

# From the budget to the investment

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# INTRODUCTION

Understanding the principles of finance management is a key to the success of a company. It is important to know about the relationship between risk assessment and cash flow, and know the principles of budgeting and cash management. Financial management is a very complex area of business. That is the reason why I have organized this information into several parts.

The first part describes the basics of budgeting; this also includes an introduction to the management of budgets and performance.

The second part is about the principles of cash management and cash flow management, the handling of investments and available cash.

The third part is the most important in this book. Finance management is more than just understanding the sources of funds. It is important to know how you can affect the cash flow with debt financing and understand the meaning of the numbers of the reports and to analyze the impact.

Part four describes the term of the investment using formulas and explains how the numbers or the Net Present Value Internal Rate of Return. If you are not familiar with these numbers, it is easy to understand and you will see the influence of these values on your business. In this part, there is also an introduction to corporate restructuring and anti- takeover measures

In the fifth part of the overall risk and the nature of the risk is described. You get a view of a WBS (Work Breakdown Structure) and a description of the tools and techniques for risk assessment.

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# Part 1 Budget Management

## 1 The basics of budgeting

Budgeting is all about the planning and management of capital flows. This gives you an overview of the financial situation of the company or for private events such as your household. The budget is a document of the actual master scheduler. The role of budgeting consists of:

- Planning to ensure an enduring profitable growth
- Allocation of resources to achieve the goals
- To achieve control of resources to the targets

The benefits are the most accurate budget. This is essential to

- Improve the financial performance
- Guarantee a sufficient cash flows ( support the solvency )
- Cover the expenses by the income ( compensation of revenue and expenditure )

The purposes of a balanced budget are

- Increase in sales
- Variation of income (various sources )
- Capacity building indirectly
- Capacity building directly ( new machines )

### 1.1 Essential elements for creating a successful budget

There are five elements that are needed when creating a budget

- Budget afflictions
- Successful budget formula
- Building on the assumptions
- Relevance of control
- Net income vs. cash

#### 1.1.1 Budget traps

Take care of the five listed traps when you wish to make a successful budget.

Budget fear

- Problem fear of numbers, where performance is measured. These figures are measurable and verifiable.



- Solution people it is not the company that you are doing it is for other people

#### Boccia fallacy

- Problem make a solid assumption about the size of the future and the budget of this size to adapt
- Solution jump ball technology , the individual elements of the budget are as flexible elements to be considered , which can no longer appear

#### Edifice Complex, the bigger the better

- Problem have the conviction that a budget is a monument
- Solution from the bottom to the top of the budget work ( over the proceeds ,costs )

#### Recipe relapse

- Problem based on overconfidence. They know what parts the budget is, but do not take the time to add all the necessary parts.
- Solution Consider the budget , part for part

#### Fully loaded

- Problem all costs weighing on your shoulders
- Solution look to get the effects of direct / fixed

### 1.1.2 The successful budget formula

A proper budget should be prepared taking into account the following factors

- Validity of the assumptions
- Accuracy of forecasts
- Answerable purpose recognition of a budget
- Ability to respond to changes
- Controllability of a budget

### 1.1.3 Building on the assumptions

Be careful that the forecasts are as accurate as possible within a budget.

Use the following sources to create an accurate budget.

- Internal budgets of the past
-

- Internal existing budgets
- Internal budgets based on future assumptions
- External budgets from the past
- External current existing budgets
- External budget based on future assumptions

#### 1.1.4 Relevance of control

The following items are part of an effective control over your budgeting

- Financial and sales planning
- Efficient and effective management
- Alignment and focusing of business

#### 1.1.5 Net income vs. cash

Factors that may cause a difference between the net profit and loss account and the cash balance

- Buying on credit            you must pay later
- Sale on credit            you will get you the money later
- Depreciation            you not spend any money for keeping records
- Taking the inventory    may need to apply more / less material

#### 1.2 Steps and planning a budget

To obtain an accurate budget, the following steps are necessary

- Development income / expense forecast
- Converting the forecast in planning ( transformation )
- Monitoring actual performance vs. budget (tracking)

The advantages of the planning of the budget process are :

- The operational strategy = turning strategy into operation
- Coordinating sales and production
- Identifying and solving problems profit
- Establishing performance standards

##### 1.2.1 Allocation of funds

- Direct sales rose            =    advertising, sales expenses, new hardware
- Directly with sales        =    change in sales, the size vary the production crew
- Construction  
indirect power            =    more staff, no directly increase

- Capacity building  
Directly = new store (big investment) refer to the quantities sold

### 1.3 Types of budgets

The most common types of budgets are listed below:

- To plan sales and production sites to direct budget costs
- Departmental budgets to plan and control the expenses
- Investment budget to identify long-term needs and to fund

#### 1.3.1 Sales and production budget

These provide information for

- Sales forecasting, distribution costs and estimated volume
- Production costs, material costs, direct labor costs

The production box are related to the direct costs

#### 1.3.2 Head of department budgets

- Difference of sales and production departments to develop approaches
- Zero budgeting (budget from the ground)
- Overhead Budget (historical budget)

#### 1.3.3 Investment Budget (long term)

This budget describes the nature of the expenditure. If you are planning for example, to invest in vehicles and buildings, your funds will be set for a long time.

### 1.4 Policy of the budget plan

In this section, the following points will be discussed, which are essential for the success of a budget

- What is important to know concerning the overview? Budget philosophy and approach to value creation, operational support and end results
- As the requirements vary in accuracy between the individual companies, the calculation is done in terms of sales, cost estimates and geographical areas on productive units, offices and product lines
- The prevention of street fights, different tactics budget, a necessary margin (bottom up), from top to bottom and the prevention of

imagination structures

- The Anticipated from a safe distance is also important (% which can be reduced without compromising the budget).

#### 1.4.1 Socializing, contacts

Process safety review concerning important elements with other executives, including also

- Maintain contact with peers
- Discussions with your staff
- Maintaining contact with your boss
- Support the budget plans (Keep out of rumor)
- Check whether additional resources are required, before the budget is prepared

Your options

- Prepare yourself
- Presenting your proposals
- Revision of the budget interface with other budget holders

#### 1.4.2 Understand and comply with budgets

These activities will help you to discover deviations from budgets and to take appropriate measures

- Generate revenues in steps, monitoring of expenditure
- Using variance reports for monitoring and compliance budgets
- Variance reports contain 3 columns (budget, value, difference)
- Monitor the process on a regular basis

#### 1.4.3 Addressing revenue variances

There are several reasons for revenue variances

- Deviations are small and show no clear pattern
- Revenues are significantly higher than budgeted
- Sales caused by the competition
- Decline significantly and cannot be restored quickly

Simply observe further

- Revenue (continued) slightly up / down, no particular pattern
  - A major campaign significantly boosts sales (check capacity and cash flow)
  - A slump in the client industry brings revenue decline (revise any associated circuit boards)
-

- cheaper alternatives bring revenue decline (consider lowering the price)

#### 1.4.4 Cost control

Effective governance helps to detect differences in the costs. This is important because expenses can vary by many influences.

- Prices change according to the budget set
- Quantities purchased differ from projected amounts
- Goods or services are faster / purchased later than planned
- Price (discounts, alternative suppliers)
- Volume (smaller amounts)
- Timing (purchase, if necessary, low inventories)

#### 1.4.5 Example of a budget

<i>Position</i>	<i>Expenses planned</i>	<i>Expenses real</i>	<i>Difference</i>	<i>Revenues planned</i>	<i>Revenues real</i>	<i>Difference</i>
Work	20'000'000	20'000'000	0			
Material	15'000'000	12'000'000	-3'000'000			
Energy	5'000'000	6'000'000	+1'000'000			
Rent	3'000'000	2'500'000	-500'000			
Marketing	5'000'000	4'000'000	-1'000'000			
Invest	15'000'000	12'000'000	-3'000'000			
Int. paid	2'000'000	2'000'000	0			
Dividende	2'000'000	1'500'000	-500'000			
Sales				60'000'000	55'000'000	-5'000'000
Interest				3'000'000	3'000'000	0
<b>Total</b>	<b>67'000'000</b>	<b>60'000'000</b>		<b>63'000'000</b>	<b>58'000'000</b>	

This table shows , the biggest problem is not the cost but the revenue fell by 10%.

#### **Consequences:**

- Increase sales by at least 10 %
- Increase the price of the products
- Lower labor costs
- Take on a new loan from the bank , or if this is not possible , issue a bond of the company

If you issue a bond , then you need not only to calculate the cost for the issue , but also the annual interest payments on the bonds considered

## 2. Mini budget

Creating an effective budget is a very complex and difficult task . Therefore, it is easier to design and understand a budget for smaller and simpler accounts. These includes

- Production Budget
- Materials and purchases
- Labor Budget

### 2.1 Preparation of a budget

The production budge is to forecast and monitor the revenues generated by the sale activities. The factors for this kind of budget are listed below:

- products
- price
- quantity
- turnover
- total revenue

#### 2.1.1 The steps to create a production budget

- List of all items that are sold by the business create
- The unit price for each item set
- Estimation of the amount of the single items
- Calculation of the revenue generated by each element
- Aggregate turnover

##### 2.1.1.1 Example of a production budget

<i>Article</i>	<i>Product A</i>	<i>Product B</i>	<i>Product C</i>	<i>Total Sales</i>
<b>Price</b>	50	70	90	
<b>Quantity</b>	100'000	80'000	30'000	
<b>Revenue</b>	5'000'000	5'600'000	2'700'000	
<b>Total</b>				<b>13'300'000</b>
<b>Reven ue</b>				

### 2.2 Materials and purchases

This budget shows the amount of materials you need to create the production. The factors you need to consider are:

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- The amount
- The standard cost (on average )
- The material costs

2.2.1 The steps to create a material and production budgets

- Identification of the substances
- Determining the amount
- Determination of the standard cost for each ingredient
- Calculating the cost of materials for each ingredient (multiply the amount by the standard cost)
- Calculation of total material costs

The required material is the material (volume ) that you need to produce an item .

- Use the material and production costs for an item
- Use keep the production budget for information on the number of elements

Go for the calculation of the total cost as follows:

**(Product A \* standard costs for each product)**

- The sum of all products is the total cost
- Check the inventory , you get to deduct the amount you need
- If you need additional material, add the required minimum amount to the total cost.

2.2.1.1 Example of a material purchase budget

<i>Production</i>	<i>Product A</i>	<i>Product B</i>	<i>Product C</i>	<i>Total Cost</i>
<b>Quantity</b>	100000	80000	30000	
<b>Standardcost</b>	35.00	50.00	70.00	
<b>Materialcost</b>	3'500'000	4'000'000	2'100'000	<b>9'600'000</b>

2.3 The working budget

This budget shows you how expensive it is to produce the item with the worker in your organization. The following factors are important:

- Time taken for each activity
- The rate per hour

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### 2.3.1 The steps for calculating the cost of labor

- Determination of activity
- Determining the standard time for each activity
- Determination of the hourly rate for the time spent
- Calculation of labor costs ( multiply standard time x hourly rate )
- Calculation of total labor costs

#### 2.3.1.1 Example of a working budget

<i>Production</i>	<i>Product A</i>	<i>Product B</i>	<i>Product C</i>	<i>Total Cost</i>
<b>Quantity</b>	40'000	17'500	5'000	
<b>Time/minute</b>	30	40	60	
<b>Hourly rate</b>	40.00	60.00	100.00	
<b>Effective Cost</b>	20.00	40.00	100.00	
<b>Product/Cost</b>	800'000	700'000	500'000	
<b>Total Cost</b>				2'000'000



### 3. The administrative budget

This type of budget is special. The understanding of this budget is important to the success because:

- It will help in the development of a clear and sufficiently detailed budget
- It will help you to understand the flow of capital and the cost structure of the company

#### 3.1 Components of an administrative budget

Operating statement

The profit and loss account consists of three parts

- turnover
- direct costs
- fixed costs

##### 3.1.1 Example of an operating budget

<i>Operation</i>	<i>Product A</i>	<i>Product B</i>	<i>Product C</i>
<b>Revenue</b>	5'000'000	5'600'000	2'700'000
<b>Direct Cost</b>	3'500'000	4'000'000	2'100'000
<b>Gross Revenue</b>	1'500'000	1'600'000	600'000
<b>Fix Cost</b>	800'000	700'000	500'000
<b>Net Profit</b>	<b>700'000</b>	<b>900'000</b>	<b>100'000</b>

From these numbers, you get the following results:

- Gross profit for the difference between the revenue and the direct costs
- The net gain is the difference between gross profit and the fixed costs
- Administration budget predicts and controls the flow of capital and is a statement for the future

##### 3.1.2. Direct vs. fixed costs

To illustrate the difference between direct costs and fixed costs, a preliminary statement

- Direct costs change in proportion to sales (material)
- Fixed costs remain constant regardless of income (work, interest)

### 3.2 Marketing and the budgeting process

The costs of marketing are part of the budgeting and the cost will depend on the following factors:

- Customer survey, what customers think about the product
- Attitudes and needs, what kind of product the customer preference
- Demographic Survey Age, habit
- Product samples for the introduction of a new product
- Costs arising from test sales with the introduction of new products

#### 3.2.1 Product samples

So you can see if the product:

- Covering market requirements
- Fundamental to customer satisfaction is
- Customers led to the decision to purchase

#### 3.2.2 Test marketing

The product is sold at different prices in different locations. To help you determine the following:

- What type of customer buys the product
- What sales you can expect when you sell at a certain price
- What are the customers expect from the product
- What is your brand image in the market
- How will your product evaluations compared to the competition from the market

#### 3.2.3 Determining revenue

Determining the income of your product depends on two factors.

- Price what the price of the product
- Quantity sold, how much can you sell a product on the market

To determine an appropriate price, you can check a number of market forces

- Competition, what is the role of the competitors in the market
- Exclusivity, the attributes of your product
- Perception of what they think customers think about your product
- Motivation
- Image

### 3.2.4 Motivation

The price depends on whether people

- Take the time to buy your product
- Your type of product for granted or consider whether it is something unusual
- Strive to buy your product

### 3.2.5 The demand schedule

This is a graph of the projected ratio of sales, volume and price

The demand schedule is based on the following market conditions

- Normal market only slight differences in the prices of sales
- Exclusive hold the largest sales of products at high prices
- Discount store the largest turnover in the products with low price



# 4. The budget decision

Before you decide

- If possible, create accurate forecasts
- Create realistic forecasts of profit and revenue
- Take into account and changes to the structure of the budget
- Control and monitor the cash flow in your business

## 4.1 The administrative budget

This budget deals with the fixed costs in a company

The steps required to analyze the fixed cost element

- Create a list of all fixed costs per unit
- Compared with the data from the past
- Examination of each item for accuracy
- Calculation of total fixed costs

## 4.2 The break-even formula

To gain an understanding of this formula , you should ask the following question

What is the minimum amount I need to sell to cover the fixed costs ?

Required sales = Fixed costs

Formula

### Fixed costs / Gross Profit per Unit

#### 4.2.1 Example of one break-even formula

<i>Break Even</i>	<i>Product A</i>	<i>Product B</i>	<i>Product C</i>
<b>Quantity</b>	100'000	80'000	30'000
<b>Revenue</b>	5'000'000	5'600'000	2'700'000
<b>Direct Cost</b>	3'500'000	4'000'000	2'100'000
<b>Gross Profit</b>	1'500'000	1'600'000	600'000
<b>Gross Profit/Unit</b>	15.00	20.00	20.00
<b>Fix Cost</b>	800'000	700'000	500'000
<b>Break Even</b>	53'333	35'000	25'000

Steps to determine the break-even point

- Determination of the quantity sold
- Calculate the gross profit ( revenues - direct costs )
- Calculate the gross profit per unit (gross profit/sales volume)
- Calculate the fixed costs
- Application of break-even formula ( Fixed Costs / Gross profit per unit )

#### 4.3 The bottom-up approach

All factors of your company to create a valid prediction. These includes:

- Quantity
- Revenue
- Direct costs
- Gross profit
- Gross Profit in % of Revenue

**Formula: Fixed costs / Gross Profit in % of Revenue**

To obtain the number of units which are needed to get the required sales the following formula is used:

**Formula: Required sales / Revenue per unit**

##### 4.3.1 Example of a bottom- up approach with no profit

<i>Bottom-Up</i>	<i>Product A</i>	<i>Product B</i>	<i>Product C</i>
Quantity	100'000	80'000	30'000
Revenue	5'000'000	5'600'000	2'700'000
Revenue/Unit	50.00	70.00	90.00
Direct Cost	3'500'000	4'000'000	2'100'000
Direct Cost/Unit	35.00	50.00	70.00
Gross Profit	1'500'000	1'600'000	600'000
Profit in% of Revenue	30 = 0.3	29 = 0.29	22 = 0.22
Fix Cost	800'000	700'000	500'000
Required Sales	2'666'667	2'450'000	2'250'000
Required Sales in Unit	53'333	35'000	25'000

To calculate the bottom-up approach with the desired profit

The formula is

$$\text{Desired Profit} + \text{Fix Cost} / \text{Gross Profit in \% of Revenue}$$

#### 4.3.2 Example of a bottom-up approach with profit

<i>Bottom-Up</i>	<i>Product A</i>	<i>Product B</i>	<i>Product C</i>
Quantity	100'000	80'000	30'000
Revenue	5'000'000	5'600'000	2'700'000
Revenue/Unit	50.00	70.00	90.00
Direct Cost	3'500'000	4'000'000	2'100'000
Direct Cost/Unit	35.00	50.00	70.00
Gross Profit	1'500'000	1'600'000	600'000
Profit in% of Revenue	30 = 0.3	29 = 0.29	22 = 0.22
Fix Cost	800'000	700'000	500'000
Desired Profit	300'000	200'000	50'000
Required Sales	3'666'667	3'150'000	2'500'000
Required Sales in Unit	73'333	45'000	28'000

## 5. Control budgets and performance

Control and monitoring of the budget are essential components of the planning process

- It helps to quickly take action and to identify any adverse forces and to take measures
- It helps to plan ahead and manage the business better

### 5.1 The electronic spreadsheet

The advantages of electronic spreadsheets are

- This enables better control over the budget
- It allows a better control of the forces that the budget influence

The steps for an effective electronic spreadsheet

- Study of the operating budget
- Consider except. for each item ( Over time , higher deductions etc. )
- Calculate the figures for each element
- Shear delivering that spreadsheet add all numbers to obtain the annual amounts

### 5.2 Changes to the budget

The influencing factors in order to perform budget changes with an electronic spreadsheet are listed below:

- Developments in the electronic spreadsheet
- The corresponding forces can cause changes
- The changes in the budget figures by adjusting the appropriate amounts

Consequence

Check the lake to see the new numbers if the new values are meaningful, you add up the yearly figures and run to control a variance protocol

### 5.3 Steps to obtain a variance report

The variances protocol and the electronic spreadsheet are interdependent

- Start with the electronic spreadsheet. Write down the numbers next to the current budget figures
  - Note the difference between the two figures for each element
  - Highlight negative deviations ( more than budgeted used ) and positive deviations in brackets with a +
  - Check your numbers are correct
-

### 5.3.1 Example of a variance protocol

<i>Action</i>	<i>Plan Number</i>	<i>Real Number</i>	<i>Difference</i>
<b>Laborcost</b>	8'000'000	9'000'000	(1'000'000)
<b>Materialcost</b>	12'000'000	11'000'000	+1'000'000
<b>Energy</b>	4'000'000	4'000'000	0
<b>Marketing</b>	4'000'000	5'000'000	(1'000'000)
<b>Sales</b>	31'000'000	30'000'000	(1'000'000)

### 5.4 Impact Analysis

This analysis shows the reasons for the action and the corrective action , if possible .

- Causes
- Remedy

Any deviation has a cause and every occasion are two possible reasons :

- Forced variance like a snowstorm or power outage
- Temporal variance , a delay in the delivery

Any negative deviation, a corrective action is to be noted

The following steps should be taken

- Fill the column forces , causes and remedies regularly
- Study the effects of the variance and the causes of the variance ( forced or scheduled)
- Take the appropriate corrective action , if they are not used regularly, the annual budget is based at risk .

### 5.5 Budget performance

The performance of a budget is for a large part the result of the flexibility.

Flexible budgets play an important role in the economy as

- Flexible budgets help you gain better control of costs and planning
- Flexible budgets are effective and work for you
- Flexible budgets help you respond quickly to changes
- Flexible budget will help you to avoid the fear of budgeting
- Flexible budgets help meet the challenges posed by a dynamic economy specifically.



# Part 2 Capital Management

## 6. Capital

Capital is cash and cash equivalents which can utilize a company's liabilities immediately for the purchase of goods or payment. A strategy to prevent a situation where a company has insufficient sufficient cash, the knowledge of the capital flows

### 6.1 Components of capital flows

Capital flows are the lifeblood of the economy and the backbone of the capital budget is created by the following:

- The creation of resources
- Generating revenue
- The control of the cash flows (how much money you can "spend")
- Corporate diversification, the broader your business is supported on the market, the greater the probability of achieving revenue

Benefits of understanding of capital flows (cash flow)

- To read the balance sheets of companies to change,
- Effective control over the company received
- Efficient management of capital flows allow

The accounting equation

Assets = Liabilities and Equity

#### 6.1.1 Sources of cash

- Equity capital (equity)
- Sole Proprietorship
- Partnership
- Community
- Limited Liability Company
- Government
- Non-Profit Organization

Investment funding sources

- Equity
- Share capital

-----

## Reinvestment

- Earnings (equity)

## Borrowing (liabilities)

- Bonds
- Notes
- Credit
- EBank loans

### 6.1.2 Decisive factors for debt financing

The following points should be considered

- Rating of the company
- Debts of the company
- Ability to repay
- Interest

### 6.1.3 Factors relating to investments

- The following points should be considered
- The number of owners
- The rating
- The creditworthiness

### 6.1.4 Factors relating to re-investments

The following points should be considered

- Potential profitability
- Ratio of capital to credit
- Conditions and benefits
- Bad debts

### 6.1.5 Capital use

The capital of the company cash is used for the following actions

- Recapitalization creates capital assets (short-term or in the form of equity) This is financed by equity
- Direct costs are those directly related to income
- Fixed costs that remain generally constant

### 6.1.6 Consequences of inadequate cash flow

The following results are likely to be the consequences of inadequate capital flows

---

- Credit costs caused by loans, credits and the lessons to be paying interest
- Lack of liquidity in order to pay expenses in loans
- Resetting or canceling investment needed
- Excessive expenses on outdated material (machines = energy costs)
- Too little equity
- High debt ratio in possibly bad credit rating)

Possible measures to improve the flow of capital

- Try to accelerate the receipt of income (low payment periods)
- Be sure to focus on the preservation of liquidity
- Slide the payment of obligations, as long as possible
  - Maintain sufficient liquidity

## 6.2 The Cash Flow Management

This is an essential component for the success of a company. You must know, of how the money and what is next for the money to use.

Leverage

This shows the relationship between debt and assets

### **Debt ratio (debt / assets)**

Leverage

The use of borrowed money is to increase the earning power, because you have more money to use.

Flip side of the leverage

- impeded access to additional capital
- lowers net income because of increased debt interest

### 6.2.1 Maximizing capital generation

The principles for a sound capital policy

- The strategy and the objectives should be consistent with the overall strategy of the company in connection
  - Products and services must be compatible with the product
  - The life of the products should be proportional to the payment terms
  - The economic picture should offer favorable credit terms
  - The flexibility to changing conditions should be maintained
-

## 6.2.2 Receipt of cash and cash equivalents

How can you have as much money as quickly as possible?

- Lower float (This is the difference between a check is written and the amount paid)
- Electronic transmission
- Apply techniques to accelerate the debt collection (short payment terms, small discounts, cash)
- Send out invoices as soon as possible
- Assignment of receivables to collection agency
- Investiture of debtor portfolio by Bank

## 6.2.3 Withdrawals from account

Any payment from an account reduces your capital base, because this money afterwards no longer available. With these techniques, you can postpone the date

- Bill payment, a check which is not paid immediately
- Remote payment cheques issued by banks that are in big long distance
- Payables invoices that are not paid until they mature

## 6.3 Belated receipt

In order to reduce the proportion of late payments using the following methods

- Knowledge of the bank limits
- Examination of the checks and processing system
- Monitoring, handling the controls for inputs

### 6.3.1 Ways to prevent delayed payments

- Prefer sales by credit card
- If possible cash sales
- For sales invoice, payment periods as short as possible

## 6.4 Available Cash

With cash and cash equivalents are not needed for the payment of obligations, you have the option to invest this in the short or long term. It focuses on the following tools:

Short

- Equities, derivatives, bonds with short maturities
- Accounts
- Fixed deposits

Long-term

- Government securities
- Bonds with long maturities
- Property
- Investments

Keep in mind that the longer the investment is made, the more difficult it is to achieve the required liquidity. Therefore, it has been proven that investments are divided into three parts.

- One third as cash, immediately available capital
- One third as a medium term investment, this part can be converted into cash, if necessary.
- A third as long term, the investment should be regarded as strategically and should be made only after a detailed clarification of the risks and commitments.

Demands in relation to the inventory

This factor is relevant because you theoretically at high demands also require a correspondingly high level of inventory to meet the demands timely manner. Thus, a sufficiently high proportion of capital is bound.

On the other hand, you have the opportunity to lend your demands and thus to return to the capital.

<i>Demands</i>	<i>Inventories</i>	<i>Capital tied</i>	<i>Generated capital</i>
High	High	High	High
Deep	High	High	Low
High	Low	Low	High
Low	Low	Low	Low

6.5 Altman MDA

This method helps you to determine how the rating of a company is sufficient. or whether the risk of becoming insolvent .



EBIT = Earnings before interest and taxes

- $3.3 \times (\text{EBIT} / \text{total assets})$
  - $+ 1.0 \times (\text{sales} / \text{total assets})$
  - $+ 0.6 \times (\text{market value of equity} / \text{book value of liabilities})$
  - $+ 1.4 \times (\text{net income} / \text{total assets})$
  - $+ 1.2 \times (\text{working capital} / \text{total assets})$
- = **Z - factor**

### 6.5.1 Example Altman MDA

<i>Factor</i>	<i>Summary</i>	<i>Multiplier</i>	<i>Result</i>
<b>EBIT</b>	2'500'000	3.3	
<b>Total Assets</b>	10'000'000		<b>0.83</b>
<b>Sales</b>	2'000'000	1.0	
<b>Total Assets</b>	10'000'000		<b>0.20</b>
<b>Equity</b>	4'500'000	0.6	
<b>Liabilities</b>	7'500'000		<b>0.36</b>
<b>Profit</b>	5'000'000	1.4	
<b>Total Assets</b>	10'000'000		<b>0.70</b>
<b>Working Capital</b>	2'500'000	1.2	
<b>Total Assets</b>	10'000'000		<b>0.30</b>
<b>Z-Factor</b>			<b>2.39</b>

If the Z-factor is  $< 2.7$ , there is a risk of insolvency and bankruptcy

If the Z-factor  $>$  is 2.7, the financial status well

### 6.6 Information for customers

There are several ways your customers in the event of insolvency inform:

- Information to customers via e-mail
- Contact with the customer by phone
- Use a collection agency

### 6.7 Inventory management

This includes the following products

- Commodities
- Work in Process
- Finished goods

Three existing problems,

- What amount you must order to ensure an adequate supply
  - Sequence in which they must invest
-

- At what time you need to check stocks

Transaction costs include fees, taxes, and salaries

Costs include purchase order, including taxes, delivery costs

Calculation of the order quantity

**Square root of (2x Demand x Cost of order/Transaction cost)**

Calculating the order timing

Delivery time

+Safety limit

## 6.8 Cash flow control

Effective Cash Flow control is a key to budgeting. Also, the timing is a key element. The most effective tool is the pro forma spreadsheet. This allows you to:

- Planning
- Forecast
- Control
- Monitoring

Advantages of the pro forma spreadsheet

- Helps the time between incoming and outgoing capital flows
- Allows projections of different scenarios and optimization of capital flows
- Helps to analyze the impact of changes in various budget items
- Facilitates decisions about spending
- Does that "gut feeling" to convert to numbers

### 6.8.1 Basics of cash flow pro forma

Cash in hand,	the seed capital at beginning of period
Deposits,	cash inflows
Debt financing,	accounts payable
Accounts receivables	
Total capital available,	the sum of cash and the cash receipts
Operational capital disbursement,	cash outflow
Direct costs	labor, material

Fixed costs for the direct costs of	taxes, advertising
Capital budget disbursement,	cash outflow
Stocks	
Purchasing assets	Investment
Repayment of loans	
Total outflows,	total operating capital payment and the investment budget
Total principal	amount after deducting all existing drains from the total liable capital

### 6.8.2 Cash flow pro forma spreadsheet

There are 6 steps are necessary to obtain the result

- Capital, the value of the cash position
  - + All deposits on the cash position
  - + All the cash outflows for operating capital payment
  - + All the cash outflows relating to the investment budget
  - Determination of the sum of the cash outflows
  - Calculate the amount available for the end of month
  - All capital inflows + cash position
- / Sum of all outflows

#### 6.8.2.1 Example of a cash flow pro forma spreadsheet

Action	Capital	Cost
Cash at beginning of the period	1.000.000	
Payments (receipts)	13.300.000	
Payments of bonds	500.000	
Total capital	14.800.000	
Cash outflow (direct costs)		9.600.000
Operations fixed		2.000.000
Total operation cost		11.600.000
Investments		500.000
Total outflows		12.100.000
Capital available		2.700.000



### 6.8.3 Total inflow

This amount will be visible in the cash position

- accounts receivable provisions (the percentage of debtors who cannot pay)
- + Trade, you get cash from it (usually after 30 days)
- + Change the credit limit of your credit limits with banks

As a result, the total available capital visible

Example of cash on hand

Total cash on hand

Expected credit losses	-500 000	
Receivables from sales		1,200,000
Increase credit limit bank		300,000
Total cash on hand	1,000,000	

### 6.8.4 The operational capital payment

This consists of two factors

- Direct costs
- Fixed costs

Example of operating capital payment

Net cash operating direct costs	9'600'000	
Payout operating fixed costs	2,000,000	
Total operating costs	11'600'000	

### 6.8.5 Total capital-outflow

That is the amount of interest you have to pay for borrowed money

Example investment budget disbursement

Net cash payments for interest	500,000	
Total shareholders' equity	500,000-runoff	

### 6.8.6 Analysis of cash flow pro forma spreadsheet

- First section office receipts
- Section Two operating capital payment
- Section Three equity outflow

-----

Action	Capital	Cost
<b>First section</b>		
Cash	1.000.000	
Payments (receipts)	13.300.000	
Payments of bonds	500.000	
<b>Total capital</b>	<b>14.800.000</b>	
<b>Second section</b>		
Cash outflow (direct costs)		9.600.000
Operations fixed		2.000.000
<b>Total operation cost</b>		<b>11.600.000</b>
<b>Third section</b>		
Interest beating debt		500.000
<b>Total shareholders' equity runoff</b>		<b>500.000</b>

### 6.8.7 Cost reduction program

Costs can then be reduced by effective if you follow in setting clear, comprehensible goals. These include the following

- The savings will deliver measurable results over time
- Targets for immediate results should be defined
- Make sure that the potential damage to the business remains low
- Provide a clear implementation of the measures
- Establish a cost control on the affected areas
- Purchase supplies and materials when you need them, avoid if possible a large inventory
- Sell unneeded materials
- Support staff with any questions
- Reduce costs by adoption of clear rules

### 6.9 The capital budgeting

To obtain an effective budgeting with the capital, the following factors must be considered:

- The estimate of cash receipt (cash sales, receivables)
- Be the time required at the cash needs of the company on the date payments matched (zero-budget)
- The desired cash balance at the end of each month

Two major factors in budget planning

- Share of the revenue from cash sales and on account
- The various suppliers conditions

The pro forma statement of cash flows

- Shows the result of adoption of event, not an actual
- Shows the assumptions of (investment - cash needed) + additional funds

Automated method

- Deterministic is a single answer to each of the variables
- Probabilistically, a set of responses for each variable
- Optimization of the maximum or minimum value of each variable

### 6.9.1 Current financing

With this type of financing, especially those listed in both factors are important.

- Transaction costs
- Shortage costs when a large demand for loans is

Reasons for focusing on short-term working capital financing

- Minimize implementation costs and scarcity, you find the optimal balance
- Ensuring the necessary conditions that the company may seek short-term financing
- the optimal level of working capital for the company to achieve

Unsecured towards safe sources

- Provisions unsecured, commercial loans, credit line
- Backed securities, for example, securities, real estate
- Absolute minimum amount that must always be available.
- Average of the borrowing company is requires that any time a certain amount must be available.

### 6.9.2 Working capital management

Short-term financing is characterized by the following features

- Assets and liabilities are affected within 1 year
  - Long-term investments should not be financed with short-term capital
  - The nature of the product
-

- The length of the duty cycle
- The level of sales
- The type of credit policy
- The efficiency of the company in the management of current assets

The trade-off between risk and return

- Aggressive high risk, high return possible
- Conservative, low-risk, low return
- Moderate medium risk, moderate return

Financing decision and working capital policy

$$(1 - \% \text{ VAT}) * (\text{EBIT} - (\text{STD} * \text{Int})) - (\text{LTD} * \text{Int})$$

EBIT Earnings before taxes + interest

STD Short Term Debt Current liabilities

LTD Long-Term Debt Long-term debt

Example of a working capital calculation

VAT (Taxes)	40,00%
Result	$(1 - 40\%) = 60.00\%$ <b>(0.6)</b>
EBIT	2,000,000

Long Term Debt LTD	800,000
Long term interest rates	8.00%
Result Interests LTD x Interest	<b>64,000</b>
Short-term borrowings	1,000,000
Interest rate	6.00%
Result Interest earnings STD	<b>60,000</b>
<b>Total Working Capital</b>	<b>1'125'600</b>

Liquid funds and exchange-listed securities

These positions must be paid mainly to the following factors

- Cash inflow from sales, interest, dividends
- Cash used for acquisitions

Publicly-traded securities can be sold very quickly acquired on the stock exchange / and within a short time you have the money or securities.

Why use cash

This position in the balance sheet fulfills several purposes

Transactions serve as a buffer to meet seasonal fluctuation

Prevention of unexpected liquidity needs

Speculative, a strategic action

Forward an action to a specific date

Compensations meet the requirements and provisions

The focus in the management of liquid assets must be on the two main advantages

- Acceleration of cash receipts, sufficient amount of cash on hand
- Slowdown of the payment



# PART 3 Finance

## 7. Financial Management

In this part of the various funding sources and the ways of the capital increase will be explained. Also, there is an introduction to a way of managing cash and in understanding the financial statements.

### 7.1. Sources of funding

The various funding sources

- Decrease in assets, sale of assets
- Borrowing money
- Increase in the liability
- Clearance sale
- Increase of net income
- Depreciation
- Retained earnings

#### 7,1.1 Funds

- Increase of assets (investment)
- Reduction of debt (debt reduction)
- Payment of dividends (shareholders' participation)
- Reduction in profit due to higher incomes (higher wage costs in)

Funds from internal sources

- Funds through the sale of common or preferred shares
- Long-term debt
- Short-term borrowings

Financing actions with the operating income

The following operations should be financed with current revenues:

- Financing the cost of production of goods and services
- Operating costs (direct, fix) are overheads
- Depreciation
- Interest on short / long-term debt
- Tax payments

There are several points that need to be considered when selecting the

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source of funds

- What kind of cash flow or what type of financing to choose
- The concept of free cash flow (free cash flow)
- The operating cash flow and depreciation
- The widespread use of outdoor cash flow
- The expected return on earnings
- The benefits of using retained earnings
- The use of retained earnings as a source of funds

7.2 The main reasons for raising capital through a public stock offering

- Timing problem with a private equity issues in relation to
- The role of provider

Particular disadvantage in a public stock offering

- A potential dilution of shareholder value (stock price)
- A short-term impact on the working capital (expenses)

7.3 Share issues

- Increasing the borrowing capacity
- Flexibility in the payment of returns
- Provide you with a large inventory of liquidity

Preference shares

Features of Preferred Stock

- Respectively receive a higher dividend. be preferred over the other shares, resulting for the company resulting in a higher cost
- Are not entitled to vote in general
- To be traded in a liquidation, to be considered before the ordinary shares

7.4 Borrowing in the market with the help of loans

Bondholders have no voting rights

Income arising from the sale of bonds, increase the profit for shareholders

The issuing company may deduct the interest paid as an expense for tax

Interest rate decisions

- Many factors have a decisive influence on the determination of the interest rate paid on a bond
  - Economic development and the situation
-

- The economic situation of the company
- Company-specific factors affect the interest rate
- The conditions of the bond have a significant impact on the interest rate

### International capital interest

This type of interest rate is dependent on the major central banks, as well as the international interest rates such as LIBOR

### Advantages

This types of interest rates are variable and can be reduced if the national bank is their interest rate. These interest rates follow the short-term rates.

#### 7.4.1 Short-term borrowings (bank financing)

- Provision of working capital available capital
- Granting loans against cession of receivables or pledging of inventories
- This is a readily available source for financing the short to medium
- Can be used for the purchase of assets

#### 7.4.2 Credit criteria of banks

- The following criteria are important for the lending
- Ability to repay the loan with interest
- Property, plant and reporting for the loan in case of default
- Provision of appropriate security



## 8. Capital raising and financing decisions

There are several ways for a company to raise capital. This may be by the increase in equity or by borrowing on the capital market place.

### Equity Financing

A company sells shares to the public

If a company wants to raise capital from outside, without increasing the proportion of debt (debt), it has the opportunity to issue the shares on the primary market

### Primary market definition

The securities are sold through agents, brokers and investment bankers on the primary market will decide how much the price at which securities issued (output) are

In contrast to the primary is the secondary market

### Definition of secondary market

This is the market for already issued securities. Here are the titles of a  
This is the market for already issued securities. Here is the title of an investor are purchased by another. The price for a fixed number of available securities is traded here.

### Debt financing

The company borrows money in the market

### 8.1 Transfer of capital

Direct transmission = the company sold shares directly to the prospective

- Indirect transmission = an investment bank is involved
- Indirect help broker = an indirect transfer through a broker

This type of financing is often used by banks and insurance

#### 8.1.1 Opportunity cost of capital

A best alternative way compared to the planned investment. To obtain these costs do this we have to know the real interest rate (real interest rate)

Formula RIR

$$(1 + \text{nominal interest rate} / 1 + \text{inflation rate}) - 1$$

### 8.1.1.1 Example of calculating a RIR

Number	Int. rate	Number	Inflation	Real int. rate
1	4.75 %	1	3.50 %	<b>1.21 %</b>
1	4.00 %	1	3.25 %	<b>0.73 %</b>
1	4.25 %	1	3.50 %	<b>0.72%</b>
1	3.75 %	1	3.25 %	<b>0.48 %</b>
1	3.65 %	1	2.80 %	<b>0.83 %</b>
1	3.50 %	1	2.75 %	<b>0.73 %</b>
1	2.50 %	1	2.25 %	<b>0.24 %</b>
1	2.75 %	1	2.00 %	<b>0.74 %</b>
1	1.75 %	1	1.25 %	<b>0.49 %</b>
1	2.25 %	1	1.50 %	<b>0.74 %</b>

This table shows you what real interest rate you can expect the conditions under which

Theories to explain the term structure of interest rates

The following points must be considered in the above-mentioned theory

- unbiased expectations
- The interest rates on the securities are calculated by an investor
- Liquidity preference , the preference of many participants , mainly to keep their funds in cash or easy -sale receivables

Changes in the yield curve are caused by

- Liquidity premium from investors obliged to compensate for the additional risk of fluctuating interest rates
- market Segmentation

The term structure is determined by supply and demand of securities that have certain maturity ,

### 8.1.2 Forward Rate

This is the yield of a bond in the future , calculated using the yield curve

Formula Forward Rate

$$(1 + R2 ) ^ 2 / (1 + R1) - 1$$

R2 = Rate Year 2

R1 = Rate Year 1

#### 8.1.2.1 Example of calculating a forward rate

Number	R2	Number	R1	Forward Rate
1	5.00 %	1	3.50 %	6.52 %
1	3.50 %	1	2.50 %	4.51 %
1	4.50 %	1	3.50 %	5.51 %
1	3.75 %	1	3.25 %	4.25 %
1	3.65 %	1	2.80 %	4.51 %
1	3.50 %	1	2.75 %	4.26 %
1	2.50 %	1	2.25 %	2.75 %
1	2.70 %	1	2.00 %	3.51 %

The calculation of the forward rate is based on several factors

- Unbiased expectations
- The investor buys securities on the basis of the expected return
- Liquidity preference, the preference of many participants, mainly to keep their funds in cash or easy-sale receivables

Changes in the yield curve are caused by

- Liquidity premium from investors obliged to compensate for the additional risk of fluctuating interest rates
- Market Segmentation

Investors prefer short or long-term investments, where the end date is well defined

### 8.1.3 The financial markets

The financial markets can be divided into several sections

- Primary market is the issue of new issues
- Secondary market, the security has already been done
- Money market in the short term less than 1 year

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- Capital market in the long term more than 1 year

Organization of the capital market

Organized market, auction market

OTC (Over the Counter) all securities that are not traded on an exchange

## 8.2 Notes

As a result, the issuer promises of such securities to repay it at the end of the term and pay an interest rate for the duration of the term. The exception is the zero-coupon bond, where to get no interest during the time, the price of this bond is below the minimum of 100 %.

The following points are characteristic of bonds

- These are bonds too
- They belong in the category of risk capital, as it increases the proportion of debt in the balance sheet
- They are not backed by physical assets.
- There are several high interest rates, the higher the interest the greater the risk of capital loss.
- So-called junk bonds paying high interest rates, but a big risk of a capital loss is at the end of the term
- They are usually limited by a term
- The various terms are
- Briefly up to 4 years
- Central to 8 years
- For more than eight 8 years
- There are also so-called Perpetual Bond (Perpetual bonds) with no specified maturity. in this type does not commit the issuer. a repayment
- Notes may be used to secure the loan market.

### 8.2.1 Bond-types and characteristics

- You are Indenture agreement between the issuer and the bondholders
  - The promissory note is secured by a physical asset
  - The issuer must disclose regular funds to repay existing sinking fund debentures aside.
  - Only if the issuing company earns enough, a payment of interest and repayment is guaranteed, so the return is based on a partially significant risk
-

### 8.2.2 Evaluation factors of bonds

- Expected return of the investor
- Duration of the term
- Amount of interest to be paid
- Degree of probability of failure to pay the interest
- Earnings Stability
- Company Size
- General economic conditions

### 8.2.3 Determining the values of bonds (present value)

Formula

$$PV = FV / (1 + r)^n$$

PV = Present Value

FV = Face Value (value at maturity date)

n = number of years

r = interest rate

Example

Bond, 5 years, 6% interest rate, face value 1000

Years	Interest rate	Face value	Present value
5	5 %	1000	<b>783.52</b>
4	5 %	1000	<b>822.70</b>
3	5 %	1000	<b>863.68</b>
2	5 %	1000	<b>907.02</b>
1	5 %	1000	<b>952.38</b>

### 8.2.4 Present values of an annuity

With this formula you'll be asked how much do you have to invest right now to get an annual rate during the next years.

Formula

$$PVA = PP * [1 - (1 + r)^{-n} / r]$$

PVA = Present Value Annuity

PP = Periodic payment (rate)

i = interest rate

n = number of periods

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## Example

Rate of 5.000 during the next 5 years, interest rate 5 %

Periodic Payment	Periods	Interest rate	PVA
<b>5.000</b>	5	5.00 %	<b>21.647.38</b>
<b>4.000</b>	5	5.00 %	<b>17.317.91</b>
<b>3.000</b>	5	5.00 %	<b>12.988.43</b>

### 8.2.5 Bond yield to maturity

This is the total of income to the investor if a promissory note is held at a fixed security until maturity.

Calculation is of a bond yield to maturity

Action	Amount	Calculation
Face value	1.000	
Present value	730	
Interest rate	60	
Number of years	5	
Discount	270	Face value – Present value
Ann. Cap gains	54	Discount / Number of years
Annual yield	114	Ann.cap. gains + Interest
Ann.yield in % of PV	15.6 %	114 / 7.3
Real capital	946	Face value – Ann cap. Gain
Ann. yield in % of Real capital	12.05 %	114 / 9.46
Result	<b>13.825 %</b>	(15.6 + 12.05) / 2

### 8.2.6 Zero coupon bonds

A special type of bond is the zero coupon bond. In this way, you pay the purchase is not 100 % , you get a discount on the coupon . During the term of the bond, you get no interest. How can you determine the value of this kind of bond?

There is a formula on how to calculate the present value . The only uncertainty in this formula is the required return, you want to preserve. This number you can decide for yourself.

FV = Face Value  
PV = Present Value  
RY = Req. Yield  
n = number of years

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Formula

$$PV = FV / (1 + RY)^n$$

Face Value	Years	Req. Yield	Present Value
5'000.00	7	6.00 %	3'325.285
10'000.00	6	5.50 %	7'252.458
5'000.00	5	4.50 %	4'012.255
10'000.00	4	5.75 %	7'996.105

### 8.2.7 Yield to maturity on Zero coupon bonds

The YTM on a zero bond differs from the other calculations for bonds as there is no payment to the bond holder during the time 'til maturity date.

Formula

$$(FV/PV)^{1/n} - 1$$

Face Value	Years	Req. Yield	Present Value	YTM
5'000.00	7	6.00 %	3'325.285	6.066 %
10'000.00	6	5.50 %	7'252.458	5.497 %
5'000.00	5	4.50 %	4'012.255	4.5 %
10'000.00	4	5.75 %	7'996.105	5.75 %

### 8.2.8 Common shares

Ordinary shares of a company offer an easy and convenient way to increase the equity base. In addition, common stock NOT commit to payment of dividends,

With the following formula the market value of a common share can be calculated.

$$PV = RD / (RR - G)$$

PV = Present Value

RD = Expected dividend

RR = required rate of return for investors

G = constant growth rate in%

Exp. dividend	Req. Rate of return	Growth in %	Present value
50.00	5.00 %	3.00 %	2'500.00
30.00	4.00 %	2.00 %	1'500.00
5.00	4.00 %	1.50 %	200.00
1.00	3.00 %	1.50 %	66.67

### 8.2.9 Preference shares

Unlike ordinary shares preference shares are far more expensive than in the case of a dividend payment to preferred shareholders receive preferential treatment before the ordinary shareholders receive a part of the result. For the calculation of the present value, the par value, the dividend in % of the par value and the yield of the share are required. Preference shares do not give you a voting right.

PV = Present Value

DE = Dividend in % of the par value

Y = Yield, the req rate

Par = Par value

Formula

$$PV = DE / Y$$

Par value	Dividend	Yield	Present value
100.00	5.00 %	3.50 %	142.85
100.00	5.00 %	6.00 %	83.33
100.00	6.00 %	3.00 %	200.00
100.00	2.00 %	4.50 %	44.45

### 8.2.10 Raise capital

A company can raise the capital in different ways

- IPO
- Private placement of shares . The shares will be sold to a select number of investors
- Privileged subscriptions offer a group of shareholders the opportunity to buy more shares.
- Furthermore, it is possible to offer the so-called Underwriters shares for sale. These are investment banks that acquire a discount against the shares. However, you must accept the terms and enter into certain risks



### 8.3 Cost of capital

Each company uses different forms of capital in order to finance its activities. The cost of capital depends on many factors .

- Number of common shares required return
- Number of preference shares
- Bonds , debt , interest rates on bonds are tax-deductible
- Amount of retained earnings

#### 8.3.1 Capital Asset Pricing Model (equilibrium model)

It is a model that describes the risk and expected return on an investment . The decisive factor is the beta factor. This shows the sensitivity to a changing market.

Generally speaking, the higher the beta , an even higher return is expected risk and return of capital in total assets .

- R = required rate of return
- RFR = Risk free rate
- B = Beta of the company
- DY = Desired yield on the whole stock market

Formula

$$R = RFR + (B * (DY - RFR))$$

Example of a CAPM

Risk free rate	Beta	Desired yield	Req. rate of return
3.00 %	1.50	2.00 %	1.50 %
3.00 %	1.50	4.50 %	5.25 %
3.00 %	1.50	6.00 %	7.50 %

For determining the beta factor that every business has its value and at different sites to keep corresponding tables with numbers

#### 8.3.2 WACC Weighted Average Cost of Capital

If you know the capital structure of the company , you can calculate the WACC using technology throughout the accruing cost of capital

Cost factor	Interest	Part factor	Interest partial
Retained earnings	8.00 %	20.00 %	1.60 %
Common shares	6.00 %	10.00 %	0.60 %
Preference shares	5.00 %	20.00 %	1.00 %

<b>Short term bond</b>	7.00 %	30.00 %	2.10 %
<b>Long term bond</b>	5.00 %	20.00 %	1.00 %
<b>Total</b>		100.00 %	<b>6.30 %</b>

## 8.4 Dividend policy

According to a traditional view, dividends are paid when this amount is not needed for investments.

### Impact on investor

Investors tend to buy stocks of companies that follow the dividend policy that meets their preferences for high, low or no dividend

### Instrument in theory

Dividend incomes have a higher value for the investor than the direct capital gains

#### 8.4.1 Consideration in the dividend policy

For consideration the following factors play a role

- the stability of the company's earnings
- the source of funds
- the financial impact of leverage
- the characteristics of the shareholders
- the legal constraints
- the consideration of taxes
- the consideration given to liquidity
- with inflation, the payment should not be too high
- the growth prospects of the company

### The choice of a dividend policy

- Dividends following the results
- Dividends are important
- Dividends follow a smoother path than the result

### Other dividend policies

- remaining passive policy no dividends when investment opportunities
- stable currency shareholders prefer stable dividend
- No dividend payout ratio constant fluctuations
- regularly at the end of the year if there is volatile earnings

## Forms of dividend payment

- Repurchase of equity
- Futures fixed date at a fixed price
- Repurchase offer if not enough shares are offered to pull the company back the offer or extend it
- An open market purchase company shares on the stock market, no time limit
- privately negotiated Repo is used by companies to buy back shares from major shareholders

## Advantages of equity repurchase

- Flexibility
- tax benefits
- focuses on the shareholders who have tendered their shares
- increased insider control
- Support share prices on the market
  
- Disadvantages of forward contract
- Danger of failing
- Loss of flexibility

## 8.5 Tax savings

If you are looking to finance your business, you can interest you paid on bonds, to deduct from the taxes

Tax deductible rate = 1 - Corporation

Interest payments paid the interest on the debt

## Formula

**Tax-deductible set \* interest payments**

### 8.5.1 Cash flow through debt

The increased cash flow, you can use for many activities such

- Invest in a new project
- Shareholders pay

### 8.5.2 Disadvantages of debt

#### Properties

- direct costs Interest costs Agency
  - indirect costs that do not generate volume, but the trust is classified as
-

- low, it takes a higher return for the confidence to win
- Loss of flexibility

### 8.5.3 Equity financing

#### Properties

- No interest shall be paid
- Shareholders have a major impact on the management

#### Trade off

Reduced based on a trade-off between tax savings and distress costs of debt. That takes a lot of property and equipment

## 9. Financial instruments

There are a lot of instruments in the finance markets available for financing and investing of money.

- Shares
- Bonds
- Derivatives

### 9.1 Stock

A type of security that signifies a kind of ownership in a company. There are two types of shares: ordinary shares and preference shares.

#### 9.1.1 Basic concepts

Nominal value	The nominal value of a share
Title	The name of the share
Bid	The highest price a buyer is willing to pay
Ask	The price a seller is willing to accept
High	The highest price paid on this day
Low	The low price low price paid on this day
Last	The closing price last price achieved
Open	The first price for this share on the next dealing day
Dividend	The gross dividend paid dividends for this item
Interim dividend	The calculated value of the dividend as a deduction of the share price.

#### 9.1.2 Indicators and signals

- PCV (price-cash flow ratio) The current stock price relative to cash flow  
The total cash flow, which is composed of depreciation and net profit
- PE (price-earnings ratio). The closing price in relation to the net dividend

The net dividend yield dividend by the current share price. It indicates the return on invested capital as a percentage.

- **Beta factor**  
This number indicates the relationship between the price of a share and an index and shows the sensitivity of the stock price on the index
- **Bottom-Fishing-warning**  
If a stock for a long time was in decline and has lost at least 50% of the value of the attempt is being made from this moment to acquire the stock cheap. This is a signal that it is now possible to buy the stock before it has recovered and rising prices.

The general stock market trend direction, which has a stock market at any given time. Up, Down, Side

- **Intrinsic value**  
The net asset value is derived from the fundamental data of a company. Shares whose intrinsic value is higher than the share price are worth buying

### 9.1.3 Stock Analysis

- **Advance-decline**  
Advance-decline lines or bars, arising from the difference in the number of stocks whose prices rose to stocks whose prices have fallen. They show the number of increased, unchanged and fallen stock in percent.
- **Coppock Indicator**  
The Coppock indicator is a modified linear weighted moving average. It consists in the addition of two long-term momentum lines. The data points are two rows percentage price changes in the value of a number of n days, based on different time periods. From this, a moving average is formed by the most recent value, the oldest value of the comprehensive n-day period is weighted the least. The result is the Coppock indicator that oscillates around the zero line
- **Moving average**  
The moving average line rate line which arises when one adds up the prices of a stock for a certain number of previous days and divides by the number of days. The GDL moves more moderate than the daily price development and lags behind.

- Line chart  
In the Line Chart Line Chart are registered with the closing prices of a title on a time axis continuously. This creates an image of the share price performance.
- MACD  
The MACD Moving Average Convergence-Divergence is an important parameter of technical analysis. He uses a chart for identifying buy and sell signals in the price development of stock exchange securities. The MACD is calculated as follows exponential, moving averages: First two moving averages of different lengths are calculated, usually a 12-day average and 26-day moving average. For the latter one draws from the first, whereupon we obtain a set of values, called "fast line". From this we turn forms a 9-day average line, which is called "slow line". Both lines are now drawn in a diagram. Buy signals occur when the fast line crosses the slowdown of up sell signals when it crosses the slow from top to bottom.
- On-balance volume  
On-balance volume line refers to the turnover of the stock. As a massive buying up or dispensing material is inevitably reflected in a change in the trading volume, the OBV indicator uses this fact as a basis for calculation. The absolute level of the OBV line is without any meaning. A signal occurs when the price line and the OBV line does not have the same course. If the price, but drops the volume for a long time, so a speedy fall of the courses are accepted (falling OBV line). If the price, but the volume increases over a longer period, it is probably an early increase in the rates (rising OBV line).

### 9.1.3.1 Stochastic

Stochastic calculated the ratio between the closing price and the range of daily fluctuation. The daily spread between the highest and lowest price reflects the maximum values again, buyers were willing to pay, or at least seller demanded. What is the ratio of the closing price on these extreme values is available, can provide insight about who at the end of the day, gained the upper hand and as development continues. Includes one shares near their daily high, it is believed that the power of the buyer is unbroken and continues the positive trend. The reverse is true for the seller. Important points when the stochastic are 20's and the 80-line.

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- Trend channel  
Trend channel rate zone between support line and resistance line.
- Trend line  
Due to the trend line connecting low-and maximum points with each other on the chart trends emerge. If the second lowest point on the first results in a rising trend, and the trend is upward. If the second point is below that of the first high, a tendency to fall, and the trend is facing downward.
- Turnaround situation  
Situation of a shareholder value of the company, which shows a significant positive change in the overall trend.
- Security Market Line  
If an investor buys shares, he receives a dividend risk compensation. The market risk has a beta of 1 Thus, the ratio of return to risk should result in first If this number is higher than 1, it means, the title achieved for the risk to a high rate of return and therefore will be purchased until the voltage at 1 and is thus located on the Security market line.

#### 9.1.4 Complete market analysis

- Climax Indicator  
The indicator is used to assess the overall market. Of a number representing the market shares of the so-called on-balance volume value is calculated for each stock. Now the number of shares is the number of those shares that have reached a new peak, which represents either an overbought or oversold, subtracted, which have reached a new low. A continuous extension of this calculation gives the climax line. The technician now runs from the history of the stock index and the climax-line trading signals from; allow conclusions about the technical strength of the price movement. Both lines run in opposite directions, it can be concluded on a technical weakness.
  - New High / New Low  
Index, which tracks the number of shares that have reached a new highest-/low value the last x days. The new high / new low representation is used to identify the current trend. As long as the new
-



highs new lows are about, it is a continuation of the uptrend, and vice versa. Caution is advised when an index is not confirmed by a high, high in the new highs. This indicates a technical weakness and indicates a trend change. Affirmative trend is a index high, accompanied by a new high.

- Point & Figure Chart

This chart will price movements, as long as they run in one direction, vertically registered in its entire extent in the graphic. If a change of direction, a new column is started right from the old and there again entered vertically. At which time the price movement is taking place not taken into account.

RSI (Relative Strength Indicator).  $RSI = 100 - 100 / (1 + RS)$

Wherein RS is calculated as the quotient of the average upward change divided by the average downlink changes. Both for the same period is likely Usually the period is 7 days. The result is a curve that can oscillate between extreme values ranging from 0 to 100. Of particular importance are the values 30 and 70 Generally one speaks with a  $RSI < 30$  of "oversold" and a  $RSI > 70$  of "bust".

- Trend Confirmation Indicator

The trend confirmation indicator (TBI) is a ratio of two moving averages (DG). The value of the generally shorter or more responsive DG is divided by the value of the second, longer and slower-DG. The result is multiplied by 100. TBI mean values below 100, that the short-term DG is below the longer term, therefore a technical weakness is displayed, and an impending trend reversal is likely. Mean values over 100 TBI that present technical strength and a continuation of the price trend is likely.

### 9.1.5 Order routing

Purchase (buy), the price the buyer is willing to pay for a stock.

Sale price (sell), the price the seller of a share want to reach at least

Stop Loss, this is a price signal. If the price is breached, the stock is sold at the next price paid.

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Ideally, the order is executed at the next price

Limit Buyer specifies the limit, what price the buyer is willing to pay the most. When a sale is the limit on the price, that the seller wants to achieve at least.

Count, the number of shares for this transaction

### 9.1 6 Risk calculation

- Standard deviation

The standard deviation explains 2/3 of all deviations from the average value. A low standard deviation suggests a high probability that future results are close to the average. The standard deviation is the root of the variance.

- Volatility

Volatility is a range of variation for a given period, of securities prices, raw material prices, in interest and also of mutual fund shares. It is a mathematical quantity) standard deviation of the degree of risk. For example, the image is averaged for the development of the stock in a month. By default, the fluctuations are taken and measured this value, how far has the stock removed in a month from this average. So we calculated the range of variation around the mean. The greater the variation, the more volatile and therefore riskier one share. For example, the risk is another measure of the maximum loss.

- Variance

A measure of the risk calculation is the variance.

That is the difference between the yield in the state N and the expected return. The difference is squared and then weighted by the probabilities and summed. This is carried out for each item in the portfolio.

The expected return is the average of all returns. Each return is weighted by its probability and summing the result

$$(4\% * 50\%) + (2\% * 40\%) + (3\% * 10\%) = 2.83\%$$

The change in the correlation of returns compared to another, For example, the return of title to the expected return. The smaller the correlation, the smaller the risk.

Title 1 5% return before, after 4.5% difference  $0.5 = 10\%$   
Expected return previously 28.3%, after 27%, difference = 1.3% 4  
Correlation =  $4/10 = 0.4$

Thus, the correlation of this value is less than 1 and the title has a lower volatility than the overall portfolio.

- Implied volatility  
This value reflects the expectation of market participants regarding future price movements.

## 9.2 Bonds

### 9.2.1. Basic concepts

Bonds issued by legal entities and differ in different conditions such as different long running times, issuing currency and interest rates. The latter may be either fixed, variable or textured (depending on certain events). Your course is given in percent of the nominal value. For zero coupon bonds, no interest payments during the term be made. They are usually sold at a price of less than 100 percent of the face value and redeemed at 100% usually at the end.

- Credit  
The credit describes the creditworthiness and solvency of a debtor and is a measure of the safety of a bond. International rating agencies such as Standard & Poor's (S & P), Moody's or Fitch periodically review the creditworthiness of many borrowers, since these changes over time due to developments in the overall economic and company-specific environment. Bonds are categorized according to their credit worthy investment in bonds (investment grade), junk bonds (junk bonds) and bonds where imminent default.

Rating agency investment grade junk bonds pay Endangered

Standard & Poor's, Fitch AAA to BBB-BB + to CCC-CC to D  
Moody's Aaa to Baa3 Ba1 to Caa3 Ca to C

- **Coupon**  
The coupon indicates the amount of interest to which a bond is issued. Depending on the credit quality and the duration of the coupon will be higher, the lower the credit quality and the longer the run time. The coupon represents a kind of risk compensation for the creditor
  - **Issuer**  
The issuer is the issuer of securities.  
In the case of bonds, it can be either legal entities or states and public entities.
  - **Annuity**  
The annuity is an annuity repayment bill, which is composed of the repayment and the interest thereon. This payment is flowing regularly and always the same.
  - **Issue**  
The issue of securities.
  - **Euribor European Interbank Offered Rate.**  
This is to the interest rate, require the European banks in the trading of deposits with a fixed maturity of one week, and between one and twelve months of each other. He is the main reference rate for floating rate euro-denominated bonds.
  - **Duration**  
The duration of the bond describes the period between the issue and the last trading day, the day on which payment is made.
  - **Nominal interest rate**  
The nominal interest rate is at the height of a bond coupons.
  - **Pari**  
Pari rate corresponds to the rate of 100%
  - **RIR**  
Real interest rate the real rate is the nominal interest rate, the corresponding deflation respectively. Inflation rates added respectively deducted.
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## 9.2.2 Kind of bonds

- Annuity bonds

These bonds will be repaid in fixed annual amounts. The payment includes interest for the past year and the redemption amount.

- Dual Currency Notes

With this loan, with interest paid and repayment of the loan is not in the same currency. The currency in which what is paid is set out in the prospectus.

- Euro Notes

On euro market traded bonds with short maturities.

Euro bonds issued in the narrow sense in euro government bonds from the euro zone. In a broader sense, the term includes bonds issued in Euros other countries with a. Sometimes it is also used as a synonym for bonds from European countries in their entirety.

- Floating Rate Notes (FRNs)

Floating rate bonds whose coupon is based on a reference interest rate. This is in euro-denominated bonds usually the Euribor, usually for three, six or twelve months also, more rarely with other maturities. In this case, the maturity usually the payment of the bond interest rate. Depending on the creditworthiness of the issuer, a surcharge is paid on the interest rates of failure, the higher the worse the credit quality of the obligor. For bonds in dollars and pounds of Libor is based on a rule.

- Municipal Bonds

Serving the financing of local authorities.

Municipal bonds are fixed income bonds that are issued by banks and forwarded to municipalities under its own loans.

- Zero Bond

The creditor receives no interest during the term. The bond is always 100 % repaid, the shares are issued at a price below par (at 100%).

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- Option Bond

These bonds are equipped with additional rights, warrants. You are eligible to purchase a specified number of terms in the option shares in a given period at a fixed price option.

- Reverse Convertible Bond

With this bond the issuer reserves the right in lieu of repayment of the bond at face value to provide an a priori fixed number of stocks.

Delivery of the shares will only make the issuer, if the value is less than the nominal value of the bond to be repaid. The adoption of this short position to investors rewarded with an above the level of market interest rates. In times of low interest rates, investors can achieve with such a financial product that is above the general level of market interest on his capital.

The holder of a convertible bond convertible bond (English convertible bond) can convert it at run time to a predetermined ratio into shares. If the conversion option is interesting for the owner, depends on the development of the share price. As far as the conversion right was not exercised, the bond is repaid at the end of the term (repaid).

### 9.2.3. Calculations and effects

The duration is the average time to payment. One uses this metric for measuring the impact of interest rate movements on the price of a bond or bond fund. The duration is defined in years. A 3-year duration means that the value of a bond will rise by 3% if interest rates rise by 1%.

To accept or reject option assertion to be made Law, a specific, contractually agreed range (within a certain period). To buy a contract that gives the buyer the right, and the writer (seller) the obligation until the expiration date of the option at the agreed price or sell the underlying asset)

- Range

A Range certificate is an exotic form of warrant. In the OS conditions a price range (Range) is specified. If the strike price until the end of the term (European style), within this range, so the owner of the option receives a fixed repayment. Drops out of the course from the

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range, so the bill will expire worthless This warrant is highly speculative with a certain bandwidth. This kind of option is also known as Sleepy.

A Sleepy is an exotic note

Computed value of value that an option, or have a warrant, without considering possible premiums (premium) to be paid for such a right in the stock market.

The remaining term to maturity of a claim or until the expiration of a right (purchase of shares for options and warrants) remaining time.

### 9.3 Fund

#### 9.3.1. Basic concepts

- Limits  
Quota limits up to which the managed assets may be invested in certain investment classes.
  - Investment policy  
Defines all measures to design the investment assets of a fund by the management. This comprises investment objectives, for example to generate a return in excess of the performance of a reference index.
  - Share value  
Value of plan assets divided by the total number of issued shares at a certain date. When distributions to unit holders, the share value decreases.
  - Cash Reserve  
Fund management may be up to a specified limit in the prospectus hold a portion of the fund's assets in bank deposits and money market securities, in order to respond flexibly to investment opportunities or may be able to adapt to market requirements
  - Benchmark  
Or benchmark assessment method for measurement of the investment performance of a Fund. Usually, the benchmark for each relevant market shares - used or bond index.
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- **Fund company**  
Company that manages mutual funds and markets. It is also referred as investment or investment company.
- **Picking**  
Picking Funds refers to the individual choice of fund, which will develop itself to be better than other funds in the same segment. Not only the performance-related and other historical codes are analyzed and compared with the risk taken, but also assess the current structure and investment strategy of the fund.

When funds are rating together with the quantitative aspects, such as volatility and performance also assess the qualitative aspects such as quality of fund management and investment strategy.

- **Fund Store**  
Stores offer a more or less wide range of funds in different investment companies. They act as independent agents and advisors.
- **Funds exchange**  
The exchange of Fund shares to another.
- **Assets**  
Total of all assets of the Fund, including cash assets.  
Investment grade portion of the funds, which currently invests in securities, real estate and derivatives. With at least 51 percent of its assets must be invested at all times in the plants a fund, the prospectus of the investment focus provides.
- **Liquidity reserve**  
Is always incorporated in conservative rates for closed real estate fund in the fund design and in the forecast calculation. To the fund shareholders a part of the ongoing surplus from the rental business will not be distributed but rather as a safety cushion (cash reserve), respectively. This may result in the sequence e.g unforeseen repairs are denied, without resulting in a direct, negative impact on the predicted distributions and thus on the fund's return.



- **Monthly Income**  
Monthly Income denote the monthly changes over the cumulative indexed earnings that reflect (in percent) performance since inception of the fund.
- **Redemption fee**  
Not only to buy, but also the sale of fund shares some foreign fund providers charge a fee. In the longer the fund shares are held, the less the redemption charge.
- **Redemption Price**  
The redemption price is the price received by the investor to sell his Shares. It is by the net asset value. It is calculated every trading day and published in the rule.
- **Sharpe Ratio**  
The Sharpe ratio measures the excess return of a fund per unit of risk. The excess return is the return that goes beyond the safe money market investment. A high Sharpe ratio is therefore a high excess return and a corresponding risk. The excess return is set in relation to the volatility.
- **Regular Savings Plan**  
Deposit a certain amount invested for purchase of investment shares. . The purchase of shares through a savings scheme offers the advantage of dollar-cost averaging also the possibility of amount and duration of payments to make flexible. With savings plans applicable to the investor also the difficulty of finding the ideal time of investment

### 9.3.2. Type of funds

Equity Investment Fund with predominant or total investment in shares according to certain criteria. To share funds may be regionally oriented and invest only in shares of a particular country or group of countries.

AS-fund mutual funds for retirement with legal enforcement (AS = pension funds). The funds provide a focus more directly investing in stocks and real estate.

Foreign Investment Funds, which were launched by investment companies

abroad

Distributing funds are a kind of mutual fund which is focused on the distribution of income and capital gains. These policy will be made in favor of the fund holders.

Sector funds are invested exclusively or predominantly in stocks of a particular industry (or industry sector).

The compartment is the name of the sub-fund in an umbrella fund

Fund of Funds are also called a fund comprises investments in other funds, the funds are not usually. There may be up to a maximum of 20 percent of the fund's assets are invested in units of a single mutual fund. Furthermore, should not exceed more than ten percent of the outstanding shares are acquired.

Equity funds are variants of closed-end funds, which refrain from additional leverage by borrowing and therefore are considered safer.

ETF stands for exchange traded funds. It is in a narrower sense to funds whose structure is tied to the internal composition and weighting of an index and can be traded at any time without charges. When buying and selling a comparatively significantly smaller difference is calculated (spread) only.

Ethical funds are mutual funds whose investment principles are directed not only to ensure high yield. Because of value judgments investments are omitted in certain sectors or categories of companies or preferred. The excluded sectors are often among the military and the tobacco industry.

The futures funds invest in the futures or options markets. The choices are in addition to financial futures, forward transactions in precious metals, agricultural goods and raw materials.

The Guarantee Fund is normally at the end of the fixed term of the fund either the repayment of the capital (money-back guarantee) or at least a prescribed percentage of promises. Investors are also involved to maturity with a certain participation rate in the rise of each market.

Money market funds investing exclusively or predominantly in money market instruments and liquid securities with very short maturities. To be money market instruments include next time deposits, promissory notes and bonds with short maturities and commercial paper and bank deposits (certificates of deposit). It is not tied to specific periods of 30, 60 or 90 days.

Balanced Fund can invest according to its investment conditions in both equities and fixed-income securities. You have but usually limits for the stock or the bond portion.

The closed-end funds are raised through the sale of a certain limited number of shares from the outset. If the planned volume is reached, the fund is closed and set the issue of shares.

Closed-end funds for this fund, only a limited number be absorbed by investors. This fund is for the purchase of real estate. To acquire the property fund these funds, possibly used using debt financing.

Hedge Funds will be invested mainly in the futures market in derivative instruments. On the contrary to the Future Fund, it may also invest a portion of the funds in the cash market.

Real Estate Funds invest the money of the investors in real estate.

Index Fund replicate the composition of a specific, representative index accurately and simultaneously to surpass its performance.

Mutual Funds are managed by investment companies. Investors in this fund received shares of fund assets. Generates an investment fund income from capital gains, dividends, interest, etc., these are usually paid to the share owned. For accumulating funds reinvest their income, which is reflected in the value of the fund share.

Country and regional funds invest in securities whose publishers have their headquarters in a particular country.

Maturity Funds have a limited from the outset runtime. Only during a tight deadline drawing investors can buy these funds. The invested assets remain

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until the end of the term in the fund.

Another name for mixed funds is Balanced funds.

Mutual Fund, an American name for an open investment fund.

No Load Funds are sold without a commission, but charged a higher management fee. They are better suited for a shorter investment time and therefore also trading funds are called.

In open-end fund open-end funds (mutual funds) are the investment company, as required new shares and takes back issued. The opposite is the closed-end funds.

Offshore fund you have chosen their location in countries without specific investment legislation. and so escape the usual supervisory rules and investment rules. In addition, these countries are mostly found tax benefits.

Bond Funds are composed predominantly or exclusively of fixed-income securities.

Small Cap Funds invest their assets primarily in small listed companies (small caps).

Specialty funds distinguish themselves by grouping its investment policy to certain countries, industries, sectors or on certain securities, such as convertible / bonds of normal mutual funds. When investors are specialty funds require a higher degree of risk, but also on knowledge of the macroeconomic context. In addition to higher opportunities arising from this restriction to specific market segments also increased risks.

Umbrella Fund, they are a possibility for investors, under one umbrella, investment opportunities in various individual funds in the same investment group. Specific areas of investment, each sub-fund. Depending on market assessment and risk tolerance, the investor can then switch without additional expense or effort to minimum fees between the sub-funds. Only when entering the unique umbrella falls on the initial charge.

### 9.3.3 Variables of funds

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The **Alpha** code illustrates the different performance of a fund to develop the yardstick used (benchmark). It estimates the extent to which the fund has outperformed or underperformed the benchmark. The Alpha measures the portion of the return that is not explained by the general market trend, but is based on the selection of stocks in this market. A positive alpha therefore indicates a very successful fund management.

The **Bear Beta** is a statistical analysis of code, with which one can explain the behavior of a fund if the market falls. The Bear Beta is the relative measure of the change in the yield of an investment in response to the negative change in the benchmark (benchmark). With a positive beta of Bear Fund reacts with losses to a decline in the index, with a negative beta Bear with gains. The value of the Bear beta shows the extent of the correlation (elasticity). The higher the value of Bear Beta, the more responsive the funds to index losses.

The **Bear correlation** measures the ratio of the Fund to the negative movements of the market. The smaller the Bear correlation coefficient, the better, because then the fund tends to fall less than the index.

The **Beta** code measures the volatility of an investment relative to a benchmark. The Beta is the relative measure of the adjustment of the yield of an investment to the changes of the assigned benchmark yields. Using the betas can make statements about the risk of a fund relative to its index. Generally implies a positive beta that is associated with an increase of the index, an increase in the fund price, a beta greater than 1 indicates that the fund relative to the benchmark is more volatile than this.

The **Bull Beta** describes the behavior of the price of a fund share in rising markets. It measures the change in the return on investment relative to the positive change in the benchmark. A positive Bull beta implies an increase in the fund price in response to a rising index, a negative beta Bull a fall in the price. The value of the Bull Beta shows the elasticity of the fund price.

The **Treynor ratio** is set, the excess return on the beta factor in the relationship. The beta coefficient is a statistical yardstick that indicates the percentage change in a fund or a stock when the market-represented by the respective reference index - one per cent rise or fall.

#### 9.4 Derivative financial instruments

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#### 9.4.1. Basic concepts

**Stock option** gives the purchaser the right to a certain number of shares at a specified price within a specified period (American option) or at a specific time to acquire (European option) or sell.

**American Option**, the options may be exercised during the entire trading time

The **agreed price** is based on completion of an option transaction price at which the buyer or seller of an option to buy the underlying object to the option date of his opponent or sell to him.

**Base value**, underlying "asset" or "underlying" called.

A **call** gives the buyer the contractually guaranteed right to a certain underlying asset at predetermined conditions (date, price, etc.) can acquire. The counterparty to this agreement is called the writer because it until the expiration of the period for the exercise of the option (expiration date) can provide the reference value at any time, must therefore not be allowed to sell values. He receives a premium from the buyer of the call.

A **currency future** is the contractual obligation between two counterparties to deliver a currency at a specified time at a predetermined price. Buys a currency futures, then one has the right to receive, at the end of the term of the futures, the currency at the fixed exchange rate. Sell a currency futures, you have to deliver the currency at this time.

A **foreign exchange option** is the option contract between two counterparties to purchase a specified currency at a specified time at a predetermined price or to sell. Unlike a currency futures never takes physical delivery, so that is in foreign exchange options from the appreciation always paid in the form of a cash payment from the issuer.

**European Option** In contrast to an American option can be exercised only on the expiry date of the option.

**Financial Future** in the narrow sense futures contracts on financial instruments such as stocks, bonds or currencies.

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The **term** of an option is the period between the current date and the date on which the last option may be exercised.

**Long position** gives the buyer of the option the right, but not the obligation to buy a certain quantity of the underlying asset at a price agreed upon or sell. This applies to call (buy) and put (Sell).

**Margin Call** is a futures contract developed to the detriment of the investor, he gets from his margin account the loss deducted. In the margin account falls below the maintenance margin, the investor will order based requested money.

The **purchaser** of a long position in options must pay the seller of the option a premium. This is the only investment option. If it is not as developed as hoped, you can let the option expire.

A **put** option gives the buyer the right but not the obligation, to buy a certain amount at a certain price, called Put.

**Maturity** is the remaining time 'til the expiration of a claim of a right

A **short** position is the seller of the option the obligation to deliver a certain quantity of the underlying asset at a price agreed upon or buy. This applies to Call (delivering) and Put (acquisitions).

**Expiration Date** is the date on which the right of an option or warrant to purchase one share at a strike price expires; maturity.

#### 9.4.2. The various types

A bottom-down bill is one of the exotic warrants. In the conditions, a threshold (Bottom) has been agreed. If the exercise price during the entire period (European style), below this threshold, then the owner gets a fixed repayment. Increases the exercise price above the threshold, so the bill will expire worthless.

A **Bottom-Up Bill** is one of the exotic warrants. In the conditions, a threshold (Bottom) has been agreed. At maturity, for each trading day, has remained on the closing price of the underlying asset is above the

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threshold, a certain amount paid. Accumulated amounts retained.

**Bull Spread** is speculating on rising prices. A bull spread is a strategy with 2 options to the same value with the same expiration date. A call with a lower strike price  $X_1$  is purchased, and a call with a higher strike price  $X_2$  is sold. Or a put with a lower strike price  $X_1$  is sold and a put with a higher strike price  $X_2$  is purchased.

**Bear Spread** is speculating on falling prices. A bear spread is a strategy with 2 options to the same value with the same expiration date. A call with a higher strike price  $X_2$  is purchased and a call with a lower strike price  $X_1$  is sold. Or a put with a higher strike price  $X_2$  is purchased and a put with a lower strike price  $X_1$  is sold.

**Butterfly Spread** is used to gamble on constant prices.

A butterfly spread is a strategy with three options to the same value with the same expiration date. A call with a low strike  $X_1$  is purchased, a call with a high strike  $X_3$  is purchased and two call middle-strike  $X_2$  (close to the current market value of the underlying) are sold. With a put is a low-strike  $X_1$  bought a put with a high strike  $X_3$  is bought and two middle-strike put  $X_2$  sold.

**Calendar Spread** is a strategy with two options to the same value with the same strike price. A call with an earlier expiration date  $T_1$  is sold and a call with a later expiration date  $T_2$  is purchased. Or a put with an earlier expiration date  $T_1$  is sold and a put with a later expiration date  $T_2$  is purchased.

**Cap** is a contractual agreement based on an interest rate, which is a nominal amount of capital basis. If the reference rate determination date on the cap, the seller must notify the buyer to pay the difference between the reference rate and interest rate ceiling. The payments due to be made on the day of the interest period, taking into account the number of days. The buyer of a cap pays a premium to the seller of this, either in the form of a single premium or regular payment steps.

**CFDs** (Contracts For Difference) are derivatives that are not based on the price, but on the underlying difference between bid and ask prices. They thus represent the price movements from exactly, but offer the advantage that with a fraction of the capital, the relevant underlying can be

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traded. Items are purchased on margin. This means that the investor involves only a small security deposit and thus provides its use with a corresponding leverage.

**Collar** is a contractual agreement is an upper limit and a lower limit for the price of a transaction with permanent cash flows. Exceeds the reference value of the contractually defined upper limit (cap), then the seller will pay the buyer the difference between the reference value collars and cap. The reference value falls below the agreed lower limit (floor), then the buyer of the collars the seller will refund the difference to the reference value.

**Floor** is an interest rate option transaction in which is based on an underlying notional principal amount of a contractual agreement entered into an interest rate floor. The buyer pays a premium for the right to obtain from the seller of the floor, the difference to interest rate floor, if the reference interest rate falls below the agreed lower limit on a determination date. This assures the investor a minimum return equal to the floor strike price minus the premium payment. It thus forms the counterpart to the cap.

#### 9.4.3 Calculations

Black-Scholes financial mathematical model to evaluate options, developed by Fischer Black and Myron Scholes. The model aims to determine the theoretically correct (fair) warrant price. Most important determinants are the price of the underlying and the strike price, the remaining term of the option, the risk free rate and the expected volatility of the underlying.

The **Delta** expresses the absolute sensitivity of the theoretical premium value as a function of the change in the price of the underlying. The delta varies with (calls) between zero and one, wherein (puts) between zero and minus one.

A call option with a delta of 0.5 increases with the increase of the price of the underlying security at a franc at 0.50 francs. The height of the delta depends on the amount of the option and change with changes in the price of the underlying. The more an option is in the money, the higher is its delta.

Example

Underlying before 100

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Call option strike price 90

Call option price is 5

Underlying after 105

Call option price 8.5

Delta is value of 5 Difference in underlying

3.5 Difference in option

$$3.5 / 5 = 0.70$$

**Gamma** measures the change of delta with respect to a change in the price of the base object. The price of the underlying asset changes by one unit down, and then falls as the delta of 51% to 49%, it would be gamma = 2. The gamma delta shows the change of 2 in absolute terms.

The **intrinsic value** of an option is the difference between the price of the underlying and the strike price of the option.

Underlying 110

Strike Price 90

Intrinsic value  $110 - 90 = 20$

This number reflects the actual mathematical value of an option.

**Lambda** refers to the theoretical lever (English leverage) an option. Premiums are moving according to their position on / in / out of the money, to different degrees, for example price movements of the underlying asset will not play 1:1 of the premium. The lambda-adjusted absolute lever of a bill to be Delta.

Lever

$$\text{Lambda} = 1.2 - 0.7 = 0.5$$

**Omega** is a measure of the elasticity of the premium in respect of a change in the underlying. Unlike the Delta, which considered absolute changes, the Omega measures the ratio of the percentage change. It indicates by how much has changed, the premium, if the underlying asset changes by one percent. Mathematically calculated the Omega of the Delta, multiplied by the lever (leverage).

**Rho** is the value of the option depends on the interest rate because the interest rate increases, ceteris paribus, the expected value of the stock on the expiration date. An exercise of a call option is therefore likely, and the exercise of a put option. Unlikely. Rho which measures the change in the

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option price due to a change in the interest rate is, therefore, for calls and negative for puts.

Formal Rho is the first parallel derivative of the option price for the continuous interest rate.

**Theta** is value of an option depends to a considerable extent on its remaining life. This is called the value of an option. Theta is a quantity that expresses the behavior of the option in relation to time. A theta of -0.03 means that the option on each of the remaining term of 0.03 euro loses value.

Value = residual value of an option

Theta = depending on the premium of the time

**Vega** measures the effect of volatility Changes in scope to the premium. The volatility changes by one percent, so Vega is the absolute change in the premium. In a Vega of 0.35, the price would change an option by 0.35 francs, if the volatility changes by 1%.

Underlying price before 100

price volatility 12%

Underlying after 90,

10% change in volatility

Volatility 2%

Premium before 10

Premium after 8

Change 2 Change Volatility 2% premium

Vega = 2 (the price of the premium varies by CHF 2 with a change in volatility of the underlying 2%).

**Time value** is the difference between the current value of the option premium and the intrinsic value.

**Time decay** is the term for the decrease in the fair value for options until the end of the term of the option, the zero value is reached. The change in the fair value of an option describes the theta factor.

## 9.5 The Black-Scholes model

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### 9.5.1. Introduction

The model was developed in 1973 by the American scientists Fischer Black and Myron Scholes, and is based on the following assumptions:

- 1) The option is European type.
- 2) On the stock there are no dividend payments during the term of the option.
- 3) Transaction costs are not incurred.
- 4) The interest rate on risk-free assets is known and constant for debit and credit the same.
- 5) Efficient capital markets i.e. stock prices follow a random performance.
- 6) stock returns are normally distributed log.

### 9.5.2. The variables of the option pricing models

C value of the option

S value of the underlying asset (stock price)

$\mu$  value enhancement of S

D volatility

X base price of the option

R Risk free interest rate

t option term

### 9.5.3. The derivation of the formula

Black / Scholes chose as a stochastic process, the generalized Wiener process to describe the movement of prices of the underlying.

The Wiener process can be described as follows:

$$dS = \mu S dt + DSdz$$

where  $dz = e \text{ root of } dt$

$dS$  is the change in price of the underlying S at an infinitesimal change in time  $dt$

$\mu$  is the expected return of the underlying,

D is the standard deviation of these returns.

The underlying thus follows a process with constant drift ( $\mu S dt$ ) and constant variance rate ( $DS dz$ ).

$e$  is a random result of the standard normal distribution.

### 9.5.3.1 Sample Application

Example:

Stock price  $S = 190$

Strike price  $X = 200$

Maturity  $T = 72$  days (= 0.2 years)

Interest rate  $r = 0.05$  per annum

Volatility  $D = 2.2360675$  per annum

$$d1 = (\ln(190/200) + (0.05 + 0.2^2 / 2) * 0.2) / (0.2 * D0.2) \quad d1 \\ = \mathbf{-0.4169517}$$

$$d2 - d1 = 0.2 * D0, 2$$

$$d2 = \mathbf{-0.5063944}$$

$N$  from the table of the standard normal distribution:

$$N(d1) = 1 - N(d1) = \mathbf{0.33833}$$

$$N(d2) = 1 - N(d2) = \mathbf{0.30624}$$

Resulting in the price:

$$C = 190 * 0.33833 - e^{-0,05 * 0.2} * 200 * 0.30624 = 3.64$$

### 9.5.3.2. Breakdown of the formula

The option price is calculated as follows:

$$\text{Share price} \times N(d1) - e^{-\text{rate} \times \text{duration}} \times \text{strike price} \times N(d2)$$

# 10. Management Working Capital and liquid resources

This includes, but financial planning

- Investments in the amount of working capital
- Financing proportions in the short and long-term debt

Capital cycle

- Purchasing Resources
- Production of products
- selling products
- Receiving cash

## 10.1 Financial planning rules

In a plan is the company's financial strategy after it is written as a valuable process because

- It outlines the objectives of the company
- It provides data for performance measurement benchmarking
- It has impacts on the financing and investment decisions
- He helps prepare for changing conditions

With a financial plan, a company can

- Develop strategies for dealing with the expected results of their fiscal policies
- Development of contingency plans, which can be quickly and easily when you need it
  - react quickly and take advantage of unexpected opportunities
  - Unexpectedly expected financial difficulties avoid
  - Financial plans on a project - to create project-based

### 10.1.1 Forecasting and planning

Financial planning can reduce or eliminate the hazards but they may differ, what risks are worth

- Each division should develop alternative business plans
- Moderate growth, normal growth within the company
- Restriction planning ensures low growth,
- Financial plans on a project - to create project-based

### 10.1.2 Three elements of effective planning

#### Forecast

- Be required to apply to buy up competitors, (vacuum)
- mechanical prediction (future as past)
- Inconsistency (analyzes from the same base)

#### Select

- Financial goals should not be the goal
- Increasing the market share of the company

#### Watch

- Checking the forecast periodically
- Not react to differences between predicted and actual performance

### 10.1.3 Financial planning cycle

- Forecasting, planning of key external factors
- Forecasting, financial planning and development plan
- Setting performance targets
- Measuring the power (if necessary make adjustments)
- Distribution of rewards and punishments

### 10.1.4 Financial planning models

- Input, statement of current remuneration, Forecasting
- Planning measurements, the relationship between the variables
- Output, financial statement, financial ratios, necessary. Means percentage of revenue requires that the revenue increases in proportion to net income
- Cash budgeting
- Pro forma cash flow statement
- Automated financial projections

### 10.1.5 Final goals

The ultimate goal of sound financial planning is to ensure that you have enough

- the necessary funds to maintain operations in the form of cash (short-term)
- the necessary resources are available for investment (long term)

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Formula proportion of sales

- CA = Current Assets
- CL = Current Liabilities
- R = Revenue
- PR = Planned Revenue
- PAT = Profit After Tax
- D = Dividend

$$(CA - CL / R * (PR - (PAT - D)))$$

Example of a formula as a percentage of sales

Current assets	5,000,000 00
Current liabilities	3,000,000 00
Revenue	1'000'000.00
PR	1'500'000.00
PAT	500'000.00
D Dividend	100'000.00

$$2000000 / 1000000 \times (1500000 - (500000 - 100000))$$

$$2000000 / 1000000 \times 1500000 - 600000$$

$$2000000 / 1000000 \times 900000$$

CA	CL	R	PR	PAT	D	Result
5000000	3000000	1000000	1500000	500000	100000	1'800'000.00
5000000	3000000	1500000	2000000	700000	200000	1'466'666.66

Effective controlling of cash based on many areas

- Interest costs (if you have taken out a loan from the bank)
- Losses in inventory
- Monitoring of receivables

Advantages

- Avoiding insufficient cash holdings
- Reduce the interest costs
- Maintaining an optimal level of working capital



## 10.2 Current assets

- Cash
- Receivables
- Stocks

### 10.2.1 The turnover rate in the camp

Pitfalls for the inventory turnover

- Bloated inventories
- Problems in Marketing
- Other problems

Factors affecting the stock

- Projected sales
- Availability of raw materials
- Shipping schedules

Formula inventory turnover

### **Cost of goods sold / average inventory**

Example

The cost of goods sold	250,000
Average Inventory	62,500
Inventory turnover ( $250,000 / 62,500$ )	4
Average duration of storage ( $365/4$ )	91.25
days	

### 10.3 The ratio of days sales outstanding

Formula day sales

### **Receivables / day sales**

# 11. Financial Statements and Analysis

With these statements and analyzes to be kept informed

- How the company uses borrowed money
- If the company is able to meet its long-term obligations
- Is the company able to pay its short-term bills
- Which remains available to the equity shareholders
- How well a company is one the leverage

## 11.1 Assets

- Currently (advance payments, loans, stock, prepaid licenses, Immaterial)
- Fix (real estate, machinery)

## 11.2 Liabilities

- Creditors, approximate expenses, taxes payable
- Long mortgage debt, corporate bonds)

Equity

- Share capital
- Retained corporate earnings

## 11.3 Liquidity

- Ability to pay (for short liabilities)
- Solvency (to cover the entire debt)

Operating statement

With this statement, the following objectives

- Understand the gross profit
- Reporting of annual profit after tax
- Calculation of earnings per share (EPS = Earnings per share)
- Calculation of earnings before interest and taxes (EBIT)

Calculating gross profit

**Sales - Cost of goods reference (Goods)**

= Gross profit

- Operating costs

= Earnings

+ Income from non-operating activities

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- Taxes

= **Net profit after tax**

### Example

Gross profit	2,000,000
- Operating costs	1'000'000
= Operating income	1,000,000
+ Income related to operational activities	200,000
- Taxes	400,000
Income after taxes (Net Profit)	<b>800,000</b>

EPS calculation

**Income after tax / number of shares**

### 11.4 Cash flow statement

This is used to this

- To identify the activities of the cash flow statement
- The sources of funds to select indicators
- Identify the use of funds indicators
- To check the efficiency of financial decisions
- To verify the effectiveness of the used capital
- Define the financial strategy of the company

Cash flow activities

These consist of the following activities

- Operating activities
- Financial activities
- Investing activities

Details of the updated business

Net income

+ Ongoing working capital

+ Depreciation

- Current liabilities

= Operating activities

## Details of the financial activities

### Dividends

+ Selling shares

+ Loans

= Financial operations

## Details of the investment activities

- Purchase of non-current assets
- Acquisition (purchase) of investments
- Sale of non-current assets
- Sale of investments

The acquisition of investments or the purchase of non-current assets is shown as a negative amount in the cash flow statement. The availability of capital is thus reduced. The sale of investments or the sale of non-current assets is shown as a positive amount in the cash flow statement. The available capital is increased.

## 11.5 Basic financial reporting, analysis and conditions

- Liquidity ratios
- Debt ratios
- Profitability ratios
  - How much can a business spend in the current situation to still generate a profit
  - provide for the standardization of financial performance within industries compare.
  - measure the accessibility of corporate objectives and the difficulty of locating
- Statements about the marketability of a company's debt

### Example Record

Assets	Amount	Liabilities	Amount
Cash	1,000,000	Accounts Payable	1,500,000
Receivables	1'500'000	Loan	5,000,000
Securities	1'000'000	Debt	4,000,000
Real estate	8,000,000		
<b>Total short</b>	<b>11'500'000</b>	<b>Tot liab</b>	<b>10,500,000</b>

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Cars	1,000,000
Investment	2'000'000
<b>Total Assets</b>	<b>14'500'000</b>

Share capital	3,000,000
Retained earnings	1,000,000
<b>Total Equity</b>	<b>4,000,000</b>

Detailed liquidity ratio  
**Current ratio assets / liabilities**  
 1.3809

Quick Ratio  
**Cash + Receivables / Liabilities**  
 0:24

Detail debt ratio  
**Liabilities / Assets**  
 0.7241

Equity ratio  
**Liabilities / Equity**  
 2.625

Detailed profitability ratio  
 Dividend on equity ROE  
 Distribution to sales ROS  
 Gross margin

Net income after tax / equity  
 Net income after taxes / sales  
 (Sales - Purchasing goods) /  
 Sales

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# Part 4 Investment

## 12. Purchases of fixed assets

An investment is made when you purchase fixed assets or assets for a long life. Therefore, there are several points to consider before making an investment.

Precise and careful selection of the selected object

The management of risk is an important part of the evaluation process

Furthermore, it should be noted between tangible and intangible

Not tangible ie , the object can be touched nor weigh

### 12.1 Factors that have an impact on the acquisition

- The current state of technology
- The production plans and sales targets
- The labor market with skilled workers for the new technology
- The availability of appropriate staff
- Simplicity and flexibility of operation
- Increased production rate
- The state of the current equipment

### 12.2 Components of a capital budget

Before an investment can be made, a capital budget should be created :

- Capital budgets are plans to acquire assets
- Capital budgets anticipate future actions
- Capital budgets reflect future plans

The differences between the balance sheet and capital budget

- Balance sheet is based on data from the past
- Capital budget is based on future data

### 12.3 Sources of funding

External

- Liabilities

Important: Note for leverage to evaluate the vulnerability of the company to be able to find.

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## **Total Debt / Total Assets**

Internal

- Shares
- Thinning of the profits to shareholders more

Here's the formula for ROE use

## **Profit after taxes / Shareholder's equity**

### 12.3.1 Shareholder's equity

- This amount will be calculated as it is equal to a fiscal year's net income
- After the preferred stock dividend
- Before the common stock dividend
- Dividend by total equity (excluding preferred shares), expressed as a percentage.
- Retained profits

## **Benefits of internal financing**

- No refunds
- No payments of dividends
- No Interest Payments

# 13. The use of capital budget tools

Multinational companies can make capital investments in many countries .  
The bar on the decision, the three criteria:

- Risk
- Repayment
- Time

Risk is the minimum amount of income that the investor will receive when investing in this area.

Income can be generated in different ways:

- Currency earnings, an asset brings more income than the initial investment
- Currency savings Cost reductions
- The replacement income is flowing back through an investment creates higher yields

## 13.1 Comparison

To compare the value of an investment there are some methods for calculating

- Present value
- Future value
- Present value annuity
- Future value annuity

Present value of money

Time	4%	8%	12%	16%
1	.962	.926	.893	.862
2	.925	.857	.797	.743
3	.889	.794	.712	.641
4	.855	.735	.636	.552
5	.822	.681	.567	.476
6	.790	.630	.507	.410
7	.760	.583	.452	.354
8	.731	.540	.404	.315
9	.703	.500	.361	.283
10	.676	.463	.322	.257



## Future value

Time	4%	8%	12%	16%
1	1.040	1.080	1.120	1.160
2	1.082	1.166	1.254	1.346
3	1.125	1.260	1.405	1.561
4	1.170	1.360	1.574	1.811
5	1.217	1.469	1.762	2.100
6	1.265	1.587	1.974	2.436
7	1.316	1.714	2.211	2.826
8	1.369	1.851	2.476	3.278
9	1.423	1.999	2.773	3.803
10	1.480	2.159	3.106	4.411

## Present value annuity

How much you have to invest today to get the desired amount for a certain time.

Time	4%	8%	12%	16%
1	.962	.926	.893	.862
2	1.886	1.783	1.690	1.605
3	2.775	2.577	2.402	2.246
4	3.630	3.312	3.037	2.798
5	4.452	3.993	3.605	3.274
6	5.242	4.623	4.111	3.685
7	6.002	5.206	4.574	4.039
8	6.733	5.747	4.968	4.344
9	7.435	6.247	5.328	4.607
10	8.111	6.710	5.650	4.833

## Future value annuity

This table shows the future value of annuities. How much you'll receive in the future.

Time	4%	8%	12%	16%
1	1.000	1.000	1.000	1.000
2	2.040	2.080	2.120	2.160
3	3.122	3.246	3.374	3.506
4	4.246	4.506	4.770	5.067
5	5.416	5.687	6.353	6.877
6	6.633	7.336	8.115	8.978
7	7.898	8.923	10.08	11.413
8	9.214	10.637	12.300	14.240
9	10.583	12.458	14.776	17.518
10	12.006	14.487	17.518	21.321

## 13.2 Current value

This value is calculated as follows

- Take the appropriate value from the table reading current annuity by a factor to obtain
  - Bring the investment deduction
  - Revenue - investment
  - If the balance is  $> 0$ , the investment should be made
  - If the balance is  $< 0$ , the investment should not be made

### Example

Revenue	50,000
Investment	200,000
Period	4 years
Interest rate	8%

### Solution

Table Present Value Annuity	4 years
	8%
	3.312
Factor * income	$3.312 * 50,000 = 165'600$
Investment	$= 200,000$
Revenue - investment	$(165'600 - 200'000 = \mathbf{34'400})$

### 13.3 Internal rate of repayment (IRR)

This value is calculated as follows

- Refer to the table reading current annuity
- Take the column with the appropriate interest rate (e.g, 8%)
- Take row with the corresponding number of years (For example, 4 years)
- Divide the amount of investment by the value obtained
- Calculate as follows:

Investment per annum + Redemption Amount

If the result has a negative value, then the internal rate must be less

Example

Revenue	50,000
Investment	200,000
Period	4 years
Interest rate	8%
Factor	3.312

$$\begin{aligned} \text{Investment} / \text{factor} & \qquad \qquad \qquad +200,000 / 3.312 = \\ 60'386 & \\ -\text{Investment income per annum} + \text{revenue} & \qquad \qquad \qquad -60'386 + 50'000 \\ & \qquad \qquad \qquad = \mathbf{10'386} \end{aligned}$$

### 13.4 Account models

ROE    Return on equity  
AAL    average of all assets and liabilities

The ROE increases the duration of an investment

The AAL remains constant

$$\text{Average ROE} = \text{Net Income All} / \text{Number of Periods}$$

Consequences

If the ROE is greater than the cost of equity, you should accept the project

If the ROE is less than the cost of equity, you should reject the project

EBIT Detail

EBIT = Earnings before Interest and Taxes

COC = Cost of Capital, , which includes the following factors:

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Factor 1, the cost to be issued ordinary shares

Cost of share issue costs of retained earnings

Factor 2, cost of preferred stock

Dividend / Cost - publishing costs

Factor 3, cost of debt

Interest payable on bonds - tax saving

All these 3 factors together give the COC value (Cost of Capital)

### 13.5 Different types of projects

A project can have one of the types described below

- Are mutually exclusive
- Independent
- Limited

### 13.6 Cash flow models

Net Present Value

- If the net present value (NPV) is greater than 0, you should accept the project.
- If the NPV (net present value) is less than 0, you should reject the project.

IRR

- If the IRR is greater than the required value, you should accept the project.
- If the IRR is less than the required value, you should reject the project.

Repayment

- If the repayment is equal to or less than the guidelines, you should accept the project.
- If the repayment is higher than the defaults, you should reject the project.

## 14. Investment analysis and selection

- To successfully complete a project it is important to avoid some pitfalls.
- Economics of prices. A company can make a product and sell cheaper than its competitors.
- These cost advantages help a company to reduce costs.
- Legal aspects of patents, exclusive rights
- Trademark intended to make an enterprise of another distinguishable.
- Copyright
- Brand name
- State legislation
- Governmental restrictions

### 14.1 Deregulation

The process of deregulation allowed the following benefits

- Access to the different distribution channels
- Allows incumbents to sell their products on the market.
- Better than small or new competitors.

### Product differentiation

That can be generated through technical expertise, better service, and brand names. If a company does not differentiate its products from time to time, which may manifest itself in lower yields.

### 14.2 Advanced project analysis

These funds can help to analyze potential projects and make better decisions supported.

- Embedded options
- Ethical issues
- Advanced project analysis

### Embedded options

- To develop the selected option to a project when more information is required
- To expand the selected item to a project if there is a potential growth.
- Cancel the selected item to a project if it is not profitable.

Can expand an investment project bloat an existing project, even if the project appeared far as small and unimportant.

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To expand an investment project does not require much additional capital in general, but it can show in lucrative profits for the company.

Ethical issues

Ethics can be defined as a set of moral principles or correct behavior.

#### 14.2.1 Tools for advanced project analysis

- Sensitivity Analysis
- Decision Tree
- Simulations

Process to develop a prototype

- The prototype test
- Construction, if the prototype in order, if not abort
- Distribution of the product on the market
- The product is successful or a failure

## 15. Corporate restructuring

Such an action is carried out primarily in mergers and acquisitions.

This is the way, two or more companies to combine in one. Various reasons cause companies to adopt this method

- Market greetings
- Procurement of raw materials
- Diversification, allocation to areas
- Growth
- Potential liabilities, unused portions of a company can be claimed by the new company.
- Asset concentration
- Tax benefits, the target company will pay less taxes because they can bring the debt of the acquired company will be deducted.

### 15.1 Classification of mergers

- Horizontal Direct Applicants with another
- A buyer acquires vertical relationships
- No conglomerate connections

Classification according to the form of merger

- Share Purchase
- Asset Purchase
- Merger acquires all of the assets, the management is involved, friendly takeover

Appreciation of the merger

A candidate is worth it if the expected cash flow is greater than its estimated price.

### 15.2 Four main valuation methods

#### **Comparative price-earnings ratio method**

This assesses the current price and yield ratios of other possible candidates. It determines the price for the target candidates based on the evaluation.

### **Adjusted book value method**

The book value of the company will be adjusted to reflect the current market value. Sometimes, the book value will be adjusted to give a higher market value again, as a result of assets that are included in the original value.

### **Discounted cash flow**

If the current value of future cash flows is greater than the purchase price and the debt, the merger seems to be acceptable.

Current value = Current Value fut. cash flow - Purchase price - Liabilities

### **Current value (NPV) techniques**

PVNB	Present Value New Business
PVBC	Present Value buying company
PVTC	Present Value Target Company
Cash	Purchase Price

NPV                      Net Present Value = PVNB - (PVBC + PVTC) - (Cash - PVTC)

Other factors are also considered:

- Management
- Products (and production costs)
- Markets
- Indebtedness
- Expected Growth
- Image



## 16. Measures against takeovers

Hostile takeovers are part of the business. The best method is to be prepared that your company can be the target of a takeover and that it involves the control. Below are some options listed as measures

- Shark Not all managers are on the same date chosen
- Golden parachute Generous compensation for performers
- Poison pills are all debt due immediately if an acquiring
- Company more than a certain number of shares has.

If these measures do not take advantage of you have even more possibilities

- White knight
- Truce
- Pacman, the impugned company makes an offer for the

Shares, which are controlled by the acquiring company

If all attempts fail fend off takeover attempts, you can still try to buy back the shares at a higher price than the market value. This premium is called greenmail.

Board post (mail board) is when the acquiring company plans to launch its own members to the Management. In addition, the new members are sympathetic members of their Board.

Divestitures, the opposite of mergers

- After a merger
- After restructuring

Types of disposals

- Clearance everything for cash
- Spin Off part, independence
- The share sale company sold part of the shares

Finance types of associations

- Cash
- Loans leveraged buyout when the merger is financed

Types of leveraged buyouts

Management b / o

---

- Organization is needed
- Investors and management to take firm
- New company goes public

Transferee employees design plan

- The staff guarantee for the loan with their pension fund contributions
- In the plan of employees including employees in the investment community are represented.
- The employees earn their respective companies

### 16.1 The path to financial ruin

There are many reasons that lead to the financial collapse, a few examples are listed below.

- Financial distress, the returns are less than the costs
- Technical error unable to meet the conditions of the bond
- Technical insolvency is not able to pay the interest on time
- Insolvency liabilities are greater than the assets

The cost of financial failure

- Directly
- Indirectly lost sales, lost investment opportunities

# Part 5 Risk

## 17. Financial Risk Management

Corporate risk

A company may in many ways be exposed to risk. This ranges from the currency uncertainties to customer behavior

- Competition between companies
- International monetary instability
- Unpredictable behavior of consumers
- Changing interest rates
- Price behavior

The benefits of risk identification

- Money Savings
- Avoiding financial failure
- Participation in profitable opportunities
- The appearance of the company adapt customizable
- Obtaining appropriate investors

### 17.1 Risk identification

There are several sources for the origin of the various types of risks  
Internal company-specific risks (operational liquidity)

External risks including falling about

- Market risk is subject to constant change
- Regulatory changing regulations
- Systematically Security holder case in the enterprise

### 17.2 Risk assessment

It includes the identification of risk in quantitative terms. There are two kinds of risks.

- Operationally caused by changes in daily operations is not predictable
- Contract contains the financial security

Potential risk areas

- Overtime costs
  - Short-time work
  - Unpredictable demand
  - Governmental restrictions
-

- Changes in labor costs

The advantages of using quantitative risk analysis

Guided by a precise risk analysis

Guided by a coherent risk-analysis

#### 17.2.1 Four key inputs

- Risk Management Plan
- Other risk management inputs
- Historical information and expert reviews
- Other planning results

Detailed risk management plan

This describes how variable the risk structured activities and running. The following components are part of the plan.

- Methodology
- Rules and Responsibilities
- Budgeting
- Schedule
- Evaluation and interpretation
- Thresholds (points that are important for judging)
- Report Formats
- Tracking

Details of other risk management results

- Risks identified during the identification process
- Prioritized risks from the qualitative risk analysis
- Risks of additional analysis and management of the qualitative risk analysis

Details of historical information and expert reviews

Historical information can be obtained from two sources

- Project documents
- Published information

Expert reviews

- Project participants
  - Specific expert
  - Industry groups
  - Professional Associations
-

Details from other planning inputs

Project logic refers to the relationship between the various activities in a project.

- Duration estimate
- Work Breakdown Structure WBS list of cost elements
- Project Technical Objects

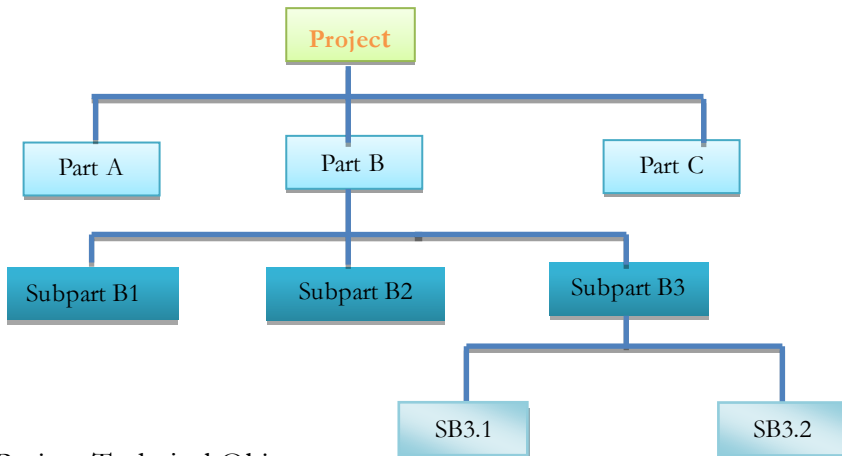
Duration estimate

- Quantitative assessment of the likelihood of work activities that are needed to provide a complete working
- It is a weighted measure of the cash flows of a bond including the interest rate to expiration. The longer the maturity of a bond, the higher the risk to invest.

WBS, the collection of cost elements

The Work Breakdown Structure chart is a deliverable-oriented group of project elements and defines the total work scope of the project.

Graphic Work Breakdown Structure



Project Technical Objects

This will help to avoid unrealistic objects

17.2.2 Tools and techniques for risk assessment

- Interview
- Sensitivity Analysis

- Decision Tree
- Simulation

### Detailed Interview

With the interview technique, you can get the following information to make a decision.

- Risks interviews contain important risk information from different stakeholders.
- Consecutive probabilities distributions. The graphics show probabilities and consequences.
- You can ask all the groups involved in order to obtain a comprehensive picture.
- You can ask them concerning the impact of the risk
- Document all responses
- Document all risks for a rational assessment

### Detailed sensitivity analysis

With this analysis, you can build a typical what-if scenario. This analysis includes a worst-case and a best case scenario.

- Identify the results to be examined
- Select the risks to be examined
- To determine Prepare the project plan to review the results of the analysis
- Adjust the plan for each separate incident risk

### Example

Invest 8000, Cost of Capital 10 %

Project A	Result	Project B	Result
Amount	8000	Amount	8000
COC	-800	COC	-800
<b>Cash Flow Worst Case</b>	<b>200</b>	<b>Cash Flow Worst Case</b>	<b>900</b>
Result	-600	Result	+100
Possible	1000	Possible	1000
Result	+200	Result	+200
Optimistic	1500	Optimistic	1100
Result	+700	Result	+300

If you want even in the worst case make a profit, then you should give preference to the B project. If you are among the optimists, you should pull before Project A.

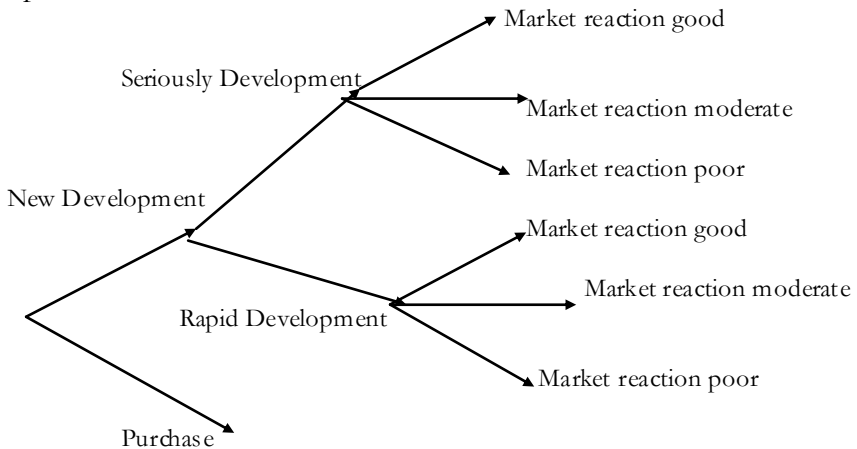
This analysis shows very well the effect of the gain in different scenarios.

Detailed decision tree

This tool will help in decision making. The most important detail is the path net worth

This value, compared with the net amount of other stores shows the best decision path

Example



There are two possibilities:

- Develop
- Purchase

For development one can choose between

- Seriously (long term) development
- Rapid development

Each of this sub possibilities there are three reactions possible

- ✓ Good
- ✓ Moderate
- ✓ Poor

Imagine

When chosen new development there are the following costs

By seriously development 500.000

By rapid development 50.000

---

The reactions for seriously development are divided into three parts

Good 60 %

Moderate 20 %

Poor 20 %

The following profits are possible for these parts

Good 800.000

Moderate 400'000

Poor 50.000

These are the results for the three parts above

Good 800'000 with 60 % = 480.000

Moderate 400'000 with 20 % = 80'000

Poor 50'000 with 20 % = 10'000

The developing costs are 500'000

All profits for seriously development are (480'000+80'000+10'000)

Total 570'000

Result, this could be a possible solution for clearing the question

### Simulation Details

A proven method for simulations is the Monte-Carlo method.

- Define the scope of the values for each task
- Distinguish the probability distribution for each task
- Select the random values
- Perform the simulation
- Analyze the data

### 17.2.3 Results of quantitative analysis

These analyzes can include the following values:

- Quantified risks
- Other results of quantified risks

Detailed quantified risks

- Project threats represent the probability of loss or damage
- Project options represent a potential gain

Accepted risks should be documented and used for later use. In the same way should be dealt with refused opportunities.

Details Display other quantitative risk analysis

- Likelihood analysis of the project
-



- Probability to reach the projected goals
- Trends in the results of quantitative risk analyzes

Probabilistic analyzes

This analysis allows a prediction of the timing and cost results

Probability to reach the projected goals

This analysis shows that the progress in the project is sufficient to achieve the goals. If this is not possible, the objectives adapted or more agents will be prepaid.

Trends

These are obvious reps on a risk analysis.

#### 17.2.4 Risk measurement methods

There are several methods to measure the risk. Two of the known are briefly explained.

- Value at Risk
- Sensitivity Analysis

Value at Risk

- Can go measures the minimum lost with a certain probability during a certain time.
- Measures the probability distribution, the sources of risk and to determine the outcome for the worst case.
- The result is expressed in currency

Advantages

- Helps determine a company's risky investments
- Allows a company to totalize all risks incurred
- Provides a coordinated accounting for the correlation between the risk factors
- Helps in the analysis of different benefits
- Down at the enterprise capital requirements

There are three ways to use VAR:

- Analytically
- Historically
- Simulation

### **Analytical details**

Needs input values, pricing models and other assumptions about probability distribution of species

### **Historically details**

Estimates the probability distribution of a portfolio performance by comparison with the past performance

### **Simulation Details**

Estimated portfolio returns, the simulation is performed for inputs on expected returns, Monte-Carlo method.

Details of sensitivity analysis

With this analysis, you can build a typical what-if scenario. This analysis includes a worst-case and a best case scenario.

- Identify the results to be examined
- Select the risks to be examined
- To determine Prepare the project plan to review the results of the analysis
- Adjust the plan for each separate incident risk

### 17.2.5 Strategies in risk management

There are several ways to keep the risk small

- Risk avoidance
- Risk reduction
- Retention of risks
- Risk transfer
- Products of the risk management
- Forward purchase or sale at a later date, the price is fixed today.
- Future purchase or sale at a future date, the price is not fixed yet.
- Swap Exchange or trade of a set of cash flows over a period in the future

Implementation and monitoring of risks

- Define
- Plan
- Monitor

Monitor is used:

- To ensure that the company can continue to fulfill their obligations.
- To the management about the success / failure of the measures taken to