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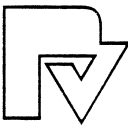

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"Value is a relative term. The value of a thing means the quantity of some other thing, or of things in general, which it exchanges for."

— John Stuart Mill

Principles of Political Economy, 1848

"Bewerten heißt vergleichen"

— Adolf Moxter

Grundsätze ordnungsmäßiger Unternehmensbewertung, 2nd edition, 1983

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Mannheim, Germany,
February 2006 Matthias Meitner

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1 Introduction

1.1 Motivation

Company valuation is one of the most important tasks of financial analysts, investors, consultants, and managers. It not only provides the basis for their decision to purchase or sell whole companies or shares of a company. It is also indispensable for the application of a sound value based management and successful restructuring. However, the process of valuing a company is complex and not standardised at all. There are many different interpretations of what "value" means, and there are many different approaches to determine this value. The valuation approach that enjoys the most widespread popularity in theory and practice is the direct valuation approach, which is based on the net present value concept. The discounted cash flow method is an example for this approach. However, in order to better deal with project flexibility it is sometimes proposed to apply a real options approach. This approach shares high reputation amongst theoreticians and is subject to a vast range of academic papers, but so far it is of almost no importance in valuation practice. The direct opposite of real options valuation – in terms of popularity amongst academics and practitioners – is the relative valuation approach. While this approach is of paramount relevance in real world valuations, literature generally dislikes it and calls it a "quick and dirty method of valuation" (Benninga and Sarig, 1997: 330) that lacks theoretical foundation. Comparable company valuation is a variant of relative valuation. It is based on the principle of arbitrage and values companies based on how other, similar companies are valued. If these similar companies are publicly listed, then the valuation method is called *the market approach to comparable company valuation*.

The wide recognition of the market approach to comparable company valuation amongst practitioners has three causes. First, it is easy to use. In fact, once comparable companies and the valuation model are chosen, the application is straightforward and does not require any specific skills. Second, comparable company valuation relies on existing market prices of companies. Therefore, no explicit forecasts of the cash flow development of the valuation objective are necessary. Moreover, comparable company valuation better reflects the current mood of the market than direct valuation approaches. Third, a relative valuation is easier to present to clients and customers than direct valuations.

In contrast, there are also three crucial reasons for the lack of academic acceptation of comparable company valuation. The first reason is a purely technical one. Comparable company valuation requires certain valuation circumstances that direct valuation approaches do not (necessarily) require. In particular, these circum-

stances are a set of companies that are similar to the valuation object and a functioning market that fairly prices these comparable companies. In this context, opponents of the comparable company valuation approach point out that the stock market is far from being perfectly efficient and that it is hardly possible to find two identical companies (not to mention the problem of finding more than two equal companies). The second reason is rather ideological in nature. Comparable company valuation is often accused of being a static investment approach that does not conform to basic valuation principles because of a lack of future orientation.[1] The third reason concerns the concrete application of comparable company valuation models. Because of the trade-off between easy-to-handle valuation models and the difficulty of properly determining the input factors, comparable company valuation risks suffering from a "garbage in – garbage out" problem. To put it more precisely, comparable company valuation models can be easily used but even more so, easily misused (see e.g. Damodaran, 2002: 453).

These two different attitudes make comparable company valuation one of the most controversial valuation approaches. While conflicting standpoints of theory and practice are nothing unusual in finance[2], it seems that – with regard to the attempt to bridge the gap between these two positions – the potential is not tapped to its fullest extent here. In fact, most theoretical research sticks to formal discussions. Valuation models are typically judged by the plausibility of their assumptions, not by their ability to accurately value companies. One of the biggest problems in this context is that the forecasting challenges – which are inherent in every valuation approach – are often suppressed in the discussions.[3] Consequently, still little is known about the differences of forecasting requirements between different valuation approaches and how forecasting problems can be reduced. As a consequence, most theoretical research is limited in terms of its usefulness to investors since it cannot serve as a guideline in valuation practice (see also Born, 1995: 7-9; Bernard, 1989: 87-91). The empirical literature does not add much to reduce this discrepancy, either. Of course, recently some studies have well contributed to a better understanding of how comparable company valuation functions (see e.g. Herrmann, 2002; Richter and Herrmann, 2002; Liu et al., 2002; Bhojraj and Lee, 2002; Baker and Ruback, 1999; Beatty et al., 1999). However, their number is few and they rarely render concrete advice for how to deal with real world valuation problems.

What is especially noticeable is the lack of differentiating research (both theoretical and empirical), i.e. research that considers that valuation models cannot reasonably be applied for every company and in every valuation situation, or re-

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1 For a list of academic criticism of comparable company valuation, see Peemöller et al. (2002: 199-201).

2 Just think about the severe theoretical criticism of the Capital Asset Pricing Model (see e.g. Hering 2003: 283-296) which could not prevent that this model is by far the most popular tool to determine the cost of equity in real world direct valuations.

3 A good forecast is at least as important as a reasonable valuation model. Lee (1999: 414) states in this context that the "essential task in valuation is forecasting. It is the forecast that breathes life into a valuation model".

search that analyses which valuation model is best to use under certain circumstances.[4] This non-existent situational research is a major obstacle in better understanding the whole comparable company valuation process, and one of the main reasons for practitioners' low acceptance of academic findings.

1.2 Research Aims

The purpose of the research presented here is to contribute to the literature by providing a systematic study on the nature and significance of the *market approach to comparable company valuation* from a German perspective. Due to the variety of unresolved issues in comparable company valuation, this study does not address one big research question but rather several smaller questions. The answers to these questions should – as a whole – help draw a more complete picture of the comparable company valuation process. Light will be shed on comparable company valuation from both a theoretical and empirical perspective. The empirical part consists of three smaller surveys amongst financial analysts and institutional investors, and of a broad econometric study. In spite of the sometimes rather formal proceeding (both in the theoretical and the empirical part) special emphasis is on economic content and usefulness to practitioners. In order to ensure this usefulness to the practice, a differentiated proceeding is sometimes necessary. This especially means that many aspects should be discussed, analysed and empirically tested dependent on different valuation circumstances. By doing this, concrete advice can be given to appraisers on how to behave under these valuation circumstances. It is important to notice that while the theoretical part of this examination concerns all facets of the comparable company valuation process – selection of comparable companies, valuation model choice, application range etc. – the focus of the empirical part is clearly on valuation model choice.

The following five batteries of questions will be addressed in this study:

- How does comparable company valuation fit into the business valuation framework? What is the link to other valuation approaches? What is the application range of comparable company valuation?
- What are the determinants of the two main tasks in comparable company valuation (the selection of comparable companies and the valuation model choice)? How can appraisers interpret the influence of these determining factors? How can they deal with changes in these determinants?
- What are the implications and problems associated with classical single-factor comparable company valuation models (such as the price-earnings ratio)? What forecasts are necessary in order to adequately apply these models?

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[4] Some of the rare examples are provided by Kim and Ritter (1999) who analysed the aptitude of multiples in the pricing of Initial Public Offerings, and Gilson et al. (2000) who examined the valuation of bankrupt firms.

- Can multi-factor models (i.e. models that make use of more than one accounting reference variable) help overcome some of the problems associated with single-factor models? How do the two accounting variables book value of equity and earnings interact in comparable company valuation? What determines the relative valuation roles of book value and earnings?
- What determines the height of the multiples at which companies trade?

1.3 Reading Guide

The study as a whole is divided into six chapters. After the general introduction provided here, *chapter 2* presents the foundations of comparable company valuation, and discusses how this approach fits into the business valuation framework. Part of this chapter is an overview of different value theories, the relationship between the terms "value" and "market price", the links between comparable company valuation and other valuation approaches, as well as the application range of comparable company valuation. Additionally, some special issues in comparable company valuation – such as the requirements concerning the quality of accounting variables, the aggregation of valuation ratios and the use of premiums and discounts are discussed.

Chapter 3 provides a detailed analysis of the two main tasks in comparable company valuation – the selection of comparable companies and the valuation model choice – as well as of their determinants. It is shown that the degree of similarity of comparable companies and the degree of capital market efficiency crucially impact the comparable company selection process. Likewise, the value relevance of the accounting reference variables, the future similarity of companies and potential technical restrictions of valuation models are presented as determinants of the valuation model choice. The chapter closes with an explanation of why comparable company valuation should be understood as an integrated process in which all tasks must interdigitate.

Chapter 4 describes the comparable company valuation process for three kinds of models: immediate, single-factor and multi-factor models. The chapter also contains a presentation of common mistakes in the use of comparable company valuation and of the major shortcomings and problems associated with single-factor models. The main emphasis of this chapter is on the derivation of a two-factor comparable company valuation model based on book value of equity and earnings, which aims at overcoming some of the problems associated with single-factor models. Most contents of chapter 4 – along with some parts of chapter 3 – are based on the author's research paper *How Fundamentals Drive the Equity Value* (Meitner, 2004).

Chapter 5 covers the empirical examinations of value relevance and pricing accuracy. The value relevance study analyses the appropriateness of different valuation models under the assumption that there is no lack of perfectly comparable companies. In addition to some well known econometric models, an innovative approach called the *matching estimator* is applied in this analysis in order to over-

come a selection bias problem. This approach originally comes from labour market research, and has not often appeared in financial research literature before. The pricing accuracy study investigates the historical performance of the two-factor model that was derived in chapter 4 as compared to some single-factor and simple multi-factor models.

Finally, some concluding remarks are formulated in *chapter 6*. This chapter summarises the most important findings with regard to comparable company valuation, and contains implications for future research.

2 Foundations of Comparable Company Valuation

2.1 Definitions and Scope

The objective of business valuation is to assign a value to a company. In this context, the term "value" should be understood as the degree of utility that a (potential) investor gains from owning a company (see Muenstermann, 1970: 11; Moxter, 1983: 128; Seppelfricke, 2003: 1). The company for which the corporate value is determined is known as the target company or simply the target. One thing all types of business valuation have in common is that they are performed from the perspective of one of two typical sides of a transaction: the buy-side and the sell-side. From the (potential) buyer's perspective, the value of a company can then be seen as the upper limit of his readiness to pay for that company. From the (potential) seller's perspective, the value of a company can be seen as the lower limit of what he wants to get for that company.[5] Consequently, the process of valuing a company is also to determine potential prices for a company (see Peemöller, 2005a: 3).

Business valuation is not restricted to determining the value of a whole company. It is also a reasonable tool to value an interest in (i.e. shares of) a company. Regarding the scale of corporate assets that can be valued, there are basically two types of company valuation. First, "enterprise valuation" denotes the process of valuing a company as a whole, i.e. to determine the value that belongs to all capital providers. Second, "equity valuation" characterises the process of valuing the part of a company that belongs only to the shareholders. The equity value of a company can be directly calculated by focusing on value components that are relevant only for owners of the company, or indirectly by subtracting the value of non-equity capital from the enterprise value of the company.

To accurately perform company valuation, appraisers have to comply with certain basic requirements (see Peemöller, 2005a: 3):

- Valuation must be future-oriented: Only benefits that will be earned in the future are value relevant (see Muenstermann, 1970: 21).
- Provision for all components that affect utility: Valuation should not be restricted to financial goals; everything that raises utility should be taken into account.

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[5] See Casey (2000: 2) the terms "buyer" and "seller" include those market participants that are not actively involved in transactions but that benefit from the buyer or the seller, respectively.

- Provision for uncertainty about the future: Forecasting models should adequately consider chances (upside potential), but also dangers (downside risk) concerning the future development of corporate profits.
- Investor orientation: The appraiser has to take into account for whom and in which situation the valuation should be performed (see Moxter, 1983: 23-32).

Financial theory uses several techniques to determine corporate values that widely conform with these requirements. Along with those approaches that are based on net present value models (also known as direct valuation approaches) and those that are built on option pricing theory (also known as contingent claim valuation approaches) literature names relative valuation – and especially *comparable company valuation* – as the third general approach.[6] This latter approach is based on the principal of arbitrage that says that all substitutes should sell for the same price (see Gerke and Bank, 2003: 270-271). Thus, the comparable company valuation (CCV) approach values target companies based on how investors value similar companies.

From a methodical perspective, CCV can be divided into three different variants: immediate CCV, single-factor CCV and multi-factor CCV. Immediate CCV describes the process of assigning a value to a target company based on perfect substitutes. Due to the scarcity of totally equal or almost equal companies this approach has little relevance in practical valuation settings.

Single-factor CCV has significantly lower requirements concerning the similarity of the comparable companies because it uses a linking factor that settles minor differences between the comparable companies and the target company. The single-factor approach proceeds in two steps: In the first step the value of a comparable company or the average value of a set of comparable companies has to be expressed as a multiple of a certain – mostly accounting based – basis of reference (such as earnings, EBITDA, sales, etc.) in which the companies differ. In the second step this derived multiple is applied on the respective basis of reference of the target company. This approach – also known as valuation using multiples – covers the most widely used CCV models.

Multi-factor CCV resembles the single-factor approach in that it makes use of linking factors. The only difference is that multi-factor CCV is built on more than one linking factor and therefore on more than one basis of reference. Such multi-factor CCV models can sometimes be found in equity research reports. However, there is no widespread use of this approach in practice.

This work focuses on the most dominant approach to CCV: *the market approach*. The market approach (sometimes also called *similar public company method*) is characterised by the reliance on a set of stock exchange listed comparable companies. One reason why the theoretical and the empirical part both strongly focus on that market approach is better data availability for stock listed

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6 See Bhojraj and Lee (2002: 413-414); Damodaran (2002: 11). Especially in German literature asset-based valuation is seen as the fourth general valuation approach. This approach is, however, only used under certain valuation circumstances, see section 2.2.3.4.

companies. Still, many of the discussions in the theoretical part and many of the results drawn from the empirical study may also be true for private non-listed firms. It is important to note that this study does not primarily focus on the accounting or taxation aspects associated with CCV but rather on the economic aspects.

2.2 Comparable Company Valuation Within the Business Valuation Framework

CCV is often denoted as a simplified valuation approach (see Seppelfricke, 1999: 301; IDW, 2000: 840; Behringer, 2002: 149; Wiehle et al., 2004: 42; Coenenberg and Schultze, 2002: 700), a "quick and dirty method of valuation" (Benninga and Sarig, 1997: 330) which is not applicable when determining the intrinsic value of a company (see Ballwieser, 1991: 58-60; Buchner and Englert, 1994: 1580; Ballwieser, 1997: 188; Olbrich, 2000: 458-459). Additionally, this approach is subject to a considerable amount of academic criticism, which says it goes against the basic principles of business valuation (see Wiehle et al., 2004: 42; Peemöller et al., 2002: 199-201; Bausch, 2000: 452; Ballwieser, 1991: 62; Benninga and Sarig, 1997: 331). Contrary to that, it is also described as one of the most popular methods in valuation practice (see Damodaran, 2002: 453-454; Löhnert and Böckmann, 2005: 406-408; Nelles et al., 2001: 323; Fernandez, 2002; Kames, 2000: 58-60, 100-101; Wichels, 2002: 146, 148; Duerr, 1995: 27; Kusterer, 2003: 99-100; Creutzmann and Deser, 2005: 2-4; Achleitner, 2004, EVCA, 2005: 13-18). Although some recent studies try to explain or even bridge the gap between theory and practice (see e.g. Richter and Herrmann, 2002; Herrmann, 2002; Peemöller et al., 2002; Beckmann et al., 2003; Kaplan and Ruback, 1995; Baker and Ruback, 1999; Kim and Ritter, 1999; Bhorjraj and Lee, 2002; Liu et al., 2002), some unsettled issues remain. Effectively, the mentioned trade-off is to some extent also due to a widespread uncertainty of how CCV fits into the overall business valuation framework.

The following section should therefore give information with regard to the questions of how the results of the CCV approach (i.e. the appraisal value) can be interpreted and what this means for (potential) investors. Furthermore, the classification below should help to better understand the relationship between CCV and other business valuation approaches. Finally, some light will be shed on the practical applicability of relative valuation approaches.

2.2.1 Value Theories

2.2.1.1 Theory of Objective Value

According to the theory of objective value there is only one exclusive corporate value, which holds for all investors. To put it differently, value is purely a function

of the company's economic potential but not of investors' preferences (see Mellerowicz, 1952: 12, 59-60; Engels, 1962: 6-8; Muenstermann, 1970: 21-28; Moxter, 1983: 26-27; Künnemann, 1985: 10-25; Peemöller, 2005a: 4-5; Mandl and Rabel, 1997: 6. Jaensch, 1966: 6-8 argues in a similar vein).

Correspondingly, this theory postulates that the upper limit of a (potential) buyer's readiness to pay for a company exactly equals the lower limit of a potential seller's price demand. As a result, the intersection of both positions is not a range of potential prices but only one price – the price that equals the objective value of a company. Thus, under this theory the terms "value" and "price" can be used interchangeably (see Jaensch, 1966: 7; Engels, 1962: 7; Muenstermann, 1970: 12; Peemöller, 2005a: 4).

A major problem is that this theory fails to explain why potential prices vary depending on the valuation circumstances and the type of investor (see Muenstermann, 1970: 12; Peemöller, 2005a: 4). Proponents of this theory claim that this failure is due to a lack of valuation competence of certain investors and the diversity of valuation methods (see Mellerowicz, 1952: 61-62; Jaensch, 1966: 7).

However, there is also no explanation as to why transactions should take place, because neither of the two participants (buyer or seller) in this transaction benefits from it (see Hering, 2000: 441). In the simplest case of a costless company transfer, the respective wealth positions remain unchanged. Even worse, under the more realistic settings of existing transaction costs both participants would effectively lose money.

To defend at least part of the theory of objective value, it must be assumed that there is not only an objective company value but also personal, economic or strategic preferences of investors (e.g. synergies) beyond this objective value, which finally lead to different price expectations (see Kuennemann, 1985: 24-25, 44-52). In this context, one variant of the objective value is of special importance: The so-called "objectified value" which is generally not observable but can serve as a basis of further adjustments.[7] The Institut der Wirtschaftsprüfer in Deutschland e.V. (IDW – German Institute of Certified Public Accountants), an accounting body with voluntary membership, regards the objectified value as the stand-alone value of a company without consideration of planned but not yet implemented future investments or strategy changes (see IDW, 2000: 829-831, 836-837; Peemöller, 2005a: 6). It is important that since the objectified value does not account for potential synergy effects it is typically close to the value from the perspective of a (potential) seller and might therefore differ from the value seen from the perspective of a (potential) buyer.[8] One advantage of this variant is that the objectified

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7 Whether the objectified value can really be seen as a variant of the objective value is subject to many discussions. However, the classification seems to be reasonable here.

8 See Moxter (1983: 27-28); IDW (2000: 829-830); with regard to listed companies in Germany the main field of applicance of the objectified value is the so-called "squeeze-out procedure", pursuant to sections 327a et seq. of the German Stock Corporation Law (Aktiengesetz). If a majority shareholder holds at least 95% of a company, the squeeze-out procedure permits him to acquire the shares of the minority

value manages to connect the theory of objective value with the theory of subjective value.

Contrary to the German perspective, the Anglo-Saxon valuation theory regards the objectified value as the fair market value – a value that a typical average investor would assign to the company under average circumstances. Thus, consideration of the impact of future investments and strategy changes is not categorially excluded; rather it depends on what the average investor expects (see Pratt et al., 2000: 28-30).

2.2.1.2 Theory of Subjective Value

In contrast to the theory of objective value, the theory of subjective value particularly emphasizes the investors' perspective. According to this theory the company value is not unique but depends on the set of preferences and expectations of an investor (see Peemöller, 2005a: 6-7; IDW, 2000: 831; Moxter; 1983: 138-145; Engels, 1962: 8-10; Jaensch, 1966: 8-17; Künnemann, 1985: 25-29; Bonbright, 1965: 128). Since preferences and expectations are highly subjective and therefore vary between investors, there might be as many different values for one company as there are valuations (see Jaensch, 1966: 9-10). Under this theory the company value is often called the "practical value" or "value in use".

The theory of subjective value is based strongly on the theory of economizing behaviour (expected-utility theory). It states that the basis for the evaluation of risky alternatives is the utility, i.e. the benefit or satisfaction that a decision maker expects from the choice of each of the alternatives. Thus, decision makers do not only focus on the monetary value of the alternatives' pay-offs but also on the expected utilities of these payoffs (see von Neumann and Morgenstern, 1944; Luce and Raiffa, 1957; Moxter, 1983: 138-139; Varian, 1992: 94-108; Gwartney and Stroup, 1997: 11; Binger and Hoffmann, 1998: 511-521). The theory of subjective value is a generalisation of the expected-utility theory adjusted to the business valuation framework. More precisely, the subjective value theory suggests that investors value companies with respect to their personal degree of risk aversion, their personal tax situation and the alternative investments available to them (see Peemöller, 2005a: 6; Moxter, 1983: 23-24).

The large number of possible values for one company along with the fact that there is usually only one market price implies that value and market price differ in the majority of cases. Effectively, the price is the result of a negotiation between buy-side and sell-side market participants based on the respective subjective company values (see Loistl, 1994: 313; Casey, 2000: 4).

While methodically sound, the theory of subjective value has two shortcomings in valuation practice: First, a third party cannot retrace how the appraiser calculated the company value. In fact, the valuation process resembles a black box since many factors that determine the company value are hidden in the subjectivity of the appraiser (see Peemöller, 2005a: 7). Second, following this theory value de-

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shareholders for cash compensation. The amount of this cash compensation, in turn, crucially depends on the objectified value of the company.

termination sometimes fails. The reason for this is that the theory of subjective value does not allow successful arbitration between conflicting parties with extremely different expectations (see Mandl and Rabel, 1997: 8).

2.2.1.3 Theory of Functional Value

The theory of functional value provides a different approach to overcome the drawbacks of the theory of objective value. Moreover, it tries to deliver a higher traceability of the valuation process for third parties.[9] The most important aspect of this theory is that it partitions the reasons for company valuation into different functions. Along with some auxiliary functions – such as tax assessment or forming of contracts – there are four main functions (see Peemöller, 2005a: 8; IDW, 2000: 827; Sieben, 1983: 539-542):

(1) Consultancy function[10]

This function provides assistance either for the buy-side or for the sell-side. While the buyer wants to know the upper limit of his readiness to pay, the seller is interested in the lower limit of what he wants to get. Therefore the aim of the consultancy function is to determine marginal prices based on which decisions can be made (*decision values*) (see Peemöller, 2005a: 8; Moxter, 1983: 13-14; Drukarczyk, 2003: 132; Hering, 1999: 3). Consequently, the main task is to establish a best-case scenario for the respective party. In this context it should be noticed that potential synergies and the potential effects of strategy changes are to be considered for buy-side consultancy.

(2) Intermediation function

Given that the marginal prices of both parties are known or can be externally determined, the intermediation function (also called arbitration function) aims to balance the different preferences fairly. To manage this task, arguments of both parties as well as personal estimations of the appraiser should be considered (see Matschke, 1976: 130-361, Drukarczyk, 2003: 132). It is important to note that it is only possible to find such an intermediate value if the marginal price of the buyer exceeds the marginal price of the seller.

(3) Argument function

The principal task of this function is to collect and disclose arguments that support the intention of one of the two parties. Usually, the goal is to either increase the amount a seller can get or to decrease the amount a buyer has to pay. Even if this function is also trying to influence the other side, great emphasis is placed on the accuracy of the valuation process. However, national and international accoun-

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9 The theory of functional value emerged from the so-called „Kölner Schule“, precursors of this theory were Muenstermann (1970); Jaensch (1966); Engels (1962); Matschke (1976) and Sieben (1983).

10 The consultancy function is also called “decision function”, see Hering (1999: 3).

tancy bodies do not consider this function compatible with accountants' codes of profession.[11]

(4) Neutral referee function

This function – fulfilled by an independent financial expert (see ASA, 2002: 34-35) – is closely connected with the accountancy profession. The IDW considers this function as one of the typical tasks of an accountant.[12] The goal of the neutral referee function is to value a company without any subjective influence, which in practice means to determine the objectified value of the company. However, in Germany this orientation towards the objectified value (in the sense of the IDW) is sometimes criticized because of the disregard for corporate development possibilities due to a change in ownership (see Moxter, 1983: 27-28).

2.2.2 Value Versus Price

2.2.2.1 Nature of Price

Like the price of any asset the price of a company is the amount of money that balances the different interests of the sell-side and the buy-side in a transaction (see Loistl, 1994: 313; O'Hara, 1995: 3; Gwartney and Stroup, 1997: 62-66; Boecking and Nowak, 1999: 170; Schultze, 2003: 16-17). It is determined by the relationship of the marginal prices of each side, the market participants' relative power to negotiate, the negotiation strategy and the influence of third parties (e.g. auditors, consultancies, investment banks) (see Casey, 2000: 4). The market price of a company, i.e. the product of the price at which shares of the company are quoted on the stock exchange multiplied by the number of shares outstanding, however, differs a great deal from the price of a company as the result of bilateral negotiations.[13]

The market price is a function of the decision values of each single investor (see Pratt et al., 2000: 31). It is a function of the market microstructure, market liquidity and informational market efficiency as well (see O'Hara, 1995: 3-6, 215-250; Schwartz, 1993: 397-437; Casey, 2000: 6; Damodaran, 2001b: 141-146). Usually it does not depend on the relative negotiation power on either side, and

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11 See IDW (2000: 827); Peemöller (2005a: 10-11). Regarding the problems of methodologically justifying the existence of argument values, see Drukarczyk (2003: 134).

12 See IDW (2000: 827); a major difference between the neutral referee function and the intermediation function is that the neutral referee function does not necessary require an intersection between the decision values of the buy-side and the sell-side. This is especially important in dominated valuation settings, see Drukarczyk (2003: 133). For a distinction between dominated and un-dominated valuation settings, see Matschke (1976: 26-39).

13 See Casey (2000: 141-203); for reasons of simplicity it is assumed here that the company is purely financed with equity. In literature, sometimes price and market price are seen as identical; see e.g. Herrmann (2002: 15).

third parties have no major influence on its determination.[14] However, the assumption incorporated into many theoretical models, that all market participants are price takers and therefore have no impact on market prices (see Copeland et al., 2005: 147), does not precisely describe the way in which market prices are determined. In fact, because of minimum tick sizes the order of a single investor might not suffice to *change* the current market price. Nevertheless, this order moves the supply curve (in the case of a sell order) or the demand curve (in the case of a buy order) of the respective stock and therefore effectively *influences* the market price (see Demsetz, 1968: 33-53; O'Hara, 1995: 3-6).

While market microstructure is the system of specific trading mechanisms and its impact on the price formation process, informational market efficiency refers to the degree to which information is reflected in prices. Market liquidity is a measure of how quickly investors can trade at prices that are reasonable for given supply/demand conditions (measure of marketability) and is closely related to market efficiency. Factors affecting market liquidity are the depth of the market (the amount of orders in the close neighborhood of the current market price), the breadth of the market (the volume of the best buy and sell order) and the resiliency (the ability of the market to restore temporarily biased share values due to order imbalances) (see Schwartz, 1993: 127; O'Hara, 1995: 215-250).

2.2.2.2 Relationship Between Value and Price

In German literature the term "market price" is sometimes seen as basically different from the term "corporate value" (see Busse von Colbe, 1957: 10; Herrmann, 2002: 15; a similar opinion is provided by Bausch, 2000: 457 and Hommel and Braun, 2002: 10-17), while in anglo-american, rather capital market-oriented literature, these two terms are often seen as broadly similar (see e.g. Arrow, 1964: 91-96; Sharpe, 1964: 425-442; Olbrich, 2000: 458; FASB, 2002: 301; a more critical view is provided by Shleifer and Vishny, 1997: 35-55). However, a differentiated analysis seems to be necessary to find out which position market prices have in relation to corporate values. For this purpose the further analysis starts with the assumption of a perfect capital market and then gradually loosens the strict assumptions until more realistic settings are reached.

A perfect market should be defined as a market without frictions (no transaction costs, no arbitrage costs, no taxes, assets are perfectly divisible and marketable, no restrictions on shortselling), with perfect competition (all investors are virtual price takers[15]), with informational efficiency and utility maximizing individuals (see Copeland et al., 2005: 353-354; Gerke and Bank, 2003: 61; Hirshleifer and Hirshleifer, 1997: 410-411; Hirshleifer, 1958: 330; Fama and Miller, 1972: 21-22; Dothan, 1990: 20). Additionally, assuming that non-financial

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14 It should be abstracted from the situation in which substantial stakes of companies are traded, e.g. in M&A-transactions or initial public offerings (IPOs).

15 In general, in perfect markets all investors are factual price takers. However, based on this assumption no reasonable conclusions can be drawn concerning the relationship between value and price. That is why this strict assumption is abandoned here.

goals do not influence the valuation process of individuals, the differences in their expectations should be rather small. Thus, in such a market the resulting price would always equal the (subjective) decision value of a hypothetical, typical average-investor (see Pratt et al., 2000: 30-31; Prokop, (2003: 49). Consequently, in a (virtually) perfect market the majority of investor's decision values can be expected to be close to the market price. Since each investor typically has a certain decision interval – i.e. a range of decision values (see Hering, 1999: 91) – the price determined in a (virtually) perfect capital market can serve as a decision value for many of these investors. This price can also be seen as an objectified value following the Anglo-Saxon interpretation (see Pratt et al., 2000: 28-30). Contrary to this, the price in a perfect market is not an objectified value in the sense of the IDW. The IDW interpretation is that the objectified value equates a seller's value (see IDW, 2000: 831-832), while this price incorporates both sell-side and buy-side expectations. It should be noted that this price does not equal the "objective value" either, since investors are only virtual price takers, and in fact have their own expectations which become manifest in their marginal prices.

Loosening some of the strict assumptions and approaching the real capital market settings gives rise to a weakening conformity between value and price. While a high degree of divisibility and marketability is given even in real capital markets (see Campell et al., 1997: 9; Prokop, 2003: 52), the existence of transaction costs and taxes can no longer be suppressed. However, transaction costs are not a differentiating factor since they are part of every transaction. Additionally, if in a special valuation case transaction costs are assumed to deviate from the typical capital market transaction cost, an adjustment is easily possible. The provision for taxes also does not dramatically change the relationship between value and price. In Germany and most other developed nations companies have to pay corporate taxes irrespective of investor's characteristics. Thus, only personal income taxes might possibly make a difference between value and price. In this context it could be shown that there must be identity between pre- and after-tax valuation as long as investors believe in neoclassical asset pricing models such as the standard Capital Asset Pricing Model (CAPM)[16] or the after-tax CAPM (see Peemöller et al., 2005). Minor differences between both value dimensions, however, might arise if investors are forced to leave the CAPM-world (e.g. when valuing private firms) (see Copeland et al., 2000: 153; IDW, 2002: 42; Schultze, 2003: 286-289, 312; a different opinion is provided by Damodaran, 1996: 112). The latter point is, however, not of major importance here because the discussion is clearly about capital market oriented valuation. Anyway, the Anglo-Saxon valuation practice widely waives the provision for personal income taxes for practical reasons (see IDW, 1998: 68; Schultze, 2003: 286). This leads to the supposition that – if the respective investor does not face a situation of extremely high or extremely low taxes or the investor leaves the CAPM world – the impact of personal income taxes on decision values is not significant.

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16 For more information about the CAPM, see Footnote 25. For a discussion about what „believing in the CAPM" means on real capital markets considering psychological issues, see Gerke (1997).

Of course, the degree of market efficiency is crucial for the explanatory power of market prices. At this point it should suffice to assume that on the German capital market information is more or less mirrored in market prices and that there are in general no major distortions due to informational inefficiencies.[17] It also has to be considered that especially if investors are not perfectly informed, the market price can sometimes serve as a better decision value than the marginal price that investors calculate based on their own forecasts. This is possible since investors' partial information might be aggregated in market prices and therefore the market's estimates about the future development of a company or an industry are superior to the individual's forecasts.[18] However, for stocks that obviously lack liquidity and for which trading occurs infrequently, it is questionable whether the market price has any significance (see Hommel and Braun, 2002).

Finally, one feature with a very strong impact on the relationship between price and value is that investors' expectations can no longer be regarded as quasi-homogeneous. Not necessarily every investor on real capital markets values a company for investment reasons. For example, there might be some market participants that act as strategic buyers[19] – and therefore include possible synergies into their valuations – or at least those which hope that strategic buyers enter the market (noise trader) (see Black, 1986; Kyle, 1989; De Long et al., 1990b; Shleifer and Summers, 1990: 19-33; Menkhoff and Roeckemann, 1994: 277-295. A different view on noise traders is provided by Gerke, 1997). Also, certain "myopic" institutional investors, whose investment horizon is rather short, might undervalue the importance of distant cash flows of the target company.[20] This situation of varying investors' expectations generally leads to a wide variation of the decision values of market participants. Attention should also be turned to the fact that market prices are usually minority prices, i.e. they are not the relevant prices for investors that want to buy a bigger stake of a company to exercise control (see Hering, 1999: 94-95; Prokop, 2003: 50; Bamberger, 1999: 667-668). However, in many cases it is possible to adjust market prices to the interests of those controlling investors (see Pratt, 2001: 136-144. Regarding control premiums, see Shleifer and Vishny, 1986: 461-488; Franks et al., 1988: 234, 242; Boecking and Nowak, 1999: 173-174; see also section 2.4.3).

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17 See section 3.1.2 for an in-depth view on capital market efficiency.

18 See Rubinstein (1974: 225-244); Gerke and Rapp (1994: 11-12); Pesendorfer and Swinkels (2000: 499-525); see Weber and Wüstemann (2004: 6-8) for a practitioners' support for this thesis; see also section 3.1.2 for more information about aggregation efficiency of stock markets.

19 Strategic buyers usually expect synergies from acquisitions while financial buyers consider acquisitions as investments; regarding the deviant marginal prices of such strategic buyers, see Bhagat and Hirshleifer (1996), Hietala et al. (2000).

20 See Porter (1992: 65-82); Lang and McNichols (1997); Abarbanell and Bernard (2001: 221-242); Bushee (2001: 207-246). In some cases even management behaviour seems to be myopic, see McConnell and Wahal (1997). Studies that rather support the irrelevance of the myopia-thesis are provided by McConnell and Muscarella (1985: 399-422) and Wooldridge and Snow (1990: 353-363).