costs broken down by cost type to cost centers (causation principle)**
- **Internal activity allocation**
- **Calculation of overhead rates**
- **Economic control of the individual operating departments**

Substep 3: Cost object accounting

- **Cost object accounting (calculation)**

  Determines the cost of goods sold and serves, for example, as a basis for pricing policy, for the calculation of additional orders and as data input for the short-term income statement.

- **Cost unit time accounting (short-term income statement)**

  Enables product-related prompt determination of operating success

Finance

Investment

- **Definition of investment: "Long-term commitment of financial resources in tangible or in intangible assets."**
  Source: wirtschaftslexikon.gabler.de
- **Current cash outflow in hope of a future (higher) cash inflow**

Financing

- **Financing is the provision of financial resources needed to carry out an investment (Wöhe, p.472)**
- **Competing objectives of financing :**
  it maximization and financial equilibrium
- **Tasks of financing**
  - Determine the financing needs
  - Identify and evaluate financing alternatives
  - Decision making
  - Implementation and control of the measures

Time value of money (Present Value)

- **Payments today are worth more than payments in the future**
- **Reasons:**

  - Present Preference

  People get a payment today rather than in the future

  - Economic growth

  Money that is already received today can be invested and thus benefit (in anticipation) from economic growth

  - Risk compensation

  Whether one actually receives a future payment remains uncertain

Net present value method

- **Net present value of an investment opportunity**

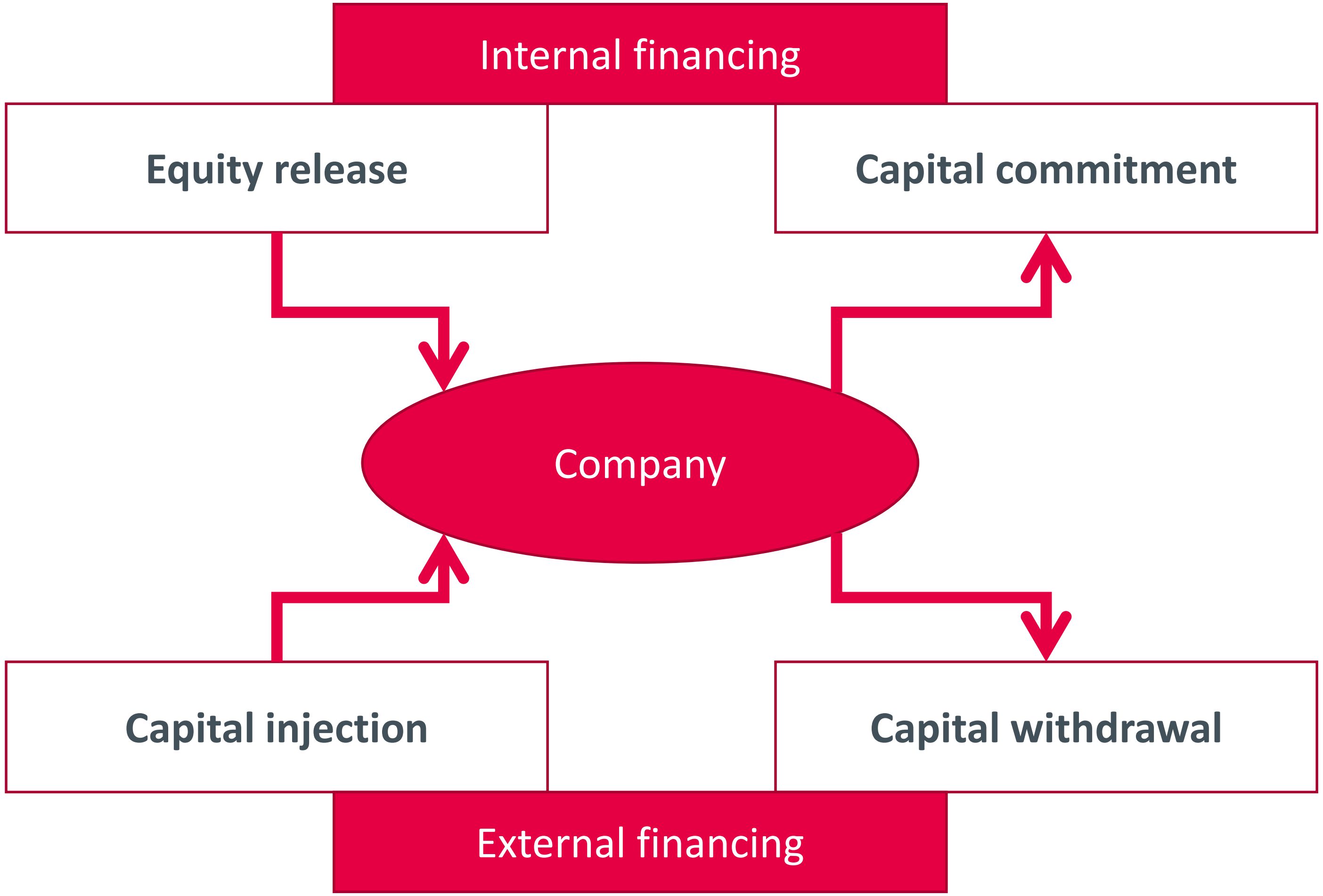
$$NPV = -I_0 + \sum_{j=1}^{n} \frac{CF_j}{(1+i)^j}$$

Investment costs : I_0
Operating life of the investment in periods : n
Cash flow for the period j**:** CF_j
Calculation interest rate per period: i

- **An investment should be made when** NPV**>0.**

- **If there are several alternative investment opportunities with a positive net present value, the investment alternative with the highest net present value should be carried out.**

Internal and external financing



Internal financing

- **Capital release from the operating process**
- **Types of internal financing:**
  - Open self-financing
  (Retention of earnings)
  - Concealed self-financing
  (Disclosure of hidden reserves)
  - Divestments (Active exchange)
  - Financing from provisions
  - Financing from depreciation

External financing

- **External financing refers to financing transactions in which external funds flow to the company**
- **Types of external financing:**
  - Self-financing
  (Equity financing)
  - Debt financing
  (Financing through liabilities)
  - Mezzanine financing
  (Mixture of equity and debt character)

Self-financing

- **Financing transactions in which the owners of the business entity (equity investor) provide the company with further financial resources**
- **Types of self-financing:**
  - Increase in the contributions of the current shareholders
  - Admission of new shareholders
- **Easier self-financing for companies authorized to issue shares (AG, KGaA), as new shareholders can simply be taken on by issuing new shares (this results in subscription rights for existing shareholders in each case)**

Debt financing

- **Debt financing (also called credit financing) refers to the coverage of a company's financing needs through borrowing from banks and other creditors as well as through borrowings on financial markets**
- **Types of debt financing:**
  - Loans (bank loans, supplier loans, mortgage loans, non-genuine factoring)
  - Factoring
  - Interest-bearing securities (bonds)

Mezzanine financing

- **Mixed form of equity and debt**
- **Examples:**
  - Profit participation rights (equity-like)
  - Convertible bonds
  - Option bonds
  - Subordinated bonds
  (belong to debt capital but have mezzanine character)
- **Advantage of mezzanine capital :**
  Acts as collateral vis-à-vis lenders without excessively reducing the profit claim of equity investors