Porters five forces

St.Galler Management model

Porters generic strategies

Make or buy -> graph

Marketing plan

Optimal consumption

Slide 172

Slide 178

Formulas / Requirments of elasticity

Utility graph

Slide 198

Slide 200,201

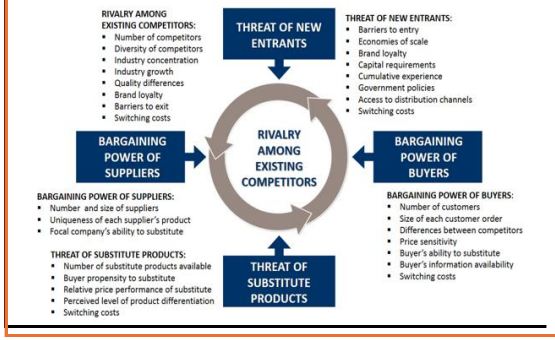
Income elasticity of demand, slide 233

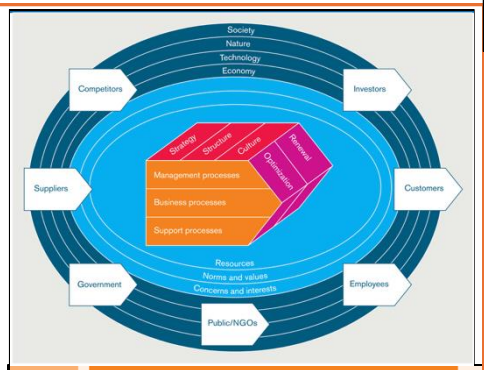
Cross price elasticity of demand

Slide 238, 239

Marketing 1

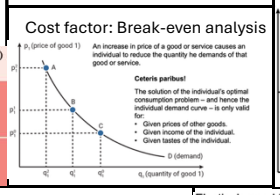
Porters5Forces:

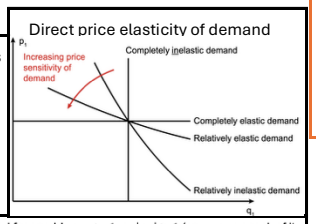


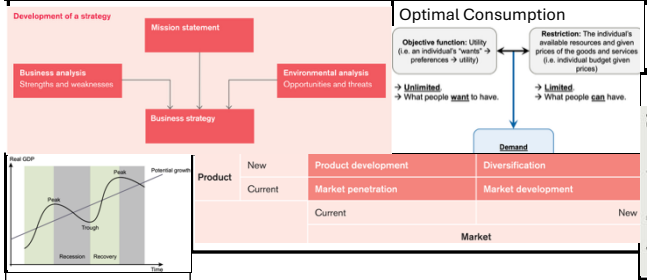


Element	Question
Valuable	It makes an important contribution to a requested product/service
Rare	There are few other companies that have the same competency.
Difficult or impossible to imitate	It would be difficult or take a long time for another company to develop this competency.
Non-replaceable	This competency cannot be replaced by any other competency.

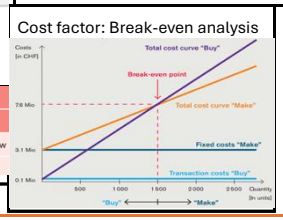
Structuring Forces: Strat 1







Elastic demand for good l: $\varepsilon_{lk} < -1$, or $|\varepsilon_{lk}| > 1$ (so we can speak of it being "more" elastic the larger the (absolute) value of the elasticity).
Inelastic demand for good l: $\varepsilon_{lk} > -1$, or $|\varepsilon_{lk}| < 1$ (so we can speak of it being "less" elastic the smaller the (absolute) value of the elasticity).



Elasticities

~~Suppose that OldtimerFirst~~'s data scientists estimated direct price elasticity of demand for this good to be -0.8. How many units could the firm expect to sell during an average month if it were to decrease the price it charges by 5% (assuming the estimate of direct price elasticity to be valid for such a large price change)? Round fractions of units down to the next full unit. **(1 point)**

a ↑ 4 %

↳ $\varepsilon = \frac{\Delta Q}{\Delta P} \rightarrow -0.8 = \frac{\Delta Q}{-0.05} \Rightarrow$

Units: 500 $-0.8 \cdot -0.05 = 4\%$

$500 \cdot 0.04 = 20$

$500 + 20 = 520$ units

By how many CHF would OldtimerFirst's expected revenue change during an average month if it were to decrease the price it charges as in a) above? **(2 points)**

Rev. before change: $800 \cdot 500 = 400'000$ CHF

Price after change: price change -0.05

$\Rightarrow 1 - 0.05$

0.95

$0.95 \cdot 800 = 760$ CHF

$760 \cdot 520 = 395'200$ CHF

Δ Revenue: $395'600 - 400'000 = -4800$ CHF

Direct Price Elasticity:

$$E_p = \frac{\frac{(Q_2 - Q_1)}{Q_1}}{\frac{(P_2 - P_1)}{P_1}}$$

Income elasticity of demand:

$$YED = \frac{\%\text{ Change in Quantity Demanded}}{\%\text{ Change in Income}}$$

Cross price elasticity of demand:

$$XED = \frac{\%\text{ Change in Quantity Demanded of Good A}}{\%\text{ Change in Price of Good B}}$$

Normal good(necessities):
Positiv income elasticity of demand (YED positive)
Inferior good(less demand with more income):
Negativ income elasticity (YED negativ)

Feature	Explanation (A strategy ...)	Chess analogy
Long term	... is oriented to the long term.	A game can last several hours.
Goal-oriented	... is focused on a specific goal.	Defeating the enemy
Situation analysis	... is based on an analysis of your own situation and the environment.	Position of own and opponent's pieces, own and opponent's strengths and weaknesses.
Decision	... is a decision from different possibilities.	Only one piece can be moved per turn, even though the player usually has a choice of several pieces.
Direction	... sets the overall direction and thus forms the basis for all subsequent decisions.	If the player chooses a more aggressive playing style, he must make every move aggressively.
Confidentiality	... is strictly confidential.	The player reveals his strategy only to his most trusted confidants
Resource Allocation	... allows for the goal-appropriate allocation of scarce resources.	The player concentrates his forces on the implementation of the strategy.
Resistance	... has a certain temporal stability but can be altered by changing conditions or incorrect assumptions.	As long as everything goes as planned, the player sticks to his strategy; otherwise he makes a change.

Return to the initial situation (i.e. price of CHF 800.- per unit and quantity demanded at this price during an average month of 500 units.). Suppose that a competitor of OldtimerFirst were to decrease its price for its replacement parts for the same classic automobiles from CHF 750.- per unit to CHF 675.- per unit. How many units would OldtimerFirst expect to sell during an average month after the change in price of its competitor assuming that cross price elasticity between the price set by its competitor and the quantity sold by OldtimerFirst to be 0.5? Round fractions of units down to the next full unit. **(1 point)**

$\varepsilon = \frac{\Delta Q_x}{\Delta P_y} \Rightarrow 0.5 = \frac{\Delta Q_x}{-10\%}$

$\Rightarrow \Delta Q_x = 0.5 \cdot +0.1 \Rightarrow \Delta Q_x = -5\%$

New units sold: $500 \cdot -0.05 = -25$

$\Rightarrow 475$ units

By how many CHF would OldtimerFirst's expected revenue change during an average month if its competitor were to move forward with its price decrease as in c) above and OldtimerFirst were to leave its price unchanged? **(2 points)**

$800 \cdot 500 = 400'000$ CHF, Rev

Afr change: $475 \cdot 800 = 380'000$ CHF

Rev change: $380'000 - 400'000 = -20'000$ CHF

Marketing 2:

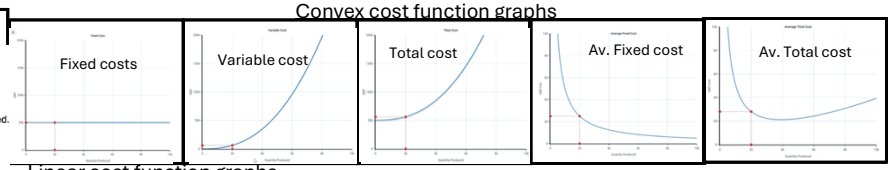
Cost oriented defintions

AFC: Average Fixed Cost
- Fixed cost per unit produced. $AFC = \frac{FC}{q}$, with q: quantity produced.
- Not defined for a quantity of zero.

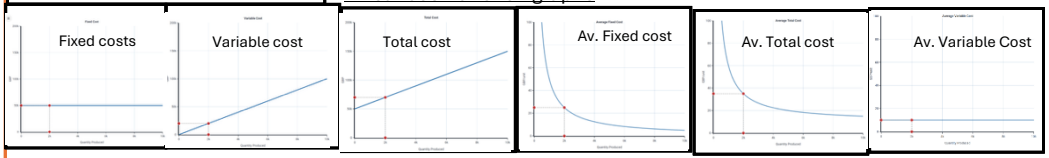
AVC: Average Variable Cost.
- Variable cost per unit produced. $AVC = \frac{VC}{q}$, with q: quantity produced.

ATC: Average Total Cost. $ATC = \frac{TC}{q}$, with q: quantity produced.
- Also: ATC = AFC + AVC ($\frac{TC}{q} = \frac{FC}{q} + \frac{VC}{q}$)

Convex cost function graphs



Linear cost function graphs



Distinguish b/w Cost Curves(Linear vs. Convex):

->Use linear Cost Curve: constant marginal costs
(Marginal Output=Marginal Cost)
-> Use Convex Cost Curve: assumed increasing marginal costs, each new unit more expensive than the last

Distinguish b/w Revenue Curves(Linear vs. Convex):

-> Use linear when: firm operates in perfect Competition
-> Use convex when: firm operates under monopolistic competition

Balance Sheet:

Balance sheet:
Information it provides, questions it helps to answer
-> Snapshot of the companies assets, liabilities and equity at a specific point in time.
-> Helps to understand the companies current assets and liabilities, how much inventory it holds. If the company is "healthy" or "unhealthy".

Income Statement:

Income Statement:
Information it provides, questions it helps to answer
-> Reasons for increases or decreases in the companies value over time, assets in and assets out.
-> Sources of revenues
-> Did the company make a profit or a loss over a specific period

Links b/w Income Statement and Balance sheet.
-> Linked through profit and retained earnings
-> Net profit for the period is added to the retained earnings account on the balance sheet. Retained earnings represent the accumulated profits over time that have not been paid out to shareholders as dividends
->Therefore, the profitability shown on the income statement explains the change in a company's net worth (equity) from one balance sheet period to the next.

Balance sheet Novartis:

Assets (What the Company Owns)

- **Non-current assets (Long-term):**
  - **Property, plant and equipment:** A manufacturing site in Stein, Switzerland, or a research and development facility in Cambridge, Massachusetts.
  - **Goodwill:** The premium paid to acquire another company, like The Medicines Company, over the value of its physical assets and patents.
  - **Intangible assets:** The legal patents protecting a key drug like *Cosentyx* or *Entresto* from generic competition.
- **Current assets (Short-term):**
  - **Inventories:** Stockpiles of raw materials needed for production or finished boxes of medication ready to be shipped to distributors.
  - **Trade receivables:** Money owed to Novartis by a large drug wholesaler for a shipment of medicines that has been delivered but not yet paid for.
  - **Cash and cash equivalents:** Money held in corporate bank accounts.

Liabilities (What the Company Owes)

- **Non-current liabilities (Long-term):**
  - **Financial debts:** A 10-year bond issued by Novartis to raise funds for its operations.
  - **Provisions and other non-current liabilities:** Money set aside for future obligations, such as long-term employee pension plans or environmental cleanup costs at former factory sites.
- **Current liabilities (Short-term):**
  - **Trade payables:** Money Novartis owes to a supplier for the raw materials used in manufacturing.
  - **Provisions and other current liabilities:** Money set aside for expected short-term obligations, such as rebates owed to healthcare providers or "Liabilities from unused flight documents" (a specific Novartis example).

Equity (The Owners' Stake)

- **Share capital:** The total nominal value of all Novartis shares that have been issued to investors.
- **Treasury shares:** Shares of its own stock that Novartis has bought back from the open market.
- **Retained earnings:** The cumulative net profits that the company has reinvested back into the business over many years, rather than paying them out as dividends.

Cashflow Statement:

Cashflow Statement:
Information it provides, questions it helps to answer.
-> Measure of a companies liquidity and shows the changes in its cash holdings
-> Business operating activities: all cash-related revenues and expenses from core business operations
-> Investing Activities: Shows cash changes resulting from the purchase(cash outflow) or sale (cash inflow) of fixed assets
-> Financing Activities: Details changes in cash from taking on debt or equity(financing) or paying it back (definancing)
-> Is the company generating cash from its day to day activities?
-> How much cash was raised from issuing stock or taking on new loans?
-> Did the company use its cash to pay back debt or pay dividends to shareholders?

The Scenario

Imagine you own a small delivery business in St. Gallen. You are considering buying a new, more fuel-efficient delivery van.

- **The Cost Today:** The new van costs **CHF 30,000** to buy right now.
- **The Future Benefit:** Because it's more efficient, you calculate that it will save you **CHF 12,000** in fuel and maintenance costs at the end of *each year* for the next 3 years.
- **The Discount Rate:** You know you could earn a 5% annual return by investing that CHF 30,000 elsewhere. So, your discount rate is 5%.

Step 1: Calculating the Present Value (PV)

Before you can make a decision, you need to know what those future savings of CHF 12,000 per year are worth *today*. This is where you use the **Present Value** calculation for each future cash inflow.

- **PV of Year 1 Savings:** CHF 12,000 / $(1 + 0.05)^1$ = **CHF 11,428.57**
- **PV of Year 2 Savings:** CHF 12,000 / $(1 + 0.05)^2$ = **CHF 10,884.35**
- **PV of Year 3 Savings:** CHF 12,000 / $(1 + 0.05)^3$ = **CHF 10,366.05**

Now, you sum these up to get the total PV of all the future benefits:
Total PV of Inflows = CHF 11,428.57 + CHF 10,884.35 + CHF 10,366.05 = **CHF 32,678.97**

So, the **Present Value (PV)** of all the future savings from the new van is **CHF 32,678.97**. This is the total benefit of the van, expressed in today's money.

The issue of new shares increases equity at the end of the year (or sometime during the year).
Calculate ROE using:

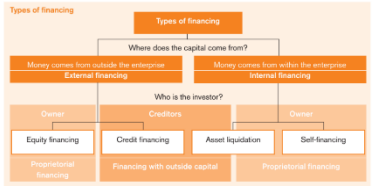
- Equity at the beginning of the year → no impact,
- Equity at the end of the year → impact
- Average equity → impact

Application: Factors influencing the discount rate

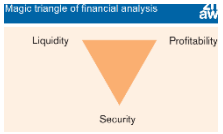
- Time horizon
  - In general (albeit not necessarily always so), the further into the future a cash flow occurs, the higher the discount rate.
  - (This is analogous to the term structure of interest rates. In «normal times», the short-term interest rate is lower than the long-term interest rate).
- Expected inflation
  - The higher the expected future inflation, the higher the discount rate.
- Risk of the cash flow
  - The higher the risk of the cash flow, the higher the discount rate.

Forms of credit financing	Type of borrowed capital	Description
Bank overdraft	Short term	The holder of a current account can bridge financial shortfalls through overdrawing his account up to a certain limit. This limit is set by the bank and ensures that the enterprise constantly remains liquid to enable payment of supplier invoices.
Bank credit/loan	Medium or long term	In practice, there is little difference between these two terms. A loan is simply considered a longer-term credit. The conditions are set out in a contract.
Mortgage loan	Long term	A mortgage loan is intended the financing property[1]. In this case, the property serves as collateral.
Bond	Long term	Bonds or debentures are securities dressed as debt obligations with cash benefits. The bond issuer agrees to provide the bond-holder with a (usually annual) interest payment based on the stated worth of the bond and to repay the full amount at the agreed deadline.

Types of financing: Overview



Magic triangle of financial analysis



Cost and benefit of liquidity

- Benefit: Ability to pay bills, flexibility.
- Cost: Opportunity cost of holding cash.
  - Cash yields no or only little return (e.g. interest earned on a bank account). With inflation, the value of cash declines over time.
  - Instead of holding cash, the same funds could, provided the firm has access to profitable projects / activities, be put to alternative uses that would yield higher returns. Holding cash foregoes these alternatives.

→ Target ratios, when applied blindly, can be dangerous.
→ Cash holdings should be managed to match the time structure of liquidity requirements from liabilities.
  - What is the timing of accounts payable vs. accounts receivable? How risky are the firm's accounts receivable (probabilities of default)? How easily can inventories be sold off?

Three basic possibilities:

- Use equity at the beginning of the year,
- use equity at the end of the year or
- use average equity

to calculate ROE.

Which one is best? They are all approximations. The problem is that, based solely on information from the balance sheet and income statement, we do not know anything about the true distribution of revenues and expenses over time.

Net Present Value

$$NPV = \sum_{t=0}^{N} \frac{CF_t}{(1+r)^t}$$

where:

- CF_t: Cash Flow at time t (the cash flow could be positive or negative at any time period).
- r: Discrete discount rate, i.e. the «opportunity cost of capital».
- N: Time at which the last cash flow occurs.

Decision rule:

- An investment should be accepted if the NPV is positive, and rejected otherwise.
- An investment with a higher NPV ranks higher than an investment with a lower NPV.

NPV > 0 -> Reject
NPV = 0 -> Indecisive decision
NPV < 0 -> Accept, depends on rank!

Project 1:

$$\frac{-20'000}{(1+0.25)^0} + \frac{30'000}{(1+0.25)^1} + \frac{-10'000}{(1+0.25)^2} + \frac{11'000}{(1+0.25)^3} + \frac{50'000}{(1+0.25)^4} + \frac{80'000}{(1+0.25)^5}$$

NPV = 1'414 → Accept

Project 2: NPV: −1 894,4 → Reject

Ranking criteria: highest NPV ↑

Risk factor: discount rate

if project 1 risk higher than project 2 then increase discount rate for project 1.

Investment appraisal: 3 Basic Steps

1. Forecast all relevant after-tax expected cash flows generated by the project.
2. Estimate the opportunity cost of capital – refer to capital markets.
   - Opportunity cost of capital is the (expected) rate of return given up by investing in a project.
3. Evaluation (3 methods presented here)
   - NPV (Net Present Value)
   - IRR (Internal Rate of Return)

Internal Rate of Return

- The Internal Rate of Return (IRR) and NPV are closely related.
- In fact, the IRR is "simply" the discount factor that would yield a NPV of zero, i.e. the r that solves $NPV = \sum_{t=0}^{N} \frac{CF_t}{(1+r)^t} = 0$.
- Note that, albeit being beneficial for communication, in general this equation can only be solved numerically (i.e. using numerical methods).

Liquidity ratio	General formula	Guide-line in %	Reason for guideline
	Liquidity Ratios		
Liquidity ratio I (cash ratio)	$\frac{\text{Cash and equivalents}}{\text{Short-term debt}} \cdot 100$	>20	Too many liquid assets[1] could mean better returns if invested, and lead to unnecessary capital costs.
Liquidity ratio II (quick ratio)	Cash and Equivalents + Accounts receivable / Short-term debt · 100	ca. 100	Liquid assets are available for the repayment of mature debt. The receipt of accounts receivable can be expected within 30 days.
Liquidity ratio III (current ratio)	$\frac{\text{Cash + accounts receivable + inventories}}{\text{Short-term debt}} \cdot 100$ = $\frac{\text{Current assets}}{\text{Short-term debt}} \cdot 100$	150–200	The sale of inventories is associated with greater uncertainties.

Profitability	General formula	Guideline
	Profitability ratios	
Return on equity	$\frac{\text{Profit}}{\text{Equity}} \cdot 100$	8% or more, depending on and taking into account the risk
Return on assets	$\frac{\text{Profit + interest}}{\text{Debt + equity}} \cdot 100$	Typically lower than ROE. 6% or more
Return on sales (operating margin)	$\frac{\text{Profit}}{\text{Revenue}} \cdot 100$	Commercial: 2.5% or more Industrial: 1.5% or more
EBIT margin	$\frac{\text{EBIT}^1}{\text{Revenue}} \cdot 100$	Depends on the industry Earnings before interest and taxes

Ratio	General formula	Guideline
	Security(leverage) ratios	
Equity ratio	$\frac{\text{Equity}}{\text{Total capital}} \cdot 100$	> 30%
Debt ratio	$\frac{\text{Debt}}{\text{Total capital}} \cdot 100$	< 70%
Debt-equity ratio	$\frac{\text{Debt}}{\text{Equity}} \cdot 100$	< 230%
Equity to asset ratio I	$\frac{\text{Equity}}{\text{Long-term assets}} \cdot 100$	90–120%
Equity to asset ratio II	$\frac{\text{Equity + long-term debt}}{\text{Long-term assets}} \cdot 100$	120–160%

Leverage Ranking:

Ratio	Firm A	Firm B
Debt Ratio	40%	65%
Equity Ratio	60%	35%

In Google Sheets exportieren

Based on these results:

- **Firm B has higher leverage** than Firm A because its Debt Ratio (65%) is higher.
- Correspondingly, Firm B's Equity Ratio (35%) is lower, which also indicates higher leverage.

Therefore, in a ranking from highest to lowest leverage, Firm B would be ranked first and Firm A second.

Leverage Ratios:

- **Debt Ratio**
- **Equity Ratio**
- **Debt-Equity Ratio**

3. Rank the Companies

Once you have the calculated percentages for each company, you can rank them from highest leverage to lowest leverage:

- **Using the Debt Ratio:** The company with the **highest** Debt Ratio has the highest leverage.
- **Using the Debt-Equity Ratio:** The company with the **highest** Debt-Equity Ratio has the highest leverage.
- **Using the Equity Ratio:** The company with the **lowest** Equity Ratio has the highest leverage (since a lower equity portion implies a higher debt portion)

- Increase in demand causes the market equilibrium quantity to shift to the right and the market equilibrium price to shift upwards.
- Increase in supply causes the market equilibrium price to shift downwards (to the left on a price axis) and the market equilibrium quantity to shift to the right.
- Decrease in demand causes the market equilibrium quantity to shift to the left and the market equilibrium price to shift downwards.
- Decrease in supply causes the market equilibrium price to shift to the right (upwards on a price axis) and the market equilibrium quantity to shift to the left.

Q. Given that demand increased and supply decreased, what happens in the new equilibrium price and quantity?

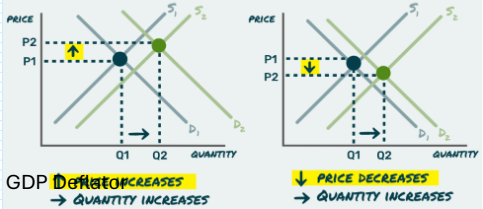
Two scenarios where demand increases and supply decreases

↑ PRICE INCREASES
→ QUANTITY INCREASES

↑ PRICE INCREASES
← QUANTITY DECREASES

Q. Given that demand and supply increased, what happens in the new equilibrium price and quantity?

Two scenarios where demand and supply increase



↑ PRICE INCREASES
→ QUANTITY INCREASES

↓ PRICE DECREASES
→ QUANTITY INCREASES

Strategy

Strategy	Description	Measures	Example "Satisfy Your Thirst!"
Differentiation/quality leadership	By implementing this strategy, the enterprise attempts to consistently set itself apart from the competition in order to shield itself from pricing pressure. The product must offer customers added value, in comparison with alternative products, thereby increasing customers' willingness to pay (be different than the competition).	Differentiation is achieved by ensuring that the product or service represents a certain uniqueness for the customer.	– Mineral water is sold in a specially shaped bottle. – Mineral water is enriched with fruit juice. – Despoist return guarantee for bottles of mineral water that are not sold at an event.
Cost leadership	By implementing this strategy, an enterprise tries to develop a cost advantage over the competition and thus either increase sales by offering a lower price in the market or retain a higher margin at the same price (produce more cheaply than the competition).	Identification and elimination of cost drivers in purchasing, manufacturing, sales, and service.	– Choose the cheapest packaging for the mineral water. – Produce only one type of mineral water and in only one size.
Focus strategy	By implementing this strategy, an enterprise tries to differentiate itself in a particular market niche or achieve cost leadership to achieve the goal more efficiently and effectively (meeting a very specific need).	A market niche can mean a particular customer group, a section of a product range, or a specific geographically based market.	– Mineral water is produced as a premium brand with just the right approach exclusively for the catering and hotel industry in the area. – An isotonic drink, especially adapted to the local conditions, is developed for the Ironman Triathlon in Hawaii.

1. Total Cost (TC)

- **Definition:** Total cost is the sum of all costs incurred by a company to produce a given quantity of output over a specific period. It includes both fixed costs and variable costs.
- **Components:**
  - **Fixed Costs (FC):** Costs that do not change with the level of output in the short run (e.g., rent for a factory, insurance premiums, depreciation of machinery). These are incurred even if production is zero.
  - **Variable Costs (VC):** Costs that change directly with the level of output (e.g., raw materials, direct labor, fuel for an airline per flight). Variable costs are zero if no output is produced.
- Formula: $TC = FC + VC$

2. Average Total Cost (ATC)

- **Definition:** Average total cost is the total cost per unit of output produced. It tells you the average expense incurred to produce each unit.
- Formula: $ATC = \frac{TC}{\text{Quantity (Q)}}$
- Alternative Formula: $ATC = \text{Average Fixed Cost (AFC)} + \text{Average Variable Cost (AVC)}$ (where $AFC = FC/Q$ and $AVC = VC/Q$)
- **Importance:** It helps firms determine the cost-effectiveness of their production at different output levels and is key for pricing decisions in the long run.

3. Profit-Maximizing Condition

- **Definition:** This is the fundamental rule that a firm follows to achieve the highest possible profit.
- **Condition:** A firm maximizes its profit by producing the quantity of output where **Marginal Revenue (MR) equals Marginal Cost (MC).**
- **Explanation:**
  - **Marginal Revenue (MR):** The additional revenue generated from selling one more unit of output.
  - **Marginal Cost (MC):** The additional cost incurred from producing one more unit of output.
  - **The Logic:**
    - If MR > MC: Producing one more unit adds more to revenue than to cost, so profit increases. The firm should produce more.
    - If MR < MC: Producing one more unit adds more to cost than to revenue, so profit decreases. The firm should produce less.
    - When MR = MC: The firm has found the optimal output level where producing any more or any less would reduce total profit.
- **Where to find it:** This is a core concept in the "Marketing II" section (e.g., page 214) of your "BADM Repetition (1).pdf".

4. Long-Term Price Floor

- **Definition:** The long-term price floor is the **minimum price a firm must receive per unit to cover all its costs (both fixed and variable) in the long run.** If the market price falls below this, the firm will eventually exit the industry.
- **Condition:** Price = Minimum Average Total Cost (ATC)
- **Explanation:** In the long run, all costs are variable. If a firm cannot cover its average total cost, it is incurring an economic loss. Firms will not sustain losses indefinitely, so they will exit the market if prices remain below their minimum ATC.

5. Short-Term Price Floor

- **Definition:** The short-term price floor is the **minimum price a firm must receive per unit to cover its *variable* costs** in the short run. A firm might continue to operate in the short term even if the price is below its average total cost, as long as it covers its variable costs and contributes something towards its fixed costs.
- **Condition:** Price = Minimum Average Variable Cost (AVC)
- **Explanation:** In the short run, fixed costs are "sunk" and must be paid regardless of whether production occurs. As long as the price per unit covers the variable cost of producing that unit, the firm is generating some money to help pay for its fixed costs. If the price falls below the AVC, the firm isn't even covering the direct costs of production for each unit, and it would lose less money by shutting down immediately. This is often referred to as the "shutdown point" in the short run.

Present Value:

Your course material illustrates Present Value by showing how a future amount of money, say CHF 100 received in 5 years, is worth less today when discounted at a certain interest rate. For instance, if the interest rate is 5% p.a., CHF 100 received in 5 years has a present value of:

$$PV = \frac{100}{(1+0.05)^5} \approx \text{CHF } 78.35$$

This means that CHF 78.35 invested today at a 5% annual return would grow to CHF 100 in five years. So, getting CHF 100 in five years is equivalent to having CHF 78.35 today.

Why is it important?

Money has a "time value." A dollar today is worth more than a dollar tomorrow due to several factors:

1. **Earning potential (Opportunity Cost):** You could invest that dollar today and earn interest or returns.
2. **Inflation:** The purchasing power of money decreases over time due to rising prices.
3. **Risk/Uncertainty:** There's always a risk that you might not receive the future sum.

Location of an enterprise

Location Factor	Characteristics
Work → Exercise 1 → P.463 Distinction between gross and net wages → P.72 Stakeholder: employees	– Labor costs (including benefit costs![1]) – Sufficiently large pool of workers – Availability of qualified personnel (through quality training systems and free movement of labor CH-EU) – Work ethic (e.g., diligence, discipline, flexibility) – Good labor relations[2] (few strikes)
Land → P.61 Environmental sphere Nature	– Availability of land (few restrictions through building and zoning regulations and cheap land prices) – Materials and resources (availability, transportability) – Climate
Capital → P.23 Factors of Production	– Bank loans (functioning banking system) – Property (availability of the right size, features, and price)

Location Factor	Characteristics
Government → Exercise 2 → P.74 Stakeholder state → P.66 Exchange rates	– The amount of state taxes and fees (tax competition) – Regulation (e.g., environmental regulations) – Political stability – Legal security (guarantee of property, **intellectual property protection**[1], protection of physical well-being) – Ease of administration (no corruption, quick and non-bureaucratic approval process) – Economic stability (e.g., stable exchange rates[2], stable interest rates) – Infrastructure (telecommunications, transportation, energy) – Quality of life (e.g., cultural activities, healthy environment) – Educational system (e.g., quality of schools, availability of international schools) – Flexibility of labor law (e.g., notice periods)
Market	– Proximity to the customer/market (transportation costs, perishability of products) – Access to foreign markets (CH-EU Free Trade Agreement)
Proximity/distance of other enterprises → P.135 Individual forms of cooperation	– **Cluster**[2] (e.g., technology parks) – Competition

$$\text{Inflation Rate (Year X)} = \left(\frac{\text{GDP Deflator (Year X)} - \text{GDP Deflator (Year X-1)}}{\text{GDP Deflator (Year X-1)}}\right) \times 100\%$$

Example:

Suppose we have the following GDP Deflator values:

- GDP Deflator for Year 2022 (Year X-1): 115.0
- GDP Deflator for Year 2023 (Year X): 119.3

(Assume the base year for the GDP Deflator is 2020, where GDP Deflator = 100).

Step-by-Step Calculation:

1. Identify the GDP Deflator for the current year (Year X): 119.3
2. Identify the GDP Deflator for the previous year (Year X-1): 115.0
3. Plug these values into the formula:

$$\text{Inflation Rate (2023)} = \left(\frac{119.3 - 115.0}{115.0}\right) \times 100\%$$

4. Perform the subtraction in the numerator:

$$\text{Inflation Rate (2023)} = \left(\frac{4.3}{115.0}\right) \times 100\%$$

5. Perform the division:

$$\text{Inflation Rate (2023)} = (0.03739) \times 100\%$$

6. Multiply by 100% to get the percentage:

$$\text{Inflation Rate (2023)} \approx 3.74\%$$

2 % Inflation level:

Reasons for our inflation target of 2%

An inflation rate of 2% is low enough for the economy to fully reap the benefits of price stability while also underlining the ECB's commitment to the following.

- **Providing a safety margin against the risk of deflation** and making sure monetary policy remains effective when it needs to respond to inflation that is too low. Having a margin against deflation is important because there are limits to how far interest rates can be cut. In a deflationary environment monetary policy may not be able to sufficiently stimulate the economy by using its interest rate instrument. This makes it more difficult for monetary policy to fight deflation than to fight inflation.
- **Providing a sufficient margin** to allow for:

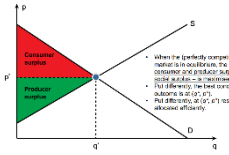
  (1) a smoother adjustment of macroeconomic imbalances across euro area countries, avoiding inflation in individual countries persistently falling into negative territory;
  (2) downward wage rigidities, which risk raising unemployment excessively; and
  (3) a positive measurement bias in the price index, which could imply that the true level of inflation is lower than the measured level.

Avoiding inflation that is too high or too low

We consider negative and positive deviations from our 2% inflation target to be equally undesirable. This target provides a clear anchor for inflation expectations, which is essential for maintaining price stability.

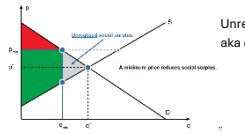
When the economy is operating close to the lower bound on nominal interest rates, it requires especially forceful or persistent monetary policy action to prevent negative deviations from the inflation target from becoming entrenched.

Gains from Trade



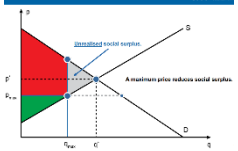
Example: Milk, Eggs

Effects of a minimum price
Consumer and producer surplus



Unrealised social surplus, aka dead weight loss

Effects of a maximum price
Consumer and producer surplus



Example: Rent

Establishing cooperation through rules

- Formal rules
  - Design contracts that govern the exchange, i.e. that describe the terms of the exchange in (sufficient) detail ("complete contracts").
  - Threat of sanctions if the contract is not honoured.
  - The legal system facilitates the design of contracts and ensures enforcement.
  - Important caveats:
    - It must be possible for the parties to reach an agreement and to specify the terms of the contract in sufficient detail.
    - For the threat of sanctions to work, (1) a breach of the contract must be detectable and (2) the terms of the contract must be enforceable.
- Repeated interaction
  - «Tit for tat» strategy ("an eye for an eye, a tooth for a tooth"), i.e. cooperate as long as the other player cooperates but stop cooperation for ever as soon as the other player fails to cooperate.
  - This works as long as the expected future gains from cooperation outweigh the one-off gains from defecting (i.e. not cooperating).
  - Important caveat: «End of game» problem.
    - What happens in the last game?
    - Backwards induction implies that cooperation completely breaks down.

Make or buy

- Make: In-house production.
- Buy: Procurement from external suppliers.
- The make or by decision has to be made for each part of the value chain.

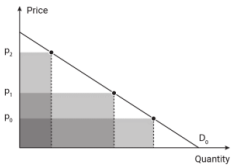
Make or buy decision factors

- Competence factor: Are core competencies required?
- Quality factor: Can the quality of an external supplier be trusted?
  - And vice versa: Is the firm capable of producing the quality required?
- Dependence factor: Dependency on outside suppliers?
  - How many (potential) suppliers exist? Market structure?
- Capacity factor: How well is the firm's own capacity utilised?
  - Fixed cost → and average fixed cost?
- Cost factor (→ next slide)
  - Risk of hold-up?

Establishing cooperation through informal rules

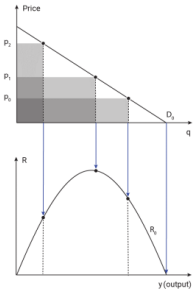
- Norms and values, i.e. socially accepted standards of behaviour.
- «Do you trust a handshake?»

c) In your figure of demand from b) above, graphically depict the revenue of KLM for a low, a medium and a high quantity of tickets sold.



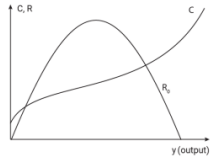
Note: In the graph above, the index 0 has no real meaning yet.

d) Based on your findings in c) above, draw a new figure (best to do so below your figure from c) above) and depict the revenue function of KLM. Don't forget to label the axes.



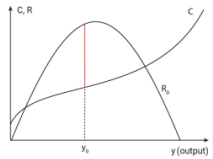
Note: In the graph above, the index 0 has no real meaning yet (except for p_0 of course).

e) In your figure from d) above, depict the cost function of KLM.



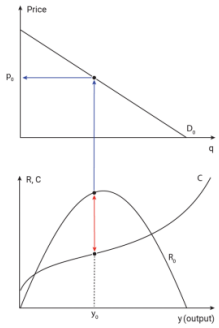
Note: In the graph above, the index 0 has no real meaning yet.

f) Based on your answers from d) and e) above, where is the profit maximising quantity of tickets sold by KLM?



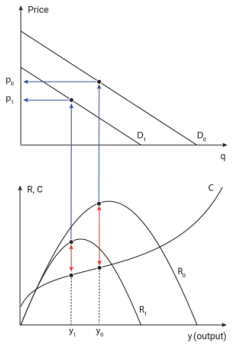
Note: In the graph above, the index 0 has no real meaning yet.

g) In your corresponding figure from above, depict the price for a ticket set by KLM.

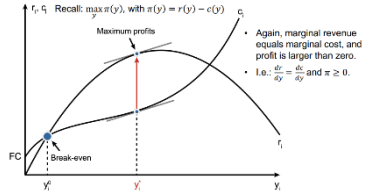


Note: In the graphs above, the index 0 has no real meaning yet.

h) Now, suppose a new competitor entered the market for air travel between Rome and Vancouver. Which of your graphs above would change, and how would they change?

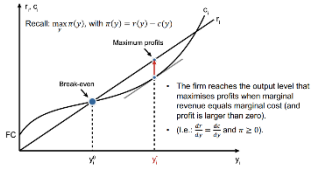


Case 2: Profit maximisation of a firm under monopolistic competition

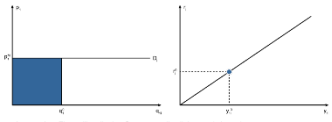


Monopolistic Competition

Case 1: Profit maximisation of a firm in a perfectly competitive market



Case 1: Revenue of a firm in a perfectly competitive market



The logic of the solution here is exactly the same as in 2. above, except that the demand curve faced by easyJet is horizontal at the market price and, hence, the revenue function of easyJet is linear.

Stockholm Wings: Income Statement	
Profit / loss from operating activities	1400
Interest expenses	170
Profit / loss before income taxes	1230
Income taxes	123
Net profit / loss	**1107**

Island Air: Income Statement	
Profit / loss from operating activities	1200
Interest expenses	600
Profit / loss before income taxes	600
Income taxes	60
Net profit / loss	**540**

Stockholm Wings: Balance Sheet	
Aircraft	5'768
Repairable spare parts for aircraft	642
Property, plant and other equipment	924
Total Non-current assets	**7'334**
Cash and cash equivalents	189
Accounts receivable	284
Total Current Assets	**473**
Total Assets	**7'807**
Issued capital	3'500
Retained earnings	1'500
Net profit / loss	1'107
Shareholders' equity	**6'107**
Short-term debt Bank A	350
Long-term debt Bank B	1'350
Total Liabilities	**1'700**
Total shareholders' equity and liabilities	**7'807**

Island Air: Balance Sheet	
Aircraft	6'353
Repairable spare parts for aircraft	538
Property, plant and other equipment	1'124
Total Non-current assets	**8'015**
Cash and cash equivalents	232
Accounts receivable	343
Total Current Assets	**575**
Total Assets	**8'590**
Issued capital	2'200
Retained earnings	850
Net profit / loss	540
Shareholders' equity	**3'590**
Short-term debt Bank A	372
Long-term debt Bank B	4'628
Total Liabilities	**5'000**
Total shareholders' equity and liabilities	**8'590**

Step 1: Calculate Shareholders' Equity at the Beginning of the Year
(Assuming no dividends were paid, which is consistent with the ROE beginning-of-year solutions in the provided document)

- Stockholm Wings:
  - Shareholders' Equity (Beginning) = Shareholders' Equity (End) - Net profit / loss
  - Shareholders' Equity (Beginning) = $6107 - 1107 = 5000$ USD
- Island Air:
  - Shareholders' Equity (Beginning) = Shareholders' Equity (End) - Net profit / loss - Issued new equity
  - Shareholders' Equity (Beginning) = $3590 - 540 - 800 = 2250$ USD

Step 2: Infer Total Assets at the Beginning of the Year
(Assuming Total Liabilities remained constant from the end of the previous year to the beginning of the current year)

- Stockholm Wings:
  - Total Assets (Beginning) = Total Liabilities (End) + Shareholders' Equity (Beginning)
  - Total Assets (Beginning) = $1700 + 5000 = 6700$ USD
- Island Air:
  - Total Assets (Beginning) = Total Liabilities (End) + Shareholders' Equity (Beginning)
  - Total Assets (Beginning) = $5000 + 2250 = 7250$ USD

Liq. ratio 1 (Stockholm): $\frac{189}{350} \cdot 100 = 54$

Liq.-ratio 2 (Island): $\frac{232}{372} \cdot 100 = 62,836$

liq ratio 1: (Stockholm) $\frac{189 + 284}{350} \cdot 100 = 135,14$

liq ratio 1: (island) $\frac{232 + 343}{372} \cdot 100 = 154,56$

Stock: Equity ratio: $\frac{6107}{7807} \cdot 100 = 78\%$

Island: $\frac{3590}{8590} \cdot 100 = 41,79\%$

Stockholm: $\frac{1107}{6107} \cdot 100 = 18,12$

island: $\frac{540}{3590} \cdot 100 = 15,04$

f) Calculate the return on assets (ROA) for the two companies using equity at the end of the year (rounded to two digits). (2 points).

For this, we use the `Net Profit + Interest Expenses` as the numerator and `Total Assets (End)` as the denominator.

- Stockholm Wings:

$$\text{ROA} = \frac{1107 + 170}{7807} \times 100 = \frac{1277}{7807} \times 100 \approx \mathbf{16.36\%}$$

- Island Air:

$$\text{ROA} = \frac{540 + 600}{8590} \times 100 = \frac{1140}{8590} \times 100 \approx \mathbf{13.27\%}$$

g) Calculate the return on assets (ROA) for the two companies using equity at the beginning of the year (rounded to two digits). (2 points).

For this, we use the `Net Profit + Interest Expenses` as the numerator and our inferred Total Assets (Beginning) as the denominator.

- Stockholm Wings:

$$\text{ROA} = \frac{1107 + 170}{6700} \times 100 = \frac{1277}{6700} \times 100 \approx \mathbf{19.06\%}$$

- Island Air:

$$\text{ROA} = \frac{540 + 600}{7250} \times 100 = \frac{1140}{7250} \times 100 \approx \mathbf{15.72\%}$$

2. Investment Appraisal (total 12 points)

U.S. Virgin Islands based airline Coastal Air Transport provides services to several Caribbean destinations. Suppose Costal Air Transport were evaluating the possibility to temporarily serve four new potential destinations that all require the company to lease new aircraft, hire pilots, market the new destination, etc.
As a member of senior management you receive the following information (where NPV stands for "Net Present Value"):

	Initial investment for setting up the route	NPV	Discount factor
Destination 1	120	1'300	10%
Destination 2	160	1'800	12%
Destination 3	215	1'500	15%

All numbers measured in 1'000 USD.

Destination 4: Projected Cash Flows

	2022	2023	2024	2025	2026	2027	2028
Cash in	35	240	620	950	1'050	1'150	1'050
Cash out	265	315	350	350	350	350	350

All numbers measured in 1'000 USD.

Destination 4: Projected Cash Flows (all numbers in 1'000 USD)

Year	Cash In	Cash Out	Net Cash Flow (Cash In - Cash Out)	Present Value Calculation @ 12%	Present Value
Initial Investment (Year 0)			-230 (265 cash out - 35 cash in)	$-230/(1+0.12)^0$	-230.00
2023 (Year 1)	240	315	-75	$-75/(1+0.12)^1$	-66.96
2024 (Year 2)	620	350	270	$-270/(1+0.12)^2$	215.24
2025 (Year 3)	950	350	600	$-600/(1+0.12)^3$	427.07
2026 (Year 4)	1'050	350	700	$-700/(1+0.12)^4$	444.86
2027 (Year 5)	1'150	350	800	$-800/(1+0.12)^5$	453.94
2028 (Year 6)	1'050	350	700	$-700/(1+0.12)^6$	354.64

In Google Sheets exportieren

Calculation of Net Present Value (NPV):

NPV is the sum of all Present Values:

NPV = -230.00 - 66.96 + 215.24 + 427.07 + 444.86 + 453.94 + 354.64
NPV Destination 4 = 1,598.79 (in 1'000 USD)

Market entry & exit costs

Market entry and exit costs are significant factors influencing competition within an industry.

Market Entry Costs are barriers new firms face when trying to enter a market. These can include:

- **High economies of scale** relative to market demand, meaning only a few large firms can operate efficiently.
- **Preferential access to resources** by existing firms.
- **Cost advantages from learning curves** developed by incumbents.
- **Proprietary technology and intellectual property rights** held by existing players.
- **Government regulations** that favor established firms or create complex hurdles.
- Strong **reputation and brand loyalty** of existing companies.
- **High switching costs** for consumers, making it difficult for them to change suppliers.

Market Exit Costs are expenses incurred by firms when leaving a market. These can include:

- **High investments in non-transferable, fixed assets** that cannot be easily sold or repurposed.
- **Contractual obligations** with suppliers and customers that carry penalties for early termination.

Overall, both high entry and exit costs tend to **reduce competition** in a market, allowing existing firms to retain **economic profits** that might otherwise be eroded by new entrants. High exit costs can also signal a firm's commitment to tough competition, further deterring new players.