Business Case Challenge

Input | Finance

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In cooperation with

VARTA

Die Presse

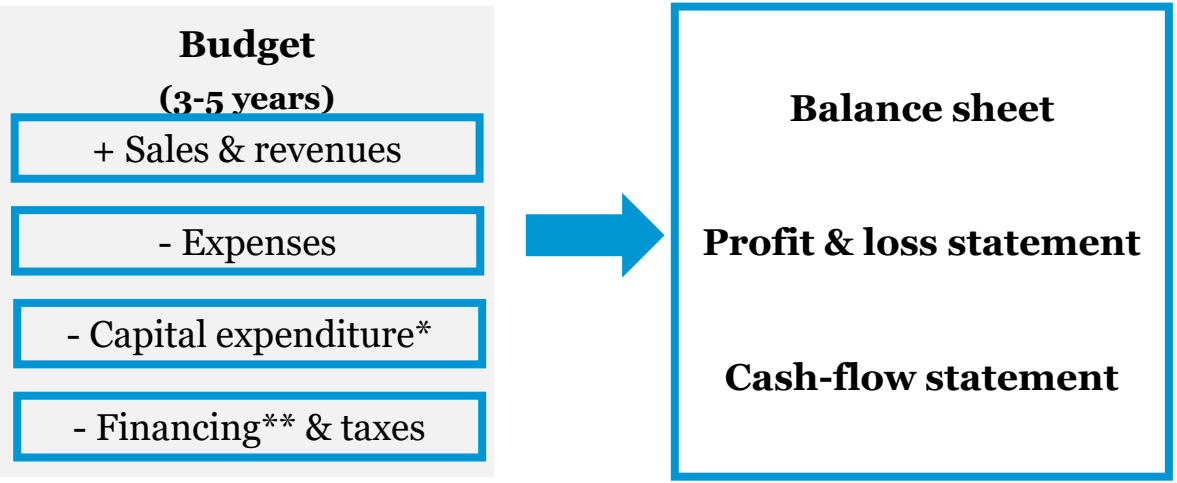
Finance - Info material

1. **Financial Planning (Business Case)**: This section provides information on how to conduct a financial analysis of your entrepreneurial idea. This includes setting up a projected profit & loss, cash flow statement, (balance sheet – though not in focus usually) and a projected break-even point. Based on the financing need identified, different capital sources can be accessed.
2. **Investment Valuation:** This section provide some methods on how to conduct an valuation of your idea. This forms often the basis for an investor t decide on the amount to invest. The methods presented include NPV, IRR, Multiples

Financial planning

Financial planning
(Creating business case)

- **Step 1:** Bottom up planning to arrive from budget to realistic business case *(this chapter)*.
- **Step 2:** Integrate budget points into business case and calculate firm value using valuation methods (see 2nd chapter).



Entrepreneurial Perspective:

- Start-ups have no to little sales & revenues
- This makes budgeting more difficult
- Absence of sales closes possibility for internal finance
- It also reduces opportunity to source capital from risk averse debt providers (e.g. banks)
- Start-ups often have to rely on equity financing (owners, PE/VC investors, subsidies)
- The cash-flow statement will form the basis for start-up valuation (NPV, IRR)

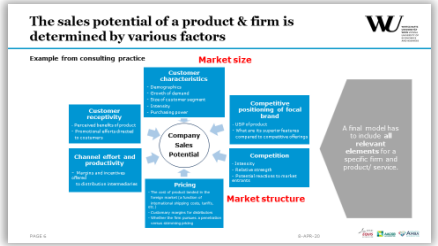
* Including depreciation of fixed assets ** Financing costs depend on capital sources and structures

Budget points (i)

Sales & revenues

Your sales and revenues are based on the sales potential (for factors see slide in *product*) you have derived when estimating the addressable market of the product and setting the price.

Revenue = Price * Sales (quantity)



See next slide for details

It is crucial to know the costs & expenses exactly. To estimate the profitability of the product itself, you can calculate the contribution margin of the product.

Margin = Price – Variable Costs

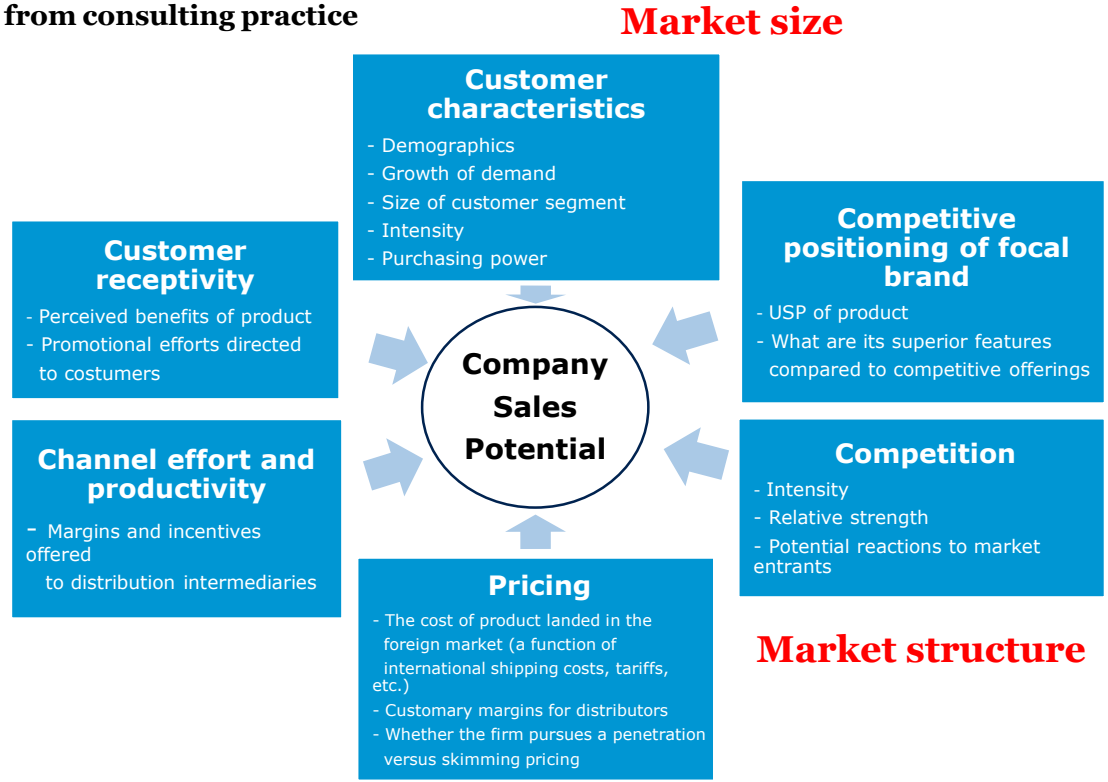
Expenses

Furthermore, fixed costs are even more essential for a start-up as these are the costs that the organization incur even without selling a product (e.g. personnel, marketing, R&D). These fixed costs could eat up the cash of a venture quickly. Knowing the contribution margin and the fixed costs you can conduct a break-even analysis. Break-even is the point (number of products sold) where earnings equal costs (Earnings = Costs)**.**

Break-even point = Fixed costs / Contribution Margin

The sales potential of a product & firm is determined by various factors

Example from consulting practice

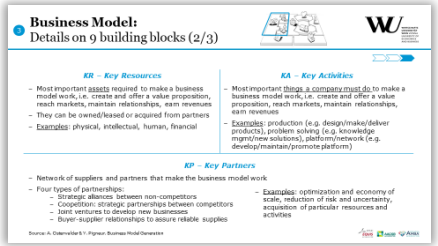


A final model has to include **all relevant elements** for a specific firm and product/ service.

Budget points (ii)

Capital Expenditure

In many cases, **producing a product requires capital expenditure (CAPEX)** in manufacturing facilities, offices, etc. A good **starting point** for the required investments is the **left part of the CANVAS** with the resources, capabilities and partnerships.
In addition to the capital expenditure that needs to be considered when **planning the cash-flow**, the **depreciation of these investments** are a factor for profitability and represent fixed costs.



See product info for details

Financing & taxes

Existing **financing gaps** and needs **have to be filled** via various capital sources (for detailed information see following slides). The capital raised **represents cash in flow** but also needs **to be accounted for in the profit and loss statement** in the form of interest paid (financing costs).

A further factor that needs to be considered are taxes. The most important factor to be considered is the fact that **a newly founded firm has to pay taxes irrespective of** whether the company incurs **a loss** in the first years (newly founded firms can benefit from a lowered tax rate in the first years though).

The profit & loss statement provides implications for the profitability of a venture

Sales & revenues
Based on sales plan

Expenses
Based on variable costs

Depreciation **(Capital Expenditure)**

Financing
Determined by capital sources and structures

Profit & Loss Statement	*Example*
Net sales	€ 30,000
Cost of sales	€ (15,000)
Gross Profit	€ 15,000
Marketing	€ (2,000)
Other operating expenses, net	€ (1,000)
Other total operating expenses	€ (3,000)
Operating income	€ 12,000
Interest income	-
Interest expenses	€ (1,000)
Other income (expense), net	€ (400)
Total non-operating income (expense)	€ (1,400)
Income before income tax	**€ 10,600**
Net income	**€ 7,950**

Includes all variable costs of the product, i.e. all that can be attributed to a single product (material, production, etc.)

Includes fixed costs, i.e. all that cannot be attributed to a single product (marketing, personnel, R&D, depreciation, etc.)

Includes all financing income / costs (which is not part of the core business)

The Cash flow calculation provides an overview of disposable cash and possible finance gaps

Net Income
+ non-cash expenses (e.g. depreciation)
- non-cash income
- change in working capital
- Income (+loss) from the sale of assets
= Cash-Flow from Operating Activities

+ Cash flow from the sale of assets
- cash flow for the purchase of assets
= Cash Flow from Investing Activities

+ Cash in flow from issuing equity or debt
- cash paid for the repurchase of debt/equity
- dividend payout
= Cash Flow from Financing Activities

= Cash Flow

Cash flow can be calculated in an **indirect** or **direct way** (the example on the left: indirect way starting with the net income of P&L statement)

The cash flow from operating and investing activities constitutes the free cash flow (FCF). FCF is the available cash of a company before financing activities and is an indicator investors pay attention to.

= Free Cash Flow

The cash flow provides implications for possible financing gaps and needs, which can be filled via various capital sources.

Balance Sheet

- In a start-up business plan, the **balance sheet is probably** the **item of least interest** when developing the product/idea
- "**Cash is King**" in the initial phase of a start-up venture
- What needs to be considered for the development of your idea is that there are potentially investments necessary (R&D, facilities, etc.) to produce the new product, which need to be financed as well

Assets	*Example*
Current assets:	
Cash & cash equivalents	€ 4,000
Inventory	€ 6,000
Accounts receivable	€ 200
Non-current assets:	
Property and equipment	€ 30,000
Other assets	€ 2,000
Total assets	**€ 42,200**

Liabilities	*Example*
Current liabilities:	
Accounts payable	€ 4,200
Long-term liabilities:	
Long-term debt	€ 20,000
Other long-term liabilities	€ 3,000
Stockholder's Equity	€ 15,000
Total liabilities and stockholders' equity	**€ 42,200**

Financial planning
(Capital structure)

	Debt	Equity
Cost for company	Relatively low cost	Relatively high cost
Return on capital for provider	Limited interest	Potentially unlimited ROE
Risk tolerance of provider	Low	High
Security requirements	High	Low
Treatment in insolvency	Privileged	Subordinated
Tax treatment from company perspective	Privileged (tax shield)	Neutral

Debt & Equity providers have different cost and risk aversion. Lenders seek securities and a proven business model, which is often not available in start-ups. Lenders charge relatively low market interest rates for their capital. Equity providers receive potentially unlimited profits after debt is paid. Equity investors seek a growth story and promising start-ups, take more risk but require a higher return on their capital (higher cost).

Financial planning
(Capital structure)

Debt & Equity providers have different risk aversion. Lenders (turquoise line) receive, at most, the interest on debt. Equity providers (red line) receive profits after debt is paid. When financing a company, or investment, a clear pecking order of different capital sources emerges:

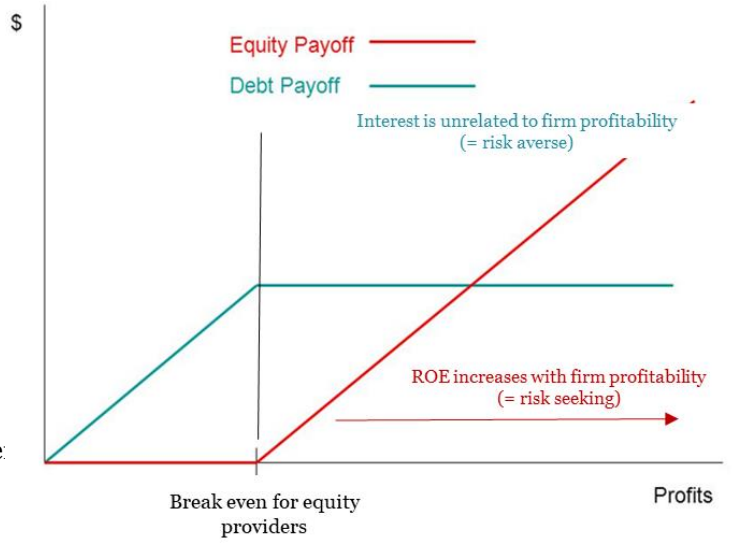
Financial pecking order

- **Internal finance** (retained profits, cash-flows)

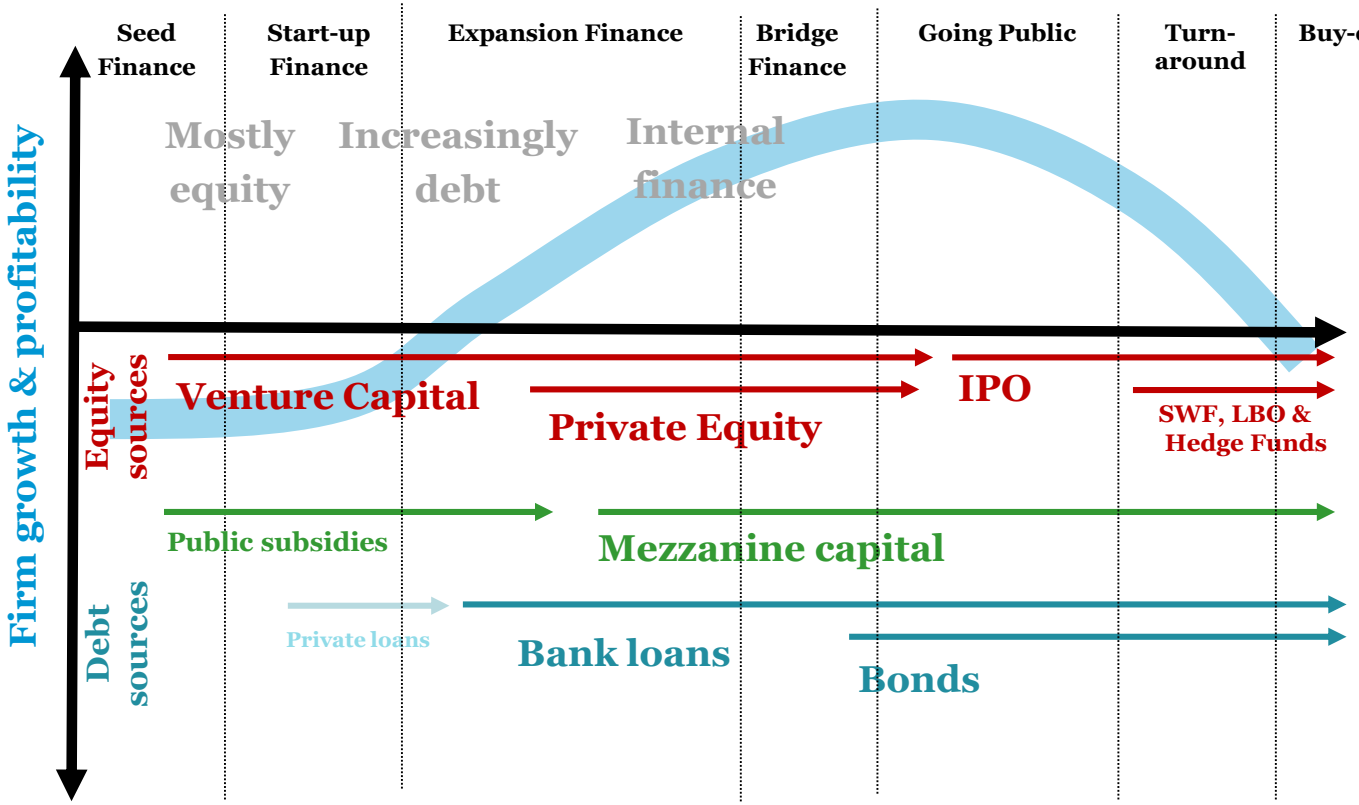
  Ideally, a company can grow from the revenues it generates.
- **External debt** (bank loans, bonds)

  If internal finance is insufficient, debt is a second resort. This is because (a) because debt doesn't require sharing of potential profits and (b) preferred tax treatment of debt (tax shield)
- *Mezzanine capital* (various instruments)
- **External equity** (venture capital, private equity, initial public offering)

  Equity is a capital source of last resort. It constitutes sale of your company/investme to outsiders which share potential profits.



Financial planning
(Capital sources)



Entrepreneurial Perspective:

- Sources of capital differ along the life-cycle of companies.
- Because start-ups have no profitability, revenues or securities, they must rely on equity capital sources.
- As start-ups expand they qualify for debt financing.
- As profitability increases firms can use more and more internal financing

Investment Valuation

Valuation
(Approaches)

Bottom-up approaches starting from business plan

- Discounted Cash Flow (DCF) and Net Present Value (NPV)
- Internal Rate of Return (IRR)

Top-down approaches starting from comparisons with other companies

- Multiples Valuation

Despite sophisticated valuation techniques, valuation is not an exact and objective science but best effort!

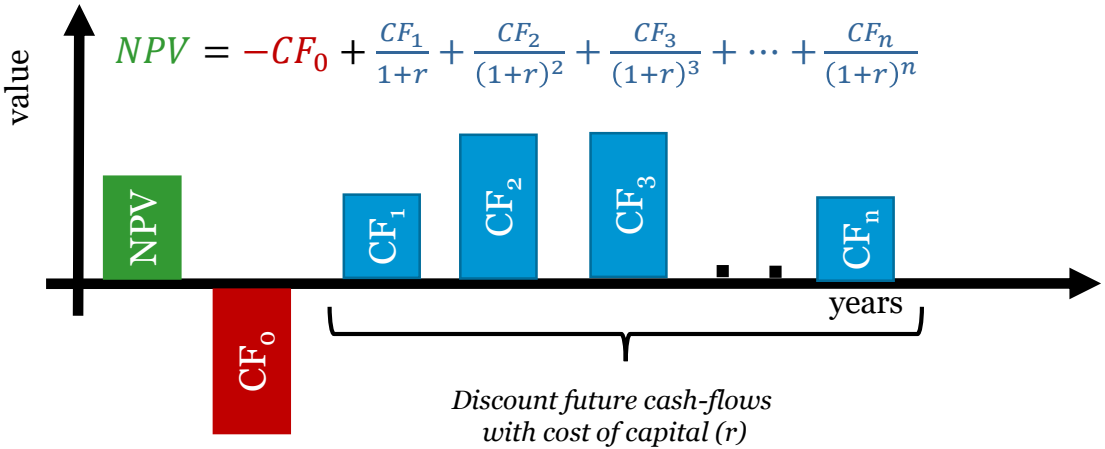
Entrepreneurial Perspective:

- Bottom-up valuation is difficult for start-ups with no prior history and capital.
- Top-down valuation is easier to implement.
- Quality of multiples valuation strongly depends on quality of peer companies selected.

- Start-up valuation is even less reliable than valuation of established companies.

DCF and NPV
(for investments)

- The net present value (*NPV*) of an investment is the sum of future cash flows (CF_{1-x}) corrected for interest you could have earned (r) (or will have to pay for the capital needed) for the years you hold the investment, minus the initial investment (CF_o). Weighted Average Cost of Capital (WACC) used for (r). If NPV > 0, the investment is profitable.



Entrepreneurial Perspective:

- Start-ups have no history of cash-flows
- Cash-flow forecasts start from business case
- Weighted average cost of capital is commonly high because start-ups must rely on costly equity
- External investors will also factor in higher risk of start-ups and increase their required interest of ROE

DCF and NPV
(for investments)

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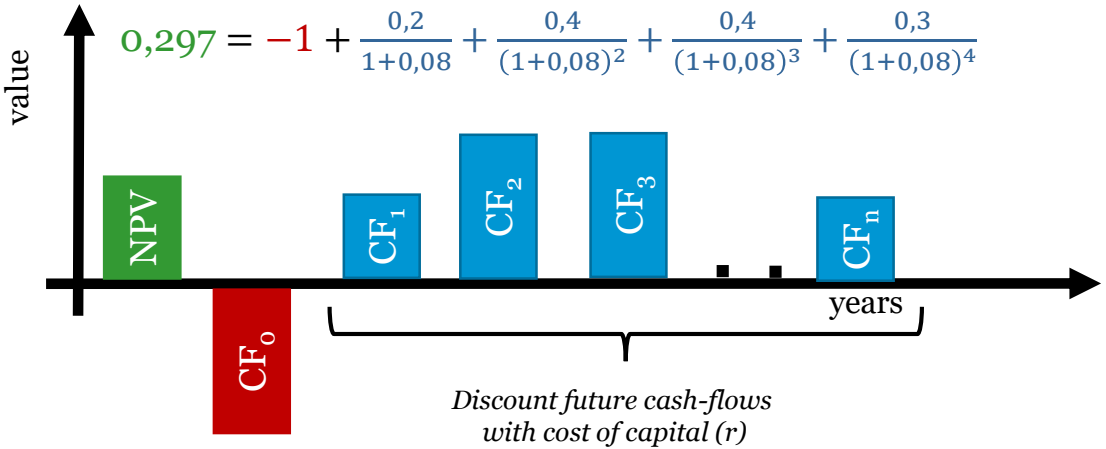
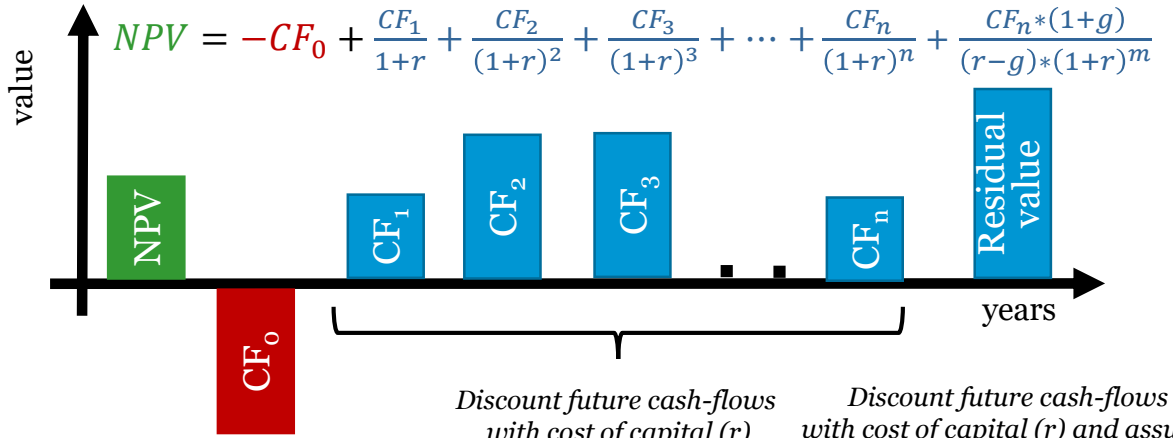


Example calculation:

WACC = 8%	CF0 = - 1 Mio.
CF_1 = 0,2 Mio.	CF_3 = 0,4 Mio.
CF_2 = 0,4 Mio.	CF_4 = 0,3 Mio.

DCF and NPV
(for investments)

- Companies exist indefinitely. Instead of making infinite cash-flow projections we compute a "perpetuity" or residual value. Residual value is based on problematic growth assumption. If large part of NPV comes from perpetuity investors will find this overconfident.

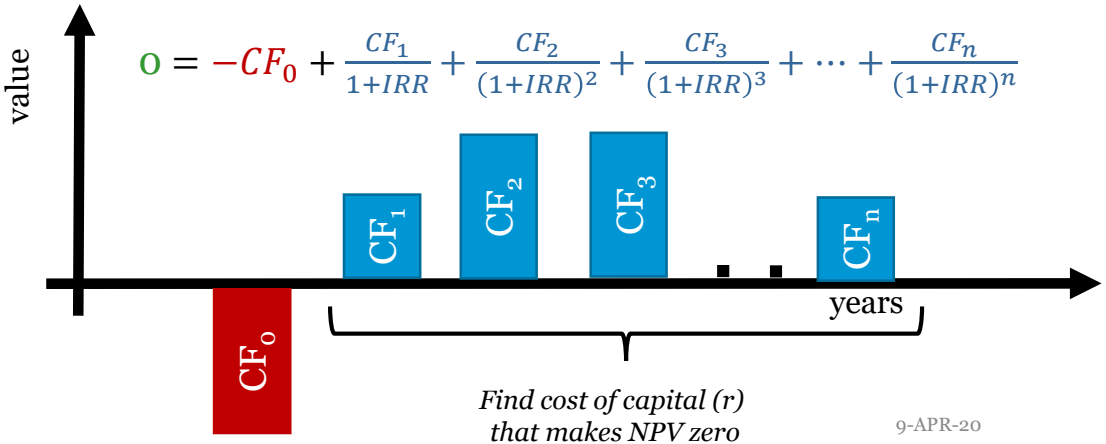


Entrepreneurial Perspective:

- Start-ups rely on long-term growth story for attracting equity investors, but high residual values signal overconfidence.
- Start-ups must provide convincing business case to support valuations.
- Start-ups face hen-egg problem. They need NPV to convince investors. But WACC depends on the capital sources they seek to convince.

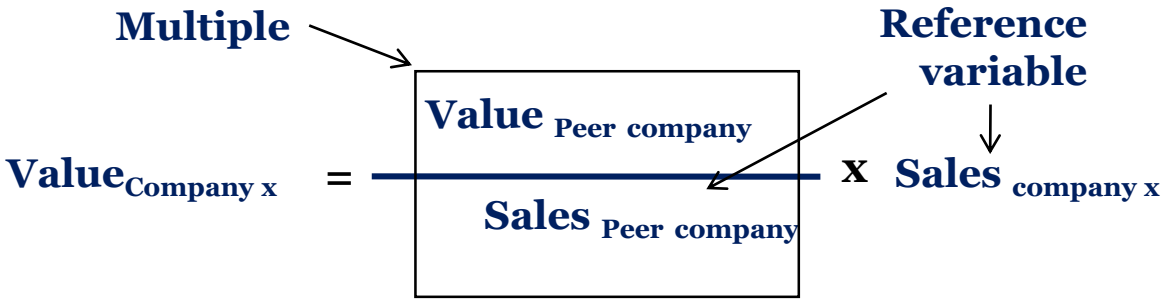
IRR
(for investments)

- The Internal Rate of Return (IRR) is the value for (r) that would make the NPV of an investment or company zero. An investment is profitable if (IRR) is higher than the cost of capital (WACC).
- IRR cannot be calculated with a formula but by setting NPV equation zero. Equations may have no, one or multiple mathematical solutions or IRRs. This is why NPV is a more reliable and easy to calculate metric.



Multiples valuation

- Identify comparable peer companies with similar business models and risk for which you know company value.
- Calculate company value from value ratios (i.e. company value / reference variable).
- Potential reference variables can be earnings, cash-flow, book values, sales EBIT, EBITDA.



Entrepreneurial Perspective:

- Valuation of start-ups with multiples is inevitably problematic because of comparability (comparing apples and oranges) reliability of reference variables for start-up and disregard of higher risk of start-up.
- Multiples valuation will often deviate substantially from DCF valuation

The following informational material was provided with the help of the IIB institute

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Univ. Prof. Dr. Jonas Puck and his team at the
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