Optional Prereading
MBA Fundaments of Accounting

Very relevant for your subject “Fundaments of Accounting”

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It is recommended that you read these lecture notes prior to taking the course "Fundaments of Accounting" because it explores several of the theoretical questions that you will be working on in the context of the Business Management Simulation "General Management". In addition, it serves as a reference for answering questions relating to business both during and after the course. The contents presented here stem from the various textbooks and sources that are listed in the reference section. Specific citations have not been included for ease of reading and because the manual deals mainly with fundamental principles of business management.

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1. Strategic Management

1.1 The purpose of having a strategy

With the acquisition of your virtual business (what you will do in the Business Management Simulation), selecting a strategy is one of the most important decisions that you must make. Especially in difficult and critical times (for example, during economic downturns, changes in the structure of the industry, stagnation, slumps in demand, cost explosions, shortfalls in innovation), experience has shown that strategic management is a necessity. Based on a self-critical and solid analysis of the environment and the company, new goals can be formulated that, in spite of the crisis, help structure the future of the company with unified strength. In addition, there are a number of different stakeholders who require partial or complete insight into the company strategy. A minimum amount of planning documentation is necessary that goes above and beyond the company's internal needs so that cooperating partners, money lenders (investors and outside creditors), suppliers or major clients are able to assess the future capabilities of the company. The stakeholders include all parties who want to be informed about what is happening in both good and bad times.

In order to ensure the competitiveness of the company, there are many different approaches for improving efficiency. Efficiency can be defined as the company doing things right. This has the knock-on effect that, e.g. cost-driven managers cancel rationalization projects or that "time-to-market" managers try to introduce as many new products as possible into the marketplace as quickly as possible. Such examples show how each person is trying to incorporate his own motives, needs and strengths. Effectiveness means doing the right things. This means that a balance must be achieved between the needs of the market and the resources and skill set of the company in order to provide long-term added value to the company and its customers. Therefore it doesn't make sense to develop a highly innovative, cost-optimized service (product or service), that isn't able to find any buyers in the marketplace.

In the context of strategic leadership or the strategic management within companies, the overall long-term behavior of the company as a whole must be adjusted to meet either a specific goal or a to-be-defined goal or goal system. Company wide strategic management is necessary when the company is made up of several different business units, handles different areas of the business, and necessitates the configuration and coordination of the whole. The term "corporate strategy" is often used, a term that is primarily used at the level of

affiliated companies or groups of companies. People often speak of competitive strategy or business strategy when concrete activities are discussed in the sense of products and markets, which is the case for most companies (small and middle-sized companies). Even if problems diverge to some degree, the basic considerations that surround strategic management and specifically the instruments used are often the same.

The structured, self-critical reflection of company decision makers – a key requirement for the successful development of a strategy – may be especially problematic for small and medium enterprises (SMEs), but also provides some important opportunities.

1.2 The understanding of the strategy within the company

Today, the so-called stakeholders such as corporate consultants, banks, major clients, suppliers or even the wider public require insights into the company's strategy and ask questions such as: What are the goals that the company is pursuing? How are the goals realized? How does the controlling system function? In a time that is characterized by a rapid speed, shortening of product life cycles, a flood of information and increased interconnectedness and dependencies, strategic management is becoming increasingly significant. Despite this fact, many owners of small and medium enterprises (SMEs) voice three objections relating to strategic management. First, they express a fear that using strategic management and instruments will limit the highly-praised flexibility of small and middle sized companies and that the company will then lose its competitive capabilities. Secondly, these business owners state that small- and middle-sized companies don't have the time to engage in the process of defining a strategy. The time required for this could be better used for operative tasks, for research and development activities, or for sales activities since success and cash flow is dependent on daily front-end operative activities. Thirdly, they fear that strategic management merely involves a "paper war". However, research has shown that there is often a lack of awareness about the instruments that are available to the company and that even simple instruments may have a large impact.

Strategic Management is especially a key issue in times that are characterized by change and insecurity. It is worth reflecting on its effects and direction at regular intervals. This is the only way to avert the danger of uncontrolled activism.

The process of defining an initial strategy may appear to be time-consuming. However, this time can be seen as an investment in the future because then fine-tuning of the strategy in future years is made significantly easier.

In the medium-term, a savings in time can be gained by promoting a general awareness of strategic management and thereby creating a goal-oriented

operative business. The flexibility of the company is thereby safeguarded. Strategic management is understood as a specific way of thinking that analyzes the development of the company. Its purpose is not to create highly detailed plans about what to do or what not to do in the future. Strategic management is based on the idea of planned evolution and concerns itself in this context with theories and theory-based practices. It is therefore open to suggestions for improvement, takes place in the form of a collective learning process, and deals with all topics that it deems to be important to the development of the company. The purpose is to provide perspectives and to give direction to the company, its employees, as well as its interest groups. The systematic judgment of the company's environment provides an opportunity to create a clear overview of the relevant incidents and relationships. Only in the context of holistic thinking is it possible to promote a future-oriented decision-making process. Risks cannot be completely avoided, but are at least minimized by an institutionalized learning process.

A big challenge is associated with the inability to predict many of the factors which influence the company. New technologies, changing customer requirements, competitor promotions or changing governmental frameworks are some examples of influences that make it difficult to conduct long-term planning. In addition, business owners must deal increasingly with contradictions that do not always permit logical organization. A competitor may be understood as a business rival, but may also simultaneously function as a cooperation partner.

In the research, there are a number of instruments that can be used in relation to strategic management. These are often instruments that stem from consulting companies and can be marketed as "money makers". All of them offer a grid or a model that attempts to handle real situations by reducing complexity. They offer a framework for investigation, but no concrete proposals in the form of recommended actions. They sometimes form the basis for decisions that will be taken in the immediate future. Firstly, it is important to note that not all instruments must be introduced or can be introduced. In practice, there are often only a few that can be used. Secondly, these only provide a framework that can be used through concrete analysis of information about the company or the business area. Thirdly, it is important to interpret the findings of the instruments, which is a further indication that strategic management is not a mechanistic discipline. In order to achieve success, creativity is necessary both while using and when concluding the use of instruments.

Important components are both the external environment analysis and the company-internal analysis. The analyses should provide answers to three central questions:

(1) Where are the biggest strengths, weaknesses, opportunities and threats for the company?

(2) Have ideas already been formulated about which new spheres of activity the company should become involved in or which spheres of activity should be scaled back?
(3) Which strategic success positions already exist and which can be built upon or developed further.

The contents of the company analysis include the company's areas of activity, its own abilities, the cost structure, the current strategy and the corporate culture. The environmental analysis includes the analysis of the overall environment, the industry, the market and the competition and ultimately the existing future opportunities and risks.

1.3 Environmental Analysis

A regular and systematic environmental analysis allows for the early recognition of changes and the opportunity to react in good time and in the context of strategic management. Every company is connected to one or more environments. On the one hand, it draws its resources from the environment (e.g. suppliers or labor market), which it then processes in the context of its business model.

On the other hand, there are restrictions that must be considered. These are directed at the company from other environmental participants and do not stand in a direct reciprocity. Ultimately the company offers its product to the environment (and specifically to customers and consumers).

Environment is not a stable, but a highly dynamic entity. New technologies, decreasing market barriers, deregulation and an increase in speed are three key factors that are transforming entire industries and markets. The former boundaries between industries are being dissolved and replaced by new and often function-oriented boundaries for business activities. These changes are often viewed as a threat, but also simultaneously offer a number of opportunities. The person who lives strategic management according to the motto "the path from leading to acting" places great value on the company analysis. This is because changes in the environment are not only associated with risks, but also with many opportunities for new business segments or business types. For example, the network principle is becoming increasingly important as a way to overcome complexity while maintaining flexibility. As a result, the functions of the individual participants change with the new production and customer networks.

Depending on the business environment of a company, the business can also be subdivided into strategic business units (SBUs). An SBU is the most isolated "functioning" segment of the overall field of business activity that has its own earnings expectations, opportunities and risks and that is able to develop and realize its own relatively independent strategies. This division helps reduce complexity. In this way, a company determines the areas in which it will function

and where it will utilize its resources. Segmentation can take place according to different criteria, but the following six defining criteria are the ones used most often:

- Product: The question must be asked regarding how the individual products and services differ from one another and how they might possibly complement one another.
- Market segment: Criteria must be defined regarding how to divide customer groups (e.g. buying patterns, habits, demographics).
- Customer Value: The actual benefit for the customer or the consumer must be communicated as well as how this may change over time (e.g. luxury, mobility, enjoyment).
- Technology: It must be determined if one or more technologies are utilized and how these may complement or be substituted for one another.
- Geography: Regional, national or continental groups may be formed, independent of the corresponding (necessary) differentiation according to cultural or legal variables.
- Cost structure: This includes aspects such as economies of scale and economies of scope as well as the differentiation between variable and fixed costs.

Two different perspectives must be considered in segmentation. For inside-out segmenting, a product-market matrix is created on the basis of the services that are developed and provided by the company. By combining individual areas, already functioning strategic business units can be made visible or areas which are not yet operational may be identified. In outside-in segmenting, the segmentation is directly aimed at the needs of the stakeholder groups. For example, one suggestion might be to have a relational framework with the axes of customer functions, potential customer groups and alternative technologies.

Additional forms of environmental analysis may be created through market research, the analysis of market size as well as surveying customer value or customer satisfaction.

Market research is defined as the systematic research of the markets in which supply and demand meet. The focus lies on the ability of the market to generate sales. It is important to note that market research is different than marketing research. The latter is used to monitor the effectiveness of marketing activities and to incorporate the relevant company-internal circumstances. Market research is concerned with the sales market, specifically to different market ratios, brand loyalty, product tests and the procurement market.

Successful market research requires goal definition as a first step. The research goal provides information about the type, the extent and the quality of the required information. The second step involves selecting a suitable research design. The third step involves gathering information. A distinction is made

between primary research (field research) and secondary research (desk research) in which both company-internal and company-external resources are available. Primary research also differentiates between survey, observation and experiment. The fourth step involves evaluating the information. In the context of market research, various market ratios are used.

Evaluating the sales markets involves the consideration of **various market ratios**. These include determining future production capacities, the analysis of the effectiveness of instruments of the marketing mix, surveying exogenic influencing factors on the market, and information about the interdependencies between the markets. The size of the market is determined by the number of potential customers whereas the capacity of the market is defined by the number, structure and buying behavior of those. Different types of needs are defined (initial need, replacement need, change-over need, complementary need, substitution need). Four market factors must be recognized and considered.

- **Market capacity**: The market capacity of consumer goods can be calculated by multiplying the sum of all potential customers and the their average need. For consumer goods, capital goods and producer goods, market capacity is calculated by multiplying the sum of all potential customers with the average intensity of usage. This provides information about the intake capacity of a market that involves a declarative statement in absolute numbers in terms of quantity.

- **Market potential**: By considering price and buying power, market potential can be calculated using market capacity. When there is a price change, market potential shifts on the price/quantity diagram. When there is a change in buying power, the demand curve shifts to the right for an increase in buying power and to the left for a decrease in buying power.

- **Market volume**: The market volume includes the actual sales generated by all the suppliers within a market within a specific time period and for a specific service. In a saturated market, the market potential equals the market volume. In an over-saturated market, the market potential is smaller than the market volume and in an under-saturated market, the market potential is larger than the market volume. Market volume may grow in three different respects: first of all through the diffusion of potential customers, secondly by the increase in spending power decisions, and thirdly by increasing the amount per potential customer. When the volume is formulated in terms of amount (e.g. kilo, ton, number) it involves sales volume. When the calculation uses average prices, then it involves sales revenue.

- **Market share:** Market share is an indication of the relationship between the sales revenue (or sales volume) of a specific company in relation to the overall market for specific services within a specific time period. The term market share is often equated with the term degree of market penetration. In

a buyer's market the customer or consumer has a considerable amount of influence over the goods and services.

For this reason, customer value and customer satisfaction are highly important. Consumers are more likely to choose a product if they experience or expect some increased value. In general, it can be asserted that customer satisfaction increases as the individually perceived customer value increases. Accordingly, customer satisfaction is not an objective item. The service offering must be tailored to the target customer if the company intends to increase the relative customer value.

1.4 Company-internal analysis

A self-critical company analysis provides an opportunity to analyze the resources and capabilities of the company and provides a way to estimate the profitability of the business. If this information is made available, it provides a basis for future strategic decisions regarding investments in human resources (further training), equipment or new technologies.

Before it is possible to conduct a resource-oriented analysis, the terms resources, competencies and core competencies must be defined.

- **Resources**

The Brockhaus dictionary basically defines resources as all production factors (labor, land, capital), so, all natural raw materials. Typologies are often created to extend the definition of the term. People might speak of both material and non-material resources. Potential subcategories include machines, raw materials, finances, property and materials for physical raw materials and patents, concepts and skills for immaterial resources. Resource-oriented management focuses on the creation, implementation and procurement of resources in order to construct or to achieve the strategic potential for success. The resources are utilized in the value added process and first produce a benefit through the assistance of the skills of the individual employees, company or offshore company. Customer value and strategic positions of excellence can only be reached through this configuration.

- **Competencies**

The term competence can be defined in a variety of different ways. Classical business economics and the legal practice understand "competence" as the right to carry out an action or to make a decision. The term is used to describe responsibility, authority, power of judgment and ability. In management theory, the term competence is understood as an overall bundle of skills. In this context, the term often describes competence in the sense of a set of skills and is a functional paraphrase of the term competence. It especially highlights the new realizations of competence-oriented management, which has its origins both in industrial economic and the resource-oriented school of thought. The further

development of the numerous knowledge management approaches also employs the term competence. This is because the knowledge that is to be guided and developed within an organization requires sets of skills in order to be used in a purposeful and beneficial way. Sociologists are ultimately concerned with the term competence in the sense of reflecting on the capabilities of the individual with his/her perceived environment. This area especially analyzes the configuration of competence. The results of applying competence represent the configuration of competence in the sense of a process-oriented perspective. According to insights from sociology, the application of competence does not involve the sequential "stringing together" of skills in the sense of a sum, but rather involves subjective confidence in one's own ability to handle certain tasks or situations.

- Core competence

Core competencies are normally characterized by the fact that they are applied simultaneously in a number of business areas and therefore offer the company an opportunity to multiply them, that is, to use them for different products and product generations. A company is no longer understood as a system made up of different business units, but rather as a portfolio of skills that result from the combination of resources, unique knowledge and optimally-employed organizational routines. For such reasons, a company should not be viewed as an eclectic bundle of tangible resources, but as a hierarchy of intangible knowledge and intangible processes to generate knowledge. According to this idea, competitive advantage stems from deeply ingrained abilities.

Using the four criteria, it is possible to determine if the formulation of core skills really deals with core competencies:

- The skill must be valuable in that it increases the efficiency and effectiveness of the company
- The skill must be rare, so that it differentiates the company from competitors
- An imitation is impossible in order to maintain an edge over the competition
- It must not be possible to substitute the skills, otherwise these are neutralized and lose their effectiveness

In addition to the resource-oriented processes of the company analysis, the value-oriented processes are also of importance. These processes and operating figures are the emphasis of the subject "Fundaments of Accounting" and will be discussed in later chapters in more detail.

Strategic decisions should be reflected in the success of the company. In order to determine the value-based success of a company, there are simple instruments in addition to the shareholder-oriented company value, that help evaluate success.

It is possible to distinguish between ex-post and ex-ante evaluations. The ex-post evaluation shows the effects of earlier strategic decisions and forms a basis for making future decisions regarding company orientation and positioning. In contrast, plan data (ex ante) already include the direction that has been defined in the strategy and provide an opportunity to appraise the feasibility of the specified strategy.

1.5 Strategy Analysis

This section includes examples of the PIMS database, the experience value curve and portfolio methods. There are various types of portfolio methods. For our example, we will use probably the most well-known portfolio analysis, that of Boston Consulting Group.

PIMS stands for Profit Impact of Market Strategies. The founder of this database, Sidney Schoeffler, believes that all business situations are similar enough to one another that they will obey the same laws of the market. In a model that was developed for General Electric in 1972, a whole list of strategic variables such as e.g. intensity of investment, market position and quality of products and services was established. Using this data, the anticipated ROI, market share and profit was calculated. Then the database was expanded to include several thousand companies. This led to benchmarking projects, which allowed for the derivation of success factors.

From the start, the PIMS program was focused on researching as many factors as possible that relate to strategies and market conditions. In doing so, about three dozen factors were discovered that directly relate to profitability. Of these, eight of them are especially important. These are:

1. The intensity of the investment, as a relationship between the fixed assets plus net current assets and profits (high intensity of investment has a negative influence on profitability)
2. Productivity, expressed as added value per person (high productivity is essential when there is a high degree of intensity of investment)
3. Relative market share (a high relative market share is advantageous)
4. The relative quality as a percentage of sales revenue for products with superior quality minus percentage of sales revenue for products with substandard quality (high relative quality is essential if there is a small market share)
5. Liquidity (strong market growth requires liquid capital)
6. Innovation rate (a high rate of innovation is advantageous when there is a large market share)
7. Vertical integration, quantified as a relationship between added value and profits (vertical integration is always situation-specific)

8. Number of customers (a smaller number of direct customers mostly has a positive effect)

The concept of the **experience curve** stems from a research study published in 1936 and was picked up by Boston Consulting Group in the 1960s. The concept serves to explain cost dynamics within an industry, but also serves as a guide for positioning within an industry. The experience curve states that the absolute production costs decrease at a constant percentage rate (in general between 10 and 30 percent), as soon the doubling of production volume is reached. In addition, the assumption is that the company learns from experience at a constant rate. When markets develop quickly, the consequence is a cost advantage in production over the competition. Expanding production volume allows specialization within the company and leads to standardization. Experience allows continuous improvement of products and processes, achieving economies of scale (if the cost structure is constant) as well as an expansion of the power towards suppliers (decreasing acquisition price).

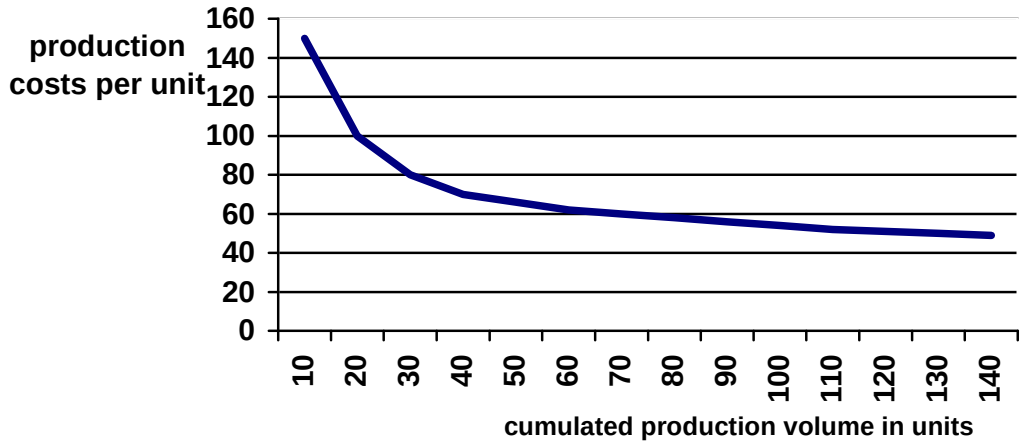

Fig 1: The experience curve

The concept of the experience curve has the consequence that individual companies concentrated mainly on achieving market share and attempted to use price decreases to gain an advantage on the experience curve, which only functioned in rare cases. Production volumes were too often seen as an ends in themselves. The concept of the experience curve appears to be especially attractive to serial production.

Portfolio Methods have become increasingly important in research and have become very attractive for consultants and for students. First of all, portfolios are very clear and easy to understand. In addition, they involve the connection between environment and resource analysis. Portfolios are especially used in cases when a company has several strategic business units (SBUs) or strategic business areas. The method can also be applied to a bundle of independent

companies (ventures). Working with portfolios becomes easier, the more independent the individual areas are from one another. The main success factors are determined by the individual axes, which consist of several environmentally-related and company-internal success factors.

It is very often the case that an axis of ordinates (y-coordinate) shows the attractiveness of the market and an axis of abscissas (x-coordinate) the relative strength in comparison to the competition as a strategic core element. The size of the circle often relates to the profit that is targeted by the product (= importance within the company).

In 1979, Brue Henderson used the “BCG-Matrix” to create an initial picture of how the strategy of a company can be analyzed. The BCG-Matrix can be viewed as the original form of the Portfolio Matrix.

In the model, the dimensions of “relative market share” and “market growth” are combined. Based on the discussion of the experience curve, Henderson spoke of ‘relative market share’. Market growth relies on the life cycle theory. It was determined that the increase in costs only follows the increase in production volume with a slight delay and only partially. The overall portfolio has the goal of ensuring a balance between the different cashflows of the different products or business areas. To achieve this, four rules are important to the cash flow of a product:

- The margins and the profits earned depend on the market share. High margins and large market share go hand in hand. This is a general observation that can be explained by the effect of the experience curve.

- Growth requires capital subsidies to finance additional assets. The additional money that is required to maintain the share is a function of the growth rate.

- High market share must either be earned or bought. Purchasing market share requires additional investments.

- No product market can grow infinitely. Growth will become profitable in the moment that it begins to slow, or not at all. The earned profits may not be reinvested into the same products.

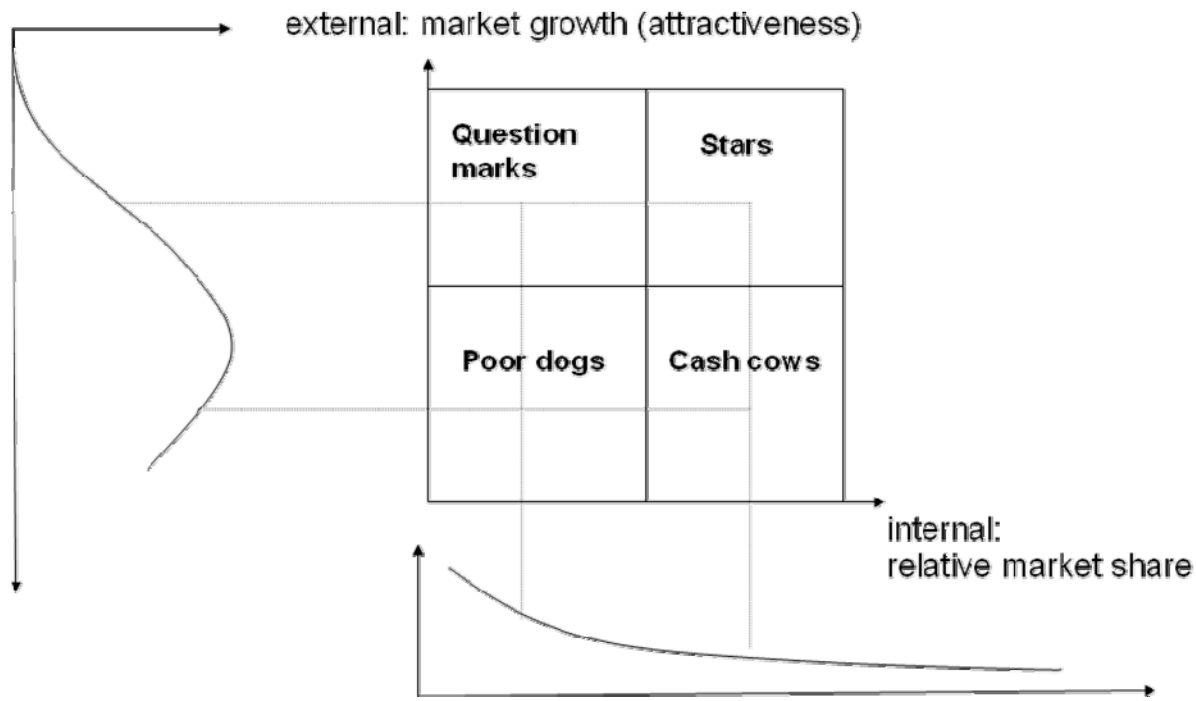

Fig. 2: BCG portfolio

Cash cows are products with high market share and a slow growth rate. This means that they typically make a lot of money. As a rule, they tend to bring in more money than must be reinvested in order to maintain market share. The excess must and should not be invested into the same product, which could lead to decreased earnings.

Products with a low market share and a slow growth rate are classified as **poor dogs**. These can achieve a calculated profit, but have to be reinvested in order to maintain market share. This means that no profit can be declared. The profit contribution is low to negative.

Products with low market share and a high rate of growth are classified as **Question Marks.** These products almost always consume much more money than they are able to bring in. If no additional money is provided, they fall behind and fade away. If the share can be maintained and the growth rate slows, these products become poor dogs. The products require large monetary investments

because they are not able to generate money themselves. There are no norm strategies for this group.

Products with high market share and a high rate of growth are classified as **stars**. In most cases these products achieve profits, but do not necessarily earn as much money as they consume themselves. As long as they are the leader, they bring high profits as growth decreases. The reinvestment requirement becomes smaller when these products become cash cows.

According to Henderson, all products at some point in their lifecycle achieve the status of cash cows or poor dogs. The question is just whether the product can achieve leading market share in its market. With this normative observation, the question is how small and medium enterprises can be successful despite small market share.

1.6 Strategy Development

The goal of strategy development is to define the hard and fast future direction of the company based on knowledge from the analyses conducted. The purpose is not to create the most comprehensive documentation possible. The more concentrated and concisely the strategy is formulated and the better the most important goals and intentions are communicated, the more clear and comprehensible they are. A strategy that is not clearly formulated is doomed to failure from the beginning.

The basic strategy is a confidential and classified document that is intended for the executive board and top management. If it were published, the competition would become informed of the intentions and goals of the company.

On the other hand, the strategy cannot remain a secret. Employees must be informed about the goals and value systems of the company. How can a strategy be implemented if the employees are not even aware of it? But not only employees, but also the public today are demanding more and more that the goals and intentions of the company are disclosed. For this reason, the basic company strategy as intended for employees and the public is often summarized in a concentrated company's mission statement. This allows the communication of the strategy, without revealing confidential or classified information.

In practice, corporate strategies can be very different from one another and are therefore structured and formulated differently. The following points (A to E) provide a good orientation as to how a company strategy may be structured.

A	Mission / Vision: Business and basic orientation of the company
B	Build up Strategic Success Positions: To achieve differentiation towards competitors.
C	Products and markets: Priority for each product-market-area - definition of product and market related objectives.
D	Company functions: Guidelines / strategies for the different functions: Marketing Production Research and Development Personal, Leadership and Organization Finance and Accounting Maybe Cooperation's and Acquisitions Maybe Logistics and IT
E	Work out rough time table (milestones for strategy implementation)

Table 1. Content and structure of a company strategy

In the context of strategy development, a distinction can be made between market strategies and competitive strategies. In the context of market strategy, the positioning with respect to the individual market segments and target groups in a business area may be defined. The competitive strategies outline the positioning with respect to the competition (trade rivals). Most **market strategies** include the analysis of the product life cycle as well as Anshoff's strategy matrix.

a) Product life cycle

This concept was already shown within the BSC portfolio. In the introduction phase of a product, the product must first be developed. The required investment generates costs. These costs cannot be covered by product profitability since no profits can be generated during the development phase. In most cases during the introduction phase, market introduction efforts are required in the form of advertising and promotion. This often means that this phase also does not involve profit-skimming. With increase in sales, the profits per product increase. Through market success, competitor's products may be introduced which make it harder to defend one's position in the market. At this point, the product is in the turning phase. In this phase, a decision is taken regarding whether the product can be renewed through innovation so that it can transferred into a growth phase, or whether the demand is continually decreasing such that the product must be pulled from the market at the end of the degeneration phase.

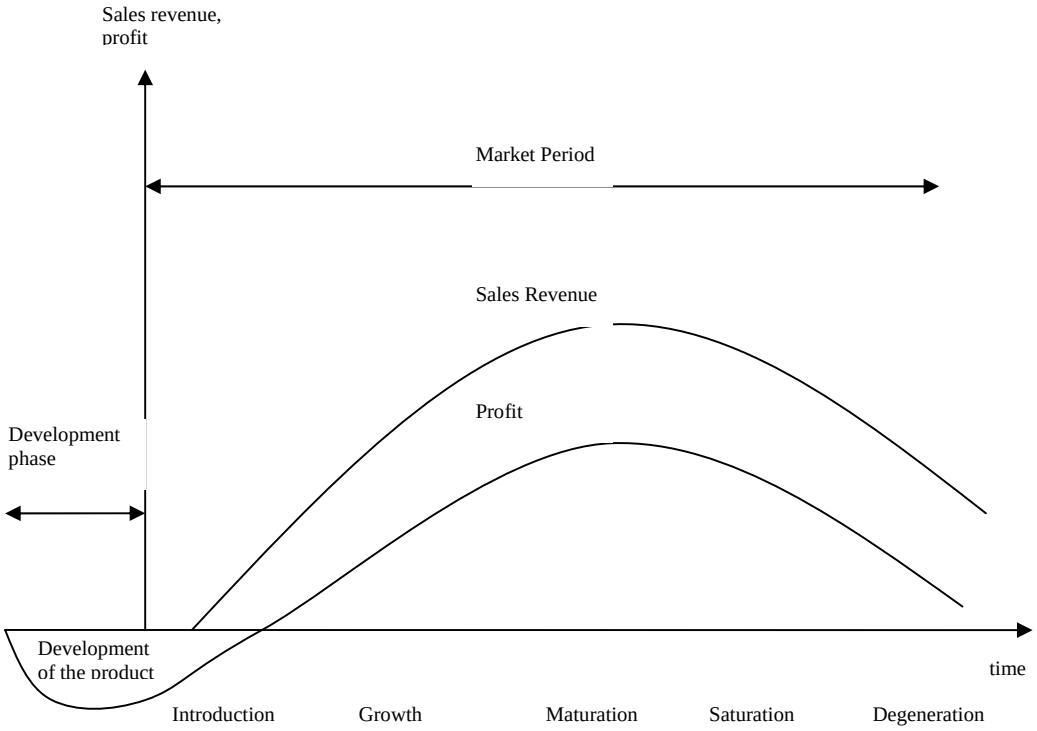

Figure 3: Ideal type of product lifecycle

When applying the product life cycle model in practice, it is important to consider that the sequence of the suggested phases do not necessary have to follow a prescribed order. In addition, it is not possible to predict the duration of the life cycle. For example, there are products such as Coca-Cola that have maintained a strong position in the market for decades. The same cannot be said for computer processors. Capital goods such as machines or automobiles often have a longer product life cycle than is typical of consumer goods, even if the examples cited indicate the opposite.

b) Anshoff's Strategy Matrix

Anshoff's Strategy Matrix is based on the two axes of "Range of Products/Services" (the selection of products/services with new or old products) and "Marketing Efforts" (with new or old markets), which provide a framework for four strategic approaches.

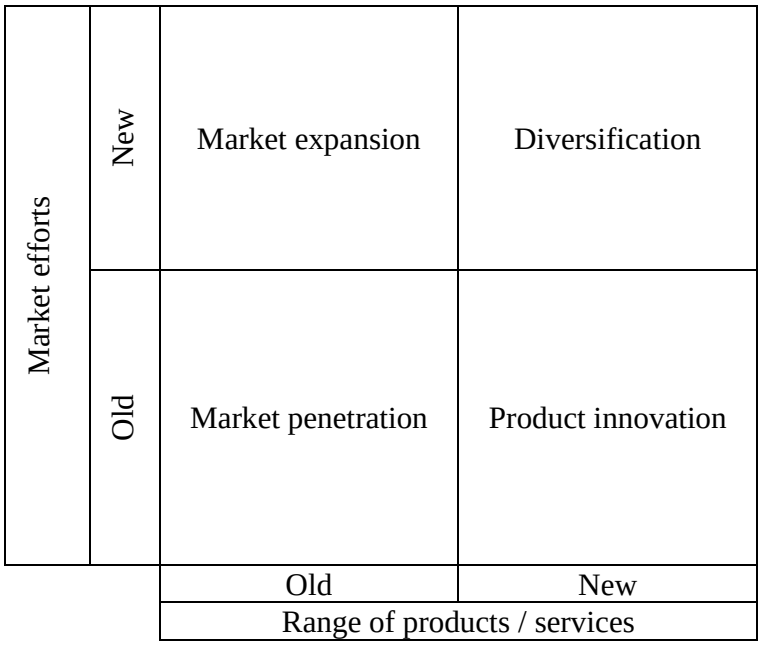

Fig. 4: Products and sales markets according to Ansoff (1955)

Market penetration: This strategy requires a clear commitment to corporate growth in existing markets with existing products that aims to increase market share. Market permeation is generally based on economies of scale or economies of scope. Market entry barriers of an economic (customer loyalty through quality, service, maintaining regular customers) or of a legal nature (such as qualifying examinations, regulating access to resources) describe ways that a company can accomplish market penetration or defend its position.

Product innovation: In the second approach, existing products can be redesigned or developed completely new to open up new market opportunities.

Market expansion: Companies that acquire new markets for example in the context of internationalization or by tapping into new distribution channels are following the strategic approach of market expansion.

Diversification: Ansoff defines diversification as the simultaneous development of markets and products.

Especially for small and medium enterprises, the question remains whether a diversification strategy such as that proposed by Ansoff is sustainable. Because of limited resources, it is not likely that all companies will be able to simultaneously develop their markets and products.

Competitive strategies offer different options for how a company can behave with respect to its competitors. The following instruments are the most well-known, but at the same time only reflect a small subset of the numerous different models.

Porter defines two basic types of competitive advantages that a company may have and uses these to present “generic competitive strategies”.

market focus	Singularity in the view of the customer	Cost advantage
Total branch	DIFFERENTATION	COST LEADERSHIP
Focus on special segment(s)	FOCUS STRATEGY	

Fig. 6: Porter’s (1985) Strategic Alternatives

Cost leadership: The goal of this strategy is to produce at the lowest costs in the industry. This strategy involves investing in large-scale production facilities, using savings associated with the size of the company and carefully monitoring the general operating costs. Programs such as Downsizing and Total Quality Management are potential approaches associated with this.

Differentiation: The goal of this strategy is to develop unique products or services that build upon brand and customer loyalty. Such a company can offer better quality, increased services or unique product characteristics. These justify the corresponding higher prices.

Focus strategy: This strategy is based on focusing on narrow segments of the market. The strategy can be defined as focusing on differentiation since the products in the focus markets are differentiated. This allows the company to concentrate on developing its know-how and its competencies.

Cost leadership is especially useful for largely standardized products that are associated with a high degree of price transparency. For small and medium enterprises, this strategy is only feasible when dealing with a very small niche market that is not or is hardly sought by the competition. The strategy of cost leadership is closely connected to the experience curve in the context of the BCG matrix. Porter indicates that it is very important for a company to determine (per

business area) if it is pursing a strategy of cost leadership or differentiation. He describes the business areas that are not clearly defined as “stuck in the middle”. Defining the two basic approaches must not be viewed as sacrosanct because they are not suitable for all changes in the market and competitive environment. But within a time period, one approach should be followed consistently. One example is the often-cited example of Honda. In the 1980s, Honda followed the strategy of cost leadership for compact cars and therefore was able to achieve a strong market position in this segment. Early on, the company began to also invest in high-performance engines in order to later be able to differentiate itself in the luxury car class. Such an approach is termed “outpacing”.

This strategy explicitly requires developing the capability to shift one’s emphasis between developing a recognized product value and decreasing overall manufacturing costs depending on the competitive situation, thereby overtaking the competition.

1.7 Reviewing the strategy

Closely connected to implementation is the review of the strategy. As a matter of principle, this review is always bidirectional. On one hand, it is important to examine how the implementation of the strategy is going. Information is summarized through ongoing monitoring processes. Concrete actions – in the sense of controlling, understood as directing and managing the strategy process - can be derived from this information in order to achieve strategic goals within the defined time frame. On the other hand, the assumptions that are fundamental to the strategy are continuously monitored with respect to strategic forecast. In doing this, the behavior of competitors must continuously be monitored so that companies are able to battle with the competition either proactively or using suitable measures. In addition, it is also important to monitor how effective the strategy is in achieving expected results (e.g. increased market share, access to new customer segments, increase service quality for customers, etc.).

In periodically evaluating the strategy, its implementation is monitored. This ensures that deviations can be detected early on. In addition, it is important to regularly monitor whether there are changes to the overall environment that make it necessary to adapt the strategy. A Balanced Scorecard is often used for this purpose. Based on the company’s mission statement, the related strategies and company goals as well as the related performance figures for measurement are defined. These are then “broken down” within the company so that each department or even each employee is aware of what he/she can or must do in order to fulfill the goals of the company. A key feature of the BSC is that it does not only focus on financial performance figures, but includes multiple dimensions and perspectives that are important to the success of the company. These are often the customer, employee and process perspectives.

The following questions are associated with reviewing the strategy:

- How is the implementation of the strategy going? Have the measures which have been agreed upon been implemented on schedule?
- Have the defined goals been achieved?
- What are the reasons for any deviations that arise?
- Must additional actions be defined?
- Have there been changes in the company's environment (market, customer, industry, competition) that make it necessary to re-evaluate the situation?
- Must the strategy be adapted or even re-formulated?

This is an important task for management and requires necessary knowledge about internal and external accounting systems. The theoretical principles will be communicated in this course. The emphasis is on the practical application that you will need to be able to demonstrate. To do this, the reports that you have at your disposal are extremely important. Both the company and the corporate analysis can be conducted on the basis of these reports. The task of formulating a strategy and monitoring the strategy are part of your management decisions. You will quickly become aware of the importance of the accompanying performance figures and financial reports.

2. Internal Accounting – Cost Accounting

2.1 Introduction

This chapter on cost accounting introduces basic terminology relating to company cost accounting. The "cost and performance account" as it is precisely termed, although it is commonly just called cost accounting – is part of the company's accounting systems that differentiates between an internal and an external component. Internal accounting includes, amongst other things, accounting, statistics, controlling and cost accounting. Another way to differentiate is by the use of a general ledger and the use of sub-ledgers (that feed into the general ledger), e.g. finance accounting, material accounting, payroll and salary accounting, assets accounting, etc. The audience for internal accounting is – as per the term itself – company-internal interested parties, especially management and operative employees. External accounting includes the areas from which the year-end accounts are derived: the company report including the balance sheet and calculation of profits and losses plus appendices that are aimed at readers outside the company.

A functioning cost accounting system is a pre-requisite to the rational management of a company. The purpose of cost accounting in the company is to determine if the company has been economically viable in the previous period

(month, quarter, year) – that is, whether it has made a profit. In contrast to external accounting (so-called “pagotoric” which means accounting based on payments and financial accounting; pagare (lat.) = to pay) – especially balance sheet and profit and loss accounting – an internal information system (“calculated earnings statement”) that can be individually tailored to the ideas and purposes of the company. Independent from this there are also certain factual aspects that apply to every cost accounting system.

In contrast to the presentation of company activity in the balance sheet which documents all transactions between the company and the environment in the form of the presentation of end-of-period assets, cost accounting concentrates on the purely operational activities. In this respect, it delineates activities that don’t have anything to do with the purposes of the company. For example, the profits of the company’s cafeteria have nothing to do with the success of a machine tool manufacturer.

In English, cost accounting, in contrast to external accounting or financial accounting – is termed managerial accounting or cost accounting, or sometimes also as activity-based costing (accounting) (ABC).

The central function of companies in market economies is to provide output that can either be processed further by other companies or directly sold to end-users for a profit. The output may be physical assets (machines, semi-finished goods, clocks, etc.) or services (consulting, training, construction, transportation, etc.). In creating the output, goods are utilized and consumed, thereby resulting in new goods (services).

It is clear that a company can only achieve the goal of making a “profit” if earnings are greater than the expenses. On average about 40% of the profit of a limited liability company are spent on taxes. The rest is available for providing the shareholders with the relevant interest on their investment and to (via reserves) finance the company’s assets and growth. The price of every product sold must cover all the resulting expenses (included calculative costs, see below) while also generating enough profit so that all the functions named here can be fulfilled. This includes paying taxes and dividends as well as securing the assets and growth of the company. A key function of cost accounting (CA) is therefore price determination (calculation).

In connection with capacity limitations, there are certain cost accounting processes that are suitable for determining optimal product programs, for optimizing process and machine usage and for planning lot sizes und manufacturing processes. The terms “expense and income” describe the value of all goods that are consumed, produced and sold in the financial year, specifically as they are shown on the profit and loss statement (P&L) and on the balance sheet. In contrast, cost accounting works with the notions of “cost and

performance". It represents only the expenses that are incurred in relation to helping the company achieve its operational goals (e.g. to build electric motors). It therefore deals with the so-called operating expenses and basic costs. In contrast to "success" and "overall results", cost accounting concentrates on the company earnings (as a kind of the 'short-term profit and loss statement', which is the difference between performance and cost. "Cost" and "Expense" are not one and the same. For example, there is neutral expense (donations, loss in stock value) and neutral income (interest profits, gains in stock value), as discussed below.

Neutral revenue minus neutral expense equals neutral profit. This breaks down into the financial profit, for example, interest earnings minus interest expense and the extraordinary profit that may, for example, represent the expenses relating to a warehouse fire or a tax refund. Operating income plus neutral profits equal before-tax earnings. After subtracting tax on profits, we get after-tax earnings or annual net profits (for corporations).

Sales revenue
± Increase / Decrease in semi-finished or finished goods inventory
+ Further services on own account
= Total income
- Total expenses
= Operating income
± Financial result
= Earning from regular business operations
± Extraordinary profit / loss
= Income before taxes
- Income tax
= Net profit (after tax earnings) / Loss for period

Fig.7: Profit and Loss Overview

2.2. Definition of Terms

(1) Disbursements/Incoming Payments

Disbursements and incoming payments are increases or decreases in the cash and book money balances (Cash out / Cash in). The difference between these two values results in the change of liquidity in the narrowest sense (financial assets).

(2) Expenses/Earnings

When liquidity is defined in the broader sense, it includes expenses and earnings. A reference is made to earnings when something is purchased, but the payment has not yet been made (buy “on credit” = increase in liabilities sell “on credit” = increase in the receivables).

(3) Expenditure/Revenue

Expenditure is an asset-creating or income-statement related disbursement within a specific time period. The difference between payments-out and expenses is that the point in time of effectiveness is either earlier or later than the point in time of the expense. An example could be when purchasing a machine. It is purchased (expense) and its cost (loss of value due to wear and tear) is recorded in the amortization and spread over the entire utilization period. Cost is the period-related decreases in net assets. This is made up of the financial assets and tangible assets: machines, stock, etc.). Similarly, earnings are the period-related increase in net assets.

(4) Cost/Performance

Costs are defined as stated expenditures incurred in the production of the company’s goods and services. The difference between costs and performance is defined as operating profit. This expresses what the company has earned through its actual production of goods and services:

Examples:

- When expenses and costs correspond to one another, we talk about operating expenses and basic costs
- Expenses, but no costs: This case involves operating expenses that are extraordinary expenses (stock fire, theft, payment of back taxes).
- Expenses, but without costs is non-operating expenses (decrease in bond rate)
- Calculatory costs with valuation rates that are other than the outgoings in the financial accounting (outlay costs) (e.g. calculatory write-offs).
- Calculatory costs which have no corresponding outgoings in the financial accounting.

Principles of Cost Accounting:

1. Cost accounting is not an end in itself. The way a company structures its cost accounting is totally dependent on the individual goals of the company; if 90% accuracy of the numbers is sufficient, this should be left at that.

2. Cost accounting is also subject to the criteria of the economic principle. The company expenses must exist in relation to an economic relationship to desired purpose: Does it make sense to capture the exact consumption of pens?

3. Costs should be attributed in accordance to usage, as long as it makes sense from an economic standpoint. For example, it would not make sense to place a electricity meter on each piece of electric equipment, but rather to "distribute" such costs (in the cost-center accounting)

4. Cost accounting must provide values that can be compared across the company,
    - To enable comparison of time
    - To enable comparison of sectors

   Example, if administration and sales were handled by separate cost centers one year, then this also should be the case in the next year (continuity).

5. Business specific considerations determine the cost accounting:
    - Only operational depreciation is captured and documented.
    - Tax-related, fiscal and balance-sheet related considerations are not included (important!)

   Example: High special depreciation for energy-saving investments has an effect on the balance sheet, but has nothing to do with actual depreciation in value

6. Cost accounting is based on the normal-case: one-time occurrences should not be considered or must be "smoothed") (e.g. one-time testing for a new product, payment of vacation pay in June).

7. Depreciation and creation of goods and services must always be shown for the respective time period, e.g.:
    - Costs that only occur once a year (vacation pay), are to be included in the operating costs; otherwise there will be a distorted representation
    - In the monthly operating statement, there is often an "future estimation" of labor costs, because payroll accounting is not completed until the 15th of the following month

8. Cost accounting must be current:
    - Of what use would it be to management, if the cost accounting for January was first made available in June?

It is important to consider that each company will conduct its own form of cost accounting. There are no rules or legal specifications. The goal must be to ensure that the above-listed functions are fulfilled. A distinction is made between

three main areas of cost accounting: cost type accounting, cost center accounting and cost of unit accounting.

2.3 Cost Type Accounting

First, it is important to determine the actual depreciation values in a specific reporting period (month, quarter) grouped by type and amount. These actual costs are the starting point for cost control. Specific, planned costs (budgeted costs, target costs and projected costs) are compared to actual costs and deviations are analyzed. Actual costs are the basis for the cost planning of future accounting periods; budgeted costs provide important guidelines for the purchasing department.

Cost planning systems for management decisions are generally not broken down into great detail with respect to cost types and cost centers. Standard cost accounts are based on full costing using fixed prices and standardized (normalized) required quantities. They are well-suited for profitability analyses. As cost-center cost accounts, they provide the cost center "owner" with performance standards.

In companies, we are mainly dealing with the following types of costs:

- Material costs
- Personnel costs
- Energy, maintenance and other costs
- Calculative costs

In practice, the different costs types are broken down further. For example, there are different types of material costs:

Cost type group	**Number**	**Cost type**
-Raw materials	92 000	steel
	92 001	synthetics
	92 002	outside supplied parts
-Auxiliary materials	92 020	screws, screw nuts
	92 021	electrical material
	92 022	paint, varnish
-Operating supply items	92 030	oil, grease, lubricant
	92 031	heating oil
	92 032	fuel, gasoline, diesel
-Delivered energy	92 050	electricity
	92 051	gas
	92 052	water

etc.

The numbering is based on the cost plan of the financial accounting system. In it, each individual area (e.g. 92, depending on the accounting system) is reserved for the cost type. Each organization is free to choose how it wants to log and divide the categories. Often organizations base this decision on the industrial accounting system. It is important that these costs can be divided into direct and overhead costs and general costs. Direct costs and individual costs can both be directly attributed to the cost object (the object or service to be calculated), whereas indirect costs are assigned during a later coding process in the cost center accounting.

For example, if a company focuses its marketing efforts on a specific product, these can be directly attributed to the product as individual costs. However, if the company decides to undertake a complete image campaign, the marketing efforts must be split across each of the cost carriers.

It is important that individual costs are not confused with variable costs and that indirect costs are not confused with fixed costs. This will become clearer in the section on marginal costing.

(1) Material costs

In principle, material costs are simple to capture. As a rule, materials are taken out of stock through picking lists (or the corresponding computer bookings); the product by amount and value (=acquisition price) equals the material usage. Today, it is increasingly common for suppliers to bypass the warehouse ("just-in-time") and deliver directly to the production line. In this case, the supplier invoice is directly booked as material usage. It is therefore quite common for purchased material – if looked at over the course of an entire fiscal year – to be purchased at different prices. Regarding cost accounting, this can be considered in different ways:

- either average prices are used for accounting that represent the weighted average of the different purchase prices throughout the year, or
- the company works with internal prices: This means that price peaks and troughs are eliminated and that normal valuations are used for calculation.
- Additional possibilities are the so-called "sequence of consumption principle" (e.g. FIFO: first in/first out or LIFO: last in/first-out)

(2) Personnel Costs

Personnel costs are very simple to take from the monthly payroll accounting. Using salary lists, time wages and task wage accounts, the salary bureau knows exactly which costs were incurred during which reporting periods. Of increasing importance today are the so-called non salary costs (supplemental wage costs).

While in 1996, non salary costs made up only about 44% of the total salary sum in 1966, they were 62% in 1976. Today they are about 85-100% supplementary wage costs, relating to the gross monthly wage.

(3) Energy, maintenance and other costs

Energy, maintenance and other costs involve the services of third parties. Their invoices are collected and categorized accordingly. Sometime it is necessary (towards the end of the fiscal year) to forecast these costs using a cost estimate for goods and services rendered and for invoices that have not yet been generated.

(4) Calculative Costs

Calculative costs (imputed costs, back expenses not using cash) include aspects that either do not have a corresponding value in the financial accounting system ("other costs", e.g. balance sheets vs. calculative amortization – or similar) or for which there is no corresponding financial capital expenditure ("additional costs" e.g. calculative imputed risk). Calculative costs should be included in the cost of unit accounting, that is in the calculation of the sales price.

The price that the customer pays should include all cost components (full costs), plus a profit margin. When the sales price is paid, the corresponding amounts flow back into the company and go toward (re)financing the individual cost components. Cost accounting is concerned with representing actual depreciation; extraordinary expenses are written off. Expenditures that are strongly characterized by exceptional influences (e.g. accelerated depreciation for environmental protection investments) cannot be directly transferred into the cost accounting (they would distort the results). They are therefore transferred in a "smoothed" manner that is "normalized".

Example:
An energy-saving machine in the value of EUR 100.000 is allowed to be written off through accelerated depreciation (book-related) in one year. The depreciation amount would be EUR 100,000 for the fiscal year. The machine will be used for ten years (as an estimate). So a calculated depreciation of EUR 10,000 per year is recorded in the cost accounting system.

Buildings, machines, engine plants, etc (=tangible assets) lose value because they age over time (technical obsolescence, product change) or because they are technically depleted. This depreciation must be included in the cost accounting. Since this does not occur in a visible manner (the tangible assets do not produce an invoice each evening), it must be computed or calculated.

The depreciation of fixed assets that are used on the balance sheet (according to the tax-related depreciation tables) cannot be used for cost accounting purposes,

because they are dominated by tax and trade laws and don't document the actual consumption of value. The assumption is that the tangible assets can be used until their value sinks to zero. The scrap value is normally not considered because it is difficult to determine and is (in its amount) insignificant (of course, not in other senses). The calculative depreciation is charged to the operating profit as (other) costs.

Cost accounting normally uses a process of linear depreciation. That means that during the entire term of usage, the tangible asset's depreciation remains the same each year in terms of amount and is distributed over time. The taxed-based diminishing depreciation is normally not used in cost accounting, because it often leads to continually differing depreciation amounts and therefore different charging of costs. However, in industry, it is relatively common to find depreciation according to actual output or the usage of a capital asset. The expected term of utilization is taken from experiential data. The technical and economic life of a tangible asset must not be identical to one another. If a machine is used under unusual circumstances (e.g. in damp environments), this should be considered when estimating its expected useful life. The linear approach; however, is not that far from reality. When using diminishing depreciation realistically and when considering the increasing maintenance efforts over time, this "linearizes" the diminishing depreciation effect.

Side Note: Calculative interest, imputed risk, salaries, rent

For the sake of clarity, calculative aspects that are additional to depreciation are not included in this course. For students who are interested, the following side note serves to show the amount of leeway that is available in cost accounting and why it is enormously important to possess fundamental knowledge about the subject of accounting.

a) Interest

An operating production process ties up capital (assets in the form of tangible assets, means of production, etc.). This commitment of capital must be viewed in comparison to alternative forms of capital commitments (fixed-term deposits at a bank, securities, etc.) This operative capital commitment is only justified if the capital investment (including owner's equity) is at least equal to the commercially available interest rate (opportunity cost or alternative interest rate). If the capital that was invested in the company was financed externally, then a corresponding (credit) interest rate would need to be determined. Employing calculative costs for owner's equity is also found in concepts of value-oriented business management as, for example, Shareholder Value, Economic Value Added.

In companies, capital is committed to:

- -buildings
- -fixtures and fittings
- -machines
- -raw materials
- -stock of inventory
- -liquid assets
- -receivables
- -semi-finished and finished products.

A calculative interest rate must be defined for this committed capital, which flows into the company via the sales price, as already described above. For committed capital, only the operationally necessary capital is considered. This is because it would be possible for a company to exist without a company-owned tennis facility (balanced minus not operationally necessary fixed assets vs. current assets). The corresponding operationally necessary capital should be adjusted by the capital positions that are available to the company on an interest-free basis: the so-called retained earnings, or interest-free loans from stockholders, accruals, supplier credits, customer prepayments. The resulting difference is designated as operationally necessary capital that is charged interest with a (calculative) interest rate that is sort of fictitious. Because it is not possible to separate whether a capital position is financed internally or externally, a distinction is not made between owner's capital interest rate and outside capital interest rates. Rather the overall capital is subjected to a uniform calculative interest rate (often the WACC "weighted average cost of capital").

The calculation of interest for the capital position is either done using an average method (for linear depreciation half of the acquisition or manufacturing costs and half of the requisition costs that are permanently tied to the company) or using the residual value method, in which the interest charged continuously declines (the calculative residual values (book value) are added at the end of the reporting year as the basis for calculating interest).

Acquisition costs 100,000

Year	Average Method	Residual Method
1	500.000	800.000
2	500.000	600.000
3	500.000	400.000
4	500.000	200.000
5	500.000	0

An interest rate is applied to this operationally necessary capital, which is based on the long-term customary interest rate (for Germany approx.8% for the timeframe from 1950 to today) (the blanket interest rate for owner's capital aims

at 12-15%). The calculative interest (as an absolute sum), results from multiplying the operationally necessary capital by this interest rate.

Calculative interest burdens the calculative company operating profit as costs (interest for capital used for non-operational purposes are not costs, but neutral expenses): interest on tangible asset capital are valued as capital expenditures, for stock on raw or factory materials as cost type of material cost center, for inventory of finished and semi-finished products as a cost type of the corresponding warehouse cost center. The calculative interest for materials and inventory are an important component of logistics costs.

b) Hazards

All companies have to deal with risk. For the capital investors, these general and specific risks pose the danger of them losing their invested capital. These risks must be covered by earnings. A portion of these risks are covered by insurance. These insurance expenditures are “automatically” entered into the cost accounting system through receipts. In the event of loss, the non-insured risks first enter into the result (extraordinary, but not company-external). Hazards (risks) exist for machines and equipment in the form of breakage or accidents (equipment hazard); development costs may prove to be “sunk costs”; defective goods cannot be insured (manufacturing hazard); inventory may age or spoil (inventory hazard); warranty risks are difficult to estimate (warranty hazards); in sales non-acceptance and exchange losses (sales hazards) pose a threat, etc.

In order to fit into the cost accounting system, the non-insured amounts in cases of loss must be calculated on a “smoothed” basis over time. This occurs by adding up the cases of loss for (mostly) the last five years, dividing by the number of years to generate an average amount. This amount is then related to a factor which is fair according to the input involved (most often sales, sometimes also the sum of the manufacturing costs of all the services that can be sold) and then results in a ‘percentaged hazard allowance’. It would be more precise to define an individual reference value for each individual hazard, e.g. for equipment risk: value of the equipment assets (alternatively purchase value or replacement value); defective good hazard: manufacturing costs for manufacturing defects, material costs for material defects; inventory hazards: stock value, warranty hazards: sales or manufacturing costs of the products sold; sales hazards: sales or accounts receivable status, etc.

Example:
A company with a sales volume of 100 Million Euros per year has had to record five hazards (cases of loss) in the amount of 2 Million Euros. The calculative hazard allowance is calculated as follows:

2 / 5 = 0.4
0.4 / 100 = 0.004 = 0.4% of 100 million = 400,000 per year

This hazard allowance must be re-calculated each year (always as a “smoothed” average of the last five years).

c) Salaries

In Germany, tax-related and legal regulations do not allow wage compensation for managing partners, because they lack legal personality (amongst other things, they are not allowed to enter into a contract). The management wage is computed as a portion of profit.

The job performance of the managing partners involves loss of value due to depreciation that must be included in the costs. If the managing partner were to be replaced through an external manager, his/her salary would undoubtedly be recorded as an expense. For the contributory owners or stockholders, the salary would be determined as that of a comparable employee as calculative employer’s salary.

Because there is no realistic comparable salary, a “soap formula” is often employed. It is termed as such because the approach that was first used in 1940 in the German soap industry. The formula is

√18 root from profit,
That is, for a profit of 250,000 EUR
√18 root from 250,000 EUR = 9,000 EUR

If two partners have to be considered, you would take 75% for each, for three partners 67% each, for 5 and more 60% each. This viewpoint is absurd, of course, since the management wage should hardly be linked to profits. But the soap formula still lingers in the cost accounting literature…

d) Rent

Some companies use their own properties. If they were to lease other properties, the corresponding rental expense would be recorded in the financial accounting system. Therefore, it makes sense to record calculated rent for owned and self-utilized properties. It may be clear at this stage that, on the one hand, there are many advantages of recording calculative costs and of including these in the calculation of the sales price in order to refinance the actual operational depreciation. On the other hand, it must be considered that each calculative cost component tends to result in an increase in the calculated sales price, so that it is easy for a company to “calculate itself out of the market”. Therefore, this dilemma must be carefully considered in each individual case.

2.4 Cost center accounting

Why are cost centers necessary? Cost centers serve to distribute and charge back the costs that occur in the company so that each operational service and the corresponding costs are exactly mapped back to where they actually originated. This allows individuals to be in a position to make company-internal decisions and to charge the end products (cost objects) with the costs that have actually been generated in connection to them.

We already know that specific costs have a direct relationship to the end product (cost object). On the basis of manufacturing documentation (work plans, part lists) we know which individual costs the product has generated. Planning and controlling these costs is unproblematic because they are directly dependent on sales volume. For overheads, the picture is different: these stand only in an indirect relationship to the cost objects and may relate to several cost objects (often differing in amount). Furthermore, they can usually only be split across the individual cost objects with the help of the cost center accounting (as activity based or project cost accounting). Observing and controlling the development of overheads is highly important for companies, since they play a large role in determining the company's operating efficiency.

The cost objects (products) use the individual cost centers to varying degrees of intensity. If the overheads and the level of usage through a cost object per cost center are known, these overheads can generally be apportioned to the cost object in a generally fair manner.

Structuring cost centers begins with splitting the company up into cost areas that result from the functional processes of the organization. The cost centers are then listed under these.

Cost Areas	Cost Centers
1 General Area (Premises)	100 Management 110 Buildings 120 Heating 130 Cafeteria 140 Vehicle Fleet 150 Switchboard etc.
2 Service Cost Center Manufacturing	200 Foreman's Office 210 Process Engineering 220 Tool Shop etc.
3 Materials	300 Purchasing 310 Goods Receiving Department 320 Storage etc.

4 Production Area	400 Production Control Center 410 Assembly 420 Painting 430 Test Facility etc.
5 Development and Construction	510 Laboratory 520 Construction 530 Testing Equipment etc.
6 Administration	610 Accounting 620 Personnel Office 630 Organization, IT 632 Cost Accounting etc.
7 Sales	710 Sales 720 Marketing, Advertising 730 Shipping etc.

Fig. 8: Cost Center Examples

Cost centers are structured according to company-internal objectives:

- According to areas of responsibility
  Goal: cost control (e.g. departments)
- According to functions
  Goal: fair according to the input involved (e.g. similar machines)
- According to location aspects;
  Goal: fair according to the input involved (e.g. hall 1, hall 2)
- According to billing purposes
  Goal: simplifying work (e.g. simplifying calculations breaks down all above mentioned aspects)

If it is not possible to directly attribute all overheads, or if it is only possibly with a great deal of organizational and financial effort, it is necessary to use “allocation”. This means that overheads are calculated in relation to something else. To do this, the key must:

- be easy to find and accessible
- split the costs in the most fair manner possible

Examples for this “Allocation”

- Both the lifespan of a machine as well as its electricity connection value determine the amount of electricity used. If machines do not run continuously in the company (and therefore the running time is not known exactly), it makes sense to assume that all machines have an equal

running time and to split the costs in relation to electricity connection value. In this case, the electricity connection value is the key value.

- An indirect cost center (e.g. the master in the machining department) had attributed 60,000 EUR to himself in the last year. The machining department has 10 machines. Each cost center "machine" was allocated 6,900 per year in master costs. In this case, the number of machines (= key value) directly influences the volume of work of the master.

Overhead allocation rates (in percent) are important in order to be able to determine the overhead costs of the individual end- (or intermediate) product. Each product then carries exactly the overheads that it generates during its production (in addition to the individual costs that it generates anyway. In order to calculate the overhead allocation rates, it is necessary to have reference values. The assumption is that the overhead costs develop in relation to the end costs. (This is often unrealistic, because why should the overhead costs of the stock increase, just because the individual costs of the materials increase? In practice, this easily leads to distortions relating to overhead allowances that are too high). Another option is machine hourly rates. These see that the fair split of overheads is often not a simple matter and requires the more precise analysis and agreement between the participants.

2.5 Cost of unit accounting

After the cost center accounting has informed us where the costs originate, cost of unit accounting should provide clarity about what the costs were for, that is, which cost objects they are to be allocated to. This is also defined as calculation. The cost of unit accounting provides information for the pricing policies of the company, for determining the success of the individual products, for the valuation of stock of semi-finished and finished goods as well as of self-produced machines and mechanical equipment.

There are a number of different calculation procedures. The one that is employed depends on how different the manufactured products are and on how complex the production or service-creating process is in the organization. The calculation processes for a manufacturer of different types of passenger aircrafts (plus variations per airline) are different to a company responsible for filling containers with milk. Similarly, a trading house will calculate differently than say, a producer of a several model series of hammer drills.

If products within a company differ greatly in the scope of the materials used and in the multiple stages of the product process, the allowance calculation is used. If the company handles products with the same type of production structure, the more simple process of division calculation is used. Very simply processes are used in the area of trade.

In the following section, we will be limiting our focus to the allowance calculation. The start of the discussion about allowance calculation is the well-known differentiation between direct and overhead costs. The direct costs are directly attributed to the cost objects, while the overhead costs are split amongst the different cost objects as a percentage allowance rate.

Direct material costs
+ Indirect material costs
+ Direct production (salary) costs
+ Indirect production costs
+ Special direct costs of production

= Costs of Goods Manufactured

+ Administration overheads
+ Sales overheads

= Cost of Production

+ Profit Margin

= Sales Price

Fig. 9: Calculation table

On the basis of the costs of production (= all costs that are associated with creating the product per item), the offer price is calculated by adding in an appropriate profit margin. The net costs determine the long-term rock-bottom price (in the short-term, the contribution margin will often determine the rock-bottom price).

For evaluation purposes, you will often realize that the manufacturing costs take on a very important role. That is why it is important that you have detailed knowledge about your costs that can be used for further analyses and decision making-processes. Companies that keep the development of their manufacturing and net costs hidden in a black box will not be in a position to meet and implement their strategic decisions internally or externally.

The results of the cost accounting on a full cost basis are a key component of more extensive income statements. They mostly go directly into the profit and loss calculations (P&L). Both the cost of sales accounting and the total cost accounting that is used in the profit and loss statement is based on numbers from cost accounting.

2.6 Marginal costing

This is where a distinction is made between fixed costs and variable costs. Fixed costs are the so-called stand-by costs, which means, they are even generated when the company is not producing (rent, AfA, interest, etc.) For example, salaries and wages remain at the same level (when an employee is working out their notice) irrespective of whether the company produces a lot or a little.

Over a longer period of observation, fixed costs can also be reduced, as, for example, salaries through layoffs (step fixed costs).

Variable costs are incurred when the company begins producing units. These are also called variable costs in activities. Examples include material utilization in manufacturing and the energy usage of machinery. Because they are based on additionally produced units, these are also termed marginal costs. That is derived from mathematical aspects, in which the increase in one cost function is expressed in its 1st derivation. In a linear progression, variable costs are consistent with the marginal costs, that is, each additional production unit generates absolutely constant additional costs. This is generally assumed in cost accounting for reasons of simplicity, and is not always realistic in practice (for example, there are often discounts based on quantity). In addition, variable costs do not always decrease proportionally in relation to decreased production, but often initially remain on the old (high) level (e.g. salary costs when someone is working out their notice period (step fixed costs).

The difference between revenues and variable costs is named the contribution margin. The split into fixed and variable costs in cost accounting takes place on a per cost center basis. In order to avoid any misunderstanding: fixed and variable costs are not identical to overhead and direct costs.

The goal of marginal costing is to split all costs into their fixed and variable components. Many companies conduct a full-cost accounting for the long-term view in addition to marginal accounting for the short-term view.

The contribution margins of all goods serve to cover the fixed costs. Note: The contribution margin is not “profit”. Performing contribution margin accounting is plausible by considering that short-term decisions (mostly) only affect variable costs, the fixed costs (mostly) remain the same. Short-term decision-relevant costs are therefore the variable costs.

In basic contribution margin accounting, the revenue per product type is viewed in terms of its variable costs. The contribution margins per product are added and then considered in relation to the fixed costs. The difference between the total contribution margin and fixed costs determines the short-term company profit or loss. In principle, a product should always aim to achieve a positive contribution margin. Customers certainly expect a certain degree of variety from the provider.

Therefore, in individual cases it may make sense to offer some products with a negative contribution margin, whose “loss” must be compensated by other products. In doing this, it must also be determined whether the product could possibly be sourced elsewhere more cheaply (“make or buy”). However, negative contribution margins can sometimes be acceptable when products are being introduced into the market or if a product needs to be “carried along” in order to offer the customer a complete product range.

In contrast, multi-level contribution margin accounting differentiates fixed costs even more. Fixed costs can – if desired – be broken down further. For example, certain fixed costs only occur when the product is actually being manufactured. The extent of these costs, however, is independent of the amount being produced. These costs are called product-fixed costs (e.g. set-up costs for a machine). Product-group-fixed costs are only incurred for specific product types; e.g. depreciation of machines that are only used to produce this specific type of product. Company-fixed costs are incurred for all products and all product types (e.g. the salary for the production manager, general administration costs, etc.). They are not broken down into any further detail.

The allocation of fixed costs across products, product groups and company-fixed costs is achieved in multi-level contribution margin accounting. However, it is often the case that fixed costs are difficult to reduce, even product-fixed costs.

It may be insightful to note that contribution margin accounting may be related to the individual manufacturing units. If the contribution margin is the difference between sales revenue and variable costs, the unit contribution margin equals the revenue per unit minus the variable cost per unit. The contribution margin indicates the amount that the manufacturing unit contributes to covering the fixed costs. A company makes a profit when the sum of all unit contribution margins is greater than all the overall fixed costs of the company. A company must have an understanding of the volumes that must be sold in order to cover all costs and to determine when the break-even point is reached: this amount is termed the “critical amount” or the “break-even amount”.

Contribution margin accounting therefore provides an important input for strategic decisions. Contribution margin accounting – sometimes in conjunction with broader market research reports about the competitive situation – can be of key strategic importance, especially when a company has a multi-product program that is offered in different markets.

3. External Accounting

3.1 Definition

External accounting is generally defined as the components of the year-end accounts that are made publically available. The focus is on the balance sheet and the profit and loss statement (P&L) of the company. This section also highlights the connection between external accounting and internal accounting (especially cost accounting).

We will only briefly touch upon the basic bookkeeping that forms the basis of accounting because it is both beyond our scope and is not necessarily prerequisite to understanding the balance-sheet aspects. In addition, aspects of consolidated financial statements will not be considered here because they extend beyond the intended scope of this manual.

In principle, most of the content of this manual is still based on German trade law. German trade law will continue to characterize the balance-sheet practices for some time as the transition to international accounting law will occur as a gradual process. Tax-related perspectives will only be touched upon occasionally and briefly as examples. For the sake of simplicity and clarity, in certain cases, we will not mention all the details and potential variations as they are not pertinent for achieving a basic understanding, but may actually prove to be a source of confusion.

Accounting is not an end in itself, but provides the basis for management decisions. Accounting functions as a support for the company's management and should provide the 'technical' calculation basis for decisions on all management levels. This assumes the purposeful organization of accounting and its results.

To answer the central question regarding whether a company is successful, neither the absolute amount of profit nor its relation amount, e.g. with respect to the capital investment, is of interest. This is often termed profitability or return on investment. Therefore, the purpose of accounting is to illustrate and explain the reasons behind the success of the business.

Accounting shows:

- The amount of liabilities and assets as well as any changes in these,
- Corporate success as the difference between earnings and expenses,
- The basis for the calculation of the sales price and for calculations of profitability,
- Allows comparison between companies and controlling,
- The basis for the credit worthiness of the company,
- The basis for taxes,

- And can be used as evidence for resolving legal issues (or supplement these).

With respect to the significance of the balance sheet, it must also be considered that all balance sheets provide a snapshot at a specific point in time and do not say much about the processes and changes over a period of time (which the P&L could). In addition, it is always a look back (ex-post observation), if you are not looking at supplementary, future-oriented statements in the situational report of the year-end statement.

In simplified terms, every businessperson must produce a balance sheet (here we are ignoring certain simplifications for mini companies). To the degree to which Company A has a legally independent "daughter" B, A and B must both provide an individual balance sheet. A must also create a company financial statement for Companies A & B in which mother and daughter are combined; this is called consolidation. Even two small companies form a group of companies, but certain size criteria must be fulfilled before it is necessary to complete a balance sheet for the group. Leo Kirch owned more than 100 companies (mainly in the legal form of a limited partnership or a partnership limited by shares, apparently not to be subject to corporate income tax, but rather income tax, but also mainly to avoid publicity obligations). The balance sheet for a group of companies provides information about the company as a whole; details from the individual companies that are part of the group cannot be extracted from it. This is because, e.g. there may be stipulations of the parent company to the affiliated company and it may have a corresponding obligation to the parent company. Critics view the balance sheet for a group of companies more as an advertizing mechanism.

Every company maintains numerous connections both internally and externally. Accounting represents these economic processes, monitors them and uses them as a basis for future planning. Because the events within the company can be quantitatively determined, the result is that real goods-related movements are always met with nominal processes that are valuated through money.

The German regulations for company accounting differ significantly from the international standards, especially the US-GAAP and the IAS/IFRS. Using the English-speaking use of language which refers to the Generally Accepted Accounting Principles (US-GAAP), our American partners have become accustomed to speaking of the German GAAP in order to describe the total volume of applicable norms and regulations. The year-end accounts of a company always consist of the balance sheet and the profit and loss statement (P&L). Corporations must also supply an appendix and – depending on size – a statement of affairs and cash flow statement. The year-end accounts are to be completed during the first three months of the following year for the year ended and are, if required, submitted to the auditor of annual accounts. This can also be referred to as the German Commercial Code HGB year end, in contrast to the

year-end that many internationally operating companies produce today according to US-GAAP or IAS/IFRS. However, this only applies to groups of companies, because the individual German year-end must be created according to the HGB. This is particular to Germany because the commercial balance sheet is important for the tax balance sheet and therefore also for the rate of taxation.

For that reason, the next remarks are limited to the HGB. It is important that the basic principles of proper bookkeeping are adhered to.

The most important principles of proper bookkeeping include:

- Accounting records must be true, clear and well-arranged
- No transactions may be posted without a receipt
- Transactions must be complete, timely and carried out in an orderly manner
- No changes may be made to the original content of the transactions
- Expert third parties (tax consultants, auditors, tax inspectors) must be in a position to quickly gain an overview of the company's situation.
- Books of account, inventories and balance sheets must be kept for ten years and receipts archived for six years.

3.2 Profit and loss statement (P&L)

The balance sheet provides a comparison of assets and capital at a specific point in time; the profit and loss statement (income statement, profit & loss account, P&L) however, presents expenditures and earnings within a business year. Therefore it is a period-based statement that provides information about the generation of profit and loss during the year.

The basic relationship is very simple:
Revenue (proceeds, sales income)
./. Expenditures
= annual surplus (profit) / annual shortfall (loss)

Expenditures impede profits whereas earnings elevate them. This simple basic schema is applied within the context of the so-called income/expenses calculation that, e.g. contractors must provide to the tax and revenue office. In corporate practice the P&L is more differentiated. For corporate enterprises, it is a mandatory requirement that the P&L be produced in the so-called step-down report, that is, as a vertical "list" (§ 275 HGB). There is also the total cost accounting (mainly in Germany and continental Europe and used by producing companies in these places, classified by types of expenses) and the cost of sales accounting (Anglo-American, ordered by functional areas: research and development, marketing, etc. or by products; mainly used by commercial enterprises).

There are no legal regulations relating to intermediate totals, so that some of these terms – for example “operative result” in practice are sometimes used in different ways and, for example, may include or exclude the financial results, or just parts of it (interest). Especially the more “modern” terms of U.S. origin such as EBIT or EBITDA need to be looked at more closely in each specific case. For total cost accounting, the increase (+) or decrease (-) of the stock of unfinished and finished products must come from inventory. The stock can be evaluated using various processes (lifo, fifo).

For **total cost accounting**, sales revenue is compared with the overall revenue in the period of incurred expenditures, differentiated by expenditure type. Total cost accounting also includes expenditures and revenue that offset one another. If the stock of inventory has increased or if it has caused activated internal activity (self-supplied assets), these are summarized in the P&L as profit and thereby neutralize the portion of the total costs that did not lead to profit. Total cost accounting is based on internal accounting records and requires a physical determination of the stock of inventory.

For the **cost of sales accounting** method, the sales revenue – sometimes differentiated e.g. by product group or division – is compared to the manufacturing costs of the sold units plus the administrative and sales costs that have determined the sales figures (Matching principle). The cost of sales accounting method only compares the expenditures and revenues that do not offset one another, such as manufacturing costs and sales revenue. In this method, expenditures are not differentiated by expenditure type (material, human resource, depreciation, etc.), but according to processes and functional areas (production, administration, sales). The cost of sales accounting method requires cost-center or cost of unit accounting. The advantage is that the company earnings can be stated separately according to different divisions or products.

In the end, both processes lead to the same result (e.g. net operating income or period income). The difference is in the way that this result is determined. Total cost accounting focuses on production whereas the cost of sales accounting method focuses on sales. If production and sales are equal to one another, that is, if there are no changes to the (stock) assets and self-supplied services, then both accounting procedures are identical.

Annual net income is taxed. In corporations, the right of first proposal for its usage comes from the board of directors and the executive board. The resolution is passed by the equity holders (for corporations through the annual shareholders’ meeting, for limited liability companies through the company’s general meeting). The profit can basically be used in the following ways:

- distributed as dividends
- added to the loss carried forward
- carried over as a retained earnings into the next year

In corporations, the executive board and board of directors may place a maximum of half of the annual profit into “other profit reserves” in advance, but only with the relevant statutory provisions and only as long as the “other profit reserves” are not in excess of half of the share capital. Additional portions of the annual profit can be placed into “other profit reserves” or carried forward as retained earnings if decided during the annual shareholders’ meeting. Retained earnings are carried forward into the next fiscal year and its basis for distributing dividends (distributable profit) is added (and can then be distributed in the next year or else retained). The “corrected” annual profit is then put into the balance sheet as ‘balance sheet’ profit (for corporations) and the remaining “used” profit components are placed into the respective balance sheet item. Here we are only looking at a successful year with an annual profit:

Annual profit (=after-tax result)
+/- Profit carried forward/loss carried forward
+ Withdrawals from profit reserves/capital reserves
- Transfers into profit reserves/capital reserves
= balance sheet profit

3.3. Balance Sheet

At the start of all business activities, individuals must describe and list out all their assets and liabilities precisely. Following this principle, this must also be done at the end of each fiscal year (§ 240 HGB). This exact survey is called inventory (Latin: invenire = find, discover). The inventory is the survey of the quantity and value all assets and liabilities. The inventory can be carried out through physically logging assets and liabilities (counting, weighing, measuring, and estimating) or as a book inventory (recording, receipts). When physically gathering data, companies often rely on the use of samples and then use the results of these to make realistic “projections”.

Some asset positions are – for inventory purposes – only recorded on specific days (for example bank balances, security holdings at the time of the year-end statement), while others use an ongoing inventory (for example through inventory files or fixed assets registers.

The inventory is the inventory list that is created at a specific point in time and is generated from stock taking. There are three principle parts:

- Assets, which consists of fixed assets and current assets
- Debts, which consist of long-term and short-term borrowed capital
- Equity capital results from the difference between assets and liabilities (net worth). It belongs to the owner(s) and remains within the company for an undefined period of time. It is to be viewed as a debt of the company with respect to the business owner or the shareholders.

Whereas the inventory provides a very detailed complete index in list form, the balance sheet is a clear brief summary in account form that provides the total value of the inventory position. The balance sheet therefore provides a concise comparison of assets (active) and capital (passive) at a specific point in time.

Assets / active	Liabilities / passive
Application of funds How is the capital invested? - Fixed assets (long-term) - Current assets (short-term) Fixed and current assets may consist of: - Real assets (for example, property, furnishings, stock) and - Nominal assets (for example, accounts receivable, bank balances, cash in hand) Ordering principle of the active side: according to liquidity	Sources of funds Where does the capital come from? - Equity capital (shareholder's equity) - Borrowed capital (liabilities) (creditor capital) Ordering principle of the passive side: according to due date
Sum of assets = balance sheet total	Sum of liabilities = balance sheet total

The fundamental accounting equation is therefore:

Total assets = liabilities + equity capital

and derived from this:
equity capital = total assets – liabilities

Each balance sheet follows the basic principles of double-entry accounting. Designating the sides of the balance sheet as active and passive can be more easily understood if one views the passive side, which represents the origin of capital, as "passive" to the production process (value add process), whereas the capital utilization that is presented on the active side is directly connected to the production process. It could of course, be a point of discussion whether the two balance sheet sides could be switched, but this has developed historically in such a way that we will simply accept it as we would the weather.

Example:

In the following, we will be looking at a simple example of how a balance sheet develops. Each business item will be booked to the relevant account.

The same processes will be entered into the same accounts, for example, bank transfers (incoming and outgoing) are booked in the account entitled "Bank".

Changes in the positions of fuel oil (increases and decreases) are enered into the account entitled “Fuel Oil Inventory” and salary costs are entered into the account of ‘Salary Expenses’, etc. Further down, the handout describes the accounting system in more detail with a short detour into bookkeeping in order to outline what is happens to the balance in accounting systems that are based on double-entry bookkeeping, without making you into a qualified bookkeeper. So it just provides a few basic explanations for reference. The example presented is unrealistic because “balance is achieved” after each entry, which is not true in practice.

(a) The starting point for this example is a businessman who has TEUR 1,000 at his disposal when founding his company. He pays this amount into the cash account of his company (whether this is realistic or not is not a point of discussion here). This leads to balance (a).

Balance sheet (a)

Active			**Passive**
Cash	1,000,000	Owners equity	1,000,000
Total balance sheet	**1,000,000**	**Total balance sheet**	**1,000,000**

(b) The businessman now deposits TEUR 800 from the cash account into his bank account, thereby lessening the balance position of the cash account on the side of the application of funds (active) (1000-800=200). While the active position of bank is added (a so-called active exchange), the passive side remains unchanged: balance (b):

Balance sheet (b)

Active			**Passive**
Bank	800,000	Owners equity	1,000,000
Cash	200,000		
Total balance sheet	**1,000,000**	**Total balance sheet**	**1,000,000**

(c) The businessman now takes out a credit of T’EUR 1,000, because his own capital seems to be insufficient. This sum is booked into the bank account: balance (c)

Balance sheet (c)

Active			**Passive**
Bank	1,800,000	Owners equity	1,000,000
Cash	200,000	Liabilities	1,000,000
Total balance sheet	**2,000,000**	**Total balance sheet**	**2,000,000**

(d) Please note that each process is recorded twice: once on the left and once on the right, or once as a credit and once as a debit – therefore the term is “double-

entry bookkeeping". Our businessman now wants to produce. He buys material for T'EUR 500 and a machine, also for T'EUR 500. Both are deducted from the account "bank". The processes are purely active exchanges; the balance sum remains unchanged: balance (d):

Balance sheet (d)

Active			**Passive**
Machine	500,000	Owners equity	1,000,000
Material	500,000	Liabilities	1,000,000
Bank	800,000		
Cash	200,000		
Total balance sheet	**2,000,000**	**Total balance sheet**	**2,000,000**

(e) Now the businessman hires employees (salaries for T/EUR 600 are deducted) who utilize the material in its entirety (the stock of materials "disappears" from the balance sheet, the counter entry occurs outside the balance sheet in the profit and loss statement (P&L) as material cost. Certain costs are "balance sheet costs", others are P&L accounts that we are not recording here. Through use in manufacturing, the machine loses 20% of its value (from 500, it becomes 400; the counter booking for the 100 appears in the P&L as a depreciation expense. Now the newly-created finished products are to be entered into the balance sheets, whose values consist of the salaries (600), the depreciation for usage (100) and the material (500) (counter-booking 1200 in the P&L as earnings: account "self-created services"). In addition, the bank position must also be corrected and the chairs produced then appear as finished products (in the warehouse): balance (e).

Balance sheet (e)

Active			**Passive**
Machine	400,000	Owners equity	1,000,000
Finished goods	1,200,000	Liabilities	1,000,000
Bank	200,000		
Cash	200,000		
Total balance sheet	**2,000,000**	**Total balance sheet**	**2,000,000**

(f) We now assume that the company sells the finished product for T'EUR 1,400 on account, balance (f). The stock of inventory for finished products disappears and in its pace a receivable is created with respect to the buyer (for cash payments this receivable would be replaced by an increase in the bank balance). Therefore a profit of 1,400 – 1,200 = 200 is realized.

Balance sheet (f)

Active			**Passive**
Machine	400,000	Owners equity	1,000,000
Accounts receivable	1,400,000	Profit (=Owners Equity)	200,000
Bank	200,000	Liabilities	1,000,000
Cash	200,000		
Total balance sheet	**2,200,000**	**Total balance sheet**	**2,200,000**

(g) Through the profits, the equity capital of the company increases and the balance sheet total increases. As long as the company is able to sell its finished product for 1,000, it would suffer a loss of 200, the equity capital would decrease to 800 and the balance sheet sum would decrease: balance (g):

Balance sheet (f)

Active			**Passive**
Machine	400,000	Owners equity	1,000,000
Accounts receivable	1,000,000	Loss (=Owners Equity)	-200,000
Bank	200,000	Liabilities	1,000,000
Cash	200,000		
Total balance sheet	**1,800,000**	**Total balance sheet**	**1,800,000**

If things really go badly and the shareholders equity is completely depleted by losses and the borrowed capital is then higher than the assets, over-indebtedness will result and the company must declare “bankruptcy”. Today we speak more politely of “insolvency”, but that doesn’t change the fact that the company is basically broke.

Over indebtedness is one of two reasons for bankruptcy. The other, more common reason is illiquidity, which means that a company is unable to fulfill its current payment obligations. That is why liquidity ratios that can be determined from the balance sheet are of interest to the external balance sheet reader. It is dangerous when “hard-nosed” creditors are involved that are not approachable and that are able to force a company into bankruptcy, for example the tax and revenue office and the customs authorities.

The balance sheet total doesn’t reveal anything about the profit and loss situation, but rather provides information about the capital and asset sums. Assume that a company has a balance sheet total of 100 million EUR and makes a profit of 160 million (known from the P&L), then allocating funds of 100 effectuates a profit of 160. The balance sheet reveals nothing more than this. Independent of the company’s situation, the balance is always equalized, which we will provide the reasons for later on.

Balance is therefore nothing more than the summarized representation of the inventory in account form. At a specific point in time (fiscal year end), all asset

components are counted in real terms and recorded in the accounts (inventory) (under certain conditions also continual and sample inventories are legally permissible; see § 241 HGB). For most companies, the fiscal year is also the calendar year, but Siemens AG balances its accounts on 30.9, Toyota on 31.3 – each as it wishes (reasons are often dictated by the company's history). The only rule is that the date for balancing accounts must remain consistent from year to year: consistency of the fiscal year is part of the basic principle of balance sheet continuity. However, it is also possible to adjust the fiscal year if required, for example, in the case of acquisitions. In such cases, an adapted balance sheet may be prepared for a shortened business year until the date of the conversion.

The following describes the individual balance sheet positions. The balance is generally displayed in Euros (inland currency). Positions that are in a foreign currency are converted at the current exchange rate on the date of the first booking. Company balances are converted at the current average exchange rate on December 31st, P&L positions at the average year rate (there are special statistics for this).

Passive Side

A. Equity Capital

Equity capital is the amount of capital that the owner provides to the company as money or materials at the point in time at which the balance sheet is created. For partnerships, an (equity) capital account and a private account is maintained for each partner. Respective withdrawals from the company could result in completely negative capital accounts. This does not mean insolvency, since the individual partners are liable in the complete amount with their private assets – in contrast to corporations. For partnerships each partner has a capital account and a private account. The equity capital in corporations basically remains constant, is not distributable as dividends and stays within the company on a permanent basis. The following sections are based on the corporation.

A-I. Share Capital

Share capital is the overall term for equity capital (for corporations) or common stock (for limited liability companies). It is the capital, for which the owners (shareholders: the company is liable with its complete assets) have a limited liability for the obligations of the corporation with respect to its creditors. If share capital is not completely paid-in, this can be represented in two different ways.

A-II. Capital reserve

Capital reserves are equity capital. They are comprised of amounts that have come into the company externally from the owners in addition to the share capital. For example, in limited liability companies there are additional payments

made by shareholders into the equity capital. For corporations, the difference between the stated value of the shared stocks and the emission rate is balanced (Agio), analogous to premiums for conversion and option privileges. Example: Emission of 1,000,000 stocks at a named value of 5 Euros at an emission rate of 20 Euros.

Balance sheet (T'Euro)

Active			Passive
Bank	20,000,000	Share capital	5,000,000
		Capital reserve	15,000,000

A-III Profit reserve funds

Profit reserve funds are amounts that, in the current fiscal year or in prior fiscal years, have been formed "from within" from the taxable profit of the company (undistributed profit: profit retention).
Profit reserve funds are the counter entry for the retained asset positions on the active side. They can later be converted into capital reserves, but this is not compulsory.

A-IV Profit carried forward/Loss carried forward

In corporations, if a decision has not been reached regarding how to use the profits earned in the previous year (they have not been distributed or placed into the profit reserves) the previous year's profit is taken over as profit carried forward into the current year's balance sheet. A loss from the previous year can be shown as a loss carried forward in the reporting year, if the shortfall of the previous year cannot be covered by capital reserves and if no reduction in share capital has occurred (this thereby decreases a potential profit for the reporting year). If the annual balance sheet has been established following the decision regarding the allocation of profits by the shareholders (seldom), the profit carried forward (loss carried forward) shows the profit (loss) that should be carried over into the following accounting period.

A-V. Annual net profit/annual net loss

The annual net profit is the result of the P&L (difference between income and expenditures) and is also similar to the difference of equity capital (opening balance minus closing balance). As stated, the balance is mainly created prior to the decision of the annual shareholders' meeting regarding how to use the profits, that is, when the board of directors and the executive board determine the year-end statement (that is why the stated net equity is the same as the net equity at the start of the year plus annual net profit). The right to decide on how to appropriate profits lies with the board of directors and the executive board. The decision is taken at the annual meeting of shareholders. The year-end statement can only be created using partial or complete allocation of the profits:

- For partial allocation of profits (common in corporations) up to 50% of the annual net profit – after potential required “handling” of the legal reserve fund – can be placed into other profit reserves. Then, instead of the profits being carried forward (loss being carried forward) and the annual net profit (annual net loss) the balance sheet profit (balance sheet loss) is declared. The use of the balance sheet profit can extend to the settlement of accounts with loss carried forward, (wholly or partially) to profit distribution, allocation of reserves, continuation as profit carried forward.
- For complete allocation of profits, the positions of profit carried forward (loss carried forward) and annual net profit (annual net loss) are completely dissolved. If they have been placed into reserve funds, they will be reported there; for distribution, specific amounts are reported as other liabilities.

B. Special items/Special reserve positions

Special reserves (§ 273 HGB) are “in between” equity capital and borrowed capital. The reserve funds that have been presented until now have been formed from taxable profit. On the basis of German tax code, certain reserve funds can be established from untaxed profit (this is the equity capital aspect). Their formation lessens the tax burden in the reporting year (they are “other operational expenditures”) and thereby also the tax burden, so that they function in a tax-deferred manner (this potential tax liability is the borrowed capital aspect). These special items are also called “untaxed reserve funds”. For apportioning equity capital and borrowed capital, it is common to have a 50:50 split. Special items can especially created from capital gains , that is for “elevated” undisclosed reserves that have been covered over their balance sheet value by the sales of assets (e.g. property or equipment) and will be “retained” for two years (capital gains) as longs as they are foreseen to be reinvested into the capital assets (§ 6b EstG). For small and medium enterprises, a profit-reducing reserve fund can be established for the planned acquisition (or manufacturing) of economic goods (“saving depreciation”, since this functions to “bring forward” later depreciations). We will not go into detail here about the case of tax-based special depreciation here. This item is also not part of our case example.

C. Allowances, Provisions, Accruals

Accruals behave like borrowed capital. All passive positions except for A and (parts of) B are borrowed capital, without this term being explicitly reported in the balance sheet classification. For certain positions, reserve funds must be established to an appropriate level, whereas for others they are optional. Reserve funds must be established for future expenditures that have evolved in the reporting year and for which the amount and the point in time are still unknown. In this way, these future expenditures are roughly allocated to the appropriate period. According to the HBG, reserve funds must be established as (obligation to carry as liabilities), for:

- Uncertain liabilities (especially reserves for pensions, incurred and latent tax reserve, reserve funds for laying claims to security, warranties, processes, commission obligations, sales discounts, etc.)
- Impending losses from pending businesses
- Warranties that have been created without legal obligations, as well as provisions for expenses for deferred maintenance that will be performed within three months after the balance sheet reporting date
- Waste removal that will be carried out in the following period. In addition, there is a possibility to consider further certain provisions for expenses
- Deferred maintenance, that will be carried out between 4 and 12 months after the balance sheet reporting date
- All other provisions for expenses that can be foreseen on the balance sheet date whose amount or date has not yet been determined.

Establishing reserve funds affects net income and decreases profit. Their release can either be through offsetting with the corresponding expenses, or they can be offset against net income as extraordinary profit.

D. Liabilities

Liabilities are the obligations of a company with respect to third parties. They must be classified by creditor and term (long-term at the top, short-term at the bottom) and must be balanced with the amount to be repaid. It is illegal to balance these with receivables (Gross Coverage Principle).

1. Long term bonds (Capital lending through issuing securities in the capital market) are always passivated with the repayment amount, even if they have been bought with a disagio (debt discount). The difference can be activated and written off or directly booked as an expenditure (borrowings are secure, long-term debt)
2. Liabilities to credit institutions (without initially agreed-upon credits
3. Payment received for orders for contractually outstanding deliveries and services (these may also be “openly” offset with the respective active position, for example by the stock of finished products)
4. Liabilities arising from contractual deliveries and services (supplier liabilities)
5. Liabilities arising from the adoption of bank drafts and by issuing promissory notes (a distinction is not made between commercial bills and financial bills); (for assets financial bills are recorded as other securities)
6. Liabilities to associated companies (finance and participation relations)
7. Liabilities to companies with a distribution of ownership
8. Other liabilities (credits from stockholders, taxes due, outstanding fees. Corporations must create a liability grid. It must be created for each balance sheet item and differentiates between the term and the liabilities that are secured through liens or similar rights

E. Prepayments and accrued income

Only those expenditures and income that determine the profit and loss for the reporting year should make up the balance. This means they are reported when they are incurred and not when they are paid (in English this is the difference between accrual accounting and cash accounting). The passive accounts receivable and payable tend to have a negative effect on the balance. That is, they decrease the stated annual net income. This should take place in order, for example, to “neutralize” (delimit) the income received in the reporting year that relates to the next reporting period.

So-called transitory (advance) accounts receivable and payable are passivated, or to put it another way: (receipt in the old period), for example advance payment of rent on the part of the renter. These have the characteristics of liabilities, because the revenue has already been collected, but the service (output) is still owed.

In contrast to these, anticipatory (in arrears) accounts receivable and payable (receipt to be generated in the new period) must be recorded as “other liabilities”. For example, interest on loan capital for the current period (cost now) is only charged by the bank in the next reporting period (expense later).

Active Side

With the assets and liabilities structure, the active side shows the way that the funds are used whose origin is represented on the passive side.

F. Fixed Assets

Fixed assets include assets that continually serve the purposes of the business and which must be used multiple times in order to create goods and services. The company itself determines the classification of the asset as either a fixed asset or a current asset.

FI. Intangible Assets

Intangible assets include all rights that have been acquired in exchange for payment that are in the commercial property of the company and that continually serve the business operations (e.g. purchased concessions, licenses, copyrights ©, brand names ® and websites. They must be depreciated in the same manner as fixed assets.

FI-1 Concessions, industrial property rights and similar rights and assets as well as licenses for such rights and assets

Such positions are hard to realize such that they are declared before the following positions of the fixed assets. For example, a restaurant needs an excise license.
Similar rights and assets are, for example, trade marks, intellectual property rights or software. Software, for example, is entered into the balance sheet and depreciated as a dependent capital asset together with PC hardware. As an independent capital asset, software programs are always immaterial assets, so that they can only be balanced in cases of purchase for payment. In contrast, programs without a command structure (e.g. databases) are generally viewed as material (and depreciable) economic goods. (In contrast to German law, according to US-GAAP original (self-create) immaterial economic goods (patents, licenses, not goodwill) can be capitalized with their development or manufacturing costs).

FI-2 Goodwill or Company Value

In the acquisition of a company, the buyer pays the material value of the asset (see active side) valued at the current market price, which means that the hidden reserves are uncovered, minus debts. The purchase price is then increased by the goodwill or company value. Goodwill (“investing in hope”) includes, for example, the value of customer relationships (customer base), the relationship with suppliers, the management and the reputation of the company, successful brands, research and development achievements, qualified employees, connections to agencies, geographical advantages, process or organizational advantages, the technical standard of the company, the investor profile and bank relationships. Technically good will corresponds to the difference between the present asset value and the capitalized earning value of the company, which means the actual cash value of the future payments-in. The goodwill or company value is calculated in the context of a process that is termed due diligence (literally means required care – in German: “business evaluation”)

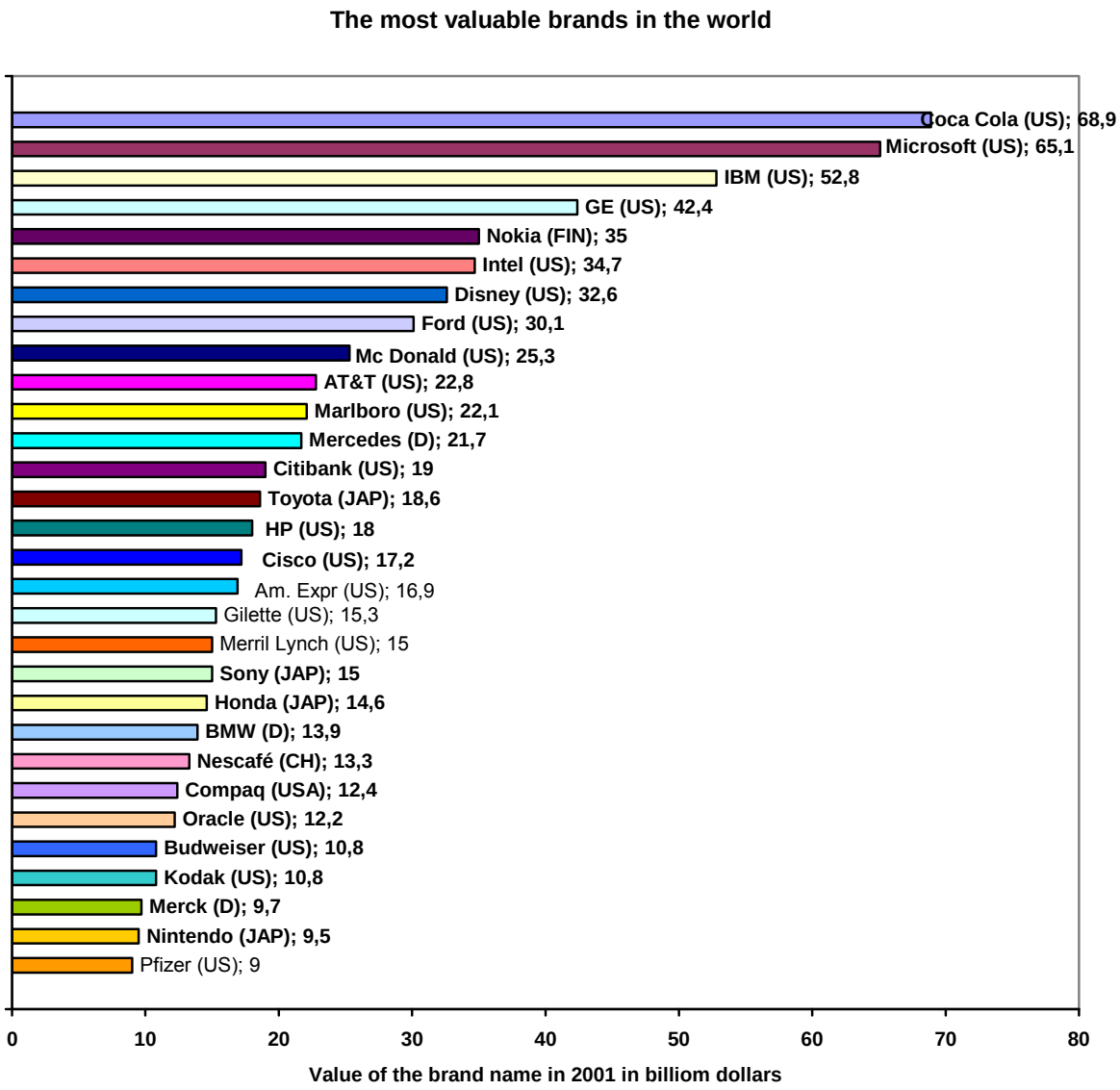

Fig. 9: Brand values

Goodwill or company value may (by voting right), according to German and international law, only be capitalized on the commercial balance sheet if it has been purchased (derived goodwill). This then affects net income (counter entry in the P&L: provision for depreciation) and is depreciable within the next four years. Alternatively the acquired company value can be absorbed and not affect net income using retained earnings. This means that no costs are disclosed (the annual net profit is not condensed), but the equity capital decreases accordingly. The option to use a permissible longer depreciation time frame is not a good one: “it is clearly necessary” (because shorter provision for depreciation increases

profit). According to German tax law, acquired company value must be capitalized and depreciated over 15 years.

In contrast, American accounting law stipulates that the derived goodwill can be capitalized. According to US-GAAP, capitalized goodwill cannot be methodically depreciated, since the goodwill is henceforth not viewed as depreciable, but only in the course of annual reviews (impairment test). Actual depreciations must be depreciated in their total amounts. The self-created (original) company value cannot be capitalized here or there in any case.

There are many company balance sheets that include significant goodwill values. Of interest, however, is not the absolute sum, but their relationship to equity capital. This is because if goodwill has to be amortized, this often occurs suddenly and decreases shareholder capital accordingly – either affecting net income through depreciation or through direct offsetting with reserves. In the year 2005, German firms reported more goodwill than shareholders' equity, for 32 of these companies the ratio was more than 50%.

G. Fixed Assets

Fixed assets include all acquired or self-created assets that are continually needed and that are the commercial property of the company. This includes both depreciable and non-depreciable assets. In middle-sized and large companies, fixed assets are recorded in so-called asset history sheets (formerly: summary of fixed assets) as an appendix to the balance sheet (time of acquisition, depreciation method, actual cash value).

1. Property, rights equivalent to real property (for example such as ownership of residential apartments, heredity building right, permanent residential right, or lifehold), building (streets, parking spaces, bridges, canals, etc.), including buildings on property owned by others ("property" and "buildings" are always reported separately because it is not possible to include depreciation for property.)

2. technical equipment (machines, handling devices, etc,; these are reported separately to (1), even if they are fixed components of property or buildings) (Incidental acquisition costs – for example for foundations, transport costs or inspection and purchase costs for machines – must be capitalized).

3. other equipment, manufacturing facilities (tracks, vehicles, tools) and office equipment (office furniture, computers, copy machines, telecommunication devices) as long as their value is over 410 Euros, otherwise they are recorded in their full value as operating expenses in the P&L. In middle-sized and large corporations, assets are recorded in the asset history sheet (formerly summary of fixed assets) that documents the

development of assets (inventory, movements in, movements out incl. depreciation). This must be done for each of the assets and may either be part of the balance sheet (seldom) or be included in the appendix.

4. (from 1-3) down payments made and assets under construction

H. Financial assets

Financial assets include shares and creditor shares (loans). Shares include the right to vote, to receive dividends or to purchase rights that the company is entitled to when it hold shares of equity in another company. Creditor shares relate to interest rights and repayment rights for a specific sum of money.

For balancing an asset, it is necessary to assume a “long-term” commitment that is at least four-years.

Shareholdings are shares in other companies that serve one’s own business operations through the creation of a lasting relationship. In general, a nominal amount of at least 20% of the shares is assumed (§ 271 HGB). Business partnerships must disclose all shareholdings as well as all shares in partnerships.

In principle all shareholdings can be liquidated at any time. Shares and shareholdings in the target firm are owner’s equity, in contrast to loans, which are valued as borrowed capital by the target firm: loans to associated companies with whom a distribution of ownership exists.

I. Current assets

Current assets include the asset values that are not required for business operations in the longer term. These are the assets that feed into the production of goods and services and are consumed, utilized, disposed of or transformed. Current assets are also categorized according to liquidity.

I.-I. Inventory of goods / Deposits

1. Raw materials, Auxiliary materials and Operating supplies
Raw materials, auxiliary materials and operating supplies are often available in the long-term if procurement has sought out advantageous suppliers (but: inventory carrying costs!). It is not possible to foresee potential reservations of proprietary rights of suppliers (In cost accounting the raw materials, auxiliary materials and operating supplies are sometimes entered as direct costs, sometimes as indirect costs).

2. Unfinished goods and services
These also may include immaterial items such as unfinished software programs.

3. Finished products and goods
These also include immaterial items such as finished software programs that are developed for third parties.

4. Any down payments the company has made for 1-3

I-II Accounts receivables and other assets

Receivables here are all financial services that the company expects from third parties (for examples sales of products on credit). They are arranged according to payer.

I-III Securities

Securities of current assets are certified creditor and share rights that remain in the company for the short or mid-term (for example for speculation in securities) (as a rule the assumption is a retention time of up to four years in the company):

1. Shares in associated companies (bought, for example, for price management)
2. Shares in one's own company (own stock) (up to 10% of the original stock, or else illegal)
3. Other securities (speculatively held stocks, financial bills)

IV. Checks, Cash Assets, Bank Balance

These are the true liquid funds. The availability of bank credit lines (= liquidity) is not shown here.

J. Accruals and deferrals

Active accruals and deferrals are determined in order to counterbalance balance sheet items that are included in the reporting year, but that actually refer to future fiscal years: "Payment before work", e.g. for yearly insurance premiums that also affect the following year. Through active accruals and deferrals, the balance sheet profit is stated as higher than without them.

For all of these items there are valuation principles that will not be discussed in further detail here.

4. Balance sheet analysis and key performance indicators (KPI)

In addition to absolute data – annual profit, balance sheet profit, sales, operating profit, EBIT, etc. – ratios (indices) are particularly important. When using these, individuals must be clear on that fact that a vast number of indices can be calculated, because each balance sheet or P&L items can, in principle, be compared in relation to every other item. However, it is important to determine whether these “ratios” are actually providing business management insights. This can be best determined by each individual balance sheet analyst. That is why there is not “the” combination of analysis indices, but rather each analyst uses the “toolkit” with indices that make the most sense to him/her.

A balance sheet analysis is meaningless without relationships to reference values. The numerical value of an index should therefore be evaluated in terms of if and how it has changed over time within the company (longitudinal comparison) and / or whether it is commensurate in a cross-comparison in its sector (benchmarking). For cross-comparisons, banks and federations of commercial enterprises provide branch-specific guideline data that is generally also made available to any outside interested parties. It is mainly the case that a median is determined (not the average value, because this can be distorted by extreme values), as well as the variance, for example total capital interest calculation: median 11.8, variance of 5.0 to 24.0. Some analysts utilize a process that is described as discrimination analysis. Discrimination means separation. In this process, individuals try to distinguish especially solvent companies from those that are at risk. The values of the indices used can, of course, be vastly different depending on the sector. They either relate to:

- The balance sheet (for example asset, capital or financial structure as well as degree of liquidity
- The profit and loss statement (for example profit vs. expenditure relationships and intensities as well as operating efficiency) or
- The balance sheet and profit and loss statement (for example productivity, cash flow, rate of inventory turnover, coverage of investments, internal financing).

Problems with the analysis result when the data is incomplete or even incorrect. In particular, for a “normal” year end statement there are only figures for the reporting year and for the previous year. For a solid analysis, it is necessary that a minimum of three, if possible five years are compared. Amongst other things, this is important for the recognition and release of hidden reserves.

The indices that are gained from the balance sheet analysis are only meaningful if a person a) provides the comparison over time, that is the development of the respective company over a period of years and b) utilizes comparison figures that

present the company in a company or sector comparison. Such company and branch comparisons are provided, amongst other sources, by the bank (they offer the routine analysis of their customers as a recommended service that is useful for the definition of benchmarks. The respective trade associations also keep data available.

The balance sheet classification provides four indices, but there is not a “best” ratio, it differs from industry to industry. In each case, two vertical and two horizontal indices are calculated. Vertical means that elements of the same balance sheet side are considered, whereas horizontal means that active and passive data is considered.

1. Financing = Equity capital / Borrowed capital
2. Investment = Equity capital / Fixed assets
3. Constitution = Fixed assets / Current assets
4. Liquidity = Current assets/ Borrowed capital

On 1: Financing

Financing describes the capital structure (capital composition), the relationship between equity capital and borrowed capital. In Germany, there is on average a relationship of 1:3. This means that the equity capital component (equity capital quota) of at least 25%. In trade, 10-15% is common.

The reciprocal value (borrowed capital / equity capital) is known as the debt coefficient, which should be as small as possible to better handle debt service. Similarly, the degree of debt that refers to dependencies from creditors and interest and repayment obligation is described as borrowed capital/total capital, sometimes also as borrowed capital without accruals and deferrals/total capital. For capital reserves, there are no interest charges. Long-term accruals and deferrals (especially pension reserves) are available to the company for many years as a financing instrument.

Accruals and deferrals in some companies make up 20 to 50% of the total capital (average equity capital: accruals and deferrals: borrowed capital = 1: 1: 2). Risk reserves are also simultaneously an indicator of risk potential. The higher the equity capital component is, the more independent the company is (amongst other things, from banks), and the less fixed, profit-dependent capital costs it has (interest). The company is also affected less by interest rate fluctuations in the capital market and is the more crisis-proof. Furthermore, the equity ratio, the share of assets that are self-financed, is an indicator of the company’s own financial strength.

As a trend, you could say that an equity capital quota of >30% is very good, >20% is good, >10% is bad and less than that very bad. The higher the equity ratio is, the more independent the company is from creditors. Many medium-

sized companies aim to achieve financing completely from equity capital so as not to be dependent on credit analysis from banks, especially in light of the upcoming ratings that companies are facing in the course of the Basel II agreements. On the one hand, these entail inspection fees, on the other hand, potentially higher interest charges, since “superratings” will not be the norm for smaller and middle-sized companies. It must also be considered that equity capital may result in higher interest rate charges (return on equity capital) than for borrowed capital (the average current yield on fixed-interest securities is often used as a comparison value).

If looked at in this way, equity capital is more expensive than borrowed capital. On the other hand, companies with a high level of equity capital tend to be more credit worthy and are therefore less vulnerable to interest rate risk in the capital market.

On 2: Investment

The ratio of invested equity capital to assets (equity/assets ratio) should at least be equal to 1. This means that, at a minimum, fixed assets should be covered by equity capital (Golden Rule of Accounting) (however this value is very seldom found in practice). Alternatively, this rule is also interpreted such that the assets may be covered by equity capital plus borrowed capital (e.g. pension reserves). In other cases, credit termination may force the sale of assets. It would certainly be better if portions of current assets were also financed through equity capital. It is problematic that the hidden reserves that are hidden within assets are not visible. Variations other than equity capital include also the long-term (“secure”) borrowed capital and for assets other than fixed assets also include the long-term accounts receivable. In practice, several different variations are used:

Equity/Assets Ratio I:
Equity Capital/Fixed Assets

Equity/Assets Ratio II:
(Equity Capital + long-term borrowed capital (long-term commitments))/Fixed Assets

Long-term borrowed capital includes especially reserves for pensions; some analysts also include 50% of the special reserves).

Equity/Assets Ratio III:
(Equity Capital + long-term borrowed capital)/(Fixed Assets + long-term accounts receivable)

Golden Rule of Accounting: long-term assets = long-term capital (this means that assets must be financed through equity capital and long-term borrowed capital).

This long-term liquidity analysis should be complemented by short-term liquidity ratios.

On 3: Capital intensity

The intensity of capital (intensity of investments/constitution) shows the breakdown of assets and shows the utilization of the capital. It is possible to have an equivalent calculation for

fixed assets/current assets

or as the asset intensity:

fixed assets/total assets of or current assets/total assets

multiplied with 100, as a percentage. Logically fixed assets/total assets and current assets/total assets should add up to 100, so that the asset intensity increases as the current asset component lessens.

These indices are different in each branch of business. Automobile manufacturing, the chemical industry and the steel industry are high in asset intensity, whereas IT-companies, the electronics industry and banks are less asset intensive. A window cleaning business would also have less fixed assets. Fixed assets tend not to be changed flexibly during changes of employment whereas current assets are. The increasing importance of leasing and outsourcing (decreasing fixed assets) may distort this index. In addition, a large amount of hidden reserves could be in fixed assets (property!). The interpretation of this index is therefore difficult without further information: the lower the fixed assets are in relationship to current assets, the lower the fixed cost burden is in the form of write-offs. Another interpretation is that a low fixed asset quota indicates a high degree of employment (high current assets). However, the causes cannot be determined from the balance sheet.

When current assets/total assets decrease, it is possible to monitor whether the inventory/sales volume is also decreasing, because this could be an indication of improved warehousing.

On 4: Liquidity

Global liquidity (willingness to pay) is expressed in the relationship between current capital and borrowed capital (current capital/borrowed capital). The question is not if and how current capital is financed by borrowed capital, as this is impossible to foresee, but rather the degree to which liabilities relate to values in the form of current assets that can be liquidated. For that reason, in this general form, it is not meaningful. Therefore, the liquidity indices are generated for level 1, 2 and 3.

Liquidity Level 1: cash / short-term liabilities
This ratio should be between 10 and 15%. A higher percentage level indicates too high (unprofitable) cash holdings.

Liquidity Level 2: (cash + short-term receivables + securities/short-term liabilities

This index contains the most information, because companies want to keep their cash reserves as small as possible. They should be between 100 (almost too narrow) and 120% (ok). A lower value can lead to payment problems; higher values can indicate unprofitable excess liquidity. The level of receivables in comparison to affiliated companies may negatively impact its significance.

The balance figures do not provide any information about the degree to which existing credit limits are exhausted. Securities of current assets can be equated to liquid funds if an operative market (exchange) exists.

Liquidity Level 3: Current assets/short-term liabilities

Since inventory is often difficult to liquidate, this figure should be between 150 and 200%. Higher values indicate unprofitable capital commitment.

An unusually high liquidity – no matter how it is calculated, could be an indication of impending acquisition plans of the company. It is problematic that the liquid inventories are “historical” figures, which mean that today – sometimes months later, the situation could look very different. That is why people speak of “static examination of liquidity”. It is also impossible to estimate the future development of liquidity (payments in vs. payments out). In addition, inventory numbers can be manipulated at an appointed date (this would only cover an electric bill). Deviations from the above rule of thumb may be desired by the financial managers in the company. In addition, current accounts payable may also be covered by incoming payments, which cannot be seen from the balance sheet.

A related index is (net) working capital (= current assets – short-term liabilities) (there is no conventional German translation other than maybe net current assets); some also identify this as controlled working capital. In operative business, the management of working capital serves to decrease the capital commitment as well as the borrowed capital and to improve liquidity. The capital commitment of current assets should be as brief as possible. Liquidity may be influenced from the purchasing side or the sales side. The most important approaches include demand management, inventory controlling, liability management and, last but not least, working-capital oriented reporting.

Further indices:

a) Profitability Indices

Profitability is defined as the relationship between profit x 100 to invested capital. When analyzing the balance sheet, both the total and the equity capital productivity are used:

1) Return on Equity (ROE) = net profit (alternatively: operating profit) / Average equity capital

2) Return on Assets = (net profit (+ tax) + (interest charges)) / (Average equity capital + average borrowed capital)

Different names are Return on Capital (ROC) or Return on Capital Employed (ROCE) or Return on Assets (ROA). Sometimes these are a slightly modified – dependent on the view of the company.

The return on equity must be markedly higher than the capital market interest rate, because otherwise it would make more sense for people to invest their money in the capital market instead of making a risky and work-intense investment of money into a company. An equity capital profitability of >15% is considered excellent, >12% is good, >8% is average (close to the capital market interest rate), <8% is bad. A return on sales of 11% is excellent. If the total capital profitability is good (ROA), but the equity capital profitability (ROE) is low, then it is possible that the company has good earning power, but that it is being negatively influenced by high market interest rates or unfavorable financing. The total capital profitability expresses how many cents each invested Euro generates.

In contrast to a static, point-in-time profitability index, dynamic analysis uses profit as a value over a longer time frame. Profit is continuously being generated through selling products and services, which indicates the portion of profits relating to sales revenue (Sales-Profit-Margin). (“What sales level needs to be achieved in order to obtain x% of profits):

3) Return on Sales (ROS) = net profit (alternatively: operation profit) / Sales revenue

Sales profitability (return on sales) is an indicator of the surplus realization from profit. Many construction and trade companies report 1% or less, 4% is considered substantial; in machine manufacturing 3% is common; Porsche achieves 13%, SAP has had peak values of over 25%... (for publicly reported figures, it is important to note whether the profitability is shown before or after

taxes. Through conversion to the individual manufactured item, you get the profit margin that is important for price calculation. In contrast to capital profitability that is calculated from balance sheet figures. Rate of return on sales is not subject to evaluation issues due to hidden reserves, but is strongly dependent on the formation of reserves and on depreciations. Sales profitability of German companies fluctuated on average during the timeframe of 1970 to the end of the 1990s between 1.6 and 3.9%. Today it is about 2%.

b) Cash Flow

“Cash is King” is what they say in the U.S.A. Cash flow is an important supplemental index for evaluating the earning power of a company.

This index captures the portion of the profits that are left after subtracting all expenditures and that remains available for dividends, investments and repayments. Cash flow therefore expresses the surplus amount of revenue over expenditures that the company has earned through its own efforts (!) and therefore is a way to evaluate the earning power of a company. In the context of the year-end report according to US-GAAP, a Cash Flow Statement is mandatory. This goes into more detail than the following cash flow definitions.

There are different common versions of how to calculate cash flow. Direct calculation is only possible internally:

1) Incoming payment effective profit (cash in)
- outgoing expenditures (cash out)
= (operational) Cash Flow

In detail, the calculation might look as follows:

Net Sales Revenue
- material effort
- personnel effort
- taxes
- required operative capital (other expenses)
= Net Operating Cash Flow

- Repayment borrowed funds
- Interest rate payments
+ repayments received from lending
+ interest payments received

= funds available for investments and dividends

+ issuing shares
+ borrowing long-term outside funds

- repayment of long-term borrowed funds
+ sale of capital assets
- dividend payments

= Cash Flow

Because it is often not possible to report these values externally, a basic outline for external (indirect) reporting is as follows:

Year-end net profit/losses (after taxes)
+ Expenditures that do not lead to cash outs, e.g. depreciations
- Revenues that do not lead to profits, e.g. self-generated assets
= Cash Flow

In practice, the following approach is often used:

(2) Year-end net profit /losses (after taxes)
+ (earned) depreciations
+ increase/decrease of long-term reserves
(+ increase/decrease of special reserve positions)
= Cash Flow

Cash Flow is basically for financing investments and current assets, for repaying liabilities (credits) and for distributing profits. Therefore in the investment calculation, it is also used to calculate the amortization timeframes or the break-even-point. From the medium-term perspective, the expected cash flows of the investment for the following year are discounted and therefore represent the present cash value from today's perspective (net present value). This is called discounted cash flow (DCF).

A significant advantage of cash flow is that its calculation eliminates a large number of ways in which the year-end statement can be manipulated. Inflated depreciations or reserves decrease the year-end. If you then add the inflated amounts in the cash flow calculation schema; the year-end is then corrected by the amount of the inflations.

c) Return on Investment (ROI)

Return on Investment (ROI) is an index that views profit in relation to invested capital:

ROI = profit (before taxes) / capital

This is equal to the above-mentioned capital interest rate (profitability and rate of return. The ROI indicates what part of the investment comes back or – as a tax refund – should come back and thereby acts as a comparison for alternative

investment opportunities. In this form, ROI can be manipulated: less borrowed capital means less interest expense, which means higher profit (year-end profit). In addition, high investment in the prior period decreases the profits of the subsequent periods through depreciation. Fast-growing companies often therefore tend to have a lower ROI than stagnating ones.

The total capital return on investment stands for the ability and efficiency of the company to use its available assets to achieve long-term profits.

There are many different definitions of ROI, depending on the definition of “profit” and “capital”; this is the most common variant (as we have already mentioned above):

Total Capital Return on Investment =	(net profit (+ tax) + interest charges) / (Average equity capital + average borrowed capital)

Through awareness of hidden reserves, it would be possible to increase capital, profits and year-end profit by that amount. This is seldom possible when using external balance sheet analyses. Instead of profit, the year-end surplus of the operating result (EBIT) (Operating Profit) is used.

Similarly, ROI can also only be determined for equity capital (for example total capital/equity capital). Instead of the results figures (profit, year-end surplus, EBIT, Income from regular business operations), cash flow or EBITA is also used and this results in, for example, the Cash Flow Return on Investment (CFROI).

In the denominator of the ROI expression, it is often the case that business-critical fixed capital (fixed assets + floating assets) or EBIT are substituted and then also identified as Return on Capital Employed (RoCE) (net assets = invested assets or capital). This is the case at DaimlerChrysler (see also further down on EVA: Economic Value Added). The invested assets are sometimes determined differently to balance sheet book values, sometimes to current value, sometimes to acquisition values. It is just important to know what is being calculated and why.

But the ROI index has its limits: especially for small and middle sized companies. It is less meaningful in cases of high debt (which is typical of small and middle-sized companies). The numerator of the above relation is strongly characterized by borrowed capital interest rates and the denominator similarly by borrowed capital utilization. This means that this return on investment figure is fairly pointless without explicit reference to interest rates.

d) Productivities

It is not only the financial indexes that determine the success of the company. The actions taken within the departments are also highly important. Therefore, it is recommended to observe the internal structures and processes in advance to ensure that people are working productively. In the following, a small number of indexes relating to this topic will be presented. There are still numerous indexes that can be used for different analytical purposes. However, the statement “less is more” also applies here. If an index is not considered and interpreted, many calculations simply end up in so-called “index graveyards”.

A productivity index generally describes the relationship between input and output:

Productivity = output/input

The higher the value of the quotient, the better. The numerator and denominator are defined by amounts, e.g. as

Work Productivity = Production amount / Number of employees

If production consists of several goods, it is not possible to add apples and oranges, if one does not select the alternate way of value-based observation, e.g.

Work Productivity = Production value (or sales) / Number of employees

This could certainly be extended, for example, by changing the assets, since human resources could be replace by machines. Similarly, it is possible to calculate the operating efficiency per employee. This is done by dividing the sales revenue (alternative to this is also possible to use the income from regular business operations or the operating profit: EBIT (earnings before interest and taxes)) by number of employees. This index should be compared internally over a period of time and externally with other companies.

The different cost positions (see above: cost structure) can be set in relation to total operating performance or to the sales revenue, so that, for example, personnel, interest rate, depreciation, advertising and other quotes result:

Personnel cost quota = Personnel cost / sales revenue (or total costs)

Personnel and material costs are the biggest cost factors in most companies. These quotes can be helpful hints especially when comparing different sectors, also over a period of time.

Receivables turnover = accounts receivable / sales revenue x 360 = __ days

The accounts receivables are the receivables that are still outstanding at an appointed time. Even here the receivables to related companies have a certain quality. The index describes how long the customer ties up “our” money, for example, 52 days. An increase in this term is an unfavorable sign, creates fear of failure to obtain receivables and in all cases means loss on interest. For example, companies can react through more stringent collection and reminder processes or use discount incentives. The acceptable timeframes differ from industry to industry and depend on the terms of payment that are common in the industry.

The stock turnover is determined accordingly, that is, the timeframe that the cost-intensive supplies tie-up capital (inventory carrying costs) before they are utilized:

Stock turnover = Inventory of goods / sales revenue x 360 = ____days

This index, for example, reacts to the introduction of just-in-time supply. An increase in this index is disadvantageous: Is the stock too expensive? Slow sellers? Trends? It is often the case that there is a higher percentage of manufacturing times result from unproductive holding times. Inventory carrying costs are, of course, industry-specific. A variation looks as follows:

Rate of turnover = Material expenses / Inventory level= average storage period

e) Value-oriented indexes

For some time, the approaches that have become more popular are those that focus on Shareholder Value, that question the balance-sheet stated profit and that favor value-oriented indexes. For example, the imputed costs of the utilized equity capital are subtracted from the so-called NOPAT (the net operating profit after tax) (as at Volkswagen).

According to this, only a continually positive balance – Economic Value Added (EVA) - is evaluated as a success (but there are also other approaches). The imputed interest as a capital cost rate for equity capital is derived from the capital market interest rate for borrowed capital and also from the business and financing risk for equity capital. A weighted approach relating to the capital costs of equity capital and borrowed capital is used (WACC: weighted average costs of capital).

The WACC can be used as the (minimum) discounting rate for calculating the cash values of future payment flows (e.g. for the discounted free cash flow). In this respect, the so-called beta-factor is also important. It explains the degree of sensitivity of the rate of return (of an investment) in relation to the rate of return changes of a comparative value that is viewed as representative (e.g. a market index such as the DAX) and in relation to an industry or a sector. The Beta is

calculated for a time period of between 30 and 250 days. Beta values greater than 1 indicate a higher risk for the investment than the comparison value. If the investment has a Beta of 1.2, it means that if the comparison value DAX increases by 10% and that you would expect the investment to achieve a 12% increase. Of course, the Beta value also works in the opposite direction, that is, for a falling DAX Index the VW stock would lose disproportionately.

To put it simply, EVA can be expressed as follow: EVA indicates if the profit that is achieved without tax discount (that is why Net Operating Income (NOI) is selected so that taxes are paid directly on the EBIT and not on the Income form regular business operation) is higher than the earnings that could be expected if the assets of the company (Net Assets NA) were charged at the interest rate which is customary within the industry (with the WACC).

The calculation formula is EVA = NOI – WACC x NA

5. Conclusion and Tips

The MBA Course “Fundaments of Accounting” is perfectly suited for comprehending business administration relationships and their affects on internal and external accounting systems. No strategy and no business decisions will be able to be meaningfully implemented without being able to evaluate them. An often-cited quote is “You can’t influence what you cannot measure.”

But that is exactly what differentiates good managers from bad managers. The selection of the right indexes and the ability to interpret them requires a large amount of knowledge. To do this, basic knowledge must have been acquired, but also applied practically. That is the goal of this course.

Through this handout, I hope that I was able to provide you with all the important elements of the course and to prepare you for the examination. In writing this, I hope to provide you with a reference source that makes it easier to enter the world of business economics and so that many practical things can then be revisited and comprehended from a theoretical perspective at a later point in time. If you have any additions, changes or suggestions for improvement, I would be happy to receive your feedback, so that future students may benefit from these.

I hope that you have a lot of fun with your preparations and during the course. I also hope that you will enjoy it and be able to “playfully” acquire a great deal of knowledge for your future career path.

Martin Göbl

6. References and Additional Resources

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